5th International Symposium on Sediment Management (I2SM 2016)
Montreal - July 10-13 2016

# A REVIEW OF CHARACTERIZATION TECHNIQUES FOR NAPL IMPACTED SEDIMENT

**Hayter Scott[1], Searcy-Bell Kristin[2], Wyss Troy[1]**

[1] Ramboll Environ; 3600 Green Court, Suite 750, Ann Arbor, MI 48105 USA, shayter@ramboll.com; [2] Ramboll-Environ, 333 W. Wacker Drive, Suite 2700, Chicago, IL 60640 USA, ksbell@ramboll.com;

## ABSTRACT

Adequate characterization of contaminated sediments is critical to the design and implementation of a successful remedy. The investigation and remediation of impacted sediments is complicated by the presence of non-aqueous phase liquids (NAPLs). NAPLs within contaminated sediment require additional characterization techniques beyond those typically employed when the contaminants are sorbed onto the sediment particles and dissolved within the porewater.

NAPL characterization techniques can be used to answer critical questions related to the conceptual site model. These questions include:

1. What are the composition and physical characteristics of the NAPL?
2. What are the horizontal and vertical extent of the NAPL?
3. What is the source of the NAPL?
4. How did the NAPL migrate to its current location?
5. Is the NAPL at risk of further migration?

Characterization data is typically collected when NAPL is discovered during a sediment remedial investigation. Standard tests for NAPL include specific gravity, viscosity, composition, and horizontal and vertical extent. Other data related to characterization of the NAPL may be specific to the type of NAPL, the quantity of the NAPL, and the environmental setting.

This presentation describes techniques used for characterizing NAPLs in sediment. A number of lessons learned through practical application of these techniques is discussed, along with a review of each technique's effectiveness. Case studies from a number of NAPL-contaminated sediment sites located throughout the United States and Canada are presented, and the effectiveness of the characterization techniques is discussed in the context of both the NAPL and sediment types.