FUSS & O'NEILL

M E M O R A N D U M

TO: Mr. Bryan Taberner, Town Planner

FROM: David J.P. Foss, CPG, LSP

DATE: October 4, 2010

RE: Summary of Recent Groundwater Assessment Activities
Former Nu-Style Facility, 87 Grove Street

During 2009 and 2010, Fuss & O'Neill conducted groundwater gauging and monitoring activities at the site, to characterize the site in support of a Phase II Comprehensive Site Assessment (CSA) in accordance with Massachusetts Contingency Plan (MCP; 310 CMR 40.0000) requirements.

The following conditions were observed during the recent groundwater monitoring activities:

- Overburden groundwater (groundwater flowing through soil rather than in bedrock) contains concentrations of chlorinated volatile organic compounds (VOC) and dissolved lead which exceed MCP Method 1 groundwater standards.
- Fuss & O'Neill installed two monitoring wells (MW-18 and MW-19) into bedrock within the building. Due to overhead obstructions and physical limitations, the wells were hand-drilled to the depth of the first accessible water-bearing bedrock fracture.
- The concentrations of VOC reported in samples collected from bedrock groundwater at the eastern monitoring well (MW-19) during both groundwater monitoring events were reported to be approximately 100 times greater than the concentrations reported in the western monitoring well (MW-18). As such, the concentrations of VOC at MW-19 are considered a "hot spot" and require additional investigation.

Liquid phase chlorinated VOC are more dense (have a higher specific gravity) than water, and as such, generally tend to migrate downward through fractures in bedrock, either as dissolved phase in groundwater, or as "dense non-aqueous phase liquids" (DNAPL). The migration of contaminants in bedrock fracture flow can be unpredictable depending on the connectivity, sizing and orientation of bedrock fractures. The bedrock conditions have not been thoroughly assessed to date with regard to fracture size, frequency and orientation. Therefore, the presence of a VOC hot spot in shallow bedrock indicates that additional assessment is necessary to determine the degree of contamination in bedrock at the site.

The Phase II CSA standard requires that the full nature and extent of a disposal site be characterized. Additional assessment must be conducted prior to the completion of the Phase II CSA. Due to the dilapidated nature of the mill building, these activities cannot be completed until the building is demolished. Demolition of the building will allow access to bedrock and potential source areas, facilitating further assessment.