

In Situ Solidification/Stabilization of Sediments: State of the Practice

Darin Payne (DPayne@geo-solutions.com) (Geo-Solutions Inc., St. Petersburg, FL)
Tim Olean (tim.olean@obg.com) (O'Brien and Gere, Wrentham, MA)

Background/Objectives. The remediation of sediments, especially those in urban waterways, can be complex and expensive. Traditionally, remedies at these sites have centered on dredging impacted sediments with upland treatment or disposal. More recently capping of impacted sediments, often with active treatment layers, has seen increasing use. However, the range of remedial technologies available to manage impacted sediments has not been as broad as the range of tools available for upland site remediation. In situ solidification/stabilization (ISS) has seen increasing use on upland sites, originally for treatments of metals and more recently for treatment of organics and NAPL. ISS is a technology that treats soils and sediments in place by mixing with admixtures or reagents intended to alter the soil/sediment physical or chemical characteristics. Over the past several years an effort has been made to adapt ISS technology for the in-place treatment of sediments. While the use of ISS is not appropriate under all conditions, the development of this technology will provide another tool that can effectively manage sediments given site specific constraints. The use of ISS may allow for less community disruption, less waste placement in landfills and less impact on infrastructure.

Approach/Activities. This presentation will describe the current state of the practice for ISS in sediments and discuss the methodologies currently used to convert upland ISS methods for use with sediments. A discussion will also be provided on several recently completed bench top and pilot studies performed to advance the technology.

Results/Lessons Learned. These will include presentations of selected performance data and project outcomes. Further summary will be provided on implementation challenges, technology limitations, design considerations and conceptual planning. Finally, the regulatory issues and hurdles encountered to date will be presented.