

Helping the cable guy

Engineers at Northrop Grumman Ship System's Ingalls Division and Avondale Shipyard were in search of a more efficient means of passing cables through bulkheads and overheads in vessels. What the engineers needed was a multi-cable penetration system that was easier and faster to design and install, but just as safe as traditional casting compounds or block systems that have existed for 30 years. They were looking for a water, gas, chemical and fireproof sealing that could provide increased flexibility in the planning process. They also needed a solution to help them resolve overcrowded transits, resulting from technological advances that have increased the number of cables flowing through a vessel.

Recently, both the Aegis Class destroyer *USS Halsey* (DDG-



With the two-part RISE system, cables are passed through rubber insert sleeves and sealed with a silicone-based fire resistant and water repellent sealant

97) at Ingalls, Pascagoula, Miss., and the amphibious assault ship *USS San Antonio* (LPD-17) at Avondale in New Orleans required repairs to existing cable penetrations and the installation of new cables. The refits of both vessels, however, posed major challenges. Because the transits in several areas were packed to capacity, block systems could not accommodate additional cables. Short of reworking these vessels' transit systems, which could cost hundreds of thousands of dollars, Northrop Grumman's engineers needed a reliable alternative that made efficient use of the space.

Their answer came in a relatively new, but proven product named RISE, manufactured by Beele Engineering BV. Distributed in the U.S. by W&O Supply, Jacksonville, Fla., through its 13-branch network, RISE is specifically designed for marine and offshore installations and has all major classification society and NAVSEA approvals. The RISE system seals multi-cable and pipe penetrations. RISE consists of two different components: rubber insert sleeves and a silicone-based fire resistant and water repellent sealant. When RISE is exposed to heat, the rubber sleeves expand five to ten times their original volume,

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creating a strong rubber mass within the penetration. The sealant cures to a rubber-like mass that withstands tremendous pressures, enabling it to achieve its gas and watertight ratings.

Aboard the *USS Halsey*, NGSS Ingalls used the RISE multi-cable penetration system to pack several transits in spaces too tight for traditional block systems, according to Roger Mills, Northrop Grumman's supervisor for electrical engineering, cable, routing and wire ways.

"Quite simply, the *USS Halsey* had transits that required more cables than we had room for blocks," he said. "By reengineering the transit and installing the RISE multi-cable penetration system, we actually took the transit capacity from an overloaded situation to one where only 64% was filled."

With a 36% net savings of available space, NGSS Ingalls had more than enough room to install the additional cables for the vessel's technological enhancements. Because the installation was completed without reworking the transits, RISE was credited with saving tens of thousands of dollars in taxpayer money.

With two weeks to perform emergency installations in Oct. 2004, W&O Supply assisted in the repair of more than 80 transits on the *USS San Antonio* at Avondale Shipyard.

The majority of the work was conducted on hard-to-reach



transits that were overloaded and packed extremely tight. Similar to the *USS Halsey*, Northrop Grumman's engineers agreed there was insufficient space to consider traditional block methods; they also agreed this project could only be achieved on time using the RISE system.

Ten days later, the installations were completed ahead of schedule. Upon review, Mills pointed out that not only did the RISE multi-cable penetration system accomplish what the block systems could not do, but the installation time was 60% faster than the traditional method. Additionally, as with the *USS Halsey*, because the reworking of transits was avoided, taxpayers saved tens of thousands of dollars. Equally important, the *USS San Antonio* was able to sail on schedule.

A NAVAL ENGINEER'S PERSPECTIVE

A 30-year Design Electrical Engineering Supervisor, Mills has been tracking the RISE multi-cable penetration system's

increasing popularity in Europe and the U.S. for several years. He began designing cable installations using the RISE system three years ago, and after witnessing the results firsthand, he suggests others take a long, hard look.

Mills believes that RISE provides

engineers with a high degree of flexibility within the design process. "RISE only takes up half of the space to physically duct the exact same cables as the block systems. Secondly, the product does not require engineers to design around special transit frames, and it works with any

type of cable, pipe or conduit. Furthermore, RISE's ability to allow for reentry, whether to add or remove cables without disabling existing cable penetrations, is a distinct advantage over traditional products."

RISE has led this Northrop Grumman engineer to experience a significant reduction of pre-engineering and transit design time. Currently, rather than design cable layouts using 52 types of blocks and 600 sizes of cables, Mills prefers to work with RISE's structural components that consist of six sleeve types and a FIWA silicone-based sealant. The reduced design time translates into big savings.

"On the average DDG contract, Northrop Grumman will design about 2,100 multi-cable penetrations," he said. "By using the RISE system, which naturally eliminates the need to design around each transit, the company will capture a 36,000 hour savings in engineering time."

As to the potential labor savings by using the RISE system on a new contract, Mills emphasized that RISE's quick, easy installation process will cause production to realize a 180,000 hour savings per contracted ship. That number will increase exponentially as additional ships utilize this technology.

Another of Mills' observations for engineers is that RISE reduces ship weight, storage and warehouse space. On average, RISE weighs 50% less than traditional block products, and it requires a minimal amount of ship storage space. Additionally, RISE does not consume warehouse space.

"Across the board, I have documented that RISE produces a 40% total savings in materials, weight, engineering design and shipboard installation over traditional block systems," said Mills. "With such a tremendous savings potential, this is one product that shipyards should definitely consider in their quest of becoming more competitive at home and around the world." "Although we've experienced substantial cost savings, the underlying reason Northrop Grumman uses the RISE multi-cable penetration system is because of its proven reliability and performance in creating the best possible barrier to prevent the passage of chemicals, flames, gases, smoke and water," Mills said. "The men and women serving aboard our warships deserve the most advanced, secure technologies."

'Gotcha' International Marine Insurance Fraud and Conspiracy By Ed Geary

STEAL, CHEAT, AND LIE YOUR WAY TO THE TOP - a growing practice on both sides of the Atlantic that's costing consumers millions each year. Marine insurance is supposed to be based on Uberrimae Fidei or utmost good faith but it hasn't always worked out that way. Author Ed Geary closely examines the background of marine insurance fraud and the clever technical issues of marine claims while providing the reader with an inside view to a number of fascinating case files.

During his five-year USCG training of the Venezuelan Coastguard Geary's disclosure of the Central Intelligence Agency's clandestine Operation Deep Six to destabilize the elected government of Venezuela and install Hugo Chavez as president put him in the cross-hairs of the Agency. Silencing him became an even greater priority when Geary exposed the CIA's involvement in the theft of high value yachts used in foolish schemes to smuggle narcotics from Colombia to the United States, ostensibly to catch the Big Guys.

"Gotcha" delves into the flawed business practices of The London Salvage Association that ultimately destroyed an organization that had been around since the reign of Queen Victoria; Further revealing the fraud and "trickle-down-corruption" that has tainted the Lloyd's Agency System.

Before the melt-down of ENRON and WorldCom the author's exposure of the cover-up of Arthur Andersen's fraudulent ship valuation conspiracy brought forth the wrath of lawyers and threats on his life. Andersen's co-conspirators in the cover-up of the fraud included the once reliable Lloyd's List in London, the American Society of Appraisers and the American Institute of Certified Public Accountants in the USA.

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