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Environmental and Assignment Editors Advisory/Invitation:
DEMO Wednesday, May 29, at 11:00 am, Southold, Eastern LI

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New Dredging System Aims to Contain Sediments, Eliminate Onshore Handling; NYSERDA-Funded Project Addresses Two Major Hudson PCB Issues

Albany, May 16, 2002--Seaway Environmental Technologies, Inc. of Greenport, in cooperation with the New York State Energy Research and Development Authority (NYSERDA) will demonstrate a functional prototype of a new, significantly improved contained-dredging system this Spring on Long Island. This breakthrough system prevents contaminants from escaping the dredge work area, and can eliminate the need for local, on-shore processing of water and spoils--two major issues facing environmental cleanup projects, such as the Hudson River PCB dredging.

"The Seaway technology puts new control into the dredging process. By establishing a control zone, it prevents re-contamination of the surrounding water by containing and capturing churned contaminants," according to Seaway's President and co-designer Warren Chesner, Ph.D., P.E. "Such control is unavailable with conventional methods. Further, the Seaway solids management approach can eliminate the need for local on-shore handling and transport of hazardous material through communities adjacent to the dredge site."

Two types of containment dredging systems are being demonstrated: One is for open-water operation and the other is for confined dredging sites. The first, a specially designed Contaminated Sediment Removal Vessel, (CSRV), is a barge with a nominal inboard rectangular 100x35 ft. opening, through which vertical barrier walls are set to surround the target dredge work zone. The barrier wall is formed by interlocking steel piling walls, equipped with a special joint-sealing system, designed by Seaway, that controls water inflow. Once set, pumps aboard the barge lower water levels within the control zone. The resulting inflow prevents contaminants from leaking outward to surrounding waters.

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Water pumped from the control zone during dredging is treated onboard the barge, using Pall Corporation of East Hills, microfiltration membrane systems. Pall (NYSE: PLL) hollow fiber membranes provide effective separation of contaminant associated with particulate and precise control over effluent water quality. Tom Wingfield, Vice President of Pall Water Processing said: "The simplicity and effectiveness of Seaway's CSRV technology was what initially attracted us to partner with them on a New York technology-based solution. The CSRV, coupled with the membrane, provides a level of control and protection not seen before in this business." Pall has been providing critical separations and containment technology in a variety of environmentally sensitive applications including drinking water, process water and wastewater for 50 years.

Seaway's second design, the Contaminated Sediment Excavator (CSE), is designed for use in tight sites or inlets, and features an enclosure that envelops a mechanical dredge (clamshell bucket). The CSE uses compressed air to control pressure inside the bucket enclosure, drawing loose sediment into the enclosure and then pumping it up to the micro-filtration system for onboard treatment, similar to the CSRV. Both designs rely on a separate barge to contain, and remove off site, the bulk of the dredged spoils and permit controlled monitoring of cleanup effectiveness, ensuring a clean target zone, before moving the rigs on to the next zone.

"NYSERDA's mission is to advance innovation and technology to solve New York's most pressing energy and environmental challenges. This technology may dramatically impact the cleanup of tons of PCBs made for use in electric transformers, coal tars left behind from the early manufacture of lighting gas, and petroleum pollution at dozens of sites across New York's waterways," said NYSERDA President William M. Flynn.

In addition to NYSERDA, Seaway's partners include the University of New Hampshire Cooperative Institute for Coastal and Estuarine Environmental Technology (CICEET), supported by the National Oceanic and Atmospheric Administration (NOAA), and the Pall Corporation of East Hills, (Nassau County), Cornell Cooperative Extension's Suffolk County Marine Program is providing water quality evaluation during the demonstration. A technical advisory group, consisting of representatives from the New York State Departments of Environmental Conservation and Health, the New York State Canal Corporation, the University of Connecticut, the State University of New York at Stony Brook and Buffalo, the New Jersey Office of Maritime Resources, the U.S. Army Corps of Engineers, the U.S. Environmental Protection Agency, and the General Electric Corporation will be reviewing and evaluating the demonstration activities.

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"Seaway is evaluating the operating characteristics of the system. We anticipate commercialization in 2003", said James Melrose, Seaway's Vice President, responsible for engineering and operations. "Our demonstration will illustrate the capabilities and provide us with additional design and operating data to move forward."

Thomas B. Williams, Executive Director of Cornell Cooperative Extension of Suffolk County said: "CCE Marine Program conducts demonstration research projects to help solve marine environmental problems. We are excited to be involved with this new developing technology that can solve contaminated sediment problems throughout the state."

In Suffolk County alone, since 1998, NYSERDA has provided more than $5 million to support some 47 projects. Combined with co-funding from NYSERDA's partners, the value of these projects is more than $11.5 million. Among the larger entities NYSERDA is working with in Suffolk County are the Brookhaven National Laboratories, the Town of Huntington and Insight Technologies.

NYSERDA is a public benefit authority created by law in 1975. It's R&D program and the **New York Energy $mart**[SM] programs encourage energy efficiency, protect the environment and promote economic development, as the State's electric utilities move to competition. For more information, visit www.nyserda.org

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For more information on Seaway's technology, or to arrange for site visits, contact Seaway Environmental Technology, Inc. at 631-462-9794 or 631-499-1085 or e-mail at ce1@idt.net.

Seaway Control Zone Technology

for

Contaminated Sediment Cleanup

Frequently **A**sked **Q**uestions

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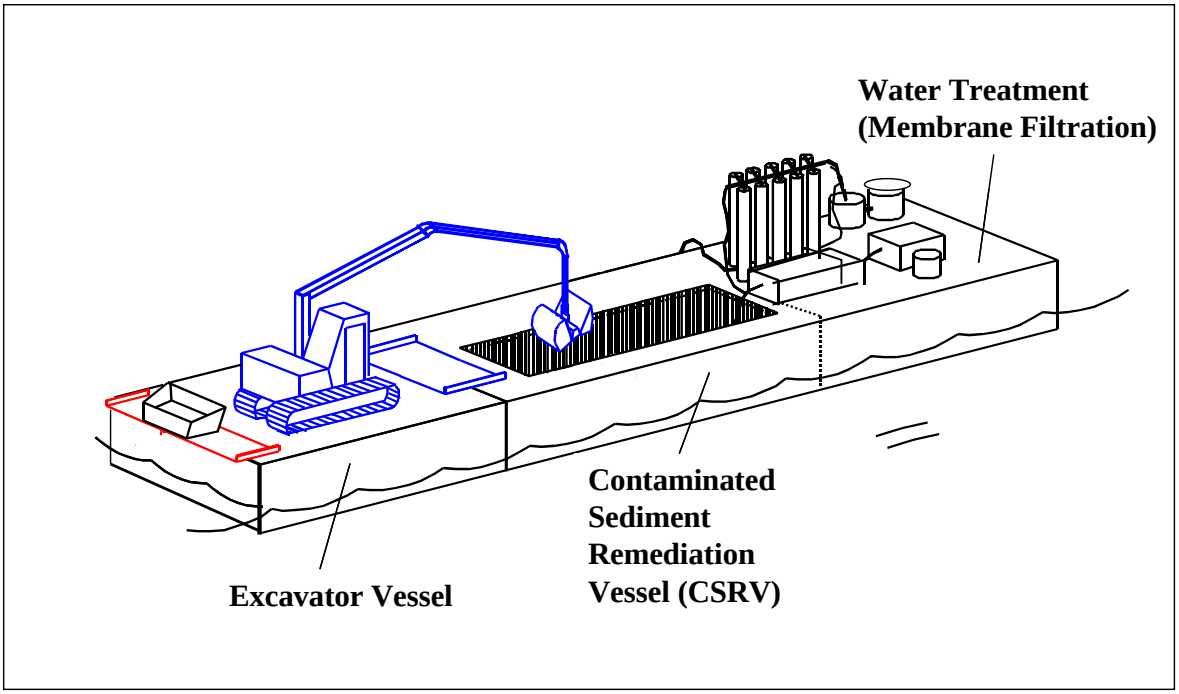

Seaway Control Zone Technology for Contaminated Sediment Cleanup
Frequently Asked Questions

What is Seaway?

Seaway is a marine engineering and operations company dedicated to the development and commercialization of "Best Available Technology" (BAT) for the treatment and protection of water and sediment of inland and coastal aquatic environments. Seaway has offices in Commack, NY and field-testing and operational facilities in Greenport, NY. Principals of the company are Warren H. Chesner, Ph.D., P.E. (President) and James Melrose (V.P. Engineering and Operations). Seaway has entered into third party strategic relationships with private entities, government agencies, and universities to develop and commercialize its control zone technology.

What are Seaway's technology goals for contaminated sediment remediation?

Seaway's goals are to provide for the

- Effective removal of contaminated sediments which meet site specific cleanup standards,
- Containment of all contaminants during the excavation process,
- Treatment and discharge of a high quality water collected in the process,
- Managed control of all excavated sediments,
- Secure transportation to the disposal site, with
- Minimal disruption to the local environment and community,
- No land-based operations in the dredge vicinity – all processes take place aboard specialized barges.

What is Seaway's Control Zone Technology?

Seaway's technology provides the means to excavate contaminated sediments in a manner that prevents the release of particulate and soluble contaminants into the surrounding water environment and establishes an area that can be effectively monitored to ensure that remediation goals are met. To achieve these objectives Seaway has introduced the concept of the "dredge control zone." The control zone is a secure dredging area that is maintained and sealed off to prevent the release of contaminants generated inside the zone. To establish such a zone in a practical dredging application, Seaway has developed specialized equipment: 1) the Contaminated Sediment Removal Vessel (CSRV) and 2) the Contaminated Sediment Excavator (CSE). The CSRV is presently the system of choice for large-scale contaminated sediment projects, while the CSE is intended for smaller scale activities.

What is a CSRV?

The CSRV is a flat barge with an inner rectangular opening from which vertical barrier walls are deployed to surround the contaminated area. These vertical barrier walls consist of specially designed steel pilings and a sealing system to minimize infiltration through the joints. The contaminated area inside the control zone is effectively sealed off from the surrounding area by creating a negative pressure inside the barrier area, thus preventing any water or contaminants from leaking out of the control zone into surrounding waters. Once this containment area is sealed off, dredging operations can be safely implemented within the boundaries of the vertical barrier walls, or control zone, with total containment of resuspended contaminants. Water pumped from the control zone is treated on a barge using microfilters capable of achieving drinking water quality effluents, prior to discharge.

How large is a CSRV?

A commercial-sized CSRV is approximately 140 feet by 60 feet, with a 100 foot by 35 foot control zone. Smaller or larger sizes may be made available depending on site-specific conditions.

How are contaminated sediments removed from the CSRV control zone?

Contaminated sediments are removed with a mechanical (clamshell bucket), which provides the most favorable (low) liquids-to-solids ratio for dredging. Spillage or dispersion of particulates during excavation is contained within the control zone. Bucket washing is unnecessary. After the excavation is completed, the dispersed solids are permitted to settle to the bottom, resulting in a bottom fluff, which is vacuumed up using a cutterless vacuum dredge developed by Seaway.

How is the excavation monitored?

The control zone is maintained in place until such time that the zone can be certified as clean (i.e., the site has met the cleanup goals), by sampling and monitoring the sediment and the water column in the control zone.

What is the microfiltration water treatment facility?

Seaway's treatment facility makes use of polymeric membrane filtration technology to remove all submicron-sized particles and is capable of providing soluble contaminant treatment should soluble breakthrough occur.

What is done if there is soluble or particulate contamination still remaining in the water column after settling?

By maintaining the control zone, Seaway has the capability of treating the water in the control zone (several turnovers, if necessary). This is accomplished by pumping water from the control zone through the treatment facility to achieve the desired water quality. As Seaway pumps water out of the control zone, more water is permitted to flow into the zone to maintain a controlled differential pressure gradient between the inner control zone and the ambient water environment.

What is a CSE?

A CSE is a specially designed enclosure (similar to a diving bell) that envelops a mechanical dredge and introduces an alternating cycle of positive and negative pressure within the enclosure to collect liquid and sediment particles that are dispersed during the dredging process. The pumped water is diverted to the microfiltration system as in the CSRV operation. The CSE is applicable where deployment of the CSRV is not practical.

How does the CSE maintain pressure control?

The CSE utilizes compressed air to prevent the inflow of water into the enclosure during the descent of the CSE to the sediment excavation location. During the excavation, dispersed liquid and solids released during the excavation are captured. This is accomplished by essentially using suction to draw in the contaminated water and sediments disturbed during the dredging operation

What special solids handling techniques does Seaway employ?

Where on-shore processing of dredged solids is impractical, Seaway has developed, as part of CSRV and CSE operations, specialized solids management facilities on a solids-handling vessel to eliminate the need for on-shore processing. Seaway's solids handling facilities provide for the stabilization and containerization of the contaminated sediments to ensure safe and secure transport of all contaminated sediments, and eliminates the need for on-shore facilities for stabilizing solids or treating excess waters.

What is the cost of Seaway's CSRV and CSE operations?

The cost of CSRV or CSE remediation operations is highly competitive with conventional contaminated sediment mechanical (clamshell) dredging operations or hydraulic dredging operations, while affording safe and secure management of the solids at the excavation site and during transport and disposal activities not available using existing remediation practices. The CSRV in particular provides the means for increased excavation productivity due to the high degree of control afforded by the control zone and the absence of major concerns associated with sediment dispersion and contaminant transport that typically slows contaminated sediment excavation rates.

How does the production or cleanup rate of CSRV operations compare with traditional environmental dredging operations?

The production rate in CSRV operations will be comparable, and in many instances greater, than that of traditional cleanup methods. In most instances multiple CSRVs would be deployed in tandem with a dedicated excavation or crane barge, which would move from CSRV to CSRV allowing for a consistent production rate for dredging. Although time is needed to move the crane barge, time is gained in other ways. In conventional bucket dredging operations rates are slowed by a concern for sediment resuspension, the need for bucket washing between each immersion cycle and in many cases the need to repeat dredging to achieve target goals typical of many cleanup operations. The CSRV with mobile water treatment would actively control the dredge work area avoiding the need for bucket washing, contain and treat sediment resuspension, and with a two-phased dredging approach in the control zone (bucket dredging followed by a cutterless vacuum polishing step) will reduce the probability of repeat dredging.