

**P.7            A Trans-Disciplinary Science and Technology Model  
                  for Long-Term Stewardship of Contaminated Sites**

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**Abstract**

DOE/EM Grant #DE-FG01-93EW53023 has been doing research on “Hazardous Materials in Aquatic Environments of the Mississippi River Basin” (EM-Aquatic). During the past seven years, the CBR has developed, through DOE partnership, a unique natural laboratory located in the The Center for Bioenvironmental Research (CBR) at Tulane and Xavier Universities through its bayou country of Louisiana to study remediation, fate and transport, toxicity, ecosystem assessment, ecology, and pollution prevention in the environment. The result is a unique model ecosystem that can provide applied holistic environmental assessment and remediation tools not only for ecosystems of Louisiana but for contaminated DOE sites throughout the country. Through novel approaches using receptor-based methods, exploitation of natural remediation processes and environmental signaling, the CBR has provided the DOE with the power to harness this knowledge and provide new solutions to its long-term stewardship needs.

Already, specific research projects within the task areas of this project have developed into usable technologies for DOE and other government and private entities in the areas of biosensor development, biomarker identification, fate and transport modeling, and remediation. Future work will include novel approaches using receptor-based methods and environmental signaling. The use of receptor-based methods, such as endocrine disruption, to perform hazard monitoring has novel advantages compared to traditional methods used for ecological and human health risk assessment. Leveraging upon the CBR’s experience with model ecosystems and its internationally renowned expertise on environmental signaling the CBR will collaborate with the DOE’s national labs’ Environmental Health Initiative to enhance the scientific basis for environmental decisions and prevent and predict environmental threats to human, wildlife, and ecosystem health. In addition, the CBR will continue to develop innovative technologies and transfer them through cooperative programs to the DOE and other government and commercial sectors.