

February 23, 2001

Mr. Glen Haas, Acting Assistant Commissioner
Bureau of Resources Protection
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:

MWRA's NPDES Permit and Contingency Plan specify that four tests for Deer Island effluent toxicity be conducted every month. On February 20, 2001, MWRA received results indicating that one of the tests, the *Arbacia* (sea urchin) chronic fertilization test conducted on the sample collected January 9-10, 2001 did not meet the Contingency Plan Warning threshold and permit limit.¹ Effluent from the January samples did, however, meet the acute toxicity tests for the mysid (shrimp) and *Menidia* (fish) tests and the chronic *Menidia* test. All other requirements of the permit were met on January 9-10, and there were no operational upsets during this period that would have caused the Deer Island Treatment Plant to violate other parameters within the permit. This letter of notification, prepared pursuant to Contingency Plan notification requirements, describes the actions MWRA is taking to address the *Arbacia* toxicity test failure.

The Deer Island permit toxicity limits are set to be highly protective, with the limits based on minimum dilution conditions. During January 2001, because the water column was well-mixed, maximum dilution was available at the Deer Island outfall which would tend to mitigate any actual toxic discharges.

The *Arbacia* test involves exposing sperm to effluent, combining the sperm with egg, and then measuring fertilization success. The purpose of the test is to measure the potential for chronic (long-term, sub-lethal) effects of the effluent. Toxicity testing, because it involves live organisms (and in this case, the viability of sperm and eggs), can be variable. Results can vary according to the source and condition of the organisms used in the testing.

¹ Footnote 29 of Schedule Six of the Federal District Court's Compliance Order allows for a period of six months to achieve consistent secondary treatment following substantial completion of Secondary Battery C.

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MWRA is taking prompt action to investigate what the source of the problem may be. Unlike other toxicity tests that have been employed for a longer period of time, the scientific understanding of the *Arbacia* test is not very well developed. Less is known about the sensitivity of the *Arbacia* test to the universe of toxicants. This increases the complexity of investigating the problem. Since other studies have shown that the *Arbacia* test has sensitivity to metals, MWRA's investigation will include an examination of metals chemistry in the waste stream and explore the interaction of metals with chlorination, dechlorination, and the sampling process.

On the basis of the findings of these investigations, MWRA will evaluate the need for any potential remedial actions. MWRA will present the toxicity testing result and any additional findings to date at the next Outfall Monitoring Science Advisory Panel meeting on April 4, 2001.

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

Mr. Glenn Haas
Ms. Linda Murphy
02/23/01

Cc:

**Environmental Protection Agency, Region I
(EPA)**

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