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PUBLIC PARTICIPATION & NEWS

Light Non-Aqueous Phase Liquid (LNAPL) Workgroup

Handout from 11/20/2008 SAC Meeting

MassDEP will convene an LNAPL Workgroup of LSPs, other practitioners and MassDEP staff.

Those interested in participating should contact Ken Marra at Kendall.Marra@state.ma.us or 617-292-5966.

Workgroup web site: <http://www.mass.gov/dep/cleanup/lnaplwg.htm>

Overview:

As stated in "Characterizing Risks Posed by Petroleum Contaminated Sites: Implementation of the MADEP VPH/EPH Approach" (MassDEP Policy #WSC-02-411, October 31, 2002):

"The presence of non-aqueous phase liquids (NAPL) adds significant complexity to the assessment and remediation of petroleum-contaminated sites. Of primary concern are (1) the bulk fluid migration of petroleum NAPL, and potential discharge into underground structures, utilities, and/or surface water bodies, and (2) NAPL acting as a continuing source of soil, groundwater, and/or soil gas contamination."

Compliance with a number of MassDEP's regulatory thresholds is commonly determined by relatively simple field measurements of LNAPL thicknesses in monitoring wells, even though it is generally accepted that none of the methods to correlate well thickness to actual formation thickness are either reliable or consistent with an accurate LNAPL conceptual site model. There is general recognition among regulators and environmental professionals that the principles of LNAPL mobility (or, more specifically, immobility) should be considered and reflected in our technical practices and regulatory work.

Over the last five years, the LSPA Technical Practices Committee (TPC) has examined the assessment of LNAPL and its relationship to the Massachusetts Contingency Plan (MCP, 310 CMR 40.0000). The LSPA TPC published two White Papers on this topic, most recently in July 2008, that included recommendations for assessing and regulating LNAPL at petroleum-contaminated sites. In response, MassDEP is convening a Workgroup to review these recommendations and to consider guidance and/or regulatory changes that may apply.

The assessment of LNAPL in the subsurface is not a new topic, having been studied by soil scientists, petroleum engineers and environmental professionals for decades. However, multi-phase fluid flow in porous media is a complex subject, and accounting for even the most basic parameters for purposes of site assessment, risk characterization

and cleanup is challenging from both technical and regulatory perspectives. There are a variety of views on how best to do this. Bringing together MassDEP staff, the LSPA TPC White Paper authors and other environmental professionals, the Workgroup will collaborate with the goal of developing an approach that is sound and workable within the MCP framework.

Topics to be covered include:

- * Conceptual site model
- * Understanding and assessing potential exposure pathways
- * Principles of LNAPL mobility and "Residual Oil Saturation"
- * Review of previous studies, existing empirical data sets, federal and state policies
- * Analytical data requirements and methods
- * Risk assessment
- * Implementation under existing regulations
- * Possible future regulatory changes