

Cuming Corporation News

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NEW HIGH PERFORMANCE SYNTACTIC FOAM HIGHLIGHTS CUMING BOOTH #404

Cuming Corporation introduces a *C-FLOAT* HP line of high performance syntactic foams at Deep Offshore Technology (DOT) International Conference and Exhibition in Houston November 28 – 30, 2006. Cuming will occupy part of the BFT booth #404 at the George R. Brown Convention Center.

Based on hydrospace grade glass microspheres in rigid epoxy or hydrocarbon binder resins, the new product line offers exceptional performance in supporting remote operating vehicles (ROVs), submersibles, and instrument packages in the deep ocean, said Lou Watkins, Cuming vice president.



New *C-FLOAT* HP Line.

25,000 feet and beyond. The standard form of the material is in cubic foot blocks 6" x 12" x 24", although other sizes and custom shapes are available. Watkins said the syntactic foam is a strong, light-weight composite that can be saw-cut and machined and bonded together to create complex assemblies.

For more information, contact Lou Watkins at the Cuming booth or visit www.cumingcorp.com.

C-FLOAT HP is made in several grades ranging from 25.0 to 32.0 lbs per cubic foot and for ocean depths to

INSIDE :

C-THERM TIDEEP TEST	2
DIVE! DIVE! DIVE!	2
R&D HIGHLIGHTS	2
JUMPER BUOYS TO ERHA	3
MARIMBA CONTRACT WIN	3
NEW FLOTATION MATERIAL	4



Drysdale PLETs insulated with *C-THERM* FPG for Kerr-McGee are off-loaded at the Houston Ship Channel.

C-THERM PRODUCTS UNDER TIDEEP TEST

At the invitation of IFP*, Cuming Corporation is participating in development and testing insulation materials for the TIDEEP joint industry project in Paris. Like the CLAROM program before it, the TIDEEP project is directed toward proving materials for extremely demanding service: 150° C at 3,000 meters depth. The long-term goal is to have new technology ready when future offshore oil exploration requires it. A number of different materials systems from various sources are being evaluated and some products have already been dropped from the study, but Cuming Corporation's *C-THERM* VHT continues in the running. It will take another year or more to complete the tests and publish the final results.

Like all *C-THERM* products, VHT is based on hydro-space-grade glass microspheres in specially formulated epoxy plastic resin. No other materials system is able to retain its high strength and excellent adhesion under such extreme conditions of heat and pressure. The result is a thermal insulation line providing unmatched protection for all kinds of marine flowlines, production risers, and subsea equipment. For technical information on *C-THERM* VHT, request a copy of Data Sheet 625-2-4 at Booth #404 or from Lou Watkins, lwatkins@cumingcorp.com.

*Institut Francais du Petrole

Cuming Corporation has applied its patented syntactic foam insulation to a pressurized, open-bottom saturation diving bell for the first time. After performing installation or maintenance of deep-sea drilling systems at depths to 1,000 feet, a diver enters the bell for gradual return to the surface. Designed to make long flowlines technically and economically feasible, *C-THERM* ensures effective operation of subsea flowlines at depths of 3,000 feet or more by protecting against the formation of paraffins or hydrates.



R&D CREATES MORE NEW AND USEFUL PRODUCTS

Aided by the industry's best-equipped research laboratory, Cuming Corporation's R&D Department continues to crank out new and improved *C-THERM* and *C-FLOAT* products, setting the standard for offshore insulation and buoyancy materials. Some of the recent developments include:

- Making normally rigid epoxy plastic resin bend like a rubbery elastomer is a major challenge, but new *C-FLEX* and PolyFlex constructions afford greatly enhanced flexibility for subsea insulation. Problems associated with pipe bending, reeling, and thermal expansion and contraction can be overcome with these materials, recently granted "USA Patent Pending" status. Look for future articles giving more details and suggested applications for Cuming Corporation flexible syntactic foam.
- Previous newsletters have talked about *C-TECH* "precision strength" crushable foam protecting subsea oil wells. Now continuing development has led to new uses for syntactic materials with precisely controlled properties. For example, a major scientific program searching for evidence of neutrinos is planning to install vast numbers of hollow glass spheres in the deep ocean. The glass

spheres will enclose sensitive electronic equipment. To prevent catastrophic collapse and possible sympathetic implosion, the glass spheres will be reinforced with "precision strength" crushable foam. Look for future articles describing other exciting new applications of *C-TECH* materials.

- Newspaper headlines these days are filled with stories about rising prices and materials shortages. Left unchecked, this trend would slow the supply of products crucial to finding vitally needed new reservoirs of energy and resources. Cuming Corporation is addressing this problem with an aggressive program to develop alternative materials and new, more efficient technologies. Dubbed the "Strategic Materials Replacement" project, the effort has already paid off by replacing several commodities affected by the current oil supply crisis. New high strength fibers, lower density fillers, and less expensive corrosion-resistant metal alloys are among the developments so far. Future articles will keep you informed of our progress in this important initiative.

JUMPER BUOYS FAST-TRACKED TO ERHA NORTH

Early this year, Cuming Corp was awarded a contract for six permanent jumper buoys for the ERHA North Project, offshore Nigeria. The contractor was ACERGY S. A., and the end user was Esso Exploration & Production Nigeria Limited (EEPNL). The project was on a fast track and delivery was required in three months (from qualification to load-out) to prevent any delay in first oil. Cuming Corp was selected because of our proven ability to respond quickly in critical delivery situations.

Service depth was 1,200 meters and buoyancy loss after 25 years at depth was specified at less than 5.0%. There were three different buoy configurations with buoyancies of 2000 kg, 1700 kg, and 600 kg each. Using titanium hardware, the buoys were attached around the insulated jumpers to provide lift and stability during deployment. Despite demanding test requirements and an aggressive schedule, Cuming Corporation was able to ship all buoys on schedule, preventing costly construction delays.

ERHA North is a satellite development of the ERHA deep-water development project, located approximately 100 km offshore Nigeria. The total project, including ERHA North, comprises 32 subsea wells tied to a floating production storage and offloading (FPSO) vessel. One of the world's largest

single-point mooring buoys will handle crude carrier docking and product transfer. EEPNL expects 40,000 barrels per day (BPD) from ERHA North alone, and 190,000 BPD from the total ERHA site. Total cost, including facilities and drilling, is estimated by EEPNL at \$3.5 billion.



Sources for this article included an Exxon Mobil Corporation news release posted April 28, 2006 on Red Orbit (www.redorbit.com) and reports on VANGUARD (www.vanguardngr.com) on May 9, 2006 and OILVOICE, on May 1, 2006 (www.OilVoice.com).

KIZOMBA SUCCESS FUELS MARIMBA CONTRACT

Following on its success in insulating top tension risers for the massive Kizomba oil field offshore Angola in West Africa,



Kizomba riser joints in bolsters are loaded for shipment.

Cuming Corporation received a contract in June to deliver similar products for that country's Marimba offshore field in Soyo's Block 15. We are manufacturing the products now and expect to complete delivery by year's end.

To date, Cuming is the only company to successfully insulate top tension risers, first for Kizomba and now for Marimba.

Marimba is part of what the Angolan government calls, "The most exciting news for the Angolan economy in recent years – the discovery of massive new oil fields, most of which remain unexploited." With these discoveries, Angola expects to challenge Nigeria's status as Africa's largest crude-oil producer.

The main advantage of top tension risers is the location of the pressure controls on the production platform floor – not subsea. This provides production cost savings when drilling from a single location rather than collection points that may be miles apart. *C-THERM* cast-on-pipe materials provide both thermal insulation as well as buoyant lift to the risers.

PRETTY IN PINK

Cuming Corporation has completed two pipeline end terminations (PLETs) and insulated bulkhead covers as part of part of a pipe-in-pipe system manufactured by its Bayou Flow Technologies (BFT) colleagues at Perma-Pipe. The system is designed for the Pastel Pink project in the Crosby field in the area ravaged last year by Hurricane Katrina. BFT combines the capabilities and experience of The Bayou Companies LLC, Perma-Pipe Inc, and Cuming Corporation to provide integrated flow assurance solutions for offshore thermal insulation of flow lines, risers and sub-sea assemblies.

CONTINUED ON BACK



Atlantis Jumpers are insulated for BP in Fourchon, Louisiana, with C-THERM-HE.

NEPTUNE'S TRIDENT: TREES, JUMPERS, PIPING

Cuming Corporation is near completion of insulation for seven trees for the Neptune field, nearly 2,000 feet deep in the Gulf of Mexico's Viosca Knoll block

826. The work opens opportunities for us to supply jumpers and haul piping as well, and possibly PLETs and pipeline-end manifolds as well.

The work was completed in conjunction with BFT ally Perma-Pipe, the largest American manufacturer of pipe-in-pipe systems.

ACROSS THE ATLANTIC OCEAN

Cuming Corporation is completing production of manifolds and jumpers for the Triton/Hess Project, which is a major ongoing source of business for us. This project is in the Ceiba Field on Block G in the Rio Muni Basin offshore Equatorial Guinea.

RISER TOWER REQUIRES NEW FLOTATION MATERIAL

Cuming Corporation has completed manufacturing flotation components for one of the largest riser towers in the world. The tower has a 24-in. core pipe and 12 gas and water injection lines. It is part of Greater Plutonio, the project name for three to four fields offshore Angola on Africa's West Coast.

This is an unusually demanding application, requiring that the buoyancy material be rated for service from -40° C to +50° C in water 1340 meters deep. Cuming developed a new syntactic foam buoyancy material to meet this requirement, and it underwent a six-month qualification procedure. The company received the contract nearly two years ago and completed production in August.

The C-FLOAT material was applied to the only link among three subsea manifolds, a number of wellheads, several injection lines, and the production facility. Because of this, one malfunction could shut down the entire system, meaning stringent quality assurance measures were called for.

Cuming Corporation's success in developing custom materials for this unusually demanding application enhances our global leadership in buoyancy materials.

FLOTATION MATERIALS USED WORLDWIDE

Cuming Corporation has been selected to provide buoyancy modules for more than 30 drilling riser projects for

such customers as Noble, Diamond, Transocean, Atwood, DSME, Shaffer, and Cameron, on many different drilling rigs. Our products are destined for use around the world, including China, South Korea, and Singapore.

Some of the contracts are for new drilling rigs and others are to refurbish and increase the capabilities of older rigs. Older rigs originally designed for depths to 5,000 feet are nowadays being extended into water twice as deep.

Ray Wong attributes the company's success with this impressive array of customers and projects to Cuming Corporation's global reputation for leadership, quality and performance in drilling riser buoyancy, especially in deep water. Competitive pricing and reliable delivery are essential factors, and the company's network of representatives in Asia, Europe, Brazil, and the Gulf of Mexico has established the necessary business relationships of trust and confidence with drilling contractors, riser manufacturers, and shipyards.

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