Microbial Degradation in Sediment Capping

- **Strategic Fit:** Contaminated sediments in rivers, harbors, lakes, and estuaries constitute one of the most technically complex and financially significant categories of environmental liability for the Energy Industry.

- **Program Goal:** The goal of the proposed program is to develop a defensible approach for predicting bacterial colonization and biodegradation rates caps placed over impacted sediments.

- **Value Proposition:** Regulatory agencies routinely require long-term monitoring of sediment remedies, potentially lasting in perpetuity. Although studies conducted over the past 30 years have documented intrinsic biodegradation of organic contaminants such as naphthalene, degradation rates in cap simulations employed for design purposes are frequently set to zero as a conservative simplification. Better understanding the range of non-zero degradation rates that are appropriate for different capping scenarios has the potential to enable better informed decision making and could reduces costs if smaller caps can be reliably employed and/or if the duration of regulatory mandated monitoring can be reduced.

- **Brief Program Description and Expected Deliverables :** The time course of bacterial colonization will be measured in sediment caps of various designs, and effective degradation rates and fluxes will be calculated. An emphasis will be placed on narrowing the range of degradation values that can be defensibly justified in remediation planning.

- **Deliverable(s)**: A final report summarizing all tests and findings
- **Total estimated budget**: $500K