

M E M O

Date: June 29, 2004
To: Wayne Davies, Hopkinton Board of Appeals
From: Jesse Schwalbaum, Earth Tech
CC: Dick Jubinville, Earth Tech
Nancy Peters, Hopkinton Board of Health

Subject: Recommended Long Term Monitoring Plan for Harvey Landfills

As you requested, I have prepared a recommended long term monitoring plan for the E.L. Harvey landfill in Hopkinton and the portion of their Westborough landfill that extends into Hopkinton. The Department of Environmental Protection (DEP) has approved a long term monitoring plan for the Hopkinton landfill, but that plan is not described in any one document. Rather, the final, approved plan is comprised of portions of three documents: 1) a letter from Brown & Caldwell (B&C) to DEP dated May 12, 2004 with the subject line "Former Hopkinton Landfill, Wood Street, Long Term Groundwater and Surface Water Monitoring Plan", 2) a letter from B&C to DEP dated June 3, 2004 with the subject line "Hopkinton – Hopkinton Sanitary Landfill; Revised Long Term Monitoring Plan; Project No. 24925.003" and 3) a letter from DEP to Mr. James Harvey dated June 22, 2004 with the subject line "Hopkinton Landfill – Long Term Monitoring Plan." In order to avoid confusion, the final approved conditions of the plan contained in these documents, along with our recommendations specifically for the Hopkinton Board of Appeals, have been summarized in this memorandum.

A one-year monitoring plan for the Westborough landfill prepared by B&C was recently approved by DEP and the first sampling round under that plan has been completed. Earth Tech has previously made comments on this plan. We have summarized this plan as well. However, we recommend that the Town wait to receive the results of the first round of testing before adopting a final long term monitoring plan for this site. Those results should already be available by now.

Hopkinton Landfill Long Term Monitoring Plan

- 1) Wells to be sampled (see attached figure for locations):
- | | | | |
|--------|--------|----------------------|-------|
| MW-1B | MW-1S | MW-2B | MW-2S |
| MW-4B | MW-4S | MW-7B | MW-7S |
| CGK-2D | GGK-2S | A total of 10 wells. | |



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- 2) Sampling Frequency: Semi-annual (twice per calendar year)
- 3) Sampling methodology: The EPA low flow sampling method will be used on all wells except MW-1B, MW-2B, MW-4B and MW-7B. These wells will be purged until the pH levels cease to show any decline.
- 4) Field Parameters: turbidity, pH, oxidation-reduction potential, specific conductance, dissolved oxygen, temperature, water level.

5) Laboratory Analytical Parameters:

Alkalinity	Ammonia (as nitrogen)	Nitrate (as nitrogen)	Chloride
Iron	Total Dissolved Solids	Manganese	Sulfate
Arsenic	Chemical Oxygen Demand	Barium	Cadmium
Copper	Cyanide	Lead	Zinc
Sodium	Sulfate	Volatile Organic Compounds	

Note: Laboratory detection limits appropriate for drinking water analyses should be used for all parameters.

- 6) Surface Water Sampling and Analysis: Water samples will be obtained from surface waters at three locations on the site (shown in attached figure) semi-annually. If there is no surface water at these locations at the time of sampling, sampling will not be required. The surface water samples will be analyzed for the same parameters as the monitoring wells.
- 7) All water quality results and field notes will be provided to the Hopkinton Board of Health in a timely manner (certainly within three weeks of the sampling event).
- 8) This monitoring plan will remain in place for a period of 30 years. No changes will be made to the plan without authorization of the Board of Health.
- 9) If a monitoring well is not functioning for whatever reason, the well should be repaired or replaced before the next sampling round.
- 10) If there are questionable results for pH or metals at any of the bedrock wells, the Board of Health reserves the right to require that these wells be replaced with properly-constructed monitoring wells.

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Westborough Landfill Long Term Monitoring Plan

- 1) Wells to be sampled (see attached figure for locations):
 WMW-1 WMW-2 WMW-3S WMW-3D
 WMW-4 WMW-5 WMW-6
 A total of 7 wells.
- 2) Sampling Frequency: Quarterly (four times per calendar year)
- 3) Sampling methodology: The EPA low flow sampling method will be used on all wells.
- 4) Field Parameters: turbidity, pH, oxidation-reduction potential, specific conductance, dissolved oxygen, temperature, water level.

- 5) Laboratory Analytical Parameters:

Alkalinity	Ammonia (as nitrogen)	Nitrate (as nitrogen)	Chloride
Iron	Total Dissolved Solids	Manganese	Sulfate
Arsenic	Chemical Oxygen Demand	Barium	Cadmium
Copper	Cyanide	Lead	Mercury
Selenium	Silver	Zinc	Sodium
Sulfate	Volatile Organic Compounds		Chromium
Semi-volatile Organic Compounds (EPA Method 8270)			
Organochlorine Pesticides (EPA Method 8081)			

Note: Laboratory detection limits appropriate for drinking water analyses should be used for all parameters.

- 6) Surface Water Sampling and Analysis: Water samples will be obtained from surface waters at three locations on the site (shown in attached figure) quarterly. If there is no surface water at these locations at the time of sampling, sampling will not be required. The surface water samples will be analyzed for the same parameters as the monitoring wells.
- 7) All water quality results and field notes will be provided to the Hopkinton Board of Health in a timely manner (certainly within three weeks of the sampling event).
- 8) This monitoring plan will remain in place for a period of 30 years. No changes will be made to the plan without authorization of the Board of Health.
- 9) If a monitoring well is not functioning for whatever reason, the well should be repaired or replaced before the next sampling round.