



Amherst Massachusetts

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Town of Amherst Response to Roux Associates, Inc. Memorandum

The Town of Amherst reviewed a memorandum prepared by Roux Associates, Inc. (Roux) dated October 27, 2015 regarding the Old Landfill. Some of the representations made in the memo do not provide a complete picture of the true condition of the landfill. It should be noted that the Old Landfill was capped during the mid-1980s in accordance with the Massachusetts Department of Environmental Protection (MassDEP) regulations and policies in place at that time. Extensive environmental assessment and ongoing monitoring work indicate there is no evidence of risk to human health associated with the Old Landfill.

Amherst's responses and clarifications regarding the Roux memo are below.

1. *Roux: The landfill cap thickness is substantially less than what was originally required by MassDEP and the final thickness was observed to be as thin as four inches.*

Correspondence from the time of the landfill closure indicates Amherst's consulting engineers proposed a reduction in the thickness of the clay layer because the reduced thickness would still provide a substantial barrier to water infiltration. MassDEP agreed with the engineers and approved the change. MassDEP allowing this reduction does not, in itself, mean the cap was not constructed in accordance with the requirements of that time or is compromised now. The cap is thickest (9 inches, on average) in the northwest portion, over the municipal solid waste section of the landfill.

If the cap were not functioning as a barrier to infiltration, annual monitoring data would have indicated significant contaminant levels down gradient of the landfill. The fact that significant contaminant levels have not been observed is compelling evidence that the cap is performing as it was intended.

2. *Roux: The hydraulic conductivity of the cap is greater than the level permitted by MassDEP.*

The 2006 Interim Comprehensive Site Assessment (ICSA) included a limited assessment of the landfill cover materials. The boring records from this investigation indicate silty sand was observed in certain boring locations at the perimeter of the landfill and/or in the southern portion of the landfill. These locations correspond to the non-waste areas and/or brush and stump areas. As shown on the ICSA "Site Orthophoto Plan," and described in boring logs, clay was observed over the municipal solid waste portion of the landfill.

If the hydraulic conductivity of the cap is as high as Roux suggests, then significant contamination levels should have been detected by now.

3. *Roux: It is not appropriate to characterize the cap as impermeable because water is readily infiltrating the cap and transporting contaminants.*

If this were true, then significant contamination down gradient of the landfill should have been detected by now. Samples are collected from 15 wells and 6 surface water locations on an annual

basis, and each sample is analyzed for approximately 90 parameters. Out of approximately 74 groundwater samples collected since 2010, an exceedance of a primary drinking water standard was detected in 5 samples. These exceedances have not been recurring and do not indicate a pattern of increasing levels of contamination.

4. *Roux: Leachate from the landfill travels to nearby surface water bodies.*

There is evidence of leachate impacts down gradient of the landfill, but these areas have been characterized, assessed, and analyzed for potential risks. As described below in Item #5, no risks to human health from these areas were identified during the CSA study.

5. *Roux: The risk of human exposure in wetlands west of the landfill has not been fully quantified because all impacted areas have not been adequately examined.*

The work performed for the CSA study included identifying potentially-impacted areas and assessing their potential risk to human health. Certain metals detected in sediments at the KC Trail wetland and at the Gull Pond inlet exceeded Massachusetts sediment screening criteria, and these areas were then further assessed and analyzed. Detailed, quantitative risk assessments were performed on these areas, and the results clearly indicated a condition of no significant risk of harm to human health. The Massachusetts Office of Research and Standards (ORS) agreed with this conclusion, as documented in a memo dated May 18, 2009. (ORS provides scientific expertise to MassDEP in environmental health, toxicology, standard setting, ecological and human health risk assessments, chemistry, and statistics.)

6. *Roux: Some metals concentrations increased significantly between 2006 and 2009, indicating a potential trend.*

The 2006 assessment was an initial assessment to determine which wetlands were potentially impacted by collecting one sample at each potentially-impacted area. Areas where metals were detected above sediment screening levels were then further assessed by collecting more samples. Metals concentrations in the additional samples were both higher and lower than the original sample, consistent with the natural heterogeneities that would be expected in wetland sediment. (See Item #5 for information on the quantitative risk assessments of these areas.)

7. *Roux: Current cap condition is poor.*

- a. Amherst is aware of ponded water on the cap, and these areas are being addressed in the current re-grading project. The goal is to restore positive drainage to the surface without disturbing the cap. Evapotranspiration on the re-graded areas will enhance removal of water.
- b. Amherst staff inspect the landfill and fix burrows as needed. A third-party inspection was performed two days before the Roux site visit, and no evidence of cap disturbance(s) was observed.
- c. The outer casing of one groundwater monitoring well was damaged by a mower, but DPW staff repaired this damage. The inner PVC tubing was not compromised. Gas vents have also been damaged by the mower over the years and are repaired as needed.
- d. The drainage swales are in the process of being upgraded as part of the re-grading project.
- e.

8. *Maintenance and management at the Old and New Landfills was sub-standard and potentially continues to be sub-standard.*

- a. The Town received 8 Notices of Non-Compliance (NON) and one Administrative Consent Order (ACO) for the New Landfill from 1985 to 2003. The New Landfill actively accepted waste until 2002, and most of the NONs were related to daily waste disposal operations. These included insufficient daily soil cover over the trash, potentially blocked

drainage lines, and not filing bimonthly inspection reports. (Daily soil cover was required to be placed over the trash to control odors and discourage seagulls.) The last two NONs were related to the capping of the final disposal cell and transition to a transfer station. Specifically, one was for missing a transfer station bimonthly report, and the other was for dust control during capping. The ACO finalized an agreement between the Town and MassDEP about the final size and closure schedule of the New Landfill, and the landfill was closed soon after execution of the ACO.

Two NONs were issued for the Old Landfill. The first was in 1986 for not submitting a groundwater monitoring plan, and the second was in 2004 to set a final date for submittal of the Initial Site Assessment. Amherst and MassDEP had been discussing the final scope of work of this assessment for approximately two years before the NON was issued.

Both landfills have operated in accordance with the approved closure plans and MassDEP regulations since 2004.

- b. Snow dumping on the Old Landfill was not prohibited until 2010. The Town of Amherst chose to use it for some snow dumping until then.

The Old Landfill is a capped landfill that is regularly monitored and inspected. The current monitoring program, coupled with annual third-party inspections, is designed to detect potential problems so that they can be addressed in a timely manner. The extensive environmental assessment and monitoring work indicate the capping procedures followed in the 1980s were successful, as down gradient impacts are limited and pose no significant risk of harm to human health.