

# Cuming Corporation News

225 Bodwell Street Avon, MA 02322.1148 1.800.432.6464 Fax 508.580.0960 www.cumingcorp.com

## CUMING FAST TRACKS DEEPWATER BUOYS FOR DELMAR'S INTEGRATED MOORING SYSTEM

Delmar Systems Inc., of Broussard, Louisiana, has just purchased eight large C-FLOAT buoys for deep-



The Delmar buoys are rectangular with tapered ends for improved stability and handling. They include a central through-pipe for the in-line mooring chain with a stopper plate at each end for easy deployment and retrieval. A rugged outer steel cage provides impact and abrasion damage resistance.

water anchor systems in the Gulf of Mexico. The buoys, which provide 60,000 lbs. of net buoyancy to a depth of 4,000 feet, were designed, manufactured, and delivered in only three months time. Cuming Corporation made significant improvements to the previous buoyancy design, supported by quality control and extensive hydrostatic testing.

Delmar's integrated mooring system enables anchors to be preset in anticipation of a marine vessel's arrival. The system

eliminates the need for the vessel to transport thousands of feet of wire or cable to set its own deepwater mooring system.

"We are confident the C-FLOAT buoys will provide the ruggedness and maneuverability for Delmar's deepwater operations in the Gulf of Mexico," said Ray Wong, Cuming Corporation manager of flotation products. "Our C-FLOAT buoys will enable Delmar's customers to moor deepwater vessels more efficiently than in the past, streamlining deepwater operations."

Brady Como, executive vice president of Delmar Systems, commented, "Cuming performed on-time and on-budget. It was enjoyable to work with Cuming and other local companies in the New Iberia area on this project." ◀

Catch up on the latest improvements to C-FLOAT Special Report p. 3



A look inside the world's largest, most capable private commercial hydrostatic test facility.

## CUMING CORPORATION IN JAPAN

Y. Ikegami is our authorized sales representative in Japan. For information about how Cuming Corporation can support your projects in Japan, see Mr. Ikegami's contact information listed on the back page. ◀



We have several new literature items of interest – a Flotation Products Brochure, Technical News Bulletin on buoyancy performance and a paper delivered at OTC entitled "Syntactic Foam Thermal Insulation for Ultra-Deepwater Oil and Gas Pipelines." To obtain copies, please contact any of our representatives listed on the back cover.



## C-THERM INSULATION SYSTEM FEATURED IN TRITON ENERGY'S CEIBA FIELD



Fully-insulated manifolds will help protect flowlines from plugging for Triton's *Ceiba* project.

Cuming Corporation recently applied *C-THERM* syntactic foam insulation to manifolds for Triton Energy's phase two development of the *Ceiba* field in West Africa. The insulation system is designed to keep oil flowing freely, through two 6-inch flowlines at 2,400 feet, connecting 14 new wells to the FPSO. In addition to the flowlines, the manifold contains interfaces for production jumpers and pigging loops. Cuming also produced insulation systems used in the four wells of *Ceiba*'s phase one. Elmer Hershey, manager of insulation products, commented, "We are pleased that Triton Energy continues to rely on Cuming Corporation for support of its innovative fast-track development of *Ceiba*. We look forward to additional opportunities to demonstrate the effectiveness of our high performance insulation systems." ◀

## TRANSOCEAN SEDCO FOREX PICKS C-FLOAT ULTRALIGHT FOR THE TOUGHEST CONDITIONS

Cuming Corporation has shipped 776 *C-FLOAT Ultralight* modules for the Transocean Sedco Forex *Deepwater Expedition*. The rig is drilling in depths of up to 10,000 feet off the coast of Brazil. Transocean Sedco Forex sought to replace 8,000 feet of its standard design modules with *C-FLOAT Ultralight* for greater durability and performance in extreme water conditions. (See adjacent box for Field Representative Sam Stephenson's comments.) The module string will be changed out in segments at the project's shore base, to keep the *Deepwater Expedition* operating continuously. ◀

"It is with pleasure that I can personally recommend the quality and reliability of the riser buoyancy modules made at your Avon facility. Over the past two years I have witnessed numerous pieces of flotation on a daily basis...Without quality buoyancy, our rigs can't operate and...we do not like down time nor the safety factor involved in breakage."

Sam Stephenson  
Field Representative  
Transocean Offshore Deepwater Drilling

## DIAMOND OFFSHORE ORDERS C-FLOAT RISER BUOYANCY MODULES FOR OCEAN ROVER

Cuming Corporation is gearing up to provide 800 modules for Diamond Offshore's *Ocean Rover*, for duty up to 6,000 feet. These new modules will benefit from our ongoing program of *C-FLOAT* product and process improvements described in the story starting p. 3. The order, to be delivered in 2002, follows a just-

shipped 800-module project for the *Ocean Rover*'s sister rig the *Ocean Baroness*. Other recent flotation projects completed for Diamond Offshore have been: *Ocean Confidence*, *Ocean Endeavor*, *Ocean Whittington* and *Ocean Prospector*. ◀

## CUSTOMERS TO BENEFIT FROM BAYOU FLOW TECHNOLOGIES' INTEGRATED SOLUTIONS

Cuming Corporation is joining with The Bayou Companies and Perma-Pipe Inc. to form Bayou Flow Technologies (BFT), providing integrated flow assurance solutions for the offshore oil and gas market.



BFT combines capabilities and experience of three industry leaders in pipeline fabrication, anti-corrosion coatings, and thermal insulation to offer customers a

single point of contact for offshore thermal insulation of flow lines, risers and subsea assemblies.

Bayou Flow Technologies promises the most rapid delivery of current and developing technology in the flow assurance market, and will offer expert "one-stop shopping" for:

- Engineering Services
  - Fabrication and Testing
  - Corrosion Protection
  - Insulation and Flow Assurance
  - Syntactic Foam Buoyancy
  - Field Installation
- ◀

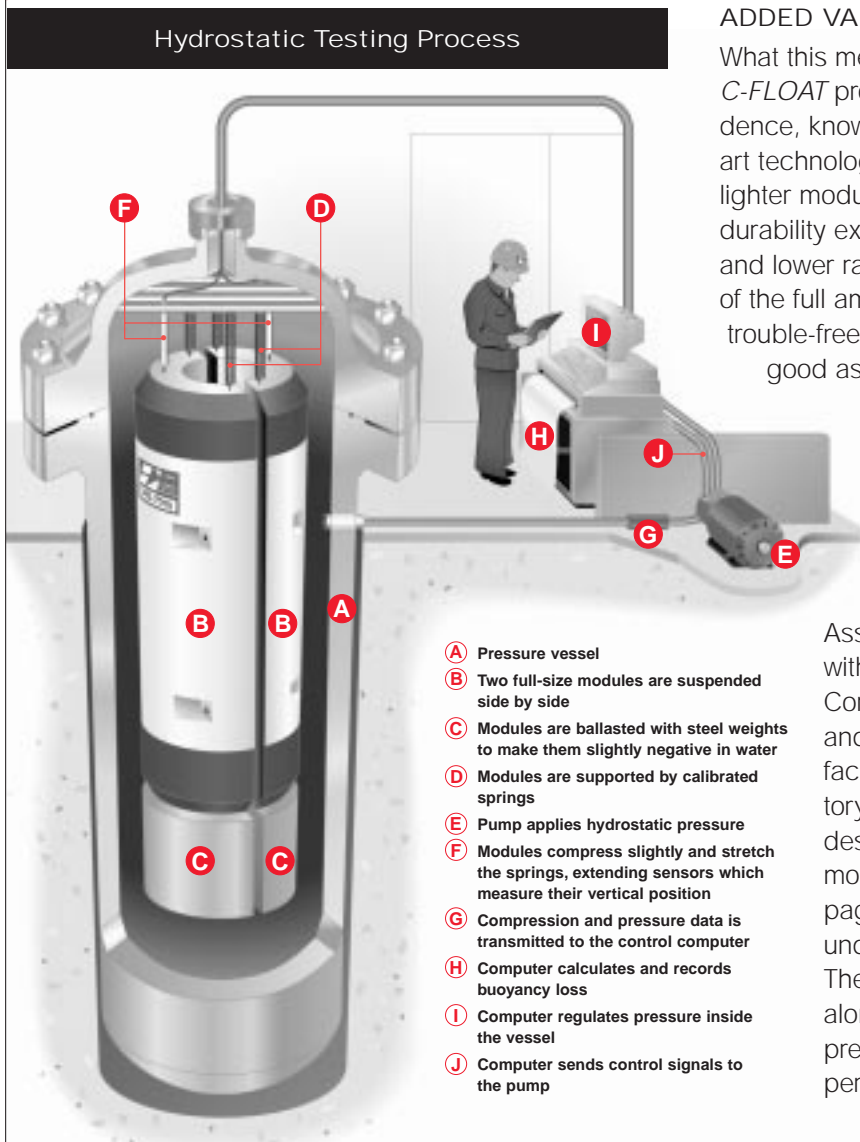
# C-FLOAT RISER BUOYANCY MODULES: RUGGEDIZED AND IMPROVED IN EVERY WAY!

## CONSTANT IMPROVEMENT

We want to let our readers know that an intensive two-year program of product research and process enhancement has paid off handsomely, with C-FLOAT modules showing impressive performance improvements across the board. These results extend our long tradition of leadership and provide even greater value to our customers. Always the quality leader, Cuming Corporation products today offer the following advantages over competing materials, and even our own syntactic foam made as recently as a few years ago:

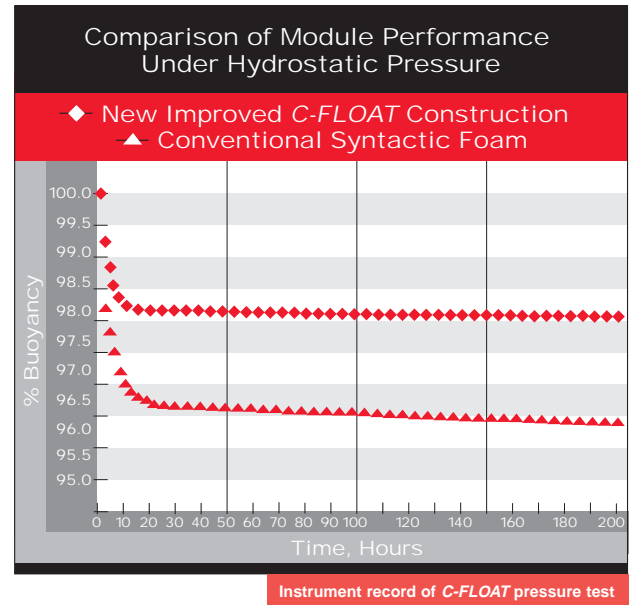
- Deeper Depth Ratings** – Field-proven systems for 10,000 ft. and deeper
- Lighter Weight** – New *Ultralight* and *SuperUltralight* formulations
- Greater Durability** – “Ruggedized” construction for longer useful life
- Less Compression** – Elastic compression cut in half
- Reduced Water Absorption** – Water absorption rate cut in half
- Innovative Features** – Internal strapping and bolting, with integral reinforcement

FIGURE 2



Computer sensors, instrumentation provide real-time data

FIGURE 1



## ADDED VALUE

What this means to you, our customer, is that C-FLOAT products can be purchased with confidence, knowing they provide the best in state-of-the-art technology. Materials of lower density mean lighter modules and smaller diameters. Greater durability extends the useful life. Less compression and lower rates of water absorption ensure retention of the full amount of buoyant lift for many years of trouble-free service. Our modules today are *twice* as good as conventional products, as illustrated in Figure 1. What's more, these claims are backed up and proven by literally thousands of hours of instrumented hydrostatic testing, as described below.

## FULL-SIZE HYDROSTATIC TESTING

Assuring the quality of syntactic foam starts with hydrostatic pressure testing. Cuming Corporation leads the way with the largest and most capable private commercial test facility in the world. Our modern new factory houses three large pressure vessels designed for testing full-size riser buoyancy modules at maximum rated depth. See page 1 photo and Figure 2 diagram to understand how a typical test is performed. The giant vessels are in use daily, and, along with a host of smaller specialized pressure vessels, ensure consistently top performance from all C-FLOAT products.

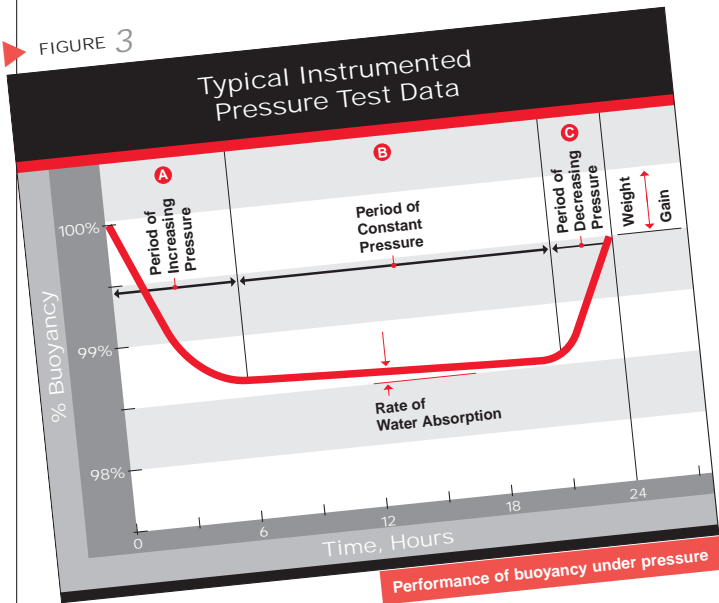
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QUALITY ASSURANCE

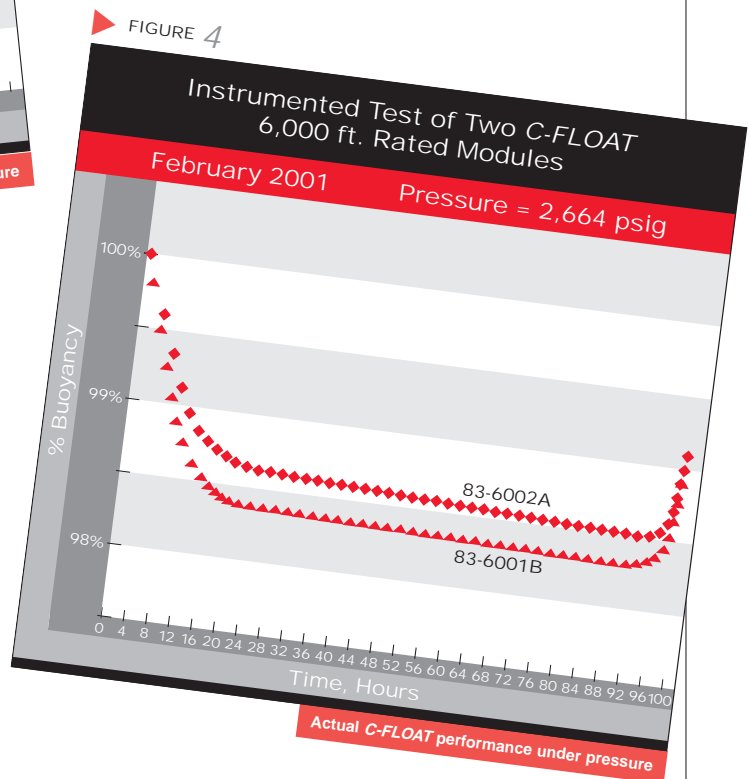
Instrumented testing yields a great deal of valuable information about the buoyancy module, as shown in the chart in Figure 3. The initial period of increasing

A WEALTH OF USEFUL DATA

In its search for excellence, Cuming Corporation tests C-FLOAT buoyancy products far in excess of the levels required by most recognized standards. The result is a data base of knowledge and historical track record unmatched in the industry. Figure 4, for example, charts the test record of two actual production C-FLOAT modules made recently. Their excellent behavior is typical of the performance our customers have come to expect. Every year, many hundreds of such modules are tested, and the feedback is used to further refine our materials and processes. This data is on file, and available for review by qualified parties. If you have a potential application, contact the nearest sales office for more information. ◀



pressure (A) shows a steady loss in buoyancy due to two factors: elastic compression of the syntactic foam, and gradual infiltration by water into the module surface. During the period of constant pressure (B), water continues to find its way slowly into the syntactic structure, but at a steadily decreasing rate. As pressure is reduced (C), most of the volume lost to elastic compression is recovered. However, a small amount of permanent buoyancy loss usually remains as an increase in weight due to water absorption. The slope of the compression/decompression curve at either end is a measure of the modulus, or stiffness, of the syntactic foam. The amount of water absorption can be extrapolated to confidently predict performance over long periods of time.



CONTACT INFORMATION:

- LOU WATKINS (flotation and insulation)
- RAY WONG (flotation)

225 BODWELL ST.  
AVON, MA 02322  
1-800-432-6464  
++1-508-580-2660  
++1-580-0960 FAX  
lwatkins@cumingcorp.com  
rwong@cumingcorp.com

- MIKE BOHLEKE (flotation and insulation)

SCHULSTRASSE 8  
D-61276  
WEILROD 3, GERMANY  
++49-6083-1251  
++49-6083-28380 FAX  
mbohleke@cumingcorp.com

- ELMER HERSHEY (insulation)

4401 CURTIS LANE  
NEW IBERIA, LA 70562  
++1-337-367-8383  
++1-337-367-8349 FAX  
++1-337-380-9910 MOBILE  
ehershey@cumingcorp.com

- NILS MAGNUS AUNE (flotation and insulation)

RUA TEIXEIRA DE GOUVEIA, 1.829  
CAJUEIROS - CEP 27916-000  
MACAE - RJ - BRASIL  
++55-22-2772-2800  
++55-22-2772-1570 FAX  
nils.aune@nils.com.br

- BOB HALEY (flotation and insulation)

11767 KATY FREEWAY  
SUITE 620  
HOUSTON, TX 77079  
++1-281-496-4825  
++1-281-496-4827 FAX  
++1-888-914-8093 PAGER  
++1-713-253-4370 MOBILE  
bhaley@cumingcorp.com

- Y. IKEGAMI (flotation and insulation)

3-16-1 SHIN-YOKOHAMA, KOHOKU-KU  
YOKOHAMA 222-0033 JAPAN  
++81-45-471-4791  
++81-45-471-4798  
ikegami@ece.co.jp

