



An Electronic Newsletter
of EEA's Environmental
Consulting Activities

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EEA services include
Phase I ESAs, Haz-Mat
Testing and Remediation,
Wetlands Delineation
and Creation, Natural
Resources Inventories,
Marine Ecology Studies,
Air Quality and Noise
studies, and Environmental
Management System (ISO
14000) implementation.

Environmental Consulting

INSIGHTS



EEA Vibratory Core Studies The Anacostia River Train Derailment EEA Mobilizes to Washington D.C.

(printer friendly version uses Acrobat Reader)

For the past 15 years, EEA has been at the forefront of vibratory core sampling studies. Assisted by a team of scientists, EEA Senior Scientist Jeff Shelkey has been there since the beginning, developing and crafting the techniques necessary for what can be a complex undertaking. Recently, our team of scientists were rapid responders to a train wreck in Washington D.C.

EEA Responds to the CSX Train Derailment

On Friday, November 9, 2007, a CSX 89-car coal train derailed while crossing an abandoned section of the Sousa Bridge on the Anacostia River in southeastern Washington D.C. ([Anacostia Train Wreck](#)).

About 600 tons of coal were dumped into an already heavily contaminated river after six cars fell into the water.

Another eight cars were above threatening to also plunge into the river below. Coal contamination was certainly a concern, but another issue was at hand. Other potentially contaminated sediments could be re-suspended during removal of the freight cars and the coal. The risk of contaminating the river with toxic substances was real.



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Abandoned bridge and freight car
derailment on the Anacostia River

Concern was raised immediately by the District of Washington Department of the Environment (DOE), and other regulatory agencies, as to the suspension of highly toxic sediments into the water column during the initial train wreck, and then, the potential re-suspension of the sediments during removal and excavation of the submerged cars and spilled coal. Sediment testing had to be done quickly and before the cars were removed from the scene.

EEA's previous work on various Army Corps of Engineer's projects from Maine to Georgia led to an urgent call late Sunday night that our vibratory coring services would be required to delineate existing sediment conditions and help determine the potential spread of highly toxic sediments.



Removal of freight cars on the
Anacostia River using cranes and
barges

While two other contractors were called to the scene to respond, EEA was able to rapidly conduct all field sampling and coordinate the laboratory testing.



EEA mobilized our 24-foot Carolina skiff and our electrically powered Rossfelder P-1 vibratory corer for this project. The skiff was chosen because of its portability and the ability to remove the entire pilot house in less than 1 hour. The shallow draft and low overhead clearance with the pilot house removed allowed easy access to all the upstream sampling locations with passage under the overhanging trains on the

[Roy R. Stoecker, Ph.D.](#)
Vice President

A Turbidity Curtain was placed on the Anacostia River to prevent coal particles and other suspended materials from migrating.

collapsed bridge.

EEA collected over 40 vibratory cores at all the predetermined locations both upstream and downstream of the train wreck during one 20-hour workday. The sediment core samples were logged, sub-sampled and rushed for immediate laboratory analysis. DOE and assisting agencies monitored the water quality as they prepared for the removal of the freight cars. See the links below for more on the train derailment.

Vibratory Coring Basics



Vibratory Core Sampler
Extracting Sediment

So what is this vibratory core sampling, anyway? About 35 years ago, soviet scientists invented an apparatus to extract sediment core samples from aquatic environments. They developed a corer device that could retrieve up to 20-foot long sections of sediment. Today up to 40-foot lengths can be successfully obtained. Coastal engineers and geologists can examine these cores to collect all kinds of scientific data, including global inventories allowing scientists to map the Earth's sediments. How do we use it here at EEA? Vibracoring is an essential tool for assessing contamination within aquatic sediments.

EEA, Inc. has assisted numerous U S Army Corps of Engineers (ACOE) Districts from New England to Georgia with their requirements to sample and analyze marine and riverine sediments prior to undertaking dredging projects. Why do they need to dredge? Lots of reasons: to clear shoal areas, deepen channels, expand ship turning basins, beach replenishment/nourishment and stabilization programs. A major focus of the vibratory coring program is to determine the sediment toxicity through chemical and physical analysis. EEA has collected thousands of linear feet of core samples from severely contaminated superfund sites and petroleum refineries to pristine marshes and beaches.

EEA Develops the Technology

EEA has developed a modular component vibratory coring program whereby different vibratory corer heads, tubes, liners and cutter/catcher tips are selected to fit the clients sampling and access requirements. The chosen systems and components can then be loaded on modular assembled rafts, shallow draft skiffs, shallow draft barges, high lift capacity motorized barges or oceanographic

research vessels. EEA maintains its own fleet of research vessels for use within the New England to Virginia coastline, however will use other client-owned or leased vessels when the opportunity and cost effectiveness permit.

Additional vibratory coring projects of interest include:

Port of Richmond, VA - Turning Basin Enlargement

EEA, Inc. was requested by the Norfolk District of the USACOE to develop and implement a sampling program to determine the physical and chemical sediment quality on the Elizabeth River at the Port of Richmond. EEA designed, modified and constructed a pneumatic coring system capable of collecting a continuous 30-foot long core sample in water depths in excess of 50 feet. Due to transportation problems with a 30-foot core barrel, EEA constructed the extended length barrel on board the Elizabeth for this sampling program.

Tangier Island, Chesapeake Bay, VA

EA, Inc. was requested by the Norfolk District of the USACOE to assist in the development and implementation of a sampling program designed to determine the geotechnical suitability of the marine sediments along the rapidly eroding windward side of the island to support a stone revetment or wave breaks to dissipate hurricane and gale force wind driven waves. Tangier Island is located in the middle of the Chesapeake Bay between Maryland and Virginia and has a maximum elevation of 5' above sea level. It is a significant historical and environmental resource to the bay. The resident fishermen on the Island provide approximately 50% of the total blue crab catch landed in the Chesapeake. To protect this critical resource, EEA was required to collect and preserve, continuous 20-foot sediment core samples for geotechnical and chemical analysis.

New Bedford Harbor, MA

EEA, Inc. has had a significant history of designing and developing specialized coring equipment to assist numerous ACOE contractors to collect the highly contaminated PCB sediments from this EPA Superfund site. Due to the nature of highly contaminated sediments, EEA, Inc. designed and modified one of our coring systems to collect and contain sediments with free product with minimal sample loss.

Delaware River, PA

EEA, Inc. was selected to participate in the long term (five year) USACOE Philadelphia District Dredged Materials Management Program to supply personnel, equipment, vessels and expertise to support ongoing dredging projects in the Philadelphia area. EEA Inc. supplies site specific equipment to collect sediment cores on an emergency and non-emergency basis throughout the Philadelphia Districts' domain.



Other Useful Links:

[Clean Up, Questions Begin In Train Derailment -News Story -WRC | Washington Train Derails Over Anacostia River - AOL Video](#)
[Anacostia Watershed Society Press Release 11/13](#)
[Anacostia Watershed Society Press Release 11/21](#)
[At Accident Site, a Bridge Too Far Corroded - washingtonpost.com](#)
[Pulling Rail Ca From](#)
[Anacostia Could Take a Week - washingtonpost.com](#)