

Project Updates

Recently we've had a number of projects that have come to conclusion.

Oceaneering: The first project we've completed is the OCEAN PATRIOT. This job involved the conversion of an offshore supply vessel (OSV) to a diving support vessel (DSV) with ROV capabilities. Our work included all of the engineering for the conversion, as well as interfacing with the shipyard, ABS and USCG. The overall modification engaged a few dozen vendors and provided various ACMA personnel some shipyard time.



The Ocean Patriot

TXDoT Ferries: The JOHN W JOHNSON finally reached her new home in Galveston. And, as fate would have it, the MICHAEL W BEHRENS and CHARLES W HEALD have also found their new homes in Port Aransas, bringing ACMA's involvement with all three TXDoT ferries to an end.

On-Going: ACMA has been keeping our newly updated High Performance Computer Cluster hard at work doing CFD analysis. So much so that we added 16 additional processor nodes (for a total of 48 nodes) to speed up the analysis and, therefore, reduce delivery time and cost to our clients.

On the horizon, it appears that our ongoing work with EnerSea is about to be bolstered by some additional work for a new CNG transport vessel. This opportunity developed from a recent trip to Korea by ACMA's President Scott McClure and EnerSea's Managing Director Paul Britton.

Strategic Partnerships

Over the years, ACMA has maintained our edge on the competition by investing in an array of advanced software. This high tech approach has not only allowed us to provide premium services to our clients, but also made us a very cost-effective engineering and design firm. However, we realize this is only part of the equation. An equally important part is the ability to muster first-class resources to execute the work.

Most of our clients prefer their projects be done on a 'turnkey' basis. In order to provide this type of service, ACMA has developed some strategic partnerships with local, regional and international firms. These relationships provide a number of disciplines that are complementary to those available through ACMA.

Some of our strategic partners:

- **Oil & Gas Solutions** provides process systems design and engineering.
- **AMOG**, an Australian powerhouse, assists with additional structural and hydrodynamic capabilities, as well as riser analysis.
- **Netsco** assists with general naval architecture and marine engineering services.

Those mentioned above, as well as several noted on our website, give us the ability to provide a wider range of services and respond more quickly to a variety of manpower and discipline requirements.



From the Top

With the holidays quickly approaching, we're looking forward to a little breathing room – some time to catch our breath and reflect on 2011, as well as prepare for next year's challenges.

As noted in this issue of McNotes, we've been able to successfully complete a number of long-term projects this year. That's always gratifying, especially when a project moves from the drawing board to the water.

Equally gratifying are the general inquiries and proposals we've been busy processing for the past few months. If that volume is any indicator of the future, I'm very optimistic about next year's prospects.

So on behalf of Alan C. McClure Associates, we wish you and yours the best of the holiday season, with fair winds and following seas in 2012.



Scott C. McClure, President



Covering Your Assets through Protective Coatings and Effective Design

Prevention and intelligent design are the keys to corrosion control

John L. Petersen, Marine Coatings Consultant and Project Manager

Because corrosion equals asset degradation, managing corrosion is a key concern for asset managers of maritime and offshore structures. The old adage that "corrosion never sleeps" is indeed true, so it stands to reason that equal and "sleepless" vigilance is required by asset owners.

Two Elements of Surface Protection

The primary defense against corrosion is coatings. As barriers to corrosion, coating systems are most successful when the right selection of coatings is paired with the right surface preparation process. When it comes to surface preparation, two key elements are required for effective coating adhesion: cleanliness and surface profile. Of course, selecting a proper coating is critical as well, but without these two elements, a coating system is compromised.

Designed for Success

Protection against corrosion begins at the design phase of a given structure. Design factors that help mitigate corrosion are the use of bulb angles on longitudinal stiffeners instead of angle bars, rounded (3mm radius) on all steel edges, and structures intelligently designed to be easily accessible to blasters and painters. I have seen many a ballast tank with miniscule or convoluted compartments that make me wonder: how did a human being ever get in there to blast and coat that? Of course, prevention begins with material selection. The more "inert" to corrosion a metal is, the longer it will last. Yet reality invariably dictates that costs will influence whether expensive stainless steel or similar high-value metals that resist corrosion are



Corrosion takes its toll

utilized or whether a more affordable mild steel that offers less protection is chosen.

Preparing for the Inevitable

Unfortunately, no matter what materials are selected or how well the structure is designed, coating systems do not last forever. Consequently, constant monitoring of the coating system is necessary to maintain the structural and operational integrity of the asset. Even if the initial surface preparation and application were correctly executed, coatings do get brittle over time. In ballast tanks, epoxy coating – the barrier of choice – becomes brittle and cracks, allowing seawater to creep in behind it initiating corrosion. Topside, UV degradation and mechanical damage (especially impact damage) will cause the coating to fail in its role as a barrier.

Live Long and Prosper

In light of the importance of both prevention and protection in the fight against corrosion, the value of ACMA services is even more apparent: ACMA designs allow access to areas requiring the application of surface prep and coatings so that optimal protection can be installed. This foresight will facilitate future asset integrity surveys and provide a long asset life expectancy.

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Founded in 1975, Alan C. McClure Associates, Inc. (ACMA) is one of the industry's premier naval architecture and engineering firms. Headquartered in Houston, Texas, we've provided advanced design and engineering services to our international clientele in offshore exploration, production and marine transportation for more than 35 years.

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