

Marine Safety Engineering

A Note from the Director

Greetings and Welcome to the Spring 2010 edition of the Marine Safety Engineering Newsletter. I hope you find this edition interesting as I believe it truly highlights some of the challenges we face as well as some of the steps we have taken to meet these challenges.

This issue starts off highlighting one example of “green” technology and its emergence as a significant issue within the marine industry. Marine Safety Engineers at Headquarters and the Marine Safety Center continue to deal with the complex regulatory demands of this new technology. As more of these projects and ideas come across our desks, we continue to work hard to provide solutions in order to better support the Coast Guard and the marine industry. However, green technology is but one of the many technological challenges we face, and it will take its place among other emerging challenges including LNG shipping, offshore deepwater energy exploration and exploitation, and the Arctic, to name just a few.



To meet these new challenges, we need good men and women - good engineers - who are motivated, educated and share our passion. We have worked hard to increase our outreach to highlight the value of, and career opportunities offered in, the Marine Safety Engineering technical community. Through these efforts has come the recent assignment of two “techies” to the teaching staffs of the Mechanical Engineering and Naval Architecture & Marine Engineering Departments at the Coast Guard Academy. Getting these instructor billets on budget and filled with talented engineers was a multi-year effort, and their arrival marks a significant milestone in our broader efforts to improve the way we recruit, train, retain and manage the careers of OAP-16 specialists. LCDR’s Scott Calhoun and Matt Edwards are blazing that trail for us and have provided a very interesting and worthwhile article. I am looking forward to meeting with them and discussing their activities when I attend this year’s Capstone presentations at the Academy.

I would also like to call your attention to the interview with a fellow “techie,” LCDR Jason Tama. Jason’s current assignment highlights the opportunities for men and women with a Marine Safety technical background. Such opportunities for “techies” are endless. We need good engineers to address the constant stream of new challenges that are facing the Marine Safety program, and we also need good leaders for the Coast Guard. When we recognize that many senior Coast Guard leaders began their careers in Marine Safety Engineering, it is easy to see how members of our community have many great career opportunities ahead of them. Keep up the great work, and let’s continue to make Marine Safety Engineering one of the premier communities in the Coast Guard!

Regards,

A handwritten signature in black ink, appearing to read 'J Lantz'.

Jeff Lantz,
Director of Commercial Regulations and Standards

ASME WORKSHOP

The Coast Guard and ASME have partnered together to hold a joint Workshop on Marine Technology & Standards on July 29th and 30th, in Washington, D.C.

This two-day workshop will provide an opportunity for classification societies, industry leaders, government, standards development organizations, and interested members of the public to come together for a professional exchange on new developments in marine technology, especially those involving “green” ships and offshore energy production along with associated safety issues.

“Green Ship” technology discussions will focus on the utilization of fuel cells on board ships. Two of the preeminent experts in this field will be on hand to discuss their work. Fuel cells on board ships are notable for being zero emissions systems with water being their only byproduct. These systems have been successfully installed on small passenger vessels. However, safety issues have forced the delay of fuel cell implementation onboard larger vessels.

The Offshore Marine Technology Panel will focus discussions on issues that the offshore industry is currently facing. New technology has allowed these companies to drill in deeper and deeper water, which presents a whole new assortment of mechanical and safety issues. Arctic drilling, Floating Offshore Production and Storage units and OCS platforms are only a few of the topics that will be discussed.

Go to www.uscg.mil/marine_Event for more information.



Engineering “Green” into Commercial Shipping

by LT Alex Karnath



Artist's rendition of Hornblower's hydrogen, solar, wind, and conventionally powered small passenger vessel concept.

The shipping industry is going “Green,” prompting designers to explore novel power systems.

Because of this, it is an exciting time to be at the Marine Safety Center (MSC). Vessels are being designed with innovative power systems using hydrogen fuel cells, solar power, and wind power. Fuel cells use hydrogen, hydrocarbons or alcohols as a fuel source to create electricity with byproducts that are mostly water. U.S. regulations do not currently address the use of fuel cells aboard commercial vessels. This creates unique challenges for both the MSC and industry because no prescriptive requirements exist concerning structural fire protection, hazardous locations, or fuel storage. To help address these issues, MSC is participating in a green ship technology panel at a workshop devoted to industry standards for new technology. The workshop is sponsored by the Coast Guard and the American Society of Mechanical Engineers; for more information see http://www.uscg.mil/marine_Event/agenda.asp.

Alternative fuel sources provide the commercial shipping industry with the ability to go “Green,” but we must ensure each new design is safe to operate. Novel vessel designs require tremendous oversight by the Coast Guard, as the complexity of these designs continues to increase. Absent a current regulatory framework, engineers at the MSC are working with their industry partners to resolve safety concerns via first-principles engineering analysis and the use of performance based standards to ensure these unconventional power systems are safe. With the rise in public interest in the use of cleaner power systems, we expect to see more novel designs as the shipping industry goes “Green!”

SERT's Engineers Put Together the Pieces

by Brian Thomas, Assistant Team Leader, Salvage Engineering Response Team

The Marine Safety Center's Salvage Engineering Response Team (SERT) is a group of highly trained naval architects who provide real time engineering support to Coast Guard field units during marine casualties. During fiscal year 2009, SERT assisted 28 different field units with 62 vessel casualties.

Two notable cases early in 2010 highlighted the unique technical talents of SERT's naval architects. The first case occurred when the chemical tanker SICHEM DEFIANCE ruptured several cargo tank bulkheads while offloading ethanol. Sector New York asked SERT to evaluate the owner's lightering plan and assess structural impacts on the ship.

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Civilian Member Honored

One of our civilian engineers has been recently honored with the 2010 Women’s History Month Science, Technology, Engineering & Management Role Model Award.

Ms. Pik Kwan Rivera, from the Office of Design & Engineering Standards, was chosen as the civilian recipient of the award this year. The STEM award is dedicated to enhancing the careers of women in STEM occupations & disciplines.

As the Coast Guard’s crew endurance management expert she has displayed unparalleled leadership and vision serving a critical role in achieving the Coast Guard’s goal of supporting and protecting merchant mariners.

Further, as the Federal Women’s Program Coordinator, she improved recruitment, upward mobility and working standards for women employees.

Congratulations to Ms. Rivera for her outstanding work!



Ms. Pik Kwan Rivera, receiving her STEM award, accompanied by her supervisor, CDR Ben Hawkins

SERT’s Engineers Put Together the Pieces (cont.)



Ruptured Tanktop & Bulkhead onboard the SICHEM DEFIANCE

Although SERT did not have access to detailed vessel plans, LT Andy Lawrence, the duty engineer, pieced together reports from the ship’s loading computer and classification society to develop a detailed computer model. Using this model, SERT accurately predicted the forces on the ship and advised Sector NY that removal of the contaminated cargo would not cause a catastrophic failure. Throughout the lightering operations, SERT provided the Sector with periodic structural evaluations ensuring adequate safety margins were maintained. After a successful offload, the tanker was permitted to transit overseas for permanent repairs.

The second case involved the collision between the tankship EAGLE OTOME and the tank barge KIRBY 30406. The starboard bow of the barge penetrated the wing ballast tank and breached the forwardmost cargo tank of the EAGLE OTOME, spilling thousands of barrels of crude oil. MSU Port Arthur requested SERT’s assistance to analyze the plan to remove the remaining cargo from the breached tank. This time, SERT was able to use models of similar ships to develop an accurate picture of the condition of the tanker. Working closely with the salvor, SERT confirmed that the cargo could be removed with minimal structural impact. The tanker was offloaded safely and proceeded to a facility to offload the remaining cargo and complete a detailed damage assessment.



Tankbarge KIRBY 30406 lodged in the starboard bow of the tanker EAGLE OTOME

In both of these cases, SERT’s naval architects were able to provide sophisticated engineering analyses by putting together information from multiple sources. The tools created by these innovative engineers helped field units keep bad situations from getting much worse. SERT has a naval architect on call 24 hours a day, 7 days a week. The duty officer can be reached at (202) 327-3985.

Post Grad Students

by LT Jesse Holston

On January 28, 2010, LT Jesse Holston, LT Jonathan Potterton and LT Thomas Rodzewicz were the guest speakers at the January meeting of the SNAME Chesapeake Section. All three LTs are currently studying Naval Architecture at the University of Michigan, and LT Holston is sponsored by CG-52’s Marine Engineering



Bow View of 200’ HWV Design

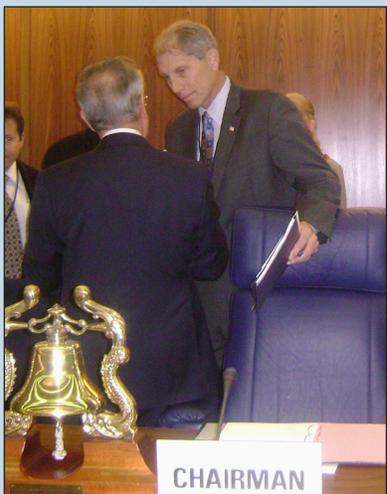
Advanced Education Program. Their presentation detailed a feasibility study they completed on the United States Coast Guard 200’ Heartland Waterway Vessel (HWV). The HWV is being designed to replace the Coast Guard’s current inland ATON vessels. These aging

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Director of CG-52 Selected As New Chairman of IMO Council

On December 8th, Mr. Jeffrey Lantz, the USCG's Director of Commercial Regulations and Standards, was elected to serve as the Chairman of the IMO Council for next biennium (2010-2011). As only the second U.S. representative to ever hold this position, Mr. Lantz takes on the heavy responsibility of leading the IMO's Executive body during a critical period. In the coming years, the IMO will be working to confront such complex challenges as reducing greenhouse gas emissions, international piracy, and regulations governing new Arctic waterways that are being created by the changing environment.

"In an ever changing maritime environment, Jeff will be looked to as a leader as the IMO makes some of the most significant decisions the international community has considered in quite some time. From climate change to piracy, America's concerns are the world's concerns. I couldn't think of a better choice to lead the international community on these issues."- USCG Commandant ADM T. Allen



Mr. Jeff Lantz accepts the position of Council Chairman from IMO Secretary General Mr. Efthimios Mitropoulos

Post Grad Students, cont.

assets are hard pressed to complete the Coast Guard's vital inland river ATON missions.

The feasibility study was born from a Concurrent Marine Design class that the LT's were taking at Michigan. The Coast Guard delivered a set of design parameters to them, and they worked with a civilian classmate to complete a feasibility study and conceptual design. The parameters that focused the design were a 3000 sq. ft. deck capacity, a 5 ft. maximum draft, and a minimum speed of 10 knots.

The team completed interviews, a site visit and regression analysis of the existing fleet to determine the most important aspects for this new vessel. The team utilized this information to optimize the vessel for its primary missions through the hull design, machinery and equipment selections. They were also able to optimize the superstructure and crew arrangements to maximize habitability and utility. The team traveled to D.C. in June of 2009 to share the results of their study with members from CG-9 and the Surface Forces Logistics Center. As a result, the team was invited back to D.C. to present their preliminary design at a local SNAME meeting.



Stern View of 200' HWV

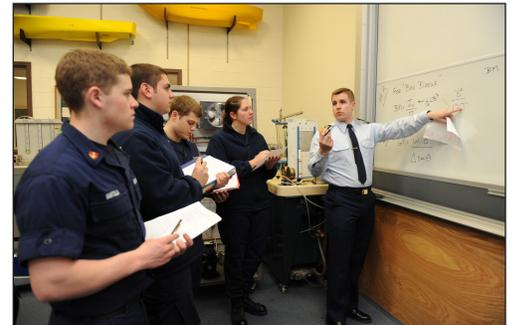
Techies put the 'M' in CGA

by LCDR Scott Calhoun & LCDR Matt Edwards

Sage advice is a rare commodity in an age of uncertainty, so the following insight could prove valuable – the Coast Guard's most successful officers know ships. While it takes years for an officer to obtain the requisite education, training and experience to truly "know ships", a primer on commercial marine safety benefits all Coast Guard (CG) careers. Therefore, it is absolutely essential that the CG indoctrinate its officers early by leveraging resources at all possible accession points.

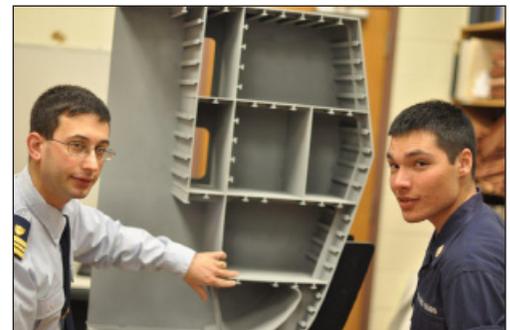
The Coast Guard Academy (CGA) provides a tremendous opportunity to increase cadet exposure to the marine safety community. Two "techies" (the authors) were recently assigned to the Academy as rotating military faculty in the Naval Architecture & Marine Engineering (NA&ME) and Mechanical Engineering sections of the CGA's Department of Engineering. These new legacy-"M" billets were created to increase cadets' exposure to the marine safety mission through targeted education, training, and experience.

The education portion of this initiative includes a new core course titled, Ships and Maritime Systems Knowledge, which provides an introductory foundation for understanding the design and operation of ships. This "Ships 101" course allows the authors to lecture students on international and domestic shipping rules, vessel stability, marine structures, shipboard



Top: LCDR Calhoun instructs cadets during a "hands-on" inclining experiment.

Bottom: LCDR Edwards teaches a cadet about marine structures.



USCG Team Wins Dragon Boat Race at PVA Annual Convention

Members of the MSE community, including CAPT Eric Christensen (Team Captain), CAPT Patrick Little, CDR Lee Boone, LCDR Mike Simbulan and LCDR Josh Pennington helped to secure a victory for the Coast Guard in the annual Dragon Boat Race during the PVA Annual Convention in Tampa.

While the PVA is disputing the results of the race with allegations that the CG boat was insufficiently manned due to an absent drummer, the cognizant OCMI, CAPT Tim Close, authorized the vessel to sail short given the limited duration of the voyage.

Marine Safety Engineers also took a break from the Florida sun to participate in the annual convention. CAPT Patrick Little gave an overview of the Marine Safety Center and highlighted their efforts towards customer service standards, plan review cycle time and communication with industry. LCDR Josh Pennington presented two MSC Marine Technical Notes on the installation of plastic pipe and the use of heat sensitive materials in piping systems.



CAPT Christensen and his team graciously accepting the First Place Award from the 2009 PVA President, Bill Clark, CAPT, USCG(ret.).



Techies put the ‘M’ in CGA, cont.

systems, and marine salvage. Next semester, a course titled “Marine Casualty Response” will introduce cadets to the CG’s role in marine transportation recovery, specifically, the exciting world of marine salvage engineering.

In addition to these courses, there are a number of other marine safety initiatives, including a NA&ME capstone project to design a Subchapter K commercial passenger vessel, directed studies research on pontoon vessel stability, cadet internships at the Marine Safety Center, and marine safety-related case studies integrated into existing engineering curriculum. Enriching the existing cadet training program demands target discussion on the marine safety mission, career options, and graduate school opportunities. Most of these discussions are held within the academic environment and the authors eagerly look forward to executing a field training program within the cadet training system.

The integration of marine safety into the CGA’s curriculum is not limited to the classroom. 2/C cadets (juniors) have the opportunity to participate in a marine safety summer training program involving domestic vessel inspections, port state control exams, shipyard repairs, and travel to meet program managers at CGHQ and the Marine Safety Center. This summer training program is just the first step – the end state includes a comprehensive summer training program that exposes all cadets to the marine safety mission, i.e., sending 3/C cadets to Sector Prevention, 2/C cadets participating in the marine safety summer training program, and detailing 1/C cadets to the commercial ship rider program sponsored by CG-543.

As we execute our strategy for incorporating marine safety into the CGA’s curriculum, we benefit from the continued guidance, support, and advocacy from CG-52 and CG-54. In addition, the MSC has provided critical support to the capstone projects, directed studies, internship, and lecturing on various ship design topics.

Finally, we strongly encourage officers at staff and field assignments to keep us informed of unique engineering situations that may be of educational value to cadets. Incorporating marine safety in CGA’s curriculum is a wise investment for developing future officers that “know ships”!

Where are they Now? LCDR Jason Tama

The Marine Safety Engineering sub-specialty provides its officers with a strong science and engineering education plus project management and leadership experiences that are directly transferrable to a variety of prominent jobs within the Marine Safety community and the Coast Guard at large. Recently we caught up with LCDR Jason Tama, the Coast Guard’s FY 2011 Budget Coordinator, to talk about how his MSC background as a Naval Architect and Staff Engineer helped him manage the development of the Coast Guard’s \$10+ billion dollar annual budget.

“The technical skills I developed as a Staff Engineer helped to flatten the learning curve in my current assignment.”-LCDR TAMA



Cadets tour a “T-Boat” engine room at Blount Shipyards

“Doc” Schneider Retires

On January 2, 2010, Coast Guard Headquarters saw the end of an era when Dr. (“Doc”) Alan Schneider retired after 37 years of service. Doc was an instrumental part of CG-5223, the Hazardous Materials Division, where he was known for the many hats he wore. He was known to many as Mr. LNG, *the* source of information about LNG cargo.

Doc was also involved in cargo classification work throughout the world, including Brazil, Africa and the Philippines. He is known in more than one country as the best source of information in this field.

However, Doc is best known for his work in the development and distribution of the Chemical Hazards Response Information System, or CHRIS code. This was used within the United States by the U.S Shipping Industry and the U.S Coast Guard to designate hazardous cargoes moved by vessel.



Doc will be fondly remembered and missed by all. We wish him Fair Winds and Following Seas.

Where are they Now?, cont.

MSE: Let’s jump right into it. What do you do as the Coast Guard’s FY 2011 budget Coordinator?

JT: I’m in charge of preparing the Coast Guard’s FY 2011 budget request. Our budget request is submitted to Congress for appropriation each year as part of the President’s budget request. Given that resources are limited, and we need funding to go to our highest priority needs, our budget request effectively describes the Commandant’s, Secretary’s and President’s policy priorities for the upcoming year. As the budget coordinator, I work closely with resource staffs throughout the Coast Guard to identify and fund priority needs. At the same time, I work externally with DHS, the White House Office of Management and Budget (OMB) and Congress to explain and justify our priorities. Each February, the Commandant publishes a Posture Statement that summarizes the Coast Guard’s budget request and priorities for the upcoming fiscal year.

MSE: Wow! It sounds like a tough job. How did your education and experience as a Naval Architect help prepare you for this assignment?

JT: Having a strong technical background has really helped me in this job, and it’s not just about the numbers. An engineering education gives you a strong background in analytical thinking and problem solving. During my time at the Marine Safety Center and my follow-on tour at Sector Seattle, I was given a lot of complex projects where I had to coordinate across multiple organizations to complete the tasks. These are skills that we take for granted in the Marine Safety program, but at the same time these skills are directly transferrable to a variety of jobs, including budget coordination. That said, there are also some aspects to this job that you can’t prepare for. I’ve been very fortunate that the Marine Safety program prepares its technical staff and creates opportunities to get this kind of broadening experience. I would highly encourage officers from the program to consider a tour in CG-821.

MSE: Agreed. Can you tell us where you are right now and where you plan to go from here?

JT: I am currently in Europe participating as a government fellow in the Marshall Memorial Fellowship (<http://www.gmfus.org/fellowships/mmff.cfm>). This three-week fellowship, open to U.S. citizens, enhances Transatlantic relationships by connecting a diverse cross section of American leaders with European leaders. This summer, I’ll PCS to MIT for the Sloan Fellowship, a year-long executive MBA program. CG-8 sponsors the Sloan fellowship each year, so the typical payback tour is at Coast Guard Headquarters. That said, I hope to go back to the field as a MSU CO. During my tour at the Marine Safety Center, I remember wondering if I would be competitive for field assignments, given the fact that I went straight from a buoy tender to graduate school and then to MSC. After I moved to the Prevention Department at Sector Seattle, I found that the knowledge and experience gained at MSC prepared me well for the field.

MSE: What do you remember most about your tour at MSC?

JT: Two things, the cutting edge engineering work and the international travel. I was a Naval Architect within the Major Vessel Branch and as such, I spent a lot of time working with cruise ship designers and builders on the design, layout, installation and testing of safety systems. As a technical expert in this area, I traveled to European shipyards and U.S. ports to augment the field inspection teams. My time at MSC was both fun and rewarding.



LCDR Jason Tama

Post-Graduate Education Season for AY 2011

Do you know an Officer who would be a good candidate for the Marine Engineering, Fire Protection Engineering, Chemical Engineering, or Marine Engineering Technology Advanced Education Programs? Encourage them to apply as e-resumes are due to CGPC-OPM-1 soon.

In Summer 2010, the Marine Engineering advanced education program will select 14 officers to attend graduate school to earn a Master of Science degree in a variety of disciplines, including

- Electrical Engineering
- Naval Architecture
- Marine Engineering
- Mechanical Engineering
- Ocean Engineering

Additionally, there will be two people selected for the Chemical Engineering program, as well as one person each for the Fire Protection Engineering and the Marine Engineering Technology programs.

Interested Officers may check the following links for more information

ME MET & FPE CG Portal Site:
<https://cgportal.uscg.mil/lotus/myquickr/me-met-and-fpe-advanced-education-programs>

OPM Post Graduate Information:
<http://www.uscg.mil/psc/opm/Opm1/opm-1PG.asp>

Civilian Engineer in the Spotlight

LCDR Tracy Phillips

Jaideep Sirkar is Chief of the Naval Architecture Division within the Headquarters' Office of Design and Engineering Standards. Jaideep assumed this leadership role last September, and his division provides technical expertise and develops standards and regulations in the areas of ship stability, maneuverability, load lines and structures. Jaideep

is also the U.S. Head of Delegation to the International Maritime Organization's Subcommittee on Stability, Load Lines and Fishing Vessels Safety (SLF). At the January SLF meeting, he eloquently voiced U.S. opinions and recommendations on a variety of highly technical topics including new generation intact stability criteria, options to improve the Tonnage Measurement Convention, and guidelines to verify tanker damage stability, to name a few.

Before his current position, Jaideep spent 8 years as the regulatory coordinator and Chief of the Regulatory Project Development Division at Headquarters. He was responsible for managing and coordinating development of all marine safety, security and environmental protection regulations. Jaideep is no stranger to the Naval Architecture Division, though – that is where he worked as a staff naval architect for his first 10 years in the Coast Guard.

Jaideep is an extremely active member of the Society of Naval Architects and Marine Engineers (SNAME). He currently chairs the Technical and Research Steering Committee, which establishes research priorities, projects needs in future technology, and develops programs to meet those needs. The Committee also monitors the administration and raising of funds for those activities. Jaideep was previously Chair of the SNAME Chesapeake Section.

Prior to his work in the Coast Guard, Jaideep spent 9 years in the private sector with premier naval architecture firms, consulting primarily for the U.S. Navy in various aspects of ship design. Jaideep has both a Bachelors degree and a Masters degree in naval architecture; the former from the Indian Institute of Technology and the latter from the University of Michigan. He also holds a Masters in computer science from Johns Hopkins University and a Masters in national resource strategy (national security studies) from the National Defense University/Industrial College of Armed Forces.



The United States Delegation to SLF 52. (bottom row, left to right) Mr. Peter Eareckson, Mr. James Person, Mr. William Peters, Mr. Christopher Bassler (top row, left to right) LCDR Tracy Phillips, Mr. Jaideep Sirkar, Mr. Vadim Belenky

If you have any comments about this e-newsletter, please contact LT AI Giordano:

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or

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