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Marine Safety Engineering

A Note from the Director

Greetings and Welcome to the Winter 2010 Edition of the Marine Safety Engineering Newsletter!

Since our last issue, the Coast Guard has found itself in the midst of another event of national significance. The DEEPWATER HORIZON casualty was marked by the tragic loss of 11 men, and has galvanized the importance of our work to ensure the safety on offshore facilities. As regulations have not kept pace with the rapidly evolving technology of offshore platforms and vessels involved in the exploration and production of oil and gas, we have re-focused our efforts to address safety on the Outer Continential Shelf. We have placed a higher priority on current rulemaking projects related to offshore regulations. Until the reports of both the Coast Guard Marine Board of Investigation and the National Commission on the BP Deepwater Oil Spill are released, we will not know the full extent of the regulatory response required. However, the efforts we are undertaking will establish a strong foundation for the work that lies ahead.

Many Marine Safety Engineers served vital roles during the DEEPWATER HORIZON response. As you will read, Marine Safety Engineers supported response efforts by providing critical engineering expertise and experience. Their technical and analytical skills proved to be a valuable resource in responding to the enormous complexities posed by a sub-sea oil spill and underscored the importance of our community.

As most of you probably know, the President signed the 2010 Coast Guard Authorization Act into law on October 15, 2010. This significant piece of legislation contains new authorities related to marine safety, security and environmental protection. In particular, it acknowledges the value of Marine Safety Engineers and the important role they play in the Coast Guard.

Finally, I encourage all of you to read the new Prevention Officer Career Guide. This is an outstanding resource for planning a career inclusive of Marine Safety Engineering and eventually leading to command opportunities and key leadership positions. A copy can be found online on the Prevention Policy Directorate website.

Keep up the fantastic work! Have a wonderful holiday season and a happy new year.

Regards,

Jeff Lantz,
Director of Commercial Regulations and Standards

Deepwater Horizon: The Role of Marine Safety Engineers In A Sub-Sea Spill Response

by LT Kirt Linegar

Surface Vessels at Macondo Wellhead Site

Following the loss of the DEEPWATER HORIZON, the nation mobilized to combat the largest oil spill in U.S. history. The Coast Guard responded with all hands on deck, deploying thousands of personnel to the Gulf region. Included in the response were Marine Safety Engineers (MSEs) who served in capacities outside of their normal Coast Guard duties by providing valuable technical contributions throughout this unprecedented spill response.

One of the most significant roles played by MSEs was at the Incident Command Post (ICP) in Houston, TX. Engineers at ICP Houston were directly involved in BP's engineering effort to contain and stop the leak. The ICP spanned several floors of one of BP's Houston headquarters buildings, where teams of BP's engineers were broken up into dozens of rooms. Each team was attempting to solve a separate, nearly impossible engineering challenge. In one room, engineers were working on designing a containment dome that would be used to capture the leaking oil, while next door more than 50 engineers gathered to map out how to drill relief wells at record breaking speed. Across the hall, two dozen more engineers were working to design a remotely deployable clamp to stabilize the damaged drill riser 5000 feet below the ocean surface. All of these tasks were being executed simultaneously, and none had ever been attempted before. Coast Guard MSEs integrated themselves into these teams by participating in brain storming sessions, hazard identification meetings, and various working groups. Marine Safety Engineers pitched ideas on how to pump methanol into the containment dome, helped identify novel methods to capture the leaking oil, and vetted radical ideas submitted by the public on how to stop or capture the oil.

Our engineers' primary mission was to serve as technical liaisons between BP and the Coast Guard. By participating in each of the groups, the Marine Safety Engineers gained intimate knowledge of the efforts taking place to stem the flow of oil from the ocean floor. Consequently, the engineers were in unique positions to advise the National Incident Commander on a wide range of technical issues involving the response.

Though their expertise is no longer needed at the Houston ICP, there is no doubt that the experience, knowledge, and insight gained by the MSEs who participated in this effort will continue to positively impact the USCG for many years to come.

Mobile Offshore Drilling Unit
Development Driller II **Drilling Relief Well**

2010 Coast Guard Authorization Act

The 2010 Coast Guard Authorization Act was signed by the President and contains a variety of provisions related to Marine Safety. Here are samples that relate to Marine Safety Engineering:

- The Act recognizes Marine Safety Engineering as a critical sub-specialty in Prevention and requires Sector Chief of Prevention billets to be filled by Marine Inspectors who hold either a Marine Investigator or Marine Safety Engineer designation.
- The Act mandates that Marine Safety be integrated into the curriculum at the Coast Guard Academy to improve the visibility of Marine Safety Careers to cadets.
- The Act now defines a Marine Safety Engineer as "having knowledge, skill and practical experience in; A) the construction and operation of commercial vessels; and B) judging the character, strength, stability and safety qualities of such vessels and their equipment.

Marine Safety Electrical Engineering

by LT Brian Meadowcroft

When you think of Coast Guard Marine Safety Engineers, you likely think of Naval Architects and Marine Engineers. Did you know that the Coast Guard also has Electrical Engineers (EEs) working in the Marine Safety program? In fact, the Coast Guard has a great post-graduate program for EEs. I completed this program at Virginia Tech this summer and was subsequently assigned to the Marine Safety Center (MSC).

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New Office Chief For CG-521 at CG HQ!

The Commercial Regulations and Standards Directorate welcomes back another senior Marine Safety Engineer, CAPT John Nadeau, who has returned to the DC area as the Chief of the Office of Design and Engineering Standards.

CAPT Nadeau was most recently the CO of MSU Wilmington, where he was relieved by CDR Steve McGee, formerly of the Marine Safety Center. This is not CAPT Nadeau's first time in Washington, having done two tours at the Marine Safety Center. His first tour came after graduating from the University of Michigan with a degree in Naval Architecture. During his second tour, he served as the Chief of the Tank Vessel & Offshore Division and, later, the Hull Division He also served as the SERT team leader. CAPT Nadeau has held other Prevention jobs, including Chief of Inspections and Senior Investigating Officer at MSO Corpus Christi.

We are pleased to have CAPT Nadeau aboard here at Coast Guard Headquarters!

CAPT John Nadeau, CG-521 Office Chief

Marine Safety Electrical Engineers (cont'd)

LT Brian Meadowcroft

During graduate school, I was given the opportunity to study advanced electric ship technologies and participate in standards development for the Institute of Electrical and Electronic Engineers (IEEE). From these experiences I was able to identify similarities in the electrical systems of electrically propelled ships and shipboard manufacturing plants, and shifted the focus of my graduate program to power electronics, motor controls and power transmission protection (large circuit breakers the size of a refrigerator). My thesis applied electrical power transmission protection used in shipboard manufacturing plants to prevent power failures on complicated electric ships. My familiarity with commercial ships and related standards allowed me to accurately model the electric ships we regulate today, and to validate many techniques used by industry not adequately reflected in our safety regulations.

My graduate work combined with my tour at the MSC places me in an excellent position to contribute to critical Prevention issues such as propulsion loss on electric oil tankers, fires on electric ferries, and dynamic positioning system failures on offshore supply vessels, mobile offshore drilling units and floating production installations. Electrical systems are integral to the safe operation of all modern vessels, so when you think of Coast Guard Marine Safety Engineers, don't forget to include EEs.

Chemical Engineers: Who are we?

by LT Sean Peterson

The Chemical Engineering Advanced Education Program provides chemical engineers to serve as liaisons between the Coast Guard and the chemical manufacturing and transportation industry. Coast Guard chemical engineers are unique in that they understand the processes used to manufacture the different chemical products in the United States and the requirements necessary to safely transport these products on navigable waterways. To that end, following graduate school, Coast Guard chemical engineers are assigned to the Hazardous Materials Standards Division of Coast Guard Headquarters or the Tank Vessel and Offshore Division at the Marine Safety Center. In both jobs, Coast Guard chemical engineers develop, apply, and implement requirements for the safe carriage of hazardous materials and the construction of vessels carrying hazardous materials. These requirements are vital to ensuring the safety of lives and property and the protection of the environment.

After selection to the Chemical Engineering Advanced Education Program, officers have their choice of attending any graduate school that has an accredited program for a Master's of Science in Chemical Engineering. Previous graduates of the program have attended such schools as the University of Washington, The Johns Hopkins University, the University of Rhode Island, and the University of Maryland. After completion of their follow-on tour, Coast Guard chemical engineers can pursue many different career paths. Most graduates

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Congratulations to the Marine Safety Engineering Class of 2010!

LCDR John Miller
Fire Protection Engineering
University of Maryland

LCDR Ron Caputo
Naval Architecture & Marine Engineering and Mechanical Engineering
Massachusetts Institute of Technology

LCDR Brent Yezefski
Naval Architecture & Marine Engineering
University of Michigan

LCDR Jesse Holston
Naval Architecture & Marine Engineering
University of Michigan

LT Marc Montemerlo
Reliability Engineering
University of Maryland

LT Judson Wheeler
Naval Architecture & Marine Engineering
University of New Orleans

LT Brian Meadowcroft
Electrical Engineering
Virginia Tech

LT Nick Woessner
Naval Architecture & Marine Engineering
University of Michigan

LT Elizabeth Newton
Chemical Engineering
University of Rhode Island

LT Dallas Smith
Marine Engineering Tech
University of Houston

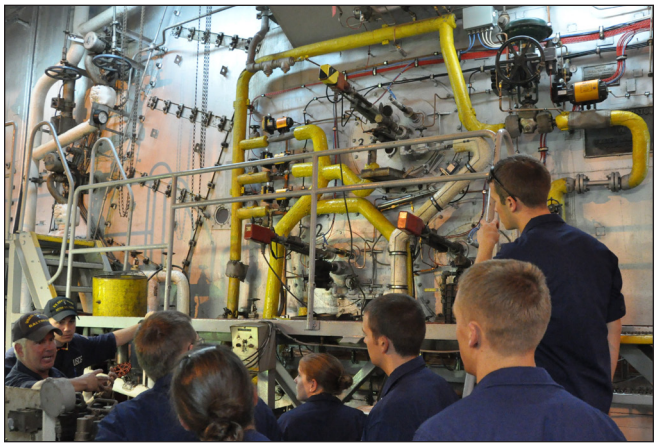
Chemical Engineers: Who are we? (cont'd)

have followed either the Sector Prevention or Sector Response career path. Notable graduates of the program, still with the Coast Guard, include the Director of Prevention Policy, RADM Kevin Cook, and the Deputy Director of Commercial Regulations and Standards, CAPT Frank Sturm (ret.). Being a Coast Guard chemical engineer offers many exciting opportunities to have an impact on marine safety and environmental protection in the United States and abroad.

CGA Cadets embrace Marine Safety: An update

by LCDR Scott Calhoun & LCDR Matt Edwards

Concerted efforts to embed Marine Safety into the Coast Guard Academy's curriculum are achieving success at an accelerating rate! This success is key to providing cadets sorely needed exposure to under-represented career paths. The following are examples of ground-breaking initiatives that are part of a long-term strategic plan.



Cadets inspect a boiler onboard the USNS COMFORT

There was a very positive response to a week-long summer training program that gave cadets a rare look into Sector Prevention. 2/C Cadets accompanied Sector Baltimore's marine inspectors on domestic vessel inspections and port state control exams, as well as toured CGHQ and the Marine Safety Center. Back at the Academy, 4/C Cadets received a new lesson on the history of marine safety, an overview of current Prevention operations, and participated in a table-top marine salvage exercise. Next summer will provide opportunities to build upon these training programs and open up 1/C Cadet TAD summer assignments in Sector Prevention.

Cadets learn about lifesaving appliances during a U.S. vessel inspection

Naval Architecture and Marine Engineering Senior capstone projects are underway following the exciting announcement that last year's cadet design of a harbor cruise passenger vessel earned second place in a national student design competition! This year the cadets hope their leading-edge design of a wind turbine support vessel (Subchapter T) and a sailing training vessel (Subchapter R) will win the competition. In addition, a prototype of a "Portable Deployable Hull Inspection System" (aka a hull crawler) is being built and tested by 1/C Mechanical Engineering majors.

Lastly, the brand-new "Marine Casualty Response" course attracted twelve engineering cadets. The cadets are enjoying this unique

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Congratulations To The Members Selected For The Marine Safety Engineering Class of 2013!

Marine Engineering

LT Michael St. Louis, Sector Anchorage

LT Staci Weist, Sector New Orleans

LT Jason Kling, Sector Mobile

LT Frank Strom, Sector New York

LT Joshua Kapusta, Sector Los Angeles/Long Beach

LTjg Jason Hill, Sector Miami

LTjg Katharine Woods, Sector Puget Sound

LTjg James Zorn, Sector Honolulu

LTjg Anne Besser, Sector Anchorage

LTjg Daniel Brahan, USCGC TAMPA

LTjg Adam Paz, USCGC JARVIS

LTjg Amy Harman, Sector Charleston

ENS Mary Morgan, USCGC CONFIDENCE

Fire Protection Engineering

LTjg Charles Taylor, MSU Portland

Marine Engineering Technology

LT David Barnes, MSD CORAM

LTjg Linsey Grainger, Sector Mobile

Chemical Engineering

LT Tiffany Duffy, Sector Hampton Roads

ENS Ryan Mowbray, USCGC Hamilton

CGA Cadets Embrace Marine Safety (cont'd)

opportunity to apply their knowledge towards solving real-world salvage engineering challenges and learning more about marine transportation recovery. The cadets are getting wet as they do hands-on flooding of scaled ship models, which is a welcomed reprieve from the usual lectures on ship theory.

This new school year will undoubtedly yield similarly exciting outcomes! The Academy sends along a sincere thanks to CGHQ, MSC and Sectors for their help and support of these initiatives.

Civilian Engineer in the Spotlight: Brian Ellis

by Mr. Pete Eareckson

Mr. Brian Ellis is a Marine Engineer who recently joined the Tonnage Division team at the Marine Safety Center (MSC) in Washington, DC. Brian comes to the MSC following a 21+ year military career in the U.S. Coast Guard that included service in the Engineering Departments aboard CGC CHASE and CGC HAMILTON as Damage Control Assistant and Engineer Officer, respectively, and later as the Executive Officer onboard CGC MIDGETT. From 2000 – 2003, he was the Senior Port Engineer for CGC HEALY, one of the Coast Guard's 3 heavy icebreakers, and he retired at the rank of Commander after 4 years as the Program Manager for the Office of Naval Engineering (CG-451). He is a 1989 graduate from California Maritime Academy and holds a 3rd Assistant Engineer's License, Steam and Diesel and a 2nd Assistant Engineers License Diesel, Unlimited Tonnage. He attended Naval Post Graduate School, graduating in 1997 with a Masters Degree in Mechanical Engineering after completing their comprehensive ship design program in the Total Ship System Engineering curriculum.

Brian was hired as the MSC's Tonnage Applicability Manager immediately upon retirement. He has begun the vitally important process of shaping and reforming tonnage rules and their application to U.S. and foreign flag vessels. This includes harmonizing our domestic tonnage regulatory framework with the international framework through various rulemaking projects and policy initiatives. Brian is working hard to become the Coast Guard's face on all tonnage applicability issues for representatives from other governmental organizations, industry, and classification societies. His extensive Coast Guard experience, competencies and education make him the ideal candidate to fulfill a role of such importance to the design, operation and regulation of vessels of all types. Brian sees his Active Duty transition from supporting the Coast Guard's Naval Engineering program of over 150 ships and nearly 1800 small boats to his current management of tonnage applicability over our nation's maritime industry as a tremendous opportunity. It allows him to apply his engineering knowledge and hone his managment skills in a much bigger "pond."

Brian is an active member of the American Society of Naval Engineers (ASNE), and continues to advocate for the Coast Guard through this and other outreach venues. While his sea stories are packed with adventure and his dedication to Coast Guard work is obvious, Brian plays competitive softball, runs 5Ks for charity, and is currently enjoying the West Virginia college football scene with his family, certainly one of those benefits, to be savored, of putting your kids through school!

Foreign PSC Team Led By Marine Safety Engineer

CDR(sel) Vivianne Louie (Prevention Dept. Head, Sector Juneau), accompanied by LCDR Michael Capelli and LTJG Simon Blanco partnered with the Shanghai Marine Safety Administration (SMSA) in September to demonstrate techniques for examining foreign flagged passenger ships. The USCG team provided feedback and guidance to Shanghai MSA Port State Control inspectors regarding processes, scope of exams and similarities and differences when conducting PSC exams. The team learned how China's Administration conducts Port State Control exams and how the crews of these vessels work with China's Administration.

The team also visited various SMSA offices and personnel: including the Director of SMSA, SMSA's main office, four field offices, ATON office, two VTS offices, and two SMSA Patrol Boats.

CDR(sel) Louie was able to utilize her Marine Safety Engineering knowledge and extensive inspections background to enhance the exchange of examination techniques with the SMSA inspectors.

USCG and SMSA inspectors gather before the M/V Legend of the Seas

Where Are They Now: Class of 2000

by LT Bryson Spangler

Each year when the newest selectees are chosen for the Marine Safety Engineering post-graduate programs, we will begin to take a look back and see how graduates of the program have fared, and where they currently are stationed. This issue: The Class of 2000.

CDR Kyle McAvoy graduated from the University of Michigan, and performed his follow-on tour at the Marine Safety Center, holding positions in both the Hull, and Tank Vessel and Offshore Divisions and as a member of the SERT team. He then went on to become the CID/SIO at then MSO/Group Philadelphia in 2004, and later transferred to the "Traveling" Inspector Staff in 2008, visiting places like Greece and Italy.

CDR Russ Holmes earned his masters degrees (Naval Architecture & Marine Engineering and Mechanical Engineering) from Michigan in 2000, and performed his follow-on tour at the Marine Safety Center. After the terrorist attacks in 2001, he was reassigned to CGHQ where he facilitated the creation of the National Vessel Movement Center and the High Interest Vessel Program. In 2005 he served as XO of MSU Pittsburgh. CDR Holmes then completed a two year tour at U.S. Northern Command in Colorado Springs, serving as the lead exercise planner for their Operations Directorate as well as a civil support planner in their Plans, Policy and Strategy Directorate. CDR Holmes is currently the Deputy Sector Commander for Sector Jacksonville, FL.

CDR Patrick Nelson graduated from the University of Washington with his masters in Energy Systems (Electrical Power) in 2000. His follow-on tour was at CGHQ in the Systems Engineering Division. Contrary to the reputation, he found working at CGHQ to be very interesting and a great experience, particularly when supplemented by volunteering for any of the numerous available opportunities. CDR Nelson then transferred to Sector San Francisco into the ACID position in 2005. Amazingly, he arrived as a LCDR with no quals, yet earned his M-Pin prior to departure. He then transferred to Sector Buffalo in 2009, where he serves as Chief of Prevention.

LCDR Pete Gooding graduated in 2000 from MIT, and served his follow-on tour at Coast Guard Headquarters. He worked in the Naval Architecture Division on international stability standards for cargo and large passenger vessels. He also spent time working for the Assistant Commandant for Marine Safety, Security and Stewardship (CG-5) doing policy review. LCDR Gooding then transferred to Chief, Waterways Management at Sector LA/LB, where he oversaw the construction and operations occurring on the waterways between the San Diego and Monterey County lines of California. LCDR Gooding then served two years as the Military Aide and Assistant to the Secretary for Policy at the Department of Transportation where he was the Executive Director for the DOT portion of the $48.1 billion American Recovery and Reinvestment Act. LCDR Gooding is currently Prevention Department Head at Sector Corpus Christi.

As you can see, Marine Safety Engineers have held a wide variety of jobs in and out of the Marine Safety field. The technical expertise of a Marine Safety Engineer is adaptable to any situation, and the critical thinking and problem solving skillsets can and are utilized daily. We look forward to continuing this series with the Class of 2001 next Fall.