

UNITED STATES DISTRICT COURT
for the
DISTRICT OF MASSACHUSETTS

.....
UNITED STATES OF AMERICA, .

.
Plaintiff, .
. CIVIL ACTION
v. . No. 85-0489-MA

.
METROPOLITAN DISTRICT COMMISSION, .
et al., .

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Defendants. .

.....
CONSERVATION LAW FOUNDATION OF .
NEW ENGLAND, INC., .

.
Plaintiff, .
. CIVIL ACTION
v. . No. 83-1614-MA

.
METROPOLITAN DISTRICT COMMISSION, .

.
Defendants. .

MWRA MONTHLY COMPLIANCE REPORT
FOR APRIL 1998 AND
PROGRESS REPORT AS OF MAY 15, 1998

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

I. Schedule Six.

A status report for the scheduled activities for the month of April 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. Backup Residuals Disposal Plan.

As required by Schedule Six, on April 15, 1998, the Authority submitted to the Court its report on actions taken pursuant to its backup residuals disposal plan, attached as Exhibit "B" to the Authority's Monthly

Compliance and Progress Report of that date. In addition, the Authority and the Commonwealth submitted their Joint Report concerning the Memorandum of Understanding on beneficial use of biosolids.

B. Progress Report.

1. Fiscal Matters.

(a) State Funding.

On May 7, 1998, the Massachusetts House of Representatives adopted its proposed budget for Fiscal Year 1999. The House budget contains \$53.9 million dollars for debt service assistance, both for statewide wastewater projects and for the Authority's MetroWest Water Supply Tunnel. The Authority would be eligible to receive \$41.4 million of this amount. The budget also includes \$31.6 million for the Wastewater State Revolving Fund, \$11.4 million for a new Safe Drinking Water Act Revolving Fund and \$500,000 for the operation and maintenance of the Clinton Wastewater Treatment Plant. The Massachusetts Senate is expected to begin its consideration of the budget soon.

2. Harbor Management.

(a) Preparation for Transfer of South System Flows.

During the past month, testing of the South System Pump Station to prepare for start up of all the South System facilities continued. Efforts to solve certain problems in the electrical system identified in testing are taking longer than anticipated when the Authority reported last month. In particular, the level of harmonic distortion created by the operation of multiple pumps has been a matter of concern.

Harmonic distortion results from the operation of the variable frequency drives (the "VFDs") in the South System pumps. A VFD controls the speed of an electrical motor by varying the frequency of the electrical supply. When the electrical current generated by the VFD returns to the electrical grid, it distorts somewhat the normal frequency of the electrical supply. If the level of harmonic distortion generated by the VFD becomes too great, it can disrupt equipment operation and may cause a wastewater pump motor or other critical electrical equipment to shut down. Harmonic filters are used to reduce the distortion to an acceptable level before it enters the electrical grid. In the South System Pump Station, testing with multiple pumps has indicated that, despite the installation of harmonic filters with the VFDs, the level of harmonic distortion at times exceeds the industry standard of five percent and may affect the Authority's ability to operate more than three pumps for a sustained period. The excessive distortion may be related to the cumulative level of harmonic distortion in the electrical system throughout Deer Island.

The long-term solution to this problem appears to require the installation of an additional filter bank in each of the eight harmonic filters at the South System Pump Station. Steps are already underway to implement this change, but it is expected to require six months to complete. In the meantime, staff are exploring several potential short-term solutions to address the problem, so that the permanent transfer of South System flows, start up of the new Nut Island Headworks and the demolition of the Nut Island Treatment Plant can proceed at the earliest possible date.

Other electrical problems identified in testing remain to be addressed, but are not expected to affect start up of the facility. These additional problems include difficulties with the control panel for one of the pumps, which required taking the pump out of service and returning the panel to the vendor for repair. In addition, there is concern about the long term reliability of certain transformers on top of the pump station and their performance during periods of high humidity. The contractor has performed interim repairs, and either permanent modifications or replacement will be necessary for the long term.

Although the problems in the South System Pump Station have delayed formal start up of the South System facilities, in fact the Authority has transported the vast majority of South System flow from the Nut Island Treatment Plant to Deer Island for secondary treatment throughout the extended testing period, and discharges from the Nut Island outfalls have been minimal. Even during the recent prolonged period of wet

weather,(1) virtually all flows from Nut Island received treatment on Deer Island, except for one 24-hour period on May 10 and 11. Although the Authority is committed to resolving the electrical problems in the South System Pump Station sufficiently to allow permanent transfer of flows through the Nut Island Headworks as quickly as possible, it expects most, if not all, South System flows to continue to receive additional treatment in the new Deer Island facilities while this process goes forward.

(b) Secondary Residuals Complex.

Although the waste sludge and digested sludge centrifuges in the secondary residuals facility on Deer Island are in use, performance testing has been delayed because the quality of sludge produced by the treatment process differs from that anticipated when the test specifications were established. Design engineers are evaluating whether testing can proceed or whether modifications may be necessary to account for the differences in the sludge. Some of the tests may be postponed to the Fall when sludge quality is expected to change as the result of seasonal changes in plant operations.

(c) Thermal Plant.

In the Thermal Plant, the contractor has tested the steam turbine generator successfully with fuel oil. The Authority now expects the boilers (operating only on fuel oil) and steam turbine generators to be turned over to plant staff for operation (without the digester gas system) in July 1998. After turnover, the Thermal Plant will be able to meet Deer Island Treatment Plant's heat demands without the use of auxiliary boilers.

In the meantime, the contractor continues to work on the modifications to the digester gas system described in last month's report.(2) In addition, the contractor must install flame arrestors, recommended recently by the Authority's risk insurance underwriter. Testing of the digester gas system is expected to take place in the Fall, following installation of a permanent cooling water line, which will serve as a heat sink during testing.

(d) Construction of Effluent Outfall Tunnel.

The contractor for the Effluent Outfall Tunnel continues to work on completing contact grouting, clean-up and repair activities in the tunnel. Less than 0.6 of a mile remains to be grouted, and only 0.87 of a mile of the "first pass" clean-up and repair to the tunnel arch is left. The contractor has also completed over three miles of the final clean-up and repair to the tunnel invert and has approximately six miles remaining.

3. Operations During Wet Weather.

During the period of heavy rainfall earlier this month,(3) the Authority's treatment facilities generally operated well, processing unusually high flows over a sustained period. The Deer Island Treatment Plant treated an average of 564 million gallons per day ("MGD") over an 11-day period, with a peak hourly flow rate of 980 MGD and a maximum flow rate of 1050 MGD. As noted above, flows from the South System were treated at Deer Island throughout most of this period, with an average flow of 178 MGD, sustained flows of 320 MGD over a two-day period and a peak hourly flow of 380 MGD. Average effluent limits during this period were within secondary treatment standards, although the portion of the total flow treated in the secondary batteries was approximately 67 percent.

4. Residuals Program.

(a) Pelletizing Plant Expansion.

At the pelletizing plant at the Fore River Staging Area, the contractor for plant expansion has completed performance testing of the four new storage silos and is completing work on minor punch list items. Inside the plant, the contractor completed functional testing of the four centrifuges associated with the two new dryer trains. The contractor has also completed welding of the steel piping between the heat exchangers and two new dryer trains and installed all electrical panels, conduit and gas piping for the two new dryer trains. Most of the wiring is also in place. Checkout of controls and interlocks for the first dryer train has begun.

5. Combined Sewer Overflow Control.

(a) Field Testing Program for Floatables Control.

As indicated in the Authority's Compliance Report submitted February 13, 1998, (pp. 2-4) the Authority found it necessary to revise the plan and extend the schedule for its field study to evaluate underflow baffles as the recommended method of floatables control for combined sewer overflow ("CSO") discharges.(4) As reported, the lack of rainfall in 1997 limited CSO activations and the collection of sufficient data to quantify floatables under pre-baffle conditions at the single viable test location, BOS 004. The Authority recently resumed performance testing at BOS 004. Inspection and cleaning of the end-of-pipe netting after each rain event and quantification of floatables collected in storms that cause CSO activation will continue through 1998.

In order to move ahead with the part of the study designed to assess operations and maintenance ("O&M") factors, the Authority has installed underflow baffles at the regulators for BOS 012 and BOS 078. The Authority will monitor operation of the baffles during future CSO events. Assuming sufficient CSO activations at these locations over the next few months, the Authority expects to report on the O&M results by early Fall 1998.

6. Interceptor Projects.

(a) Framingham Extension Relief Sewer.

The Authority previously reported regarding construction of the new Framingham Extension Relief Sewer ("FERS") project, a project subject to an administrative order issued by the Environmental Protection Agency on June 2, 1994.(5) A new force main was completed in October 1997 and a gravity sewer in February 1998. The third component of the project is a pumping station to divert flow from the existing Framingham Extension Sewer ("FES") to the new gravity sewer and force main. The pumping station has been constructed, and testing has been in progress. However, the Authority was unable to meet the administrative order's April 30, 1998 milestone for bringing all three of the FERS facilities on-line, due to problems that surfaced during testing. Some of the problems have been resolved successfully. However, difficulties with the signalling system and severe odor problems along portions of the gravity sewer have delayed final testing and start up of the facilities. The Authority is working as quickly as possible to identify and implement solutions to these problems, but more evaluation and adjustments will be needed before final testing can begin. The Authority will report further, as more information becomes available. The Authority does not anticipate that this delay will affect its capacity to transport flows from the three towns tributary to the FERS.(6)

(b) Braintree-Weymouth Relief Facilities.

As previously reported, the Authority has been working for some time toward planned improvements in the wastewater collection system serving six communities south of Boston.(7) In design since 1994, the Braintree-Weymouth Relief project has a number of components, including a deep rock tunnel, two pump stations, a new relief sewer and rehabilitation of the existing sewers. The new facilities will improve service for Braintree, Weymouth, Hingham, Holbrook, Randolph and portions of Quincy.

In late April, the Authority received a Notice of Enforcement Action from the Massachusetts Department of Environmental Protection ("DEP") with regard to the project, based on recurrent overflows from the Authority's Braintree-Weymouth interceptors during wet weather.(8) DEP has scheduled an enforcement conference on May 20, 1998, to discuss the terms of an Administrative Consent Order which is likely to include a schedule for completing the Braintree-Weymouth Relief Facilities. The Authority has met with DEP about this project on several previous occasions.

With regard to the status of the project, the Authority has completed the tunnel design, while design of the pump stations and new sewer are still in progress. The Authority expects to submit approximately 20 permit applications to state and federal agencies this Spring and Summer in preparation for advertisement

of the construction contract for the deep rock tunnel in January 1999.

7. Toxic Reduction and Control Program.

(a) Group Permit for Food Processing Facilities.

On April 15, 1998, the Board of Directors promulgated changes in the Authority's regulations to create a group permit for food processing facilities that discharge less than 25,000 gallons per day to the sewer system.(9) Developed with the assistance of representatives of the industry and communities, the group permit will streamline the Authority's permitting procedure for approximately 70 facilities that now receive individual permits. These include dairies, meat and fish processors, and coffee and nut roasters, among others. The group permit, which will last for four years, will address the potential of these facilities to discharge fats, oils and greases into the sewers. The Authority expects the new permits to be in effect by the end of June.

8. Infiltration/Inflow Financial Assistance.

Established in August 1992, the Authority's Infiltration/ Inflow ("I/I") Local Financial Assistance Program provides funds to service area communities to perform I/I reduction projects within their locally owned collection systems.(10) Recently, Authority staff gave an annual report to the Board of Directors on the progress of the program. By the end of February 1998, the Authority distributed a total of \$41.2 million (65 percent of the overall program budget of \$63,750,000) to fund 131 separate projects in 41 communities. Sixty percent of the distributions to date have been spent on projects that are now complete. The program is currently scheduled to continue through Fiscal Year 2005.

Each community is allocated funds based on its respective share of the Authority's overall wholesale sewer charges. Sixteen communities have used their entire allocations. Only two communities have not yet participated. A table, attached as Exhibit "B," lists the allocation for each community expended to date.

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: May 15, 1998

Notes:

1. See Section 3 for a report on operations during recent rainfall.
2. See April 15, 1998 Compliance and Progress Report, pp. 4-5.
3. According to area news reports, rainfall for the first 11 days of May was nearly twice the normal levels for the Boston area for the entire month.
4. Discussions with the Environmental Protection Agency ("EPA") and other parties regarding proposed revisions to Schedule Six to accommodate the changes in the floatables control study, as well as other issues, are continuing.
5. See Compliance and Progress Reports for June 15, 1994 (pp. 10-12), April 14, 1995 (p. 23), August 15, 1996 (p. 13) and November 17, 1997 (pp. 23-24) for previous reports on this project.
6. The three towns that contribute flows to the FERS are Framingham, Ashland and Natick.
7. See Compliance and Progress Reports for May 15, 1990 (pp. 7 8), September 15, 1994 (pp. 21-23), February 15, 1995 (pp. 20 21), September 15, 1995 (pp. 15-16), December 16, 1996 (pp. 21-22), and November 17, 1997 (pp. 21-23).
8. DEP's action appears to be a response to recent controversy in some of the communities about sewage overflows. The Authority understands that the Towns of Braintree and Weymouth have also received Notices of Enforcement regarding overflows in their local systems.
9. As previously reported, the Authority published notice of the proposed changes and held a public hearing in 1997. See August 15, 1997 Compliance and Progress Report, pp. 21-23.
10. See Compliance and Progress Reports dated September 15, 1994, pp. 20-21, January 16, 1996, pp. 14-15, and April 15, 1997, pp. 12-13, for previous reports on this program. The funds are available for approved projects, 25 percent as a grant and 75 percent as an interest free loan to be repaid over five years.