

ENVIRONMENT

ronmental Design (LEED) developed by the U.S. Green Building Council. Many of the boat's subsystems such as HVAC, lighting, interior design and materials, plumbing, windows, and materials and other coatings meet LEED standards for building design.

The boat is more than just a symbol of environmentally sensitive design: it will be a working laboratory, a dynamic teaching tool for all who come on board, whether for educational or tour programs, charters or special events. In recognition of this RiverQuest is undertaking a major redesign of its curricula.

Along with its partners and consultants in education, RiverQuest will develop energy and sustainability modules to add to its current core programs.

It was reported that the cost of the vessel will be paid for with private and public funds through a combined capital and operating campaign that has a total goal of \$6m. A total of \$3.7m has been raised overall, with \$1.7m pledged toward the cost of the vessel, and another \$2m pledged toward the portion of the campaign earmarked for operations,

such as expanding and enhancing RiverQuest's curriculum and education programs.

The vessel was built by Freeport Shipbuilding and one of the industry's alternative-fuel marine engineering firms, Alion JJMA of Pittsburgh designed a hybrid dieselelectric propulsion system that is being built by Siemens Energy and Automation of Atlanta, Ga.

The propulsion system will allow the new vessel to run on either large battery banks that will be charged while at dock, a diesel-electric power plant fueled by locally sourced bio-diesel, or new electrical sources using a solar array or next generation fuel cells.

Numerous partners and consultants were involved in one or more aspects of the planning, design, engineering, and construction of the vessel, including: DeJong & Lebet of Jacksonville, Florida; Green Building Alliance, Pfaffmann + Associates, Perkins Eastman, Carnegie Mellon University, and Moshier Studio, all of Pittsburgh, Pennsylvania; and John R. Bond & Associates of Panama City, Florida.



The Foss hybrid tug will look almost identical to its sister Dolphin-class tugboats, but will be quieter, cleaner and more fuel efficient, using hybrid technology.

Genoil's New Water Treatment

A new bilge water treatment technology, Crystal Sea has been created by Genoil for large ships. Crystal Sea's largest design of 20 gpm and smallest design of two gpm passed the high standards set by the Coast Guard and the IMO MEPC 107 (49) in May 2007.

The flow process of the Crystal Sea occurs in six stages. In the first stage, oily water goes into a rectangular chamber to be separated by gravity and is even sorted out by an inlet pipe. The chamber is divided into three parts that are separated by baffles, which reverses the flow into a circular motion, creating better separation for the particles and helps the flow move into the second stage.

In the second stage the flow proceeds to a weir, then an oleophilic basket. The basket first allows for the beads of oil to move freely, but it eventually acts as a catalyst for the beads to mold together because of the lack of space. This results in oil droplets being released from the beads in a self cleaning process. Finally the basket forms an oily layer that goes through another separation because of gravity and into the third and fourth stages.

In these two stages the oil drops break away because the liquid starts to move slower. The decline in speed



causes the liquid to reverse, while the drops go into an oil collector. A pump then transports the liquid to be separated by a vortex, a generating device. Centripetal forces create globules that are recovered by a conduit and brought to a generator, while the liquid exits the vortex generator to complete the process. In between each stage a plate divides the liquid and oil particles, causing the particles to assemble around a funnel and move towards an oil collector.

In the fifth stage more separation by gravity occurs and the flow is given a sinusoidal path to go through an oleophilic basket and oil collector. Most of the time all separations are completed before reaching the sixth stage. However, if some oils have a high density, the polishing chamber will retain the excess particles by using a specialized filter in a sixth stage.

For more information, email:
JRunyan@genoil.net

SmartSafe: Prevent Illegal Oil Discharge

In response to market-demand for a fail-safe product capable of detecting, recording and dealing with illegal overboard discharge, Rivertrace Engineering Limited has developed SmartSafe.

"Last year we were asked to develop a bilge overboard security system capable of both ensuring the bilge oily water separator (OWS) isn't being bypassed, and detecting any attempt to bypass it, such as through the use of a magic pipe" said Rivertrace's sales manager Graham North.

SmartSafe monitors and records all aspects of the discharge process in real-time: separator control; oil content output; flow rate and cumulative flow through the discharge pipe. In this way it can anticipate any illegal discharge, and deal with it by shutting off the overboard discharge valve if necessary.

In addition, the data is stored within SmartSafe and

can be played back graphically on the in-built screen, sent for storage to the ships Local Area Network, printed remotely or downloaded to a personal computer. Each start and stop of the oil discharge process creates a secure and unique file.

If the SmartSafe detects something suspicious -- i.e. there is more product going overboard then the system is capable of processing -- SmartSafe shuts the overboard diverter valve down and locks it so that no illegal discharge can take place.

For more information, email gnorth@rivertrace.com

Omnipure Product Lines Get EC Type Certification

Severn Trent De Nora, Sugar Land, Texas, has received the EC Type Certification for the Omnipure and Mariner Omnipure product lines of sewage treatment systems, signifying that these systems are in compliance with standards under the requirements of the Marine Equipment Directive (MED) 96/98/EC, as amended by directive 2002/75/EC. This certification makes Omnipure and Mariner Omnipure sewage treatment systems available for use by countries within the European Union (EU). The Bureau Veritas Marine Division, a worldwide quality assurance provider, managed the certification process.

