

Evaluating Impacts of In Situ Solidification/Stabilization of Sediments

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Background/Objectives. A U.S. EPA Time-Critical Removal Action (TCRA) to remediate a former manufactured gas plant (MGP) site required innovative solutions to successfully overcome challenges presented by unique site conditions. The primary technology for the remedy was in situ solidification/stabilization (ISS) of approximately 80,000 cubic yards of coal tar impacted soil followed by two feet of clean backfill. Portions of the upland and previous wetland ISS areas are now submerged following the rise of Great Lakes water levels. As such, the clean backfill has become inundated and resembles an aquatic environment. The objective of the study is to evaluate field conditions (e.g., water quality, sediment chemistry, benthic habitat) related to the use of ISS in sediments and increase understanding of post-ISS ecosystem health by monitoring benthic communities.

Approach/Activities. Field efforts will be conducted during the summer and/or fall of 2018 to investigate how field conditions related to the use of ISS in sediments by monitoring benthic communities. The approaches and activities will include the characterization of surface water and surface sediment chemistry and benthic community metrics. Field efforts to characterize these environmental matrices will occur at a former MGP site in Two Rivers, Wisconsin and at one or more proximal reference locations. An appropriate index selection to characterize the benthic communities at the site and the reference area(s) will be contingent upon the methods used in the field (e.g., kick sampling, multiplate sampling). This work is partly funded by an internal OBG Innovation grant program and our partners.

Results/Lessons Learned. ISS is being increasingly considered as a potential remedy for impacted sediment. As part of this evaluation, it is important to confirm that there are no unacceptable impacts to the aquatic ecosystem stemming from the use of ISS. Therefore, this work is being performed to better understand post-ISS benthic community habitat recovery and to explore the ability of sediment ISS projects to provide enhanced habitat characteristics. The data obtained from this study will serve as a basis for further study to evaluate a range of conditions under which ISS might be appropriately performed and the resulting impacts on post remedial habitat.