

April 28, 2006

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P.O. Box 8127
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Richard Chretien, P.E.
Bureau of Resource Protection
Watershed Permitting Program
Department of Environmental Protection
1 Winter Street
Boston, MA 02108

RE: Massachusetts Water Resources Authority
Permit No. MA0103284
Notification of Upset and Accidental Discharge of Digested Sludge

Dear Mr. Borci and Mr. Chretien:

This letter is a follow-up to Massachusetts Water Resources Authority (“MWRA”)’s verbal notification on April 24, 2006 of an unintentional discharge of digested sludge from the Deer Island Treatment Plant (“DITP”) to Boston Harbor through a storm drain on Deer Island. The discharge was the result of a leak from an underground “bell and spigot” joint that connects a newly installed (14-inch diameter) pipe that runs from DITP’s digested sludge storage facility to an existing pipe in the Inter-Island tunnel. Two underground pipes transport digested sludge from DITP’s digested sludge storage facility through the Inter-Island tunnel to the Fore River sludge processing facility in Quincy. The joint was installed last year and is still under warranty.

At 4:43 p.m. on April 24 during a routine tour of inspection, staff observed sludge coming up through the ground near the Residuals Odor Control (ROC) building. Once the leak was discovered, staff immediately began shutting down the sludge pumps and closing isolation valves in the pipeline from the digested sludge storage tanks. Staff also covered the nearby storm drains with gel mats in an attempt to prevent sludge that was on the ground and road from leaking into the storm drains, and called in additional operational and maintenance staff. Staff completed shutting down the sludge pumps at 4:56 p.m. and isolating all the valves from digested sludge storage tanks by 5:20 p.m. At approximately 6:20 p.m., staff observed sludge in the harbor near a storm drain adjacent to the DITP dock. Staff notified the appropriate state, federal and local regulatory agencies and called in laboratory staff to perform sampling. At approximately 7:00 p.m., staff (1) set up a sump pump within the catch basin to pump the sludge back to the treatment plant; and (2) commenced the process of flushing and vactoring the sludge from the storm drains and roadway. Samples were collected from the affected area at approximately 9:00 p.m. Clean-up activities were completed at approximately 12:30 a.m.

Follow-up activities

The leak appears to have originated from a “bell and spigot” joint that separated. This piping is still under warranty and staff are working with the contractor to determine the cause of the failure and to repair it. The area of the leak, about 10 feet from the exterior wall of the ROC building, has been excavated. Repair is expected to take about 6-8 weeks. In the meantime, the other DSL line has been purged of water and put into service. Sludge pumping to Fore River has resumed and is being closely monitored.

Environmental impacts:

Subsequent inspection of operating records showed a sudden drop in pressure in the sludge pipeline had occurred at 3:55 p.m., indicating when the failure began. MWRA estimates that up to 30,000 gallons of sludge leaked from the damaged joint; only a portion of that amount entered the harbor. High tide was at 9:19 p.m., therefore the tide was incoming during the period of the leak. Staff could see a discolored patch in the water covering an area of about 40 by 75 yards adjacent to the storm drain near the Deer Island personnel dock. Samples for bacterial analysis were collected along the shoreline that evening (April 24, Monday), Tuesday morning, Tuesday afternoon, and Wednesday morning. Samples were collected further offshore by boat on Tuesday and Wednesday morning (Figure 1).

Results of *Enterococcus* and fecal coliform analysis are in Table 1. During treatment, the anaerobic sludge digestion process greatly reduces BOD and pathogens in sludge, which would minimize the level of contamination in the harbor compared to untreated waste. This is reflected in the sampling results. Fecal coliform counts were quite low and within water quality standards (<200 colonies/100 mL). *Enterococcus*, a more conservative bacterial indicator, showed a signature of the location of the sludge in four of five samples collected near the shoreline on the evening of the incident. The highest *Enterococcus* count was 860 col/100 mL. By the next day (Tuesday) there was no bacterial or visible evidence of the sludge in the water or on the shoreline. Offshore samples were all extremely low, indicating minimal impact to shellfish beds.

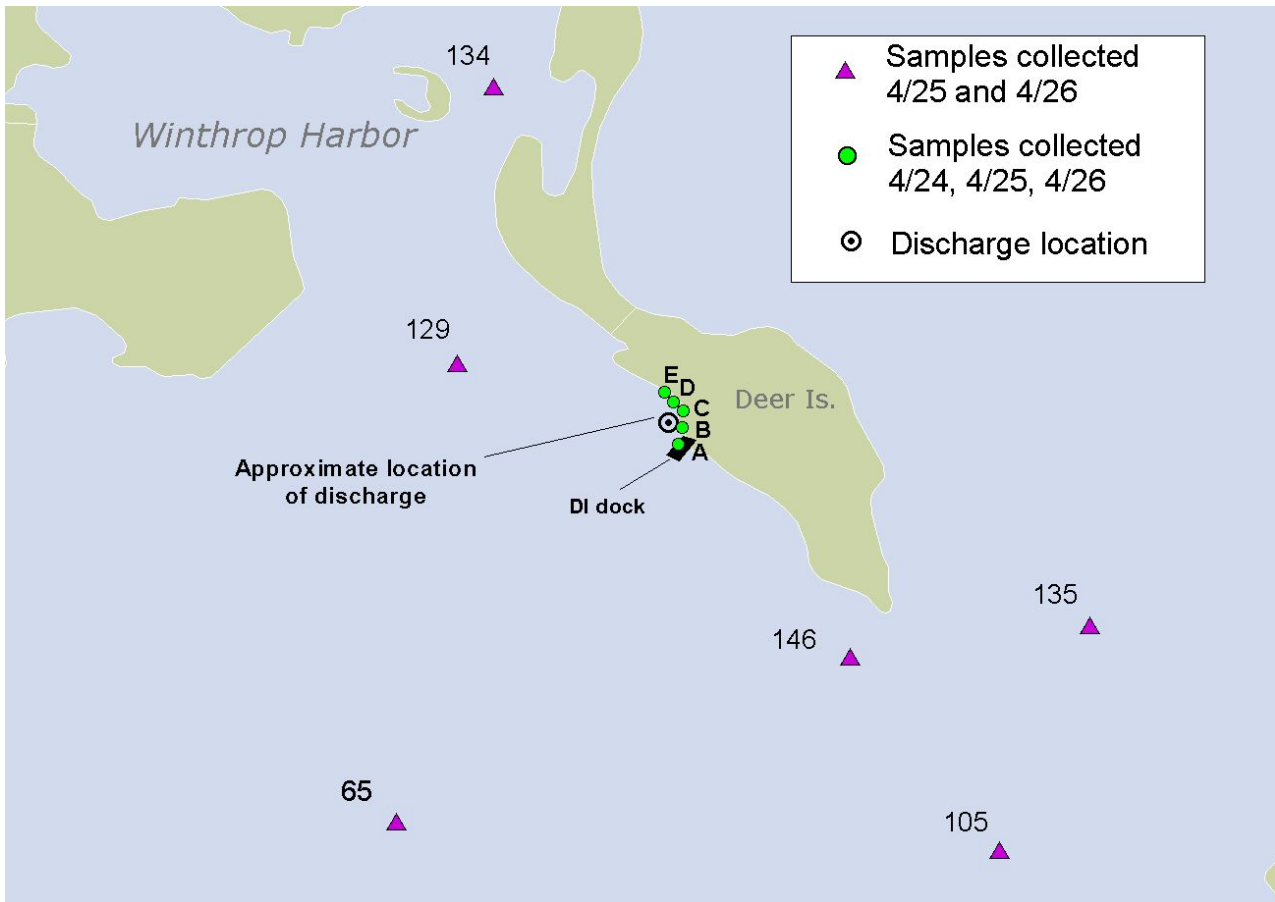


Figure 1 Map of harbor sampling locations after leak of digested sludge.

Table 1 Bacteria sampling results in Boston Harbor in vicinity of leak of digested sludge.

Sample Location	Date-Time sample collected	<i>Enterococcus</i> 48- hour method (colonies/ 100 mL)	<i>Enterococcus</i> 24- hour method (colonies/ 100 mL)	Fecal coliform (colonies/ 100 mL)
MONDAY EVENING-SHORELINE				
STATION A. DOCK	4/24/2006 20:50	10	-	<10
STATION B. SHORE NEAR DOCK	4/24/2006 20:55	230	-	30
STATION C. 15M NORTH OF DOCK ON SHORE	4/24/2006 21:00	610	-	70
STATION D. 30M NORTH OF DOCK ON SHORE	4/24/2006 21:05	860	-	90
STATION E. 45M NORTH OF DOCK ON SHORE	4/24/2006 21:15	310	-	50
TUESDAY MORNING-SHORELINE				
STATION A. DOCK	4/25/2006 7:40	<10	<10	<10
STATION B. SHORE NEAR DOCK	4/25/2006 7:45	20	<10	<10
STATION C. 15M NORTH OF DOCK ON SHORE	4/25/2006 7:50	10	10	10
STATION D. 30M NORTH OF DOCK ON SHORE	4/25/2006 7:55	20	20	10
STATION E. 45M NORTH OF DOCK ON SHORE	4/25/2006 8:00	<10	<10	<10
TUESDAY AFTERNOON-SHORELINE				
STATION A. DOCK	4/25/2006 13:20	<10	<10	<10
STATION B. SHORE NEAR DOCK	4/25/2006 13:25	70	20	<10
STATION C. 15M NORTH OF DOCK ON SHORE	4/25/2006 13:30	310	120	140
STATION D. 30M NORTH OF DOCK ON SHORE	4/25/2006 13:35	<10	<10	<10
STATION E. 45M NORTH OF DOCK ON SHORE	4/25/2006 13:40	20	10	<10
TUESDAY MORNING- OFFSHORE				
STATION 129	4/25/06 8:25	<10	<10	<10
STATION 146	4/25/06 8:48	<10	<10	<10
STATION 135	4/25/06 8:53	<10	<10	<10
STATION 105	4/25/06 8:57	<10	<10	<10
STATION 134	4/25/06 12:56	<10	<10	<10
STATION 65	4/25/06 9:10	<10	<10	<10
WEDNESDAY MORNING- OFFSHORE				
STATION 134	4/26/06 8:01	<5	<5	<5
STATION 129	4/26/06 8:21	<5	<5	<5
STATION 146	4/26/06 8:28	<5	<5	<5
STATION 135	4/26/06 8:32	<5	<5	<5
STATION 105	4/26/06 8:36	<5	<5	<5
STATION 65	4/26/06 8:46	-	<5	-
WEDNESDAY MORNING- SHORELINE				
STATION A. DOCK	4/26/06 11:00	<5	<5	<5
STATION B. SHORE NEAR DOCK	4/26/06 11:00	15	<5	<5
STATION C. 15M NORTH OF DOCK ON SHORE	4/26/06 11:00	<5	5	<5
STATION D. 30M NORTH OF DOCK ON SHORE	4/26/06 11:00	<5	<5	<5
STATION E. 45M NORTH OF DOCK ON SHORE	4/26/06 11:00	<5	<5	<5

MWRA staff responded quickly and effectively to this incident, minimizing environmental impacts to the harbor. When MWRA learns the reason for the failure of the sludge pipeline, it will provide an update. Please let me know if you need any other information regarding this event.

Yours truly,

Michael J. Hornbrook
Chief Operating Officer

Cc

US Environmental Protection Agency, Region I

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