December 21, 2001

Mr. Glenn Haas, Director
Division of Watershed Management
Department of Environmental Protection
1 Winter Street
Boston, MA 02108

Ms. Linda Murphy, Director
Office of Ecosystem Protection
U.S. Environmental Protection Agency
Water Technical Unit "SEW"
P.O. Box 8127
Boston, MA 02114

Re: Massachusetts Water Resources Authority, Permit Number MA0103284
Notification Pursuant to Part I.8. Contingency Plan

Dear Mr. Haas and Ms. Murphy:

One effluent quality parameter that MWRA monitors for Permit Compliance and Contingency Plan purposes is fecal coliform—an indicator of the effectiveness of chlorination. MWRA's Permit and Contingency Plan specify that the daily geometric mean of the fecal coliform samples taken prior to the entrance of the outfall tunnel, monitored three times per day, is not to exceed 14,000 colonies per 100 milliliters (col/100 mL).

On December 18, 2001, the geometric mean of the three samples was 15,597 col/100 mL, which is slightly higher than the permit limit. This result triggers a notification requirement under the Contingency Plan. This letter and its attachment constitute that notification.

The table below shows the fecal coliform and total chlorine residual (TCR) measurements on December 18. An elevated fecal coliform count was found in one sample that was collected during a 70-minute drop in chlorine residual in the disinfection basin. The other two samples collected that day were below the 14,000 col/100 mL limit.

Time Sample Collected	Fecal Coliform col/100 mL	Disinfection Basin Total Chlorine Residual mg/L	Effluent Total Chlorine Residual, mg/L
07:00 a.m.	9,600	0.40	0.04
09:30 a.m.	760	0.51	<0.03
12:00 p.m.	520,000	<0.03	<0.03
Daily Geometric Mean	15,597		

The drop in chlorine residual occurred as flow through the treatment plant was elevated due to a rainstorm. Apparently, chlorine demand in the wastewater increased suddenly—perhaps related to the storm—and TCR dropped suddenly. (The plant was treating on average 509 MGD with 422 MGD receiving full secondary treatment. Sodium hypochlorite disinfectant was being added at a rate of 8.4 gallons per minute, paced according to flow through the plant.) The TCR measured by the automated sensors at the head of the disinfection basin showed that TCR dropped from 3.0 mg/L at 11:10 to <0.03 at 11:21, only 11 minutes later. Staff responded to the event by increasing the sodium hypochlorite dosing rate and the TCR returned to normal by 12:30 p.m. The pattern of flow and TCR changes are in Attachment A. Since December 18, fecal coliform measurements have been within permit limits.

It is worth noting that the 14,000 col/100mL permit limit is based on achieving the water quality standard (200 col/100 mL) at the edge of the mixing zone during periods of minimum dilution when dilution is approximately 70-fold. At this time of year, actual dilution at the outfall location is relatively high because there is no stratification in the water column. Because of this, and because the interruption in chlorination was relatively brief, it is likely that any impacts on water quality outside the mixing zone were minor.

Please let me know if any of MWRA's staff can give you additional assistance regarding this notification.

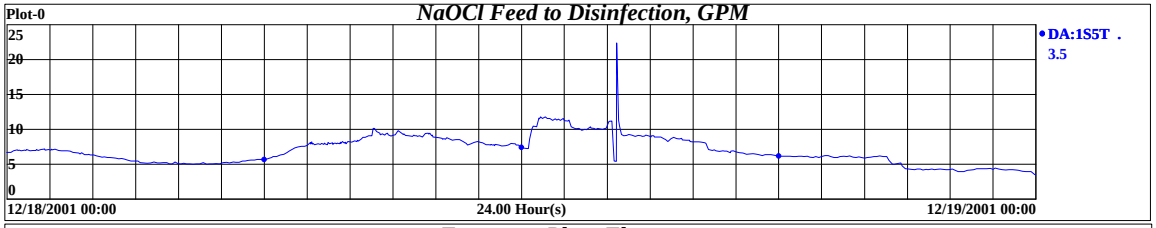
Sincerely,

Michael J. Hornbrook
Chief Operating Officer

Attachment:
December 18 – Operations data from the Deer Island Treatment Plant (Plant flows, sodium hypochlorite dosing rates, sodium bisulfite dosing rates and total chlorine residual levels from the disinfection process).

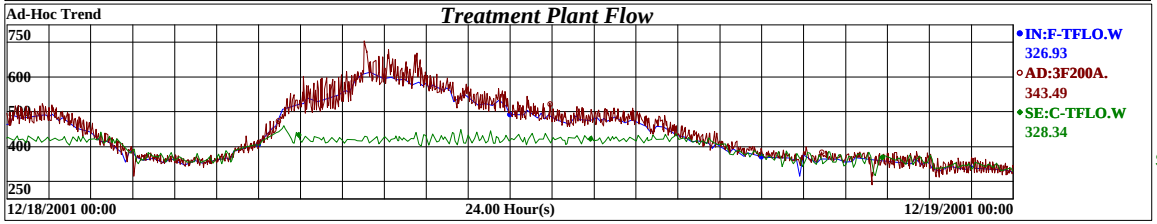
Attachment A
Deer Island Treatment Plant Operations Data

Graph 1: Depicts the sodium hypochlorite feed to disinfection expressed in gallons per minute.



Hypo Feed, GPM

Graph 2: Depicts Plant Flow from Pumping, Primary and Secondary Treatment, expressed in millions of gallons per day.

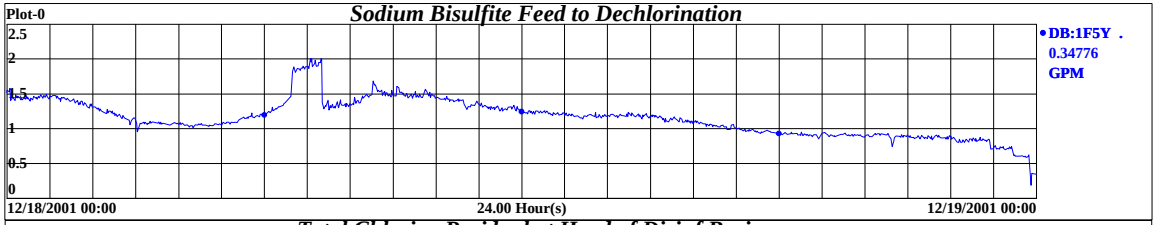


Plant Flow, Pumping, MGD

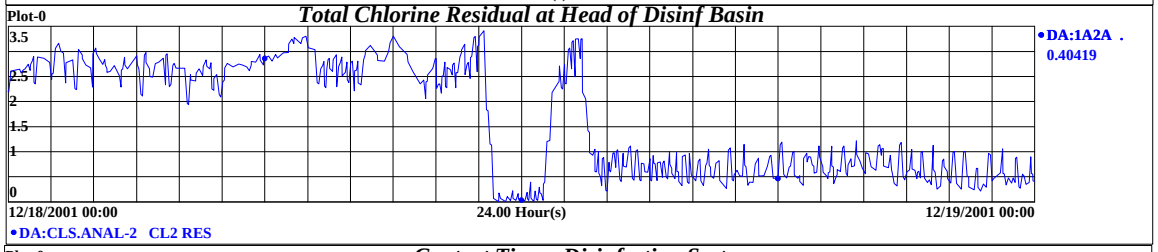
Primary Flow, MGD

Secondary Flow, MGD

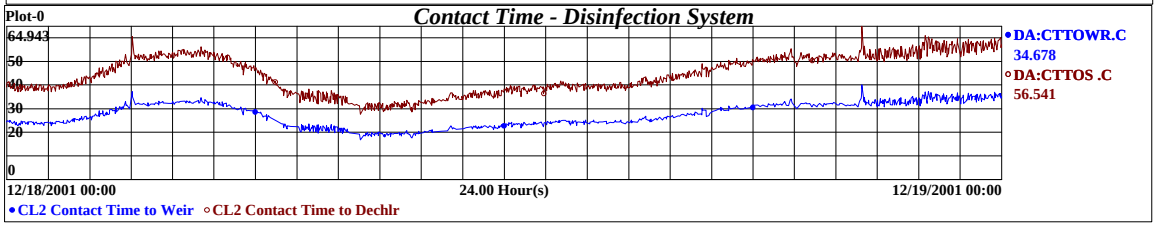
Graph 3: Depicts the Sodium Bisulfite Feed to Dechlorination expressed in gallons per minute.



Graph 4: Depicts the Total Chlorine Residual from the automated TCR Analyzer located at the head end of the disinfection basin expressed in milligrams per liter.



Graph 4: Depicts the sodium hypochlorite contact time from the point of chemical addition to the point of dechlorination expressed in minutes.



Cc:

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