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MEMORANDUM

29 October 2013
File No. 37713-040

TO: Sherin and Lodgen LLP
Ronald W. Ruth

FROM: Haley & Aldrich, Inc.
Jane A. Parkin Kullmann, Elliot I. Steinberg, P.E., LSP

SUBJECT: Human Health Risk Evaluation
Retail Development - South Parcel
Former United Shoe Machinery (USM) Facility
Beverly, Massachusetts

This memorandum has been prepared to respond to comments received from the United States Environmental Protection Agency (USEPA) in an email from Carolyn Casey on 19 September 2013 regarding RCRA Corrective Action Requirements and Achievement of Interim Goals for the subject site (EPA ID No. MAD043415991). In summary, this memorandum summarizes results of a human health risk assessment for the northern bank of the Bass River, adjacent to the former USM drop forge location, based on the data and information presented in the 31 May 2012 QAPP Data Summary Report prepared by Haley & Aldrich.

Applicable Receptors

As shown on the attached plan, a fence exists along the top of the bank bordering a majority of the shoreline of the Retail Development area of the former USM South Parcel (subject Site). The noted fence addition section from May 2012 was found to be damaged during a recent site visit by Haley & Aldrich. We understand that the Owner's property management firm has been directed to repair the fence and inspect the fence as part of their monthly site inspection of the entire property.

A physical barrier therefore will be maintained which precludes access to the shoreline from the subject Site except for trespassers through the adjoining Bass Haven Yacht Club property. Accordingly, the risk assessment summarized below evaluates a trespasser scenario. A recreational user is not considered to be a likely receptor scenario for the shoreline due to the relative inaccessibility and nature of the area.

Site Characterization Data

The 2012 QAPP Data Summary Report concluded that levels of compounds detected in soil and slag-like material at the subject Site were typically below commercial/industrial RSLs, except for one lead result (HA2-SO-01), arsenic, and PAHs. The anomalous lead result was considered attributable to lead

paint from the adjacent boatyard. Based on historical observations of the USM South Parcel Site (as presented in Appendix C of the QAPP Data Summary Report) and observations of the material at the Site during associated sampling activities, the arsenic and PAHs at the Site are considered typical products of combustion and/or attributable to coal ash. As noted in the QAPP Data Summary Report, compounds associated with coal or coal ash are considered background conditions under the MCP and therefore represent a condition of "No Significant Risk." Nonetheless, these compounds have been considered in the following risk assessment.

Risk Assessment

Based on our understanding of the Site conditions, the most likely receptor who would be present at the shoreline area of the subject Site is considered to be a trespasser as discussed above. A trespasser is considered to access the Site infrequently (approximately two times per week) and be exposed to soil via direct contact (incidental ingestion and dermal contact).

The MassDEP Risk Assessment Shortform was utilized to evaluate potential risk for a trespasser exposed to chemicals in soil and slag-like material, including corresponding MassDEP default exposure assumptions for a trespasser scenario. Because the slag-like material at the subject Site is not considered bioavailable (due to its solidified state), the maximum detected levels in soil/slag (excluding the one anomalous lead result) were used as the exposure point concentrations for this risk evaluation. This approach is generally conservative because in most cases higher levels of metals were detected in soil and similar levels of PAHs were detected in soil and slag.

The attached Shortform results show that the calculated risks using the maximum detected values do not exceed the MassDEP risk limits of 1 for non-cancer risk and 1e-05 for cancer risk. Therefore, these soils and slag-like materials, even if exposed, are considered to represent a condition of "No Significant Risk" for current and future foreseeable conditions at the Site.

Attachments:

Site and Soil Sampling Location Plan
Method 3 Risk Assessment for a Trespasser Exposed to Chemicals in Soil - Shortform 2012 (sf12ts)

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