Adaptive Management: A Practical Approach to Remediation of the Lower Passaic River

Marcia Greenblatt (mgreenblatt@integral-corp.com) and William Locke (Integral Consulting Inc., Louisville, CO, USA)
Robert Law (de maximis, inc., Buckingham Twp, PA, USA)

Background/Objectives. Evaluating future remedial benefits and achievement of risk reduction goals at large sediment sites are challenging due to complex fate and transport dynamics, long time frames to reach clean-up goals, uncertainly in quantifying system response, and potential for recontamination. EPA guidance and directives have recognized these challenges and recommend an adaptive management approach, both to address the highest risk areas as soon as possible and to manage the uncertainty associated with system response(s) to remedial actions. The inclusion of adaptive management in remedial planning at large sediment sites is becoming more common, and documentation of its planning and implementation will further its acceptance from both regulatory and technical perspectives. This presentation will summarize the adaptive management approach proposed for the upper 9 miles of the Lower Passaic River Study Area (LPRSA) in New Jersey.

Approach/Activities. The Diamond Alkali Superfund Site includes two operable units (OU) to address contaminated sediments in the LPRSA. EPA issued a Record of Decision (ROD) for the lower 8.3 miles in 2016 (OU2). The EPA and the LPRSA Cooperating Parties Group (CPG) have worked together to develop a proposal for an interim action (IA) remedy for the upper 9 miles of the LPRSA (OU4). The IA includes an Active Remedial Element which consists of targeted dredging in this segment of the LPRSA followed by an Adaptive Management Element (AME). The AME will evaluate the response and recovery of fish and crab tissue following active remediation and include long-term performance monitoring following remedy implementation to measure risk reduction. The AME will identify a set of monitoring metrics with defined triggers that will address the remedial action objectives and/or performance goals for the upper 9 miles, as well as a set of contingent actions, in the event that the remedy does not perform as anticipated, to understand the cause(s) and to determine whether additional active remediation or other steps are necessary to achieve a protective final remedy.

Results/Lessons Learned. In April 2018, CSTAG supported the uses of an IA and the AME to address contaminated sediment in the upper 9 miles in the near term. The approach provides a means to manage the uncertainty in the response of the river to active remediation, and defines a mechanism to evaluate recovery and assess the need for additional remediation if recovery goals are not achieved.