

282f Active Capping of Contaminated Sediments

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Innovative active capping techniques offering both containment and treatment are effective, low-cost means of managing the sediments that endanger the health of our nation's waterways. Conventional capping with sand or other inert materials are not normally considered in the many areas subject to groundwater upwelling or tidal pumping due to the potential for contaminant mobility and flux to the overlying water. The sediment-water interface, however, provides opportunities for economic placement of a treatment barrier to encourage contaminant degradation or sequestration prior to release to the overlying water. Such a system may be especially cost effective if contaminants can be directed toward a relatively small treatment area through the use of demonstrated funneling technologies. Placing a funnel and gate reactive barrier at the sediment-water interface provides contaminant treatment directly at the point of exposure to human and animal receptors, and treats contaminants sourced either in the sediments or in an adjacent groundwater plume. The key to the success of a funnel and gate treatment technology is 1) the availability of appropriate funneling technology, 2) viable placement/replacement approaches for high value treatment media, 3) treatment media that are effective, cost-efficient and long-lived in the unique geochemical environment at the sediment-water interface, and 4) process design tools to select and size the treatment media. The work to-date supporting these components of a successful active capping treatment technology will be stressed in the presentation. Specifically the work on the Anacostia River Active Capping Demonstration and the results of that work relative to these components will be summarized.