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United States
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Winter 2009-10

The **COAST GUARD** Journal of Safety
& Security at Sea
PROCEEDINGS
of the Marine Safety & Security Council

Grassroots Efforts



What's the Coast Guard done for me lately?
**Local Coast Guard units work to
make life better on the waterfront.**

*Also Inside—Lessons Learned:
Vessel grounds due to an inexperienced crew*

PROCEEDINGS



Winter 2009-10

Vol. 66, Number 4



East Coast

- 10 **Partners in Compliance**
by LT Tiffany Johnson
- 14 **Invigorate Port Partnerships**
by CDR Sean Carroll, Dr. Joan Weiner, Dr. Gayle Porter, and LT Sara Wallace
- 20 **Improving Commercial Towing Vessel Safety**
by Dr. Lewis Fisher, Jr.
- 22 **Eye of the Tiger**
by Dr. Lewis Fisher, Jr.
- 25 **Improving Coast Guard SAR Capability**
by LT Myles Greenway
- 28 **Joint Vessel Targeting**
by LCDR Norm Witt
- 32 **Risk Reduction Program**
by LCDR Richard Molloy



West Coast

- 34 **Industry Standards of Care**
by CDR Mark McCadden and Mr. John Dwyer

Gulf Coast



- 36 **Florida Keys Dive Safety Initiative**
by LT David Ambos
- 39 **Port Partnerships**
by LT E. Thomas Ayoub

Gulf Coast

- 42 **Looking Out for Seafarers**
by LCDR Norbert John Pail, Jr., and Father Sinclair Oubre, J.C.L.
- 45 **Brownwater University**
by CDR Hal R. Pitts, Mr. Raymond Butler, and Ms. Tava Foret
- 48 **Houston, We've Had a Problem**
by Captain Steven W. Nerheim, USN (Ret.)
- 52 **Securing Our Ports**
by LT Sarah Hayes, Mr. James Prazak, and LT Stephen Bor
- 56 **Customized Collaboration**
by LT Jeff Bybee



Great Lakes

- 60 **Risk-Based Decision Making Tools**
by CDR Joseph H. Snowden
- 68 **Working Together**
by LT Jerry Butwid



Lessons Learned

- 72 **Unprepared for Disaster**
by Ms. Krista Reddington

Lessons Learned



**from Casualty
Investigations**

On Deck

- | | | | |
|---|--|----|--|
| 4 | Assistant Commandant's Perspective
by RADM Brian Salerno | 13 | Ask the MSSC |
| 5 | Champion's Point of View
by RDML James Watson | 24 | Chemical of the Quarter
Understanding Chlorine
by Ms. Suzanne Chang |
| 6 | Walk the Line
by Mr. Rich Walter | 71 | Your Opinion, Please |
| 9 | Upcoming in Proceedings | 79 | Nautical Queries
Engineering |
| | | 81 | Deck |



Assistant Commandant's Perspective

By RADM BRIAN SALERNO

U.S. Coast Guard Assistant Commandant for Marine Safety, Security and Stewardship

Since 1790, when the First Congress of the United States established a small maritime law enforcement agency to assist in collecting the new nation's customs duties, the U.S. Coast Guard has evolved into a unique force that carries out an array of civil and military responsibilities involving nearly every facet of the maritime environment.

In executing our diverse missions, today's U.S. Coast Guard harmonizes seemingly contradictory mandates. We are charged at once to be police officers, sailors, warriors, humanitarians, regulators, stewards of the environment, diplomats, and guardians of the coast.

As the country's multi-mission maritime service, the Coast Guard has always needed to maintain a high degree of flexibility and operational readiness. We have also worked to establish sound working partnerships with other federal agencies; state, local, and tribal governments; marine industries; and individual mariners. These relationships make a difference every day through formal and informal efforts to improve maritime safety, security, and environmental protection.

In this edition of *Proceedings*, we will focus on the fruits of these relationships. We will highlight various "grassroots efforts" where the Coast Guard is working with other agencies and with local mariners and maritime companies to make life better on the waterfront.

Like the Coast Guard's missions, these efforts are wide-ranging, both in geographic scope and in mission focus. These programs are designed to benefit mariners, the maritime companies that employ them, and the regional environment and economy.

We have intentionally focused on the "What's in it for me?" quotient when framing the articles for this edition. Our goals are to better inform maritime stakeholders about these programs and to stimulate further efforts.

As the Coast Guard continues to evolve to serve the American public and enhance the overall maritime environment, I am confident that we will be always ready to act in whatever capacity our nation requires.

ADM Thad Allen
Commandant
U.S. Coast Guard

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Champion's Point of View



By RDML JAMES WATSON
Director of Operations
U.S. Coast Guard Atlantic Area

Coast Guard missions include a broad portfolio of duties and responsibilities. These range from maritime safety and mobility to homeland security and national defense, from maritime law enforcement to environmental response. Coast Guard members and the units in which they serve are always ready to act across the entire range of Coast Guard missions.

However, as a practical matter, some responsibilities demand more time, effort, and resources than others. Success in many of these missions depends heavily upon approaching them jointly with other services, agencies, and private sector organizations. When grassroots efforts inspire or are applied to Coast Guard initiatives, it is all the more appreciated because it has not been orchestrated or mandated by traditional power structures.

Rather, the creation of the movement and the group supporting it is natural and spontaneous. With this buy-in from the grassroots contributors, there is more energy behind initiatives, even in the face of adversity. Experience has shown that the most consistent improvements occur only where there is a commitment to do so by those who own and operate ships, boats, and facilities, or who are involved in the community these related efforts support. Often, many volunteers in the involved community give their time to support them, and these efforts, when combined, can lead to changes on a grander scale.

This issue of *Proceedings* focuses on some of the Coast Guard's "grassroots efforts" in four major regions: East Coast, West Coast, Gulf Coast, and Great Lakes. Since the initiatives we highlight in this edition cover so many areas within overall Coast Guard mission functions, the submissions are grouped geographically rather than topically, although some areas may appear to be underrepresented when grouped this way.

Our focus in this edition is to highlight our positive working relationships with other agencies and with local mariners and maritime companies that make a difference every day through formal and informal efforts to improve safety, security, and environmental protection. We are happy to take this opportunity to showcase some examples where such efforts have made, and continue to make, a major difference.



Walk the Line

Coast Guard partnerships and the Federal Advisory Committee Act.

by MR. RICH WALTER
Attorney Advisor

U.S. Coast Guard Office of Regulatory and Administrative Law

Health care reform was at the top of the president's agenda. He had campaigned on it, and it would be a signature issue of his first term. The president assembled a task force to draft legislation for Congress and named key cabinet members and other administration officials as members.

To chair the task force, he appointed his wife, a lawyer and "policy wonk" in her own right, who had considerable interest and expertise in health care issues. The task force had just set to work when three plaintiff groups representing doctors and health care consumers interrupted and sued the task force's chair!

The plaintiffs asked a court to bar the task force from holding any further meetings or submitting any draft legislation. The reason? The president had established the task force without following Federal Advisory Committee Act (FACA) procedures, because the first lady, its chair, was not a federal employee.

This is a true story from 1993. The defendant was Hilary Rodham Clinton. The plaintiffs had various reasons for bringing suit, but shared a common interest in slowing down the task force and ensuring that any reform proposal would take their interests into account. Ultimately, a federal court ruled that President Clinton's task force on national health care reform did not violate FACA and was not an advisory committee, because Mrs. Clinton was a *de facto* full-time federal official for purposes of the act. The task force went on to complete its work. Nevertheless, the Clinton case remains a leading case for FACA law, and provides federal agencies with a cautionary tale of how FACA might be used to derail a significant federal policy initiative.

FACA Facts

The Federal Advisory Committee Act was first enacted in 1972, at a time when concerns over public openness and the cost of federal policy making were on the rise. Lawmakers passed FACA as a way of controlling the many "advisory committees" established over time to provide federal agencies with access to the views and recommendations of industry, consumer group, and other outside experts.

FACA defines an "advisory committee" as:

[A]ny committee, board, commission, council, conference, task force, or other similar group, or any subcommittee or other subgroup thereof (hereafter in this paragraph referred to as a "committee"), which is established by statute or reorganization plan, or established or utilized by the president, or established or utilized by one or more agencies, in the interest of obtaining advice or recommendations for the president or one or more agencies or officers of the federal government, except that such term ex-

cludes any committee that is composed wholly of full-time, or permanent part-time, officers or employees of the federal government, and any committee that is created by the National Academy of Sciences or the National Academy of Public Administration.”¹

Once it's determined that a committee is covered by FACA, it is subject to oversight by the government entity that “establishes” or “utilizes” it and by the General Services Administration (GSA). The public has broad access to information about the duties, membership, and activities of FACA committees via a database maintained by GSA on its website.

FACA's aims are simple:

- Provide consistent ground rules for establishing, managing, and overseeing advisory committees.
- Provide for the fair compensation of non-federal government advisory committee members.
- Open committee meetings to public scrutiny.
- Reduce government costs by terminating unnecessary committees.

Agencies achieve FACA's simple aims by meticulously following the act itself as well as the GSA's detailed FACA-implementing regulations.

Compliance

While those of us who administer Coast Guard compliance with the act may sometimes grumble about the red tape, we also understand that FACA non-compliance would bring unwanted consequences. To enforce compliance, Congress provided that if an agency fails to follow FACA, a court can step in and block committee meetings or the agency's use of any committee recommendations.

This enforcement tool has teeth: Agencies don't want to spend years developing policy initiatives based on advisory committee recommendations only to have that basis cut out from under them by a court injunction. Moreover, they don't want to have to spend time and money on litigation. They prefer to spend time up front making sure they comply fully with FACA's requirements, so they never need to defend an advisory committee in court.

In This Edition

Every article in this issue of *Proceedings* has been reviewed by a Coast Guard lawyer for possible “FACA implications.” Why? Because this issue aims to highlight current Coast Guard partnerships with stakeholders outside the federal government, and, in doing so, aims to encourage Coast Guard and non-Coast Guard readers to seek out new opportunities for partnership.

Some partnerships *do* involve FACA. Currently, we maintain close to 20 FACA committees, some established by the Coast Guard and others mandated by Congress. However, most of the partnerships mentioned in this issue do not involve FACA.

We want to ensure that all Coast Guard partnerships with people outside the federal government are constructed with this act in mind. If the partnership is covered by FACA, we want to make sure that every “i” is dotted and “t” crossed. If we think one is not, we want to be sure of our reasoning in case it is ever second-guessed by a potential FACA litigant. We also don't want to set up a partnership that inadvertently triggers FACA.

How Do I Tell?

Whether or not the partnership is called an “advisory committee” is irrelevant—as the definition makes clear, any group that involves non-federal government personnel and that gives advice or makes recommendations to the Coast Guard *might* be a FACA “advisory committee,” no matter what it calls itself.

Only by understanding the purpose of the group, and how it is actually meant to function, can we reliably determine whether or not the Federal Advisory Committee Act applies. We use three litmus tests to make this determination.

Is the Group Established or Utilized by the Coast Guard?

If we fund the group's activities, determine its composition, or set its agenda, the group may need to follow FACA procedures. Groups such as trade associations generally fall outside the “established or utilized” test, and if we meet with an association's representatives to hear their views on an issue, we can do so without “implicating” FACA.

However, if we bring the representatives of several trade associations together to meet with us, we need to ask more questions before determining whether that group will be covered by FACA.



Is the Group Meant to Provide Advice or Recommendations to the Coast Guard?

We often meet with groups of citizens to discuss port safety and security measures, possible new regulations, and the like. If these meetings are called to provide information or exchange individual views, FACA is not implicated. The act was not intended to and does not reach every group that the Coast Guard establishes or utilizes, even if a group does give us advice or recommendations. The key is whether we meant for the group to advise us *as a group*.

Suppose we call a meeting with local industry leaders, environmentalists, and concerned citizens to discuss a proposed new regulation. Perhaps we spend a few minutes exchanging information about the regulation. At first, some citizens say they might be agreeable to the proposal, while others say they are firmly opposed. Gradually, the tide swings in favor of the opposition, and by the end of the meeting everyone is telling us the proposal is a bad idea.

Consensus? Group recommendation? Yes, but FACA is unlikely to apply because we called the meeting to hear individual viewpoints, and did nothing to manage the meeting in such a way that attendees felt any need to agree on a single point of view.

Does the Group Fall Within a Recognized FACA Exemption?

Remember that the Federal Advisory Committee Act was enacted against the backdrop of concern for public openness and reducing the cost of federal policy making. FACA and other statutes have always exempted groups that an agency might want to consult and that contain their own safeguards against insufficient public accountability or excessive cost.

Thus, the Coast Guard generally can meet with groups of state officials or local civic groups without trigger-

ing FACA. Also, if Congress tells the Coast Guard to use private sector committees to help implement certain measures, those committees are also likely to fall outside FACA.

Benefits

The Federal Advisory Committee Act provides useful tools for ensuring that when the Coast Guard needs advice on balancing the competing interests of various stakeholders, those stakeholders can be brought together on an advisory committee that will balance those interests, treat all stakeholders fairly, and give the public assurance that the committee will function efficiently and with accountability.

For each of its FACA committees, the Coast Guard evaluates its performance once every two years and maintains only those that provide value to the Coast Guard and the public. We are always interested in suggestions for additional FACA committees that might help us better perform our missions. At the same time, we seek to partner with non-Coast Guard stakeholders in a variety of ways, and in most cases those collaborations can take place without triggering the Federal Advisory Committee Act.

The Coast Guard's Office of Regulations and Administrative Law is the principal office responsible for determining when a collaborative effort should—or should not—be handled under FACA. We look forward to working with Coast Guard units as they seek to extend stakeholder partnerships.

About the author:

Mr. Rich Walter is an attorney advisor in the Coast Guard's Office of Regulatory and Administrative Law, where he has worked on Great Lakes, commercial fishing, LNG deepwater ports, and other issues. He also provides FACA compliance reviews. Prior to coming to the Coast Guard in 2001, he worked in the private sector for 25 years, compiling state codes and defending those accused of petty crimes.

Endnote:

¹ FACA, 5 U.S.C. Appendix 2, § 3; punctuation and subparagraph designations omitted.

Upcoming in

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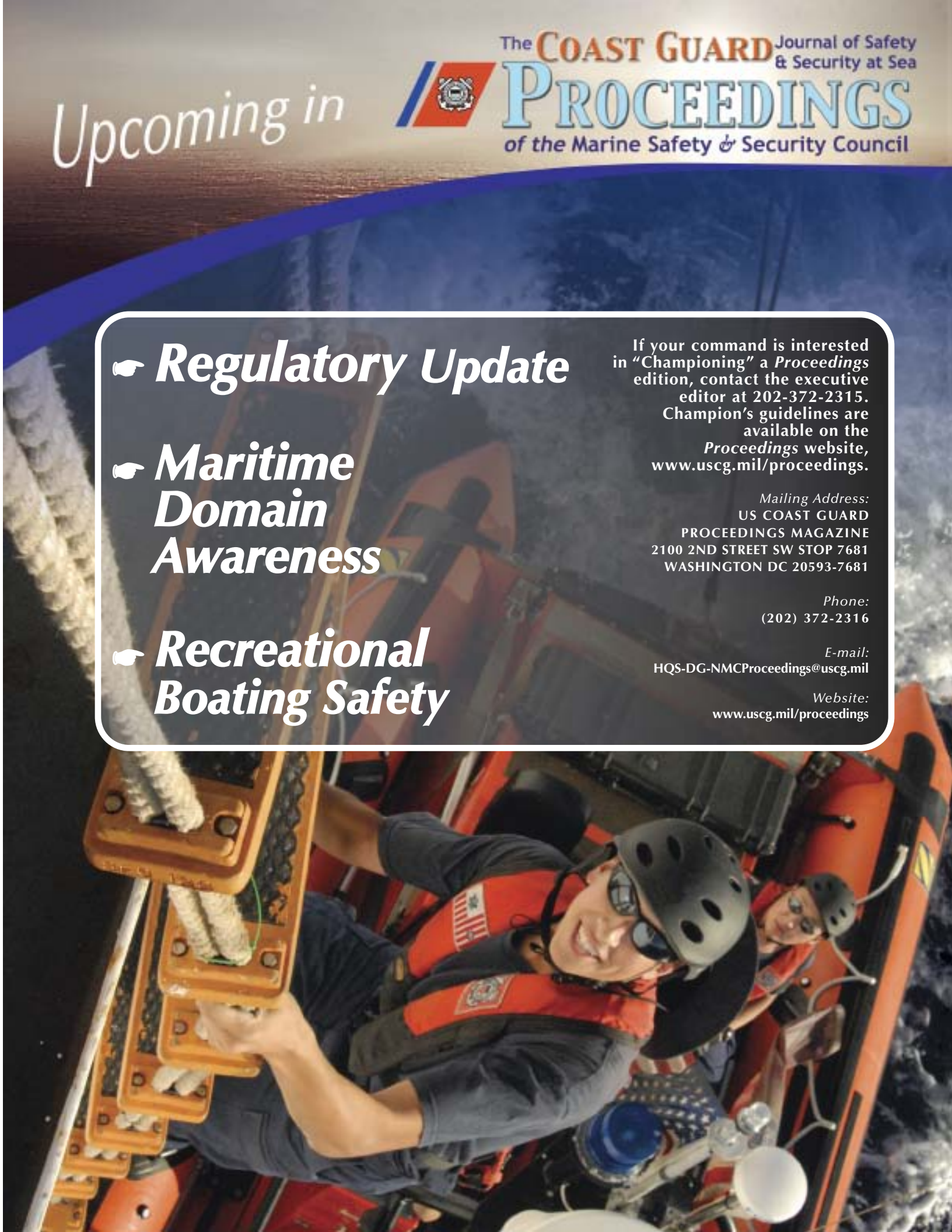
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Partners in Compliance

Using partnerships as a force multiplier.

by LT TIFFANY JOHNSON
Chief, Shoreside Compliance
U.S. Coast Guard Sector New York



What Gets Inspected?

All Coast Guard-regulated waterfront facilities in New York's captain of the port zone are inspected by the sector's Safety and Security Operations Division.

A "waterfront facility" isn't just any structure on the waterfront. Title 33 of the United States Code of Federal Regulations explains that waterfront facilities transfer oil or hazardous materials in bulk, handle or store containerized hazardous materials or bulk non-dangerous cargo, embark or disembark over 150 passengers, receive foreign-flagged cargo vessels, or any combination of the aforementioned in order to fall under the Coast Guard's jurisdiction. In New York's captain of the port zone, more than 150 facilities meet these criteria, and each receives at least two inspections annually.

During an inspection, Coast Guard waterfront facility inspectors meet with the facility representatives to discuss pertinent maritime operations and conduct material inspections of safety and security equipment. If there is a problem, the inspector will review it with a facility representative and document what changes need to be made to continue operations safely and align with federal law. Follow-up and spot-check inspections are commonly performed to help the facility rectify the deficiencies.

Regardless of any deficiency history, each facility receives at least one inspection and a spot check per year to ensure consistent and continuous compliance.

In 2008, Coast Guard waterfront facility inspectors from Sector New York conducted a safety and security inspection and discovered improperly stored hazardous materials and flammable liquids within a waterfront warehouse.

Up until that summer, the facility had not conducted a marine transfer for 13 years. Facility managers notified the Coast Guard that it would be receiving barges again, but now it would be transferring biofuel. While biofuel marine transfers are still regulated under the same laws and treaties as traditional petroleum products, the operation required new piping and updated systems.

During the Coast Guard walk-through to inspect the new piping systems, security measures, and spill mitigation and fire prevention equipment, Coast Guard facility inspectors discovered a new access control point on the exterior perimeter of the facility—a garage door on the side of a building near the facility's waterfront. Because this building had not been associated with the marine transfer operation during past exams, it was never considered under the safety-related inspected portion of the facility. When the facility inspectors entered the building to confirm access control under security regulations, they discovered it contained undocumented and improperly stored hazardous and flammable materials.

The Concern

Inspectors immediately recognized hazards associated with this facility's unprotected, unsegregated, and improperly labeled and stored hazardous materials. Ironically, the containers that *were* labeled caused even greater concern because dangerous substances were placed perilously close to each other.

For example, corrosive materials were stored next to highly flammable liquids. Upon further investigation, inspectors discovered the building's sprinkler system did not work. The fire risk associated with these hazards was of particular concern, since even the facility representatives didn't know what chemicals would be involved if a fire were to start. The building was just yards from the Passaic River and one block from a residential area and shopping center.

After notifying the sector, the inspectors completed their exam and issued 30 deficiencies associated with the hazardous materials storage. Since the facility was not in a safe condition for any operations, it received a captain of the port order to suspend all hazmat and oil transfer activities.

The Challenges

To avoid a catastrophic fire, the warehouse had to be completely ridded of rubbish, waste, and hazardous material. The facility also needed to provide adequate fire extinguishing capability, and the structural integrity of the building had to be certified. The basement of the building, filled with unlabeled drums and packages, flooded after heavy rainstorms. Initially it was not known if any of the hazardous materials stored in the basement could react with the water. In addition, the roof above the fifth floor of the storage facility was dilapidated, providing little protection to the hazardous materials stored there.

This situation was made more complex because the facility had five tenants, each involved in independent, uncoordinated hazardous material handling operations.

Tenants were using different sections of the same floor to mix flammables and other materials that were not compatible with each other. Packing and distribution materials were haphazardly stored, creating a fire hazard and blocking egress and response routes. The operations varied in size and occupancy space, and there was no way to distinguish between operations. Even the tenants were unclear where one leased space ended and the next began.

Keep the Businesses in Business

An incident management team was quickly created to oversee the task of cleaning up the facility. During the initial meeting with the owner/operator of the facility, the incident commander explained the seriousness of the situation and that the Coast Guard's intention was

Grassroots Efforts: We're All in This Together

It was determined early on that a grassroots approach based on mutual trust and communication would be the main element needed to gain the cooperation of the facility and its tenants. While this approach takes a lot of work initially, it pays off in the long run. In challenging economic times, it was important to reassure the facility and the tenants that the Coast Guard's goal was to help their businesses remain intact while improving safety.

If this grassroots approach had not been communicated in the first days of the response, it is likely the facility would have been forced to evict the tenants, causing some of the businesses to go bankrupt. Additionally, clean-up efforts would likely have taken much longer.

Instead, everyone worked together to mitigate the risk to the local community and the environment. The dedication and understanding of all parties built a foundation for strong, professional relationships and reassured other facility operators that Coast Guard Sector New York was dedicated to working with operators and helping them comply with federal regulations.



to help his facility stay in operation. This approach set the tone for cooperation.

Putting this spirit into action, the facility owner's representative eventually served as the resource unit leader for the incident management team and coordinated with the environmental cleanup company hired to remove the material.

Having the facility's representative serve as a team member removed potential conflict.

The tenants were not familiar with federal hazardous materials regulations, and this was their first interaction with the Coast Guard. All of them were very concerned about going out of business. At first, some tenants did not want to comply.

Because of this initial resistance and since each operation was so different, Coast Guard members and facility representatives met with each tenant individually. Most of these meetings took place in the warehouse, where inspectors could point out and explain the dangers within each tenant's area. This allowed the tenants to propose solutions that could be evaluated and, in many cases, approved on the spot.

This approach allowed the tenants to see that the Coast Guard was in support of keeping them in operation, and that the incident management team viewed them as part of the solution. Following the one-on-one meetings, the tenants took ownership of the safety requirements and the response picked up momentum.

Working Together

The incident commander's goals were developed in cooperation with the facility representative. The goals stressed:

- safety of nearby populations and response personnel,
- environmental protection,
- teamwork,
- regulatory compliance,
- a safe return to commercial operations.

The team moved to achieve these goals through a comprehensive site safety plan and cleanup timeline.

Having the facility's representative serve as a critical member of the team alleviated potential conflict as the team coordinated the proper storage, segregation, and labeling of the hazardous materials. He worked carefully with subject matter experts from the sector's Shoreside Compliance Branch and Incident Management Division to monitor the safe removal of hazardous waste and rubbish. He also worked with Coast Guard inspectors and contracted environmental consultants to address how to properly remove or store all hazardous and flammable materials.

The facility representative helped set up meetings and inspections to work toward removing potential safety and environmental threats outside the Coast Guard's

Following the one-on-one meetings, the tenants took ownership of the safety requirements and the response picked up momentum.

regulatory purview, helping the team to achieve other requirements of the local fire department, state environmental protection authorities, and the EPA. All efforts resulted in a safer facility and new relationships between the owner and these other agencies.

Follow Up, Follow Through

Communication and documentation were critical elements of this operation. The incident management team inspected the facility every day and held 15 formal progress meetings.

The gradual improvements were noted each day. Inspectors briefed the facility owner, his representative, and the tenants on progress, which helped increase their cooperation with the removal of the safety risks. Other agencies were often present to discuss the facility's progress and become familiar with its new, safer operations.

The team provided continuous guidance and helped with various tasks to maintain the project's progress. The facility representative and tenants became excited to show the visiting inspectors their progress, especially when they went above and beyond what was required for the next operational period.

The Results

After 40 days of intense work, more than 25,000 pounds of debris and over 500 drums and totes totaling more than 25,000 gallons of hazardous and flammable liquid waste were removed. The firefighting system was repaired and fully operational, proper signage and markings were put up around the building, and a cargo stowage plan was implemented for each floor of the warehouse. The basement no longer flooded, the roof was repaired, and waste was no longer stored on the premises.

In completing these improvements, the facility met all requirements to the satisfaction of the captain of the port. Best of all, the clean-up operations were conducted without injury to any personnel or damage to the environment.

The Coast Guard maintained a routine presence at the facility to monitor and assist during the first months after returning to operations. There have been numerous transfers conducted since the clean-up was completed, and the facility has installed new cargo transfer pumps, renewed pipelines, and conducted two major upgrades to the oil containment bulkheads. The facility took on additional projects to make the warehouse

safer, including installing a new roof and an explosion-proof lighting system.

Soon after the facility began to conduct business under the newly obtained compliance, Sector New York's Shoreside Compliance Branch received a letter from the facility's representative, thanking the Coast Guard members involved for their professionalism and understanding.

Tenants were excited to show the visiting inspectors their progress, especially when they went beyond what was required for the next operational period.

About the author:

LT Tiffany Johnson has served as a federal on-scene coordinator representative, port state control officer, and facilities compliance program manager. She has received the Coast Guard Achievement Medal, Army Achievement Medal, and two unit commendations.

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Does the Coast Guard conduct fire rescue drills with local, county, or state agencies? If so, how are these coordinated? If not, why not?

Answered by the USCG Office of Counterterrorism and Defense Operations.

In general, Coast Guard sectors coordinate regularly with local, county, and state agencies as part of the Coast Guard's National Preparedness for Response Exercise Program (NPREP) and the Area Maritime Security Training and Exercise Program (AMSTEP). NPREP exercises involve oil spill response, but scenarios may also involve responding to a fire aboard a vessel in port or a marine facility that the CG regulates. The Coast Guard also coordinates with port/facility-operated fire departments as part of NPREP. Commercial vessels and facilities are required to retain their own fire-fighting resources.

The Coast Guard sectors do not have civilian or commercial fire-fighting equipment. Information on local, county, state, and port/facility-operated fire/rescue agencies and their response capabilities is located in area contingency plans for Coast Guard federal on-scene coordinators to use in making decisions while responding to oil spills and hazardous substance releases. Coast Guard sectors also coordinate joint training with these agencies that support and test area contingency plans and area maritime security plans.

AMSTEP exercises involve scenarios related to preventing, protecting, and responding to security-related risks posed to the general public in or near the maritime environment and to our national Marine Transportation System. This program supports the continual improvement of Area Maritime Security Plans (AMSP) as guided by and through the sectors' coordination within their respective Area Maritime Security Committees (AMSCs). Like the NPREP, AMSTEP exercises and training associated with AMSP(s) are coordinated with local, county, and state agencies that have fire rescue responsibilities.

ASK THE MSSC





Invigorate Port Partnerships

The joint civilian orientation conference nominating process.

by CDR SEAN CARROLL
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Rutgers University

DR. JOAN WEINER
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Drexel University*

LT SARA WALLACE
*Enforcement Chief
U.S. Coast Guard Sector Baltimore*

There is a well-regarded, high-impact program that can radically invigorate each captain of the port's relationships with influential members of the maritime industry, port community, and academic opinion leaders. With nearly 70 years of success stories, the JCOC (or joint civilian orientation conference) engages these participants and provides them unfettered access to the operational theaters of our nation's military. Sponsored by the U.S. Department of Defense (DoD), the JCOC requires little effort by regional advocates, is self-funded by its participants, and conveys the U.S. military's message to participants.

Program History

The joint civilian orientation conference began in 1948 with the goal of connecting American citizens with the soldiers and sailors of the United States armed forces. It is a Secretary of Defense-sponsored program that originally focused on the Department of Defense and the Department of State. The initial Coast Guard involvement in 1997 (for the 60th conference) expanded coverage to all five armed forces, as it continues today.

Most citizens know the general purpose of each of the armed forces, but they don't really understand what separates them or what relationships they share. When the joint civilian orientation conferences began, the

focus was to educate civilian participants on military training, force, and organization. Information and discussions were presented at a macro level.

Why, Who, How

By reorganizing its approach, today's program reaches far beyond that initial goal. Now, participants also learn the "why" behind the armed forces'



Joint civilian orientation conference participants take a boat tour with the Coast Guard port security unit at Guantanamo Naval Base, Cuba. Department of Defense photo by Master Sgt. Kevin J. Gruenwald.

missions, the “who” behind its people, and the “how” behind training and execution. JCOC participants experience the same hands-on training soldiers and sailors receive to achieve mission success. It is an encompassing and honest look at the military.

Benefits can be seen almost immediately. Whether it is due to exposure to the caliber of men and women who represent the U.S. military, the challenges and difficulties they face, or the equipment and training that enables them, the participants walk away with new knowledge and powerful experiences they want to share. These first-hand, tangible experiences shape and strengthen opinions in support of the military and its missions.

Participants offer the troops friendly faces, encouraging words, and share the knowledge that their sacrifices and efforts are valued and appreciated. This has an immeasurably positive effect. Who wouldn’t want that kind of understanding of their service, and who wouldn’t want such candid support?

The soldiers and sailors on the front lines are the heart and soul that drive the military and protect our way of life. It is imperative that our men and women understand their dedication is not lost in the shuffle of a fast-paced world. Beyond the individual interaction, this positive exchange benefits both the base-location communities and the professional and personal communities to which JCOC participants return and talk to about their experiences.

Nominating Stakeholders: Do Try This at Home

The nominating process for a joint civilian orientation conference can be intimidating. In particular, sectors may view involvement as a “nice to do someday” program or feel it is better suited for the Pentagon or Coast Guard headquarters. This misperception may result from unfamiliarity with this type of conference, the associated DoD terminology, or the lack of emphasis in daily operations.

In fact, nominating port partners to a joint civilian orientation conference can be a critical litmus test for a sector. A successful sector command boasts countless, fruitful port partner relationships with other agencies, private industry, non-profit institutions, and universities.

A JCOC works for a sector in several ways:

- It validates the depth and breadth of port community relationships.



Members of a JCOC fire machine guns during a weapons familiarization course at Guantanamo Naval Base, Cuba. Department of Defense photo by Master Sgt. Kevin J. Gruenwald.



U.S. Army First Sergeant Sanchez goes over proper M-16 A-2 procedures with JCOC participants. Department of Defense photo by Tech. Sgt. Jerry Morrison.

- It provides an opportunity and mechanism to bolster existing relationships.
- It offers a logical venue to reach further and develop more port partners.

RECENT COAST GUARD PARTICIPATION

JCOCs are hosted by a combatant command. JCOC 76, for example, was hosted by the U.S. European Command. Participants visited CGC *Dallas* in Rota, Spain, on its last port call after delivering aid to the Republic of Georgia. JCOC 77 was hosted by U.S. Northern Command and participants visited CGC *Chase* and Sector San Diego.

The joint civilian orientation conference nominating notifications start with an ALCOAST. Coast Guard headquarters personnel also e-mail public affairs offices throughout the Coast Guard and give them a “heads



PORT PARTNER REFLECTION

A very special experience.

by PROFESSOR JOAN WEINER

Drexel University

As a participant in JCOC 74, ours was the first group to visit the Pacific Command. We had the unique opportunity to reflect on the past, experience what our remarkable military men and women are doing today, and gain an understanding about the challenges they must deal with. Meetings with various personnel, from the lowest-ranking enlisted through the top military staff, gave us information and glimpses of both personal and professional lives.

Just as WWII required island-hopping, our C-17 took us from Hawaii to Guam to the Philippines to Okinawa and, quite appropriately, on the birthday of the Marine Corps, to Iwo Jima. Sinking into the sand of this desolate island, we could almost see and hear the Marines landing so many years ago and planting the flag on Mt. Suribachi. Whether it was visiting Pearl Harbor, or laying wreaths in the American Battlefield Cemetery in the Philippines, or walking through the tunnels of Iwo Jima, we saw evidence of the sacrifices that helped ensure others would live.

The Past Meets the Future

Against that powerful and somber reminder of the price of war, we also saw the many ways our military is working today to prevent it and secure our future. In Guam we sat at a conference table used for peace negotiations during the Korean War and were briefed about the new threats and response strategies throughout the region.

We also saw the B2 stealth bomber and throughout our journey had time to see advanced weaponry and supply line support and talk with troops about their work and personal goals. We found they are troubled by the type or even the lack of attention that is given to them in the media.

The “fun” of aiming an M-16 on a live ammo range was lessened a bit by recognizing that this same range was preparing our troops for their deployments to Iraq. One special experience was meeting a young woman who had recently completed her medical training at my university and was now attached to the Marines on Okinawa.

New Strategies

I now understand more about how the nature of alliance building, preparations, and deployment are changing. Increasingly, we are working through and with others to accomplish our strategic objectives. In the Philippines we heard from the U.S. ambassador about terror threats and watched a simulation by the Philippines’ own “Seals,” trained by U.S. personnel.

Back in Hawaii, we witnessed a simulated rescue mission by the Coast Guard and we also learned about the increasing emphasis on drug running, dealing with piracy, and other threats that take away from important humanitarian work. The list goes on.

The Take-Away

Each participant learned something that has influenced what he or she now does. For JCOC 74, the opportunity to bring back sand from Iwo Jima was important, made even more so by the suggestion by a neurologist participant that we give small vials of it away to those who had served. His responsibility includes a veteran’s hospital, so he knows well what the many head traumas mean. A newspaper publisher planned to increase his paper’s coverage of the military. An assistant school superintendent developed new appreciation for the demands placed on the children whose military parents transfer to and from the local base.

And for me, an academic who teaches leadership, ethics, and organization, the take-aways are many. Conversations with senior officers gave a new understanding of leadership and the many nuances of command and control. Throughout the trip, my experiences with the young men and women helped me reconsider the standards that many feel are “slipping” in our classrooms today. No longer in mine.

Since my return, I have also made a number of presentations to our academic and business communities to help others understand the demands on our military and state departments and to respect and learn from the contributions of those who serve.

up” to generate participation in the nomination process. Once nominations are made, they are rated by representatives from the five services and the Department of Defense. These ratings go back to the DoD, are discussed by a joint panel, and approved.

Though this description may oversimplify the challenges of embracing JCOC at the field command level, it should be clear that only four key elements are necessary to make it work at a Coast Guard sector:

- a proactive champion (or project officer);



Joint civilian orientation conference participants prepare to board a Navy SH-60 Seahawk in Rio de Janeiro, Brazil. Department of Defense photo by Tech. Sgt. Jerry Morrison.

- a robust slate of port partner relationships;
- motivated, eligible nominees;
- a clear understanding of the JCOC nomination process.

With these four elements, sector commanders can seize semi-annual JCOC solicitations as low-effort, high-impact opportunities to reinforce influence in their regional ports.

Championing the Effort

For the first element—the champion—we recommend a mid-grade officer (O-3 or O-4) or equivalent civilian (GS-12 or GS-13). This individual should be astute and able to quickly learn and assimilate the JCOC requirements. He or she should also be adept in an interagency/outreach environment and possess good interpersonal skills. Finally, the champion should be a wardroom member of influence who can collate the combined efforts of the sector’s command cadre and dutifully represent the expectations of the sector commander.

With the champion in place, the next critical element is a slate of port partner relationships. This should encompass the cumulative connections of every member in the command, not just a limited rolodex from the O-6’s desk.

Extend the Invitation

Equipped with a prioritized list of eligible candidates, the champion can pursue two separate courses. The first course is one of mass goodwill. Send a nomination letter from the sector commander to 10 or more eligible participants. Even if most decline the nomination, this

outreach is a way of communicating to numerous port partners that the U.S. Coast Guard values them and considers them worthy to participate in a program of this caliber.

The second course is highly selective. Choose no more than four highly influential leaders in the port. Reach out to each directly through an existing relationship (if they work closely with a department head, have him or her make contact). Explain the program, including the price tag (normally between \$3,000 and \$4,000 per person), and

FOR MORE INFORMATION:

VISIT THE JCOC WEBSITE AT
WWW.JCOC.DOD.MIL



Participants observe a Blackhawk helicopter slingload operation and simulated disaster response exercise at Soto Cano Air Base, Honduras. Department of Defense photo by Master Sgt. Kevin J. Gruenwald.

PORT PARTNER REFLECTION

Our young people are capable of much more than we typically ask of them.

by PROFESSOR GAYLE PORTER
Rutgers University

Before the trip, I was excited to be included, but I wasn't sure whether SouthCom was going to prove as interesting as some of the other trips. There just didn't seem to be as much going on in Latin America and the Caribbean as in some other parts of the world, but I learned a great deal during JCOC 75. The U.S. has stronger linkages throughout the Western Hemisphere than most of us think about on a daily basis. The progress and challenges impact our country in many ways. A saying often quoted during the trip referenced security and economic development as being "two sides of the same coin."

The Partnerships

The military understands (and convinced me of) the importance of offering partnership to willing and capable countries now, demonstrating that we respect their current situation, see the importance of their future, and want to start now to build a sustainable ongoing relationship.

These partnership efforts include disaster relief and humanitarian aid. There is also a more traditional military advisory role to assist with the security and stability of a country's population.

The People

Too often, when we think of military activities around the world, we focus on whether we agree or disagree with some politician's stand about that presence. We forget that these activities involve a lot of people—many of them very young people—trying to do a good job at their assigned task, day after day.

Here are a few that I remember meeting on my trip:

- Greg was a fireman aboard the USS *George Washington* aircraft carrier. I startled him when I first walked up and asked a couple of questions. Later, he sought me out and asked how I was enjoying the tour and whether he might help again in any way. Before we parted, I asked who I might call back home to let them know what a nice guy I thought he was. He gave me his dad's phone number. After I left a voice message, his dad looked me up through the university directory and sent an e-mail, including additional photos from Greg's tour. The responsibility of Greg's job reminds me that many of our young people are capable of much more than we typically ask of them.

- Andre, a lieutenant commander, was seated next to me on a helicopter transport out of Rio. With hearing protection on, we couldn't hold a conversation, so he wrote notes to me along the way, pointing out locations of importance (like the area where Brigitte Bardot vacationed in the '50s and '60s). Well into these exchanges I became aware that he was Brazilian, an eye-opener for me in understanding what the international collaboration of military personnel means on an individual level.

- Diedre was a Navy captain who had participated in a number of "firsts" for women during her career. Her interest in the military started because she needed scholarship money to go to college; ongoing opportunities led her into additional enlistments. Diedre's story has given me a new perspective on the opportunities for young women in the military, compared to what was accessible back when I was college-aged.

- Derek and Jermaine, who "politely" (I've seen that look from my students) agreed to pose for a photo. They perked up when I asked whether I might e-mail it to any family or friend that would enjoy receiving a current photo in their work environment. It felt really good to offer them this small token of appreciation for the work they're doing.

There are many experiences that I take with me into my classrooms and also into my interactions with business people through my research, consulting, and professional memberships. There is much that business, universities, and individual citizens can learn from military operations around the globe. The Joint Civilian Orientation Conference program is a valuable program that makes sure that continues to happen.

A JCOC participant repels off a training wall at Soto Cano Air Base, Honduras. Dept. of Defense photo by Master Sgt. Kevin J. Gruenwald.



offer them an opportunity for nomination. This course limits the breadth of the local impact, but increases the depth. It becomes an exclusive, highly coveted opportunity for those considered.

This is particularly effective with a distant relationship that could benefit from greater emphasis. Visualize the mayor of a major metropolitan center who

barely recognizes the U.S. Coast Guard in his or her port ... until now.

Prepare the Package

The third required element—motivated nominees—can be achieved by executing the JCOC at the local level. Those who are eligible and wish to be nominated are their own best advocates. They can write their own nomination packages much better than the sector’s champion.

As such, the most time-consuming and laborious phase of nomination is conducted by the nominees themselves. The sector’s only efforts are in coaching the nominee, providing informed answers to their questions, and proofreading the final package.

For most sectors, the nomination goes from the sector commander to a senior representative at the district level (typically, an O-5 or O-6), to the district commander, to Coast Guard headquarters, then to the Secretary of Defense’s JCOC committee. Knowing the four members who handle the packages after the sector commander is of critical importance. Simple preferences such as whether they favor local politicians over professors, or whether they expect to see a cover letter or only the nomination package, can ensure a smooth routing of your coveted nominations.

Success

Using the second course of “highly selective,” Sector Delaware Bay provided four highly competitive nomination packages in 2008. Two of the slots were ultimately offered to sector nominees.

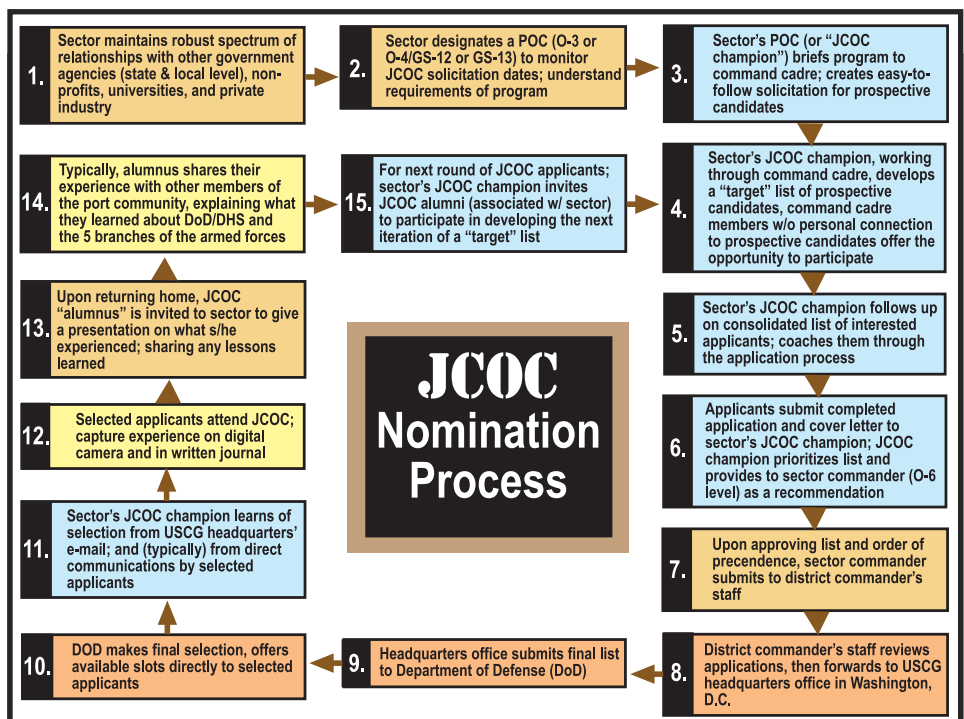
About the authors:

CDR Sean Carroll is the U.S. Coast Guard liaison to the motion picture industry in Los Angeles, Calif. His previous operational assignments include chief of incident management at USCG Sector Delaware Bay and tours aboard USCGC Polar Sea, USS O’Brien, and USCGC Katmai Bay. He is a 1994 graduate of the U.S. Coast Guard Academy and a 2002 graduate of the Simon School, University of Rochester.

Dr. Joan Weiner is professor of management in the LeBow College of Business at Drexel University. Working as part of an interdisciplinary team focusing on leadership, system design, and educational innovation, she also serves on several professional and community boards. She received her MBA and Ph.D. degrees from the University of Pennsylvania’s Wharton School.

Dr. Gayle Porter is a professor at Rutgers University. Following experience in finance, energy production, and management consulting, she received her Ph.D. from Ohio State University. At Rutgers she teaches courses in organization change, social responsibility, and international human resources management. Her research focus is workaholicism and the increasing impact of technology.

LT Sara Wallace is the enforcement chief at U.S. Coast Guard Sector Baltimore. Her previous operational assignments include Coast Guard liaison to the Department of Defense for the Joint Civilian Orientation Conference, executive officer of Coast Guard Cutter Vashon, and deck watch officer on Coast Guard Cutter Willow. She is a 2001 graduate of the U.S. Coast Guard Academy.



How to build a successful JCOC nomination program at your command

- **Get the entire wardroom aboard early.** The sector commander's support must be clearly communicated, along with the expectation that every officer cooperate fully with the JCOC champion.
- **Don't let perfection be the enemy.** A well-written package submitted on time is much preferred to a five-times-edited version submitted after the deadline or held until next solicitation.
- **Revel in success.** Once nominees are chosen for the program, celebrate the nominees, the U.S. Coast Guard, and the relationships. Consider press releases, area maritime security committee announcements, and notices in maritime publications.
- **Learn something new.** Once your nominees return home, find time for them to meet with your wardroom and present their experience. What did they see? What did they learn? Many return with wonderful pictures and keen observations. A recent presentation in Philadelphia led career officers to remark "I've been in for almost 20 years, and I never knew that!"
- **Success begets success.** JCOC alumni in your port are success stories for you, your command, and the program. They now can help identify future nominees. This further engages the U.S. Coast Guard with other, more diverse port partners. Let the momentum continue and grow.





Improving Commercial Towing Vessel Safety

The uninspected towing vessel examination program.

by DR. LEWIS FISHER, JR.

*Commercial Fishing Vessel Safety Program Coordinator Supervisor
U.S. Coast Guard Atlantic Area Prevention Division*

Protecting the lives of mariners who work on the water aboard various platforms is a primary Coast Guard mission. While commercial towing vessels are currently uninspected, many will be subject to inspection as a result of the Coast Guard and Maritime Transportation Safety Act of 2004.¹ The Coast Guard has co-labored with the Towing Safety Advisory Committee (TSAC) to develop regulations to inspect these vessels.

Recommendations

The Towing Safety Advisory Committee has been an invaluable resource in the regulatory project process. For example, TSAC proposed that third-party organizations conduct alternate compliance verifications of towing vessels and company safety management systems. Under this recommendation, the Coast Guard would retain responsibility for approval and oversight



U.S. Coast Guard photo.

of the third-party organizations and audits. All recommendations are being considered to determine the best course of action to ensure towing vessel safety.

The effective date regulations will be published is unknown, so until the regulations are promulgated, the USCG Atlantic Area voluntary commercial uninspected towing vessel examination program will serve as the bridging strategy.

Voluntary Examination Program Implementation



On November 25, 2008, the Atlantic Area commander signed an instruction to establish policy for the consistent implementation of the commercial uninspected

towing vessel examination program. The instruction covers existing uninspected towing vessel safety and security requirements.

During a voluntary dockside examination, examiners inspect bridge and vessel documents as well as navigation safety, lifesaving, pollution prevention, and fire-fighting equipment. Once a towing vessel satisfactorily completes a voluntary dockside examination, a decal is issued.

Aggressive outreach efforts are underway to encourage owners and operators to participate in the examination program. To promote the program, Atlantic Area is reaching out through partners such as the American Waterways Operators (AWO) and the Gulf Intercoastal Canal Association. Further promotion efforts include dock-walking, newsletters, and industry days.

A Look Ahead

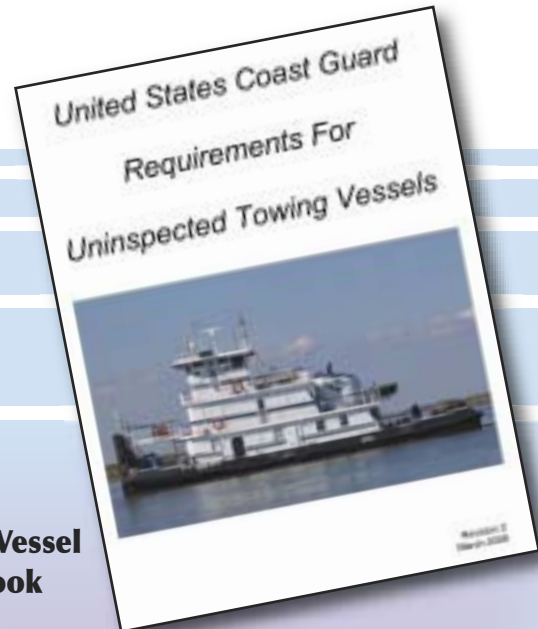
Through a collaborative effort with industry groups such as AWO and TSAC, we will continually strive to improve the safety of the towing vessel industry. We will continue to emphasize qualifications and training to ensure those operating towing vessels are well qualified and properly trained to do it safely. We believe safety is a community effort. To be successful in reducing casualties, our partnership with industry organizations must remain strong and vigilant.

About the author:

Dr. Fisher is chief of the Uninspected Vessels Section at the Atlantic Area Command. He oversees activities for commercial fishing vessels, uninspected passenger vessels, uninspected towing vessels, and recreational vessels. He serves as supervisor of the processing center that prepares violation cases for adjudication at the CG hearing office.

Endnote:

¹ Uninspected vessels undergo voluntary dockside examinations in accordance with 46 Code of Federal Regulations (CFR), Subchapter C. However, inspected vessels must undergo a mandatory inspection in accordance with 46 CFR, Subchapters D, I, K, T, and M, after which, if completed satisfactory, a certificate of inspection (COI) is awarded.



New Towing Vessel Guidebook

As a result of the Coast Guard's interaction with personnel from the towing vessel industry, it was decided that the towing vessel guidebook, which was part of the Atlantic Area instruction, needed to be revised. For example, Mr. Michael W. Rushing from Rushing Marine Service, L.L.C., pointed out that requirements for operators on rivers were omitted. Many like changes were made to enhance the quality of the guidebook.

With the consensus of the group, the guidebook was organized into sections, and color-coded accordingly (black for all vessels, blue for oceans route, green for coastal route, and brown for rivers). The draft guidebook was then sent out to Coast Guard district uninspected towing vessel coordinators and industry personnel for comments. Once all edits were completed accordingly, the guidebook was distributed.

This partnership with industry resulted in an extremely detailed guidebook that can easily be used by industry and Coast Guard personnel alike. It will serve as the foundation for pending regulations.

For a copy of the guidebook, go to www.uscg.mil/proceedings.





Eye of the Tiger

*U.S. Coast Guard
Auxiliary vessel examiners.*

by DR. LEWIS FISHER, JR.
*Commercial Fishing Vessel Safety Program Coordinator Supervisor
U.S. Coast Guard Atlantic Area Prevention Division*

The United States Coast Guard Auxiliary consists of 30,000-plus members who donate millions of hours annually in support of Coast Guard missions. These volunteer guardians serve as force multipliers for many important—yet understaffed—marine safety initiatives.

Vessel Examiners

Specifically, auxiliary personnel have been tapped, trained, and qualified to bridge the gap in the commercial fishing vessel, uninspected passenger vessel, and uninspected towing vessel programs. For example, auxiliary members account for more than 24 percent of Atlantic Area's examiner workforce.

These specialized Coast Guard Auxiliary vessel examiners promote and demonstrate the importance of having safety and lifesaving equipment and knowing how to use it properly via vessel examinations and safety training efforts.

Targeting Uninspected Vessels

In May 2006, USCG Atlantic Area leadership reached out to key national auxiliary members with a proposal to establish an auxiliary "tiger team" to raise the oper-

ational level of participation in the Coast Guard uninspected vessel programs.

Ms. Denise Castrogiovanni, who was serving at the time as chief of the auxiliary national division, Vessel Activities Division, greatly supported this effort. Later that year, Ms. Castrogiovanni would be appointed the auxiliary national deputy chief, Marine Safety Prevention Department, with responsibility for developing various auxiliary marine safety and environmental programs.

Mr. Dennis Haise, USCG Atlantic Area Prevention Division deputy; Ms. Castrogiovanni; Mr. David Hand, USCG Auxiliary department chief, Marine Safety and Environmental Protection; and other key Atlantic Area district coordinators met to discuss the tiger team concept, responsibilities, and missions, and to formulate a strategic plan for implementation.

With this input, Atlantic Area staff developed job descriptions for auxiliary tiger team members and created a Coast Guard/auxiliary organizational flow chart.

The Tiger Team

I attended the 2006 National Auxiliary Conference to promote the Coast Guard Atlantic Area tiger team initiative. Many auxiliary members immediately volunteered to serve, and after reviewing the applications, on June 28, 2007, the tiger team staff was officially appointed, with seven members representing each district within Atlantic Area.

Each member was provided equipment that allowed remote access to the Coast Guard database so the team members could begin tracking and monitoring auxiliary activities throughout Atlantic Area.

Accomplishments

The auxiliary tiger team identified all Coast Guard-qualified auxiliary vessel examiners and created a flow-chart detailing vessel examinations and mission activities for all auxiliary personnel in Atlantic Area. Historically, auxiliarists have not trumpeted their efforts, and often the data has not been captured and reported to the active duty leadership, which resulted in a lack of visibility for auxiliary contributions to Atlantic Area.

The tiger team monitors auxiliary field activities throughout the Atlantic Area region on a monthly basis. The activities for each of the programs is then tracked and briefed to the Atlantic Area commander. This has been vital in targeting necessary workload and training strategies.

At the end of each year an annual report is compiled using data captured by the auxiliary to highlight program goals and missions, measures of effectiveness, training opportunities and shortfalls, program strengths, weaknesses, threats, and opportunities.

Looking Ahead

To ensure program integrity and credibility, the team will ensure data is entered accurately and consistently into the Coast Guard Marine Information for Safety and Law Enforcement database and the Auxiliary Reporting System database regarding Coast Guard and auxiliary field activities and examinations. In using both reporting systems, the data can then be used to measure the effectiveness of augmentation by the auxiliary in the uninspected vessel programs.

The team has been the catalyst for raising the safety awareness level of commercial fishing vessel, recreational boating, uninspected towing vessel, and unin-

spected passenger vessel industry partnerships. Auxiliarists will further reach out to increase the dock-walker program, assist with the development and promotion of an outreach advertisement plan, help with the establishment of industry safety and training days, and attend various harbor committee meetings.

We are certain this partnership will enable the Coast Guard to increase industry compliance with safety regulations, reduce unsafe operations, reduce uninspected vessel losses, reduce the number of personnel injuries and fatalities, and assist in educating the industry on safety equipment and training requirements.

About the author:

Dr. Fisher is chief of the Uninspected Vessels Section at the Atlantic Area Command. He oversees activities for commercial fishing vessels, uninspected passenger vessels, uninspected towing vessels, and recreational vessels. He serves as supervisor of the processing center that prepares violation cases for adjudication at the CG hearing office.



Understanding Chlorine

by Ms. SUZANNE CHANG, *Chemical Engineer, U.S. Coast Guard Hazardous Materials Standards Division*

What is it?

Chlorine (CLX) is one of the most valuable chemicals in the world today. It is also highly reactive, and most commonly found in nature combined with other elements. Some of the most familiar combinations are sodium chloride (table salt), sodium hypochlorite (bleach), and calcium hypochlorite (swimming pool chlorinator).

Chlorine is also widely used for bleaching, such as making the paper this article is printed on white, for instance. One of the most universal uses of CLX is disinfecting public drinking water. It is also one of the most essential chemical building blocks in manufacturing many household goods, such as polyvinyl chloride plastics, insecticide, refrigerants, sandwich wrap, carpeting, paints, and house siding. Chlorine products and their derivatives contribute more than \$46 billion to the U.S. economy each year.¹

How is it shipped?

Bulk chlorine is typically shipped as a compressed liquefied gas in tank cars, tank motor vehicles, and barge tanks. It is maintained in this state through a combination of increasing the applied pressure and (except for barges) reducing the temperature.

When transporting chlorine by rail, the most commonly used tank cars have a capacity of either 55 or 90 tons. For transport by motor tank vehicles within North America, the capacity usually ranges from 15 to 22 tons. For transporting by barge, the design of the barge is dependent upon whether it is used for inland river routes or for oceangoing routes.

Why should I care?

► Shipping concerns.

Since chlorine is shipped under pressure, one concern with the tank design is that it must maintain this cargo pressure. Depending on the capacity of the tanks aboard a barge, at least two pressure relief devices are installed into each cargo tank to prevent any over-pressurization.

Normally, dry chlorine does not corrode steel. However, wet chlorine is highly corrosive because it forms hydrochloric acid, so precautions need to be taken to keep the chlorine and equipment dry and atmospheric moisture out.

► Health concerns.

Chlorine gas is primarily a respiratory irritant and is highly corrosive when in contact with moist tissues such as the eyes and skin. The extent of damage caused by chlorine depends on the amount a person is exposed to, how the exposure occurred, and the duration of the exposure.

Chlorine can be detected by its odor (it smells like household bleach) at levels of 0.002 parts chlorine per million parts air (ppm). At 1.0 ppm, chlorine is a perceptible irritant. A level of 10 ppm is considered immediately dangerous to life and health—a person exposed to that level should seek protection at once. Continued exposure at that level could result in permanent damage or even death within as little as 30 minutes.

► Fire or explosion concerns.

Chlorine, both in the liquid and gas state, is not by itself flammable nor explosive. However, it is an oxidizer in that it is capable of supporting the combustion of certain substances, similar to oxygen. Also, chlorine may react readily with many organic chemicals, sometimes violently and with the generation of heat.

What is the Coast Guard doing about it?

There is a long history of partnering with industry to safely manage its shipment. In March of 1961, the chlorine barge *Wychem 112* sank in the Mississippi River as it approached Natchez, Miss. The barge, which was the open-hopper type fitted with four tanks, had been carrying about 2,220,000 pounds of liquefied chlorine gas under 100 pounds of pressure. Search efforts by the owners to locate and salvage the barge were unsuccessful, and the U.S. Army Corps of Engineers was called on to remove the hazard.²

As a result of this incident, a study was performed on open-hopper-type barges that sank while being towed. This brought about requirements for new construction and modification of existing barges. In a further example of partnering, these barges are now typically equipped with devices that transmit a signal should the device (and, by inference, the barge) become submerged, although there is no regulatory requirement to do so.

The U.S. Coast Guard enforces chlorine barge regulations and inspection standards under the regulations in 46 U.S. Code of Federal Regulations part 151.³ The Coast Guard is also working with other federal agencies and local authorities to develop measures to protect people, property, and the environment in areas where chlorine barges transit.

About the author:

Ms. Suzanne Chang is a chemical engineer in the Hazardous Materials Standards Division at U.S. Coast Guard headquarters. Her areas of focus are domestic and international regulations for the marine transportation of bulk liquids and gases, as well as marine vapor control system oversight for shoreside facilities.

Endnotes:

¹ www.chlorineinstitute.org

² CAPT William F. Rea III, "A Review of Marine Casualties," *Proceedings of the Merchant Marine Council*, March 1964, Vol. 21, No. 3, p. 43.

³ Importing chlorine to the U.S. as a compressed gas by tank ship is prohibited, notwithstanding the international rules which allow its carriage.

Improving Coast Guard SAR Capability

New technology supports rapid response.

by LT MYLES GREENWAY
Chief, Investigations Division
U.S. Coast Guard Sector Charleston

The Coast Guard received some disturbing news following the rescue of the captain of the *F/V Still Crazy V*, which sank off the coast of Georgetown, S.C., in February 1999. The captain of the vessel reported that although he held his emergency position-indicating radio beacon (EPIRB) and saw Coast Guard helicopters flying overhead, they couldn't locate him.

Troubled by what the master told him, Mr. Greg Johnson promised to look into the matter. Mr. Johnson still serves as Sector Charleston's commercial fishing vessel safety examiner, and—yes—he's kept his promise.

Mixed Signals

Following this incident, Mr. Johnson analyzed data from more than 9,600 EPIRB activations, including more than 1,600 aircraft sorties. He discovered that the inability to hone in on this EPIRB was not an isolated incident. Numerous Coast Guard assets had difficulty locating emergency position-indicating radio beacons once on scene.

Aviators provided Mr. Johnson with firsthand accounts of their experiences. He identified more than 100 instances in which Coast Guard aircraft detected an EPIRB's 121.5-MHz homing signal, but were not equipped to detect the stronger 406-MHz signal.

Testing EPIRBs and Coast Guard Equipment

In the spring of 2001, the Seventh Coast Guard District forwarded Mr. Johnson's findings to USCG headquar-

ters. As a result, personnel tested 406-MHz EPIRBs and the Coast Guard aircraft direction-finding (DF) equipment that provides air crews with a bearing to an activated EPIRB.

The first round of 406-MHz EPIRB tests, conducted with NASA's support, simulated the improper deployment of EPIRBs to determine if signal strength could be affected when the device is held close to a mariner's body. Test results indicated that this could indeed weaken the homing signal.



Mr. Greg Johnson, right, and civil air patrol pilot, Jack Wyman, pause before the first 406-MHz DF test. U.S. Coast Guard photo.

Additional tests were completed in March of 2003. This round of testing indicated that, under ideal weather





The legacy Rockwell Collins DF 301. U.S. Coast Guard photo by Greg Johnson.



First offshore test of a 406 MHz EPIRB and a Rockwell/Collins DF-430 prototype direction finder installation on USCG C-130 1504. U.S. Coast Guard photo by Greg Johnson.

conditions, a Coast Guard HH-65 helicopter equipped with the existing direction-finding equipment could locate an unencumbered EPIRB 20 nautical miles away while at an elevation of 3,000 feet.

Meanwhile, Back at Sector Charleston

While testing continued, Mr. Johnson continued to consult with Coast Guard aviators and foreign exchange pilots. He spoke with a Canadian C-130 pilot, Lieutenant Colonel Tom Dunne, while investigating a marine casualty involving another fishing vessel and learned that the Canadian Air Force had begun installing new direction-finding equipment (Rockwell Collins model MDF-124) on their C-130s. He also discovered that the Coast Guard Aviation Logistics Center (ARSC) in Elizabeth City, N.C., was already considering the same equipment as a replacement for the existing DF equipment.

Mr. Johnson shared his research with ARSC, and his data supported the acquisition of a new prototype (the Rockwell Collins DF-430) that provided permanent

360-degree scanning capability. The prototype also eliminated false bearing indications due to its ability to incorporate the aircraft's heading information and the last known bearing into its calculations.

ARSC installed the prototype aboard a Coast Guard C-130, tail number 1504, and conducted initial testing off the coast of Charleston with the support

of Coast Guard Auxiliary vessels. The flight data proved the new equipment performed as designed—the DF equipment locked onto an EPIRB's 406-MHz signal at nearly twice the distance as compared to the existing DF equipment for the 121.5-MHz frequency. The test was satisfactory, but how would the equipment perform during an actual mission?

On Scene

On June 10, 2005, the sport fisher *Extractor* capsized while evading tropical storm Arlene. Coast Guard aircraft searched more than 13,000 square miles of ocean for the two crewmembers with negative results. Before running out of daylight, District Seven requested Coast Guard C-130, tail number 1504.



Coast Guard aircraft with first permanently installed Rockwell/Collins DF 430. U.S. Coast Guard photo by Greg Johnson.



A successful rescue. U.S. Coast Guard photo by air crew of USCG Elizabeth City, H-60 6036.



From left: AET1 Sean Coleman, LTJG Chuck Clark, LCDR Todd Styroid, and Mr. Greg Johnson pause during 406 MHz EPIRB testing. U.S. Coast Guard photo.

While transiting to the search area, the prototype DF-430 unit locked onto the EPIRB's 406-MHz signal from more than 90 nautical miles away at an elevation of 17,000 feet. Consequently, the crew flew directly to the capsized vessel and successfully vectored a Coast Guard helicopter to the crew, who had been hanging onto the capsized vessel for more than 26 hours. This case was the first of many rescues that confirmed the value of the new direction-finding equipment.

Alerting HQ

Mr. Johnson presented his findings at the Coast Guard innovation exposition, which provides a platform to present new products, processes, or services. After viewing his display and speaking with Mr. Johnson, VADM Crea assigned CDR Joe Deer to investigate deploying the technology throughout the Coast Guard.



Mr. Greg Johnson receives the Secretary's Award for Excellence from the Department of Homeland Security for his research and efforts with 406 MHz emergency positioning-indicating radio beacons. U.S. Coast Guard photo.

The Next Challenge

Despite the successful deployment of DF equipment, there are still some problems with the 406-MHz EPIRB—most notably, false alarms. For example:

- Since 2004, more than 96% of 406-MHz EPIRB activations in the United States were from false or unknown causes; of these, 40% occurred within the Seventh District.
- Since 2004, 45% of 406-MHz EPIRB activations were from either unregistered EPIRBs or from EPIRBs with obsolete registration information, which delays Coast Guard response.
- The Coast Guard spends 20 to 50 aircraft hours monthly (costing \$200,000 to \$700,000 dollars) on sorties for false EPIRB activations.

Mr. Johnson has joined forces with Mr. Larry Yarbrough, D7's commercial fishing vessel coordinator, to combat this problem. Together they discovered that the design of some 406-MHz EPIRBs contributes to a high number of false activations.

For example, one model is manufactured so that it can be installed backwards. If installed incorrectly, the model activates upon getting wet. Also, some EPIRBs are manufactured with loose bracket straps that allow moisture to unintentionally activate the EPIRB.

While some poorly designed EPIRBs are slowly being phased out of service, the remaining 406-MHz EPIRBs in the field (over 220,019 U.S.-registered) will continue to cost the Coast Guard millions of dollars until they are properly installed and registered with current contact information.

CDR Deer and Mr. Johnson spent the next four months working tirelessly to demonstrate the capabilities of the new DF-430 equipment. They successfully secured funding to install direction finders on all C-130s and HU-25 Guardians.

Success

As of March 2009, the Coast Guard has equipped all of its fixed-wing aircraft with the DF-430 direction finders. More significantly, the equipment has assisted Coast Guard air crews in the successful rescue of 55 mariners.

About the author:

LT Myles Greenway has served in the U.S. Coast Guard for six years. Upon graduation from Massachusetts Maritime Academy, LT Greenway worked as an officer on vessels serving the petroleum transportation industry and the passenger vessel industry. He is currently the chief of the Investigations Division at U.S. Coast Guard Sector Charleston.



Joint Vessel Targeting

*Increasing efficiency
and accuracy through
collaboration.*



by LCDR NORM WITT
*former Supervisor, Port State Control Branch
U.S. Coast Guard Sector Jacksonville*

Before Joint Vessel Targeting

The Coast Guard team boards the vessel prior to the pilot's embarkation. They conduct their boarding offshore, then ride the vessel to the pier with a small boat escort.

As the vessel moors, Customs and Border Protection (CBP) officers wait on the pier to conduct a variety of enforcement inspections, including immigration admissibility checks, an agricultural compliance examination, and a random enforcement boarding complete with a K-9 team.

As the Coast Guard team passes the Customs and Border Protection officers at the gangway, the CG boarding officer thinks to himself: "CBP brought a lot of folks ... wonder if they know something we don't?" CBP officers have similar thoughts as they embark.

Additionally, it has been some time since the vessel called on a U.S. port, so a Coast Guard port state control team arrives to conduct a safety and security compliance examination.

As a result, the vessel's master and his crew hurriedly juggle the competing demands of multiple inspections, pending cargo operations, bunkering operations, and loading provisions.

Unfortunately, this has been an all-too-familiar scenario to those who have worked in our nation's ports—that is, until CBP and the USCG looked for ways to increase efficiency and interagency coordination in daily operations. In 2006, the commissioner of CBP and the Coast Guard commandant signed a joint memorandum directing field offices of both agencies to increase their collaboration.

Sector Jacksonville's Implementation

In January 2007, Mr. Richard Quinn, CBP area port director for Jacksonville, and CAPT Paul Thomas, the Sector Jacksonville commander and captain of the port, created a joint CBP/CG vessel targeting unit, christened the joint maritime advance scheduling and targeting team (JMASTT).

Director Quinn and CAPT Thomas had identified several planning/operational gaps in the days before JMASTT:

- Neither agency had an adequate understanding of the other agency’s existing vessel targeting procedures or results.
- Each agency had limited visibility of the other’s planned operations regarding commercial vessel traffic. Locally, the agencies had coordinated with one another in multiple cases; however, this coordination had been case-dependent, not a daily activity.
- Both agencies had a “passive” control system for vessels entering and departing the port (in other words, “you’re clear to enter the port unless you hear otherwise”).
- From a customer service perspective, the existing procedures lacked efficiency. Vessel agents or operators had to contact each agency separately to resolve issues or questions and often would need to contact multiple offices within the same agency.

The JMASTT Solution

To address these issues, Director Quinn and CAPT Thomas envisioned a joint, co-located targeting team. As CBP and CG targeters assessed the potential risks associated with a vessel, they would share their information and concerns throughout the targeting process. The end product would be a joint, holistic risk assessment of the vessel, crew, and cargo to be used by operational planners of both agencies.

In addition to having increased visibility of the other’s targeting concerns, each agency would have full awareness of all operational activities scheduled for a vessel. To move from a system of passive commercial vessel traffic control to one of active control, JMASTT implemented a vessel control number system.

If the targeting team determined that no issues were identified that would require resolution prior to entering port, JMASTT would issue a unique vessel control number. That number would signify to all involved parties that both CBP and CG had determined the vessel may enter port. Additionally, as the CBP and CG targeters would be co-located, industry stakeholders would have a single point of contact to resolve issues.

Collaborative Targeting Process

Both CBP and the CG have several institutional processes for analyzing potential risks associated with arriving vessels. In most cases, each agency’s headquarters mandates these risk analysis processes be carried out in a certain way (i.e. via a matrix or computer

application) and that subsequent operational activities be initiated based on the results.

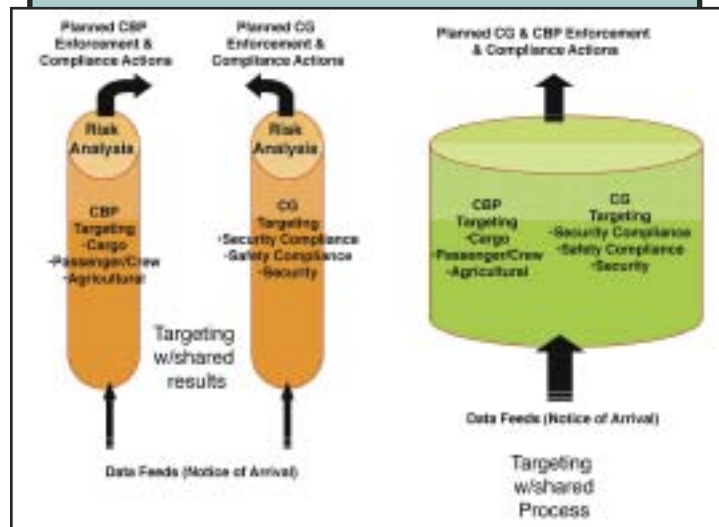
DEVELOPING THE PROCEDURES

The team considered several developmental strategies and chose to focus on two:

- targeting with shared results,
- targeting with shared process.

Targeting with shared results meant that each agency would complete all targeting functions and then meet to discuss results. While this model certainly presented benefits, it lacked the desired level of collaboration.

In the “targeting with shared process” model, an overall process was established to allow each agency’s targeting functions to occur simultaneously. As opposed to sharing information at the end of each pipeline, information would be shared



throughout the completion of the various functions. This is the model that JMASTT implemented.

Benefits

The various targeting functions (such as cargo analysis, passenger analysis, vessel security compliance history, and port of call history) all have trigger points. If a certain point total is reached or condition is present, an operational response such as an at-sea boarding or a dockside inspection will take place.

One goal of the targeting with shared process approach is to fuse the various functions into an overall assessment of potential risk. For example, a particular vessel arrival might score relatively high in several categories, yet not quite reach any of the established “trigger points.” In a case like this, targeters might assign a higher overall target of interest priority.



To start this project, the targeting team founders conducted a thorough review of each agency's mandated targeting procedures, focusing on:

- ensuring local procedures met headquarters' standards,
- identifying redundancies between the two agencies,
- collaborating to develop shared terminology.

In reviewing mandated vessel targeting processes, the joint maritime advance scheduling and targeting team determined there are three aspects of a vessel arrival to consider:

- the vessel itself,
- the cargo,
- crew and passengers.

Shared Expertise

During the policy review phase, the joint maritime advance scheduling and targeting team identified that, at the local level, each agency has particular strengths in the targeting process.

For example, both CBP and the CG consider vessel cargo. However, CBP is capable of a more thorough analysis of cargo. The same can be said for crew and passenger analysis. On the other hand, the Coast Guard conducts a more thorough study of each vessel, including previous ports of call and safety and security compliance.

As the JMASTT founders developed processes and procedures, they crafted processes that capitalized on each agency's strengths. While CG targeters still look at crew and passengers as required by Coast Guard policies, CBP targeters have the lead in that area. This ensures that each agency has access to the same information and analysis; however, in this case, the CG tar-

geter does not have to expend time and effort developing additional analysis since the CBP targeter already has that expertise.

Common Terminology

Finally, the targeting team established common terminology to express the overall results of the collaborative targeting process. They settled on the term "target of interest" (TOI) with an associated priority level of low, medium, or high.

A high-priority TOI indicates a vessel that requires completion of an operational activity offshore prior to being allowed entry into port. A medium-priority TOI indicates that one or both agencies will conduct required operations while the vessel is in port. Finally, a low-priority TOI indicates that neither agency is required to conduct an operation on the vessel.

The target of interest priorities are expressed in a color-coded format so decision makers from both agencies can get a quick, visual display of areas of relative risk in the port. Green is low; amber, medium; and red is high.

As collaboration in the targeting process increased, CBP and the CG also made gains in operational planning and execution. In turn, this has assisted various stakeholders. "Boardings and inspections are better coordinated, and information flow is smoother," said Mr. Billy



CAPT Paul Thomas, captain of the port of Jacksonville, Fla., and commander of Sector Jacksonville, briefs VADM Robert J. Papp Jr., commander, U.S. Coast Guard Atlantic Area, on joint maritime advanced scheduling and targeting team operations. U.S. Coast Guard photo by Petty Officer 1st Class Bobby Nash.

VESSEL CONTROL NUMBERS

The Way it Works

Once targeting is complete and no issues requiring rectification prior to entrance have been identified, a vessel control number is issued for that particular arrival. The USCG Sector Jacksonville command center distributes a daily vessel control report to area stakeholders that itemizes all scheduled arrivals, including those vessels with and without control numbers.

Once a vessel is in port, if conditions change and the vessel must rectify something prior to departure, sector command center watchstanders will withdraw the vessel control number and notify involved parties.

Involving Stakeholders

Prior to implementing this vessel control system, JMASTT members briefed the plan and discussed specifics of vessel targeting frequently at the Jacksonville Maritime Trade Exchange quarterly agents and operators meetings.

Target team members distributed several versions of the daily vessel control report for comments and revision, and after a short test period, JMASTT began issuing control numbers in February 2007.

Results

"The daily vessel control list is beneficial for us in regards to getting everyone on the same page," said Mr. Billy Davis, operations manager for Amelia Maritime Services, Inc.

Another benefit is that it provides feedback to vessel agents and operators regarding whether there are potential issues with a particular arrival.

traffic. In September 2008, the joint maritime advance scheduling and targeting team took another step forward as the CG port state control branch at Sector Jacksonville (which includes the CG JMASTT targeters) co-located permanently to a new space. Customs and Border Protection had acquired an additional facility on the terminal, and offered space to the Coast Guard.

Now the members of Sector Jacksonville's port state control branch work alongside their CBP JMASTT counterparts. This has greatly improved JMASTT's service to industry stakeholders.

"It's one-stop shopping. I'm able to call one number and get both CBP and the Coast Guard," said Mr. Robert Faust of Page & Jones.

The Way Forward

While the joint maritime advance scheduling and targeting team is still a work in progress, both agencies as well as industry stakeholders have benefitted from the collaboration. Plans are being considered for construction of a joint CBP/CG facility. This new facility would house most of the Coast Guard Sector Jacksonville offices, a large number of Customs and Border Protection officers, and a new joint 24/7 command center.

Davis, operations manager for Amelia Maritime Services, Inc.

Single Point of Contact

Since its inception, one of the objectives of JMASTT has been to provide a single point of contact for stakeholders to address any issues regarding commercial vessel

About the author:

A prior officer in the U.S. Army, LCDR Norm Witt graduated from the Coast Guard Officer Candidate School in 1999. Following a tour as deck watch officer aboard CGC Northland, he has completed two tours in the marine safety field — MSO Morgan City and USCG Sector Jacksonville.



U.S. Coast Guard photo.



Risk Reduction Program

USCG works with individual mariners and operators to improve vessel safety in the Caribbean.

by LCDR RICHARD MOLLOY
Chief, Inspection Division
U.S. Coast Guard Sector San Juan

Southeast of Florida, roughly 1,000 miles as the crow flies, are the islands of Puerto Rico and the U.S. Virgin Islands, part of the archipelago chain that stretches from Venezuela to Florida, an area generally known as “the Caribbean.”

The Caribbean “Melting Pot”

While Puerto Rico was firmly colonized by the Spanish in the early 1500s, the U.S. Virgin Islands were highly contested by European powers for more than 150 years. Puerto Rico was acquired by the Americans following a victorious war against the Spanish in 1898, and the U.S. Virgin Islands were bought by the U.S. for \$25 million in the lead-up to World War I.¹

Because of these different histories, Puerto Rico and the U.S. Virgin Islands are vastly dissimilar today. Despite being under U.S. control for the past 100 years, Puerto Rico is distinctly Spanish. Although their official languages are both Spanish and English, Puerto Ricans are more proficient in the former, and their culture is steeped in Latin traditions.

Conversely, it is difficult to peg the influences found in the U.S. Virgin Islands. While the Danish influence can be found in the architecture, the dominant language has been an English-based Creole since the 19th century. In this way, the U.S. Virgin Islands share more culturally with the British Virgin Islands than with Puerto Rico or the United States.

Maritime Tourism

Despite their differences, these Caribbean islands are all dependent on the maritime industry for the flow of

goods, and both Puerto Rico and the U.S. Virgin Islands rely on tourism as a key economic driver.

The tourism industry in the Caribbean relies heavily on small passenger vessels to take visitors sport fishing, diving, snorkeling, and to and from islands. The certificated small passenger vessel fleet (those vessels that are certified by the U.S. to carry more than six passengers for hire) includes roughly 200 vessels. The unique histories and characteristics of Puerto Rico and the U.S. Virgin Islands, these territories’ proximity to foreign waters, and the limited supplies and services available in the Caribbean create an operating environment unlike any other in the United States.

Improving Small Passenger Vessel Safety

U.S. Coast Guard Sector San Juan and its detachments in St. Thomas and St. Croix are responsible for ensuring that mariners keep their vessels in compliance with applicable safety and security standards.

In 2005, as part of ongoing efforts to better focus available resources on activities that could further enhance the safety of vessels, passengers, the port, and the environment, the Coast Guard in San Juan implemented a risk reduction program for small passenger vessels. The program was developed by then-passenger vessel safety specialist Mr. Jerry McMillan, who is currently the training officer and senior marine inspector at U.S. Coast Guard Sector San Juan.

This program was structured in two phases:

- assessing the risk posed by various small passenger vessel operations in Puerto Rico and the

- U.S. Virgin Islands,
- implementing risk reduction strategies.

Assessing the Risk

Personnel analyzed each vessel's historical performance with regard to specific categories that were deemed to be areas of high risk, including lifesaving, firefighting, engineering, electrical, and construction/loadline. Staff used the Coast Guard's Marine Information for Safety and Law Enforcement database to tally discrepancies in each critical area. Vessels with more discrepancies in these categories and their respective operators were more likely to be included in Sector San Juan's risk reduction program.

Recognizing that the program would initially represent an increase in vessel inspection workload, the number of vessels enrolled in the program was limited to 20 percent of the fleet. At the time, this represented all vessels with 34 or more deficiencies in the past five years. This remains the operational threshold for enrollment. In addition, once an operator was enrolled in the program, all vessels associated with that operator were also enrolled in the program.

Implementing Risk Reduction Strategies

Under this program, vessel owners and operators could expect a closer partnership with the Coast Guard. As the main component of the risk reduction program, vessels in the program could expect quarterly rather than annual inspections. In addition, a marine inspector was assigned to each vessel, and acted as the Coast Guard's primary point of contact on all issues related to that vessel.

Next, operators were encouraged to develop shipboard safety management plans. Finally, vessel operators and Coast Guard marine inspectors evaluated vessel operations and jointly developed plans of action to reduce the frequency of high-risk discrepancies.

The expectation was that most vessel operations enrolled in the program would draw immense benefit from the personalized attention of a designated marine inspector and the implementation of a safety management plan. The risk assessment process has been repeated annually, and the amount of high-risk discrepancies over the previous five years continues to be considered to determine which vessels remain in the program.

Findings

In the four years since the program was implemented, some trends have become clear. First, it is not easy for vessels to move off the list. Only 18 percent of the ves-

sels in the program in 2005 have moved off the list. Because the most recent five years of deficiency history is used in determining which vessels are in the program, a vessel is not likely to move off the list

after one, two, or even three years of stellar inspections if the vessel had a particularly high number of deficiencies issued in a one- or two-year period.

Additionally, while the increased number of inspections makes a vessel operation safer, the added inspections have increased the probability that deficiencies will be noted. Also, despite the intention to have all those on the program develop a safety management plan, no participants have successfully implemented a fully functioning safety management system. While the largest operator, with nine vessels in the program, has implemented a maintenance program and has been working with a third party to develop a more robust safety management system, no other operator has made gains in this area.

Plans for Improvement

Based on these findings, the program seems to be functioning as intended, although it could use some adjustments. Personnel will continue to emphasize the importance of safety management plans and systems to owners and operators.

This focus should include several discussions to identify any barriers to implementing safety management plans or systems and include other areas important to the industry partners.

About the author:

LCDR Richard Molloy has been chief of inspections in San Juan since 2007. Previously, he was stationed at Training Center Petaluma, MSO/Group Los Angeles/Long Beach, and the Office of Standards Evaluation and Development at USCG headquarters. LCDR Molloy completed the Coast Guard's postgraduate education in instructional technology and is an OCS graduate.

Endnote:

¹ U.S. officials attempted to gain control of the Danish West Indies since the late 1860s, but the Danish and some Americans resisted these attempts. At the beginning of 1917, it was inevitable that the U.S. would join WWI. This became a good reason to acquire these islands. Source: <http://www.state.gov/r/pa/ho/time/wwi/82205.htm>.



Coast Guard inspectors LTJG Rebecca Deakin and LT Micah Bonner work to improve small passenger vessel safety. U.S. Coast Guard photo by Mr. Jerry McMillan, senior marine inspector.





Industry Standards of Care

Enhancing safety in Puget Sound.

by CDR MARK McCADDEN
U.S. Coast Guard 13th District

MR. JOHN DWYER
Chief, Inspection Division
U.S. Coast Guard Sector Seattle

As one of the lead agencies tasked with enforcing laws and regulations on our waterways, the U.S. Coast Guard recognizes that law enforcement activities alone will not maximize our nation's ability to facilitate marine safety, security, environmental protection, and maritime mobility. These objectives can only be fully achieved through effective collaboration and cooperation with port stakeholders.

In the Puget Sound region, the local harbor safety committee plays a critical role in discussing and assessing risks, and for developing workable solutions that improve the efficiency of the maritime transportation system. Some of these solutions come in the form of

industry "standards of care," which are voluntary standards of performance that enhance safety.

Marine Casualty Triggers Action

In response to the grounding of a bunker (ship fueling) barge during a stormy evening in January 2008, Sector Seattle led an investigation to determine the causal factors and to develop recommendations for preventing a recurrence. Although no oil was spilled during the incident, the investigation highlighted concerns over the potential hazards of ship fueling operations.

As a result, industry, Coast Guard, Washington State Department of Ecology, and harbor safety committee

leaders met to review and possibly revise the Puget Sound harbor safety plan to improve the effectiveness of the existing standard of care for bunkering operations. This meeting was held at Sector Seattle in February 2008 and included more than 30 attendees.

Collaboration to Manage Risk

At the February meeting, members established a bunkering standards of care workgroup consisting of representatives from the petroleum industry, the Coast Guard, and the Washington State Department of Ecology. The workgroup was led by Mr. Keith Barnes, director of barge

operations for Seattle-based Harley Marine Services.



A bunkering barge alongside a containership in the Port of Seattle. U.S. Coast Guard photo by Petty Officer Andrew Christopherson.

Mr. Barnes has been involved in the transportation of oil on vessels in Northwest waters since 1978, and participated in the development of the original standard of care for bunkering in Puget Sound.

Under his leadership and direction, the follow-on meetings of the workgroup assessed risk factors for activities associated with vessel transits and bunkering operations. This assessment led to new protocols and procedures to mitigate risks associated with wind, sea state, communications, mooring equipment, watchkeeping, and anchoring locations.

The draft of new bunkering standards of care was submitted to the Puget Sound Harbor Safety Committee for approval and incorporation into the region's harbor safety plan. The draft standards were posted on the committee's website to provide HSC members and other maritime stakeholders time for review and comment.

Implementation

The new standards won swift approval and incorporation into the harbor safety plan. The standard has been praised by shipping lines and bunker delivering companies for eliminating some of the guesswork that was previously associated with conducting bunkering operations.

The bunkering standards of care workgroup succeeded in developing improved bunkering standards and procedures without the often-lengthy process of imposing additional regulatory requirements on either bunkering operators or the ships they serve. This is valuable, as regulatory compliance alone cannot fully ensure accident prevention. Of equal importance, the process of developing standards of care improves communication and understanding among port stakeholders.

The strong collaboration and productive partnerships among the marine industry, harbor safety committee, and regulatory agencies in Puget Sound have long been trademarks of this area, and are key to the continued safety and environmental protection of the Puget Sound region.

About the authors:

CDR Mark McCadden has served in the Coast Guard for 29 years and is assigned to the Coast Guard's 13th District Office in Seattle, Wash. He has worked in other commercial ports along the coasts and rivers of Louisiana, Virginia, North Carolina, Oregon, Washington, and Alaska.

Mr. John Dwyer is chief of the Inspection Division at U.S. Coast Guard Sector Seattle. He has more than 30 years of experience in vessel and facility inspection, port security, mariner licensing, casualty investigation, and marine disaster and firefighting response. He also served in the U.S. Coast Guard Reserve, retiring as a captain in 2005.

Communication + Collaboration + Commitment = Success



Puget Sound is among the largest and most complex port areas in the United States. The Puget Sound Harbor Safety Committee is made up of a large and diverse membership of public and private stakeholders who have a shared interest in furthering safety, environmental protection, and efficient transportation in and around the waters of Puget Sound.

Its members include the North Pacific Fishing Vessel Owners Association, Washington State Labor Council, Makah Tribal Council, Passenger Vessel Association, Western States Petroleum Association, Puget Sound Pilots, Washington Public Ports Association, Recreational Boating Association of Washington, Pacific Aquaculture Caucus, Washington State Ferries, Pacific Merchant Shipping Association, and American Waterways Operators. Its advisors include the National Oceanic and Atmospheric Administration, U.S. Army Corp of Engineers, U.S. Coast Guard Sector Seattle, Maritime Administration, U.S. Navy, and Washington Department of Ecology.

As part of its efforts, the committee developed a harbor safety plan to address local operational and environmental issues and to provide standards and protocols designed to complement existing federal, state, and local regulations.

Harbor safety committee standards of care include guidelines for anchoring, bridge team management, bunkering operations, dealing with equipment failures, heavy weather, hot work, lightering, propulsion loss prevention, restricted visibility, tanker escort operations, towing vessel operations, and underkeel clearance.

To view the complete Puget Sound harbor safety plan, including the standards of care, go to www.PSHSC.org. For more information, call (206) 443-3830.



A recent Puget Sound Harbor Safety Committee meeting. U.S. Coast Guard photo by CDR Mark McCadden.





Florida Keys Dive Safety Initiative

*Educating divers
for a safer
dive community.*

by LT DAVID AMBOS
*Senior Investigating Officer
U.S. Coast Guard Sector Key West*

The Florida Keys is home to the only living coral reef in North America, a national marine sanctuary, underwater shipwrecks, and other structures. These features and the warm, translucent waters attract a variety of dive enthusiasts.

The recreational dive industry, however, is not actively regulated. There are no established limits to govern age, health, ongoing training, or currency of training for those who engage in this activity. Quite simply, if you have a diver certification card, you are "certified." Refresher courses and various other certification courses are available, but no one checks whether a diver has had a refresher since his or her last dive.

The Coast Guard does not regulate recreational diving. Commercial passenger vessel regulations only address vessel equipment and licensing requirements, which are not related to recreational diving operations. There are currently no federal regulations in place designed to specifically govern recreational diving activities.

The Need

Over the last few years there have been several dive-related deaths. Unfortunately, the Florida Keys leads the nation in the number of dive casualties.

For example, on the last Wednesday and Thursday of July, the Florida Keys opens its annual lobster season

with a two-day "mini-season." This event attracts thousands of enthusiasts from all over the United States who dive and snorkel for lobster. During the 2006 mini-season, five divers died. These incidents, along with several other dive-related deaths, raised a flag of concern at U.S. Coast Guard Sector Key West.

After conducting numerous dive casualty investigations, several recurring themes began to surface. Although the casualties occurred on a variety of vessels and experience level varied among victims, the causalities typically fell into three categories:

- diver complacency,
- diver training/error,
- pre-existing medical conditions.

The Stand Up

Identifying a need for intervention, Sector Key West staff made contact with several other state and local law enforcement agencies involved with the investigation and casualty process. In an effort to better educate the public on the importance of safe diving, the Florida Keys Safe Dive Initiative committee (comprised of the USCG, Coast Guard auxiliaries, local law enforcement, professional dive instructors/educators, and medical personnel throughout the Florida Keys) created the "Dive ALIVE" initiative.

Local agencies traditionally have a very strong working relationship within the Florida Keys because geography severely limits response assistance from outside resources. These strong partnerships, along with a proactive dive educational community, enabled an expeditious stand-up.

Sector Key West casualty investigators paired with Florida Fish and Wildlife Conservation Commission and Monroe County Sheriff's Office casualty investigators to conduct joint dive investigations. At various times, college instructors, primarily from Florida Keys Community College, provided technical expertise.

The mission was simple: to increase the safety, health, and well-being of snorkelers and scuba divers through education and multi-agency outreach.

Plan of Attack

Education and outreach were the most important means of disseminating the message to the public. The first public outreach effort involved creating and distributing the "Dive ALIVE" card, a quick reference that hit the streets prior to the lobster mini-season. A website, www.divealive.org, contained additional downloadable dive safety information. The site was linked to various supporting dive shop and tourism sites in the Florida Keys.

The second major outreach effort was the "lobster rodeo," which was hosted at the Florida Keys Community College dive lagoon. The rodeo occurred the day before the opening of the lobster mini-season and focused on education.

Florida Keys Safe Diving Initiative

Overall, the number of dive-related deaths has significantly decreased. In 2007 there were 22 dive-related casualties that occurred within the Sector Key West area of responsibility. In 2008, there were 10 dive-related deaths.

Dive ALIVE

IF YOU HAVE A DIVE EMERGENCY:

Distress Call Procedures:

1. Make sure radio is on
2. Select Channel 16
3. Press/hold the transmit button
4. Clearly say "MAYDAY MAYDAY MAYDAY"
5. Also give:
 - Vessel Name and/or Description
 - Position and/or Location
 - Nature of Emergency
 - Number of People on Board
6. Release transmit button
7. Wait for 10 seconds -- if no response Repeat "MAYDAY" call

*** If you do not have access to a VHF radio, use your cell phone to call 911 ***

DIVER-DOWN FLAG

State law requires that scuba divers or snorkelers prominently display a diver-down flag whenever they are in the water.

Buoys must make reasonable efforts to stay 300 feet away from diver-down flags in open water; 100 feet in rivers, inlets, and navigation channels.

Buoys approaching diver-down flags closer than 300 feet in open water and 100 feet in rivers, inlets, and navigation channels must proceed no faster than what is necessary to maintain headway and stowage way (slow speed).

Scuba divers or snorkelers should not place the flag where it will obstruct traffic or create a hazard to navigation in a river, inlet, or navigation channel. In open waters, divers/snorkelers must make reasonable efforts to stay within 300 feet of their diver-down flag; in rivers, inlets, and navigation channels, 100 feet. The diver down flag must be removed when scuba divers or snorkelers are not in the water.

A square or rectangular red flag with a white diagonal stripe and with wire or other stiffener to hold it fully open.

Flags used on a vessel must be at least 20 x 24 inches

Those towed on buoys must be at least 12 x 12 inches

LOWER KEYS MEDICAL CENTER
KEY WEST - FLORIDA

www.DiveAlive.org

The safety card contains an easy-to-remember "ALIVE" mnemonic device that serves as a refresher for all divers.

In the original outreach effort, more than 30,000 cards were printed and hole-punched so they could be attached to dive tanks in dive shops.

Additionally, dive operators are very supportive of the effort, passing out "Dive ALIVE" cards and placing posters in storefronts. Dive boat captains and crews have also taken a very proactive approach. Many boat captains and crewmembers have continued to further their diver education. Various operators have added diver recovery drills to their routinely conducted drills, and an increasing number of operators now realize the importance and benefit of having oxygen aboard.

As the effort has gained more recognition, its name has been changed to the Florida Keys Safe Diving Initiative (FKSDI). The change in name has been well received and allowed the committee to adopt a broader mission statement, including environmental safety.





Lobster Rodeo



Robert Guhl, left, and Daniel LiBrando demonstrate the use of a hyperbaric chamber to care for an injured diver. USCG photo.

The showpiece of the rodeo is the group of underwater scuba skills refresher stations. Each station is controlled by a certified dive instructor, who takes each participating diver through a complete dive refresher in a controlled environment. Stations range from simple mask clearing to buddy breathing.

Participating agencies and various professional dive agencies set up information booths to pass out diver safety and environmental/reef safety pamphlets.



Representatives from various regulatory agencies answer questions and pass out safety and regulatory information. USCG photo by LTJG Daniel LiBrando.



Robert Keely of the National Oceanic and Atmospheric Administration advises rodeo attendees about local sanctuary preservation areas and lobster "no take" zones. USCG photo by LTJG Daniel LiBrando.

In conjunction with the sinking of the USS *Hoyt S. Vandenberg*, which will create an artificial reef, FKSDI is planning a wreck seminar to focus on the dangers of wreck diving and how to safely and successfully dive a wreck.

For more information, visit www.divealive.org.

About the author:

LT David Ambos served as a marine inspector and senior investigating officer. Past assignments included MSU Lake Charles and Sector Key West. He is the port security specialist for Sector Key West.

Port Partnerships

Moving forward with focus and certainty.



by LT E. THOMAS AYOUB
CVTS/PAWS Assistant Branch Chief
U.S. Coast Guard Sector St. Petersburg

Meaningful partnerships are the foundation of success. Not only is this good business, it's the keystone upon which the captain of the port (COTP) of Coast Guard Sector St. Petersburg operates. One avenue that provides a personal approach for our port partners and stakeholders is the COTP's use of the sector's ports and waterways safety (PAWS) branch to partner with industry.

Serving as representatives for a plethora of waterways safety and security issues, PAWS personnel leverage resources and provide the maritime community accessibility to the Coast Guard at a working level. The groundwork for this atmosphere of trust has been the culmination of years of local port constituents' and Sector St. Petersburg's hard work.

Teambuilding

The Tampa Bay Harbor Safety and Security Committee (TBHSSC) is comprised of representatives from three port authorities (Manatee, St. Petersburg, and Tampa), plus other key maritime industry representatives such as the Tampa Bay Pilots Association and shipping, dry dock, and towing vessel companies. It is the foundation upon which the COTP furthers relationships to facilitate the safe and efficient flow of commerce.

The TBHSSC helped develop the Tampa cooperative vessel traffic service (CVTS), a joint venture between the Tampa Port Authority and the COTP, to actively monitor vessel transits within the tight confines of Tampa Bay. The vessel movement committee (VMC)



Multiple Coast Guard missions are performed in Tampa Bay. U.S. Coast Guard photo.

and port heavy weather advisory group (PHWAG), also under the umbrella of TBHSSC, were conceived to coordinate vessel movements.

PAWS serves as a member of the vessel movement committee to ensure port users are advised in advance of significant marine events as well as dredging and construction projects, and to ensure critical vessel movements of dead ship and oversized transits are carried out with the full concurrence of VMC members. Collaboration with the PHWAG and VMC enables the COTP to receive expert recommendations to safeguard the port and its surrounding infrastructure. This is es-



VESSEL MOVEMENT COMMITTEE

The vessel movement committee is a subcommittee of the Tampa Bay Harbor Safety and Security Committee, made up of members from the Tampa Bay Pilots Association, port authorities, and industry.

Meetings are held at least monthly, and more frequently if the need arises. The VMC is charged with reviewing, assessing, and making recommendations to the COTP relative to vessel movements within the port.

The subcommittee de-conflicts vessel movements that impact waterways, such as dead ship tows and channel closures during dredge operations and marine events. It also conducts post-casualty studies at the request of the COTP.

During VMC meetings, Sector St. Pete ports and waterways safety staff updates VMC members on the status of regional dredging projects as well as safety and security zone enforcement, and addresses other port-specific issues.



A recent harbor safety and security committee meeting. U.S. Coast Guard photo.

pecially crucial during hurricane season or in anticipation of other emergencies, such as channel closures due to power or steering loss on deep-draft ships.

Area of Responsibility

Sector St. Petersburg's COTP zone spans 550 nautical miles of the west coast of Florida, and includes Tampa Bay, which is comprised of the ports of Tampa, Manatee, and St. Petersburg. These are among the largest and most diversified ports in Florida and the nation. During 2008, for example, Tampa Bay expedited 52 million tons of cargo and more than 765,000 cruise ship passengers.¹

On average, Tampa Bay is only 12 feet deep. Because it is so shallow, man-made shipping channels have been dredged to allow large ships safe passage to the ports of Tampa, Manatee, and other harbors. The main shipping channel is 43 feet deep and 40 miles long. Coordi-

nating dredging operations for new berths and maintenance must be closely coordinated and monitored due to environmental and commercial considerations.

Harbor Safety and Security Committee

Tampa Bay's history has been scarred with numerous maritime casualties, including the loss of the USCGC *Blackthorn* in 1980, a catastrophic freighter allision later that year resulting in the collapse of the Sunshine Skyway Bridge, and a massive three-vessel collision and fire in 1993.² Following these events, the state of Florida commissioned a consortium to examine mitigation efforts to reduce risks in this bay.

In 1995, Florida established the vessel traffic information service (VTIS) consortium to help develop a VTIS system. It was established by a partnership among public and private entities to serve all ports in the Tampa area. The members were drawn from a broad spectrum of local interests, and the Coast Guard participated as a non-voting member. The consortium completed its work in November 1996, and the Tampa Bay Harbor Safety Committee planned to develop and implement a Tampa Bay VTIS.

Thirteen years later, this body has grown to a board of 25 directors, including COTP Sector St. Petersburg, and has incorporated security into its mission. The Tampa Bay Harbor Safety and Security Committee meets quarterly, and the COTP plays an integral part in these meetings, providing expertise and guidance as needed. These meetings are used to conduct tabletop exercises to simulate possible port disasters. They also proactively provide an opportunity to foster teamwork. The relationships forged through the TBHSSC have given rise to various subcommittees the sector's PAWS branch interacts with daily.

Cooperative Vessel Traffic Service

One of the harbor safety and security committee's most significant recent accomplishments is establishing the Tampa Bay Cooperative Vessel Traffic Service (CVTS), an authority designed to improve the safety and effi-



Tampa CVTS watchstanders. U.S. Coast Guard photos.

ciency of commercial vessel traffic and protect the environment.

The CVTS co-locates Coast Guard watchstanders with Tampa Port Authority employees who together manage and direct port operations, waterway safety, security, and dockside management. Continual interaction among these parties significantly increases marine casualty reporting, aids in collision avoidance, and radically reduces response time for Coast Guard assets.

Tampa CVTS monitors approximately 9,000 vessel movements annually. Watchstanders advise mariners of other vessel movements, potential meeting situations, crossing situations, conflicts, hazards, adverse weather, and aids to navigation discrepancies. They also liaise between vessels in distress and the Sector St. Petersburg Command Center on an as-needed basis.

Port Sutton, a close-quarters segment of the waterway with overlapping wharfs and certain dangerous cargoes being moved throughout, is coordinated through CVTS via what is known as the Port Sutton working group. Signatories to this group work closely with CVTS to make dockage decisions.

Sector St. Petersburg and the port communities of Tampa, Manatee, and St. Petersburg have been reaping the rewards of successful partnerships for a long time, thanks to the foundation laid by its forward-thinking maritime leaders and their ability to set aside competing interests and differences for the benefit of the port community. The harmonious blend of initiatives addressed by the ded-

PORT HEAVY WEATHER ADVISORY GROUP

The Port Heavy Weather Advisory Group (PHWAG) is a group of key maritime stakeholders that evaluates the effectiveness of the Tampa Bay port heavy weather contingency plan and advises the COTP of risks to the port and its infrastructure resulting from a hurricane or tropical storm.

The concept was originally introduced during a Tampa Bay marine advisory committee meeting in 1997. The port heavy weather plan had proven to be inefficient, as there were numerous deficiencies found during the previous hurricane season. For example, during evacuation prior to tropical storm Josephine in the fall of 1996, one of the vessels ran aground and posed a major environmental threat to the bay. Upon further investigation, it was evident the port lacked a consistent method of determining port evacuation orders. Additionally, the Coast Guard lacked the resources to determine the threat an approaching storm posed to Tampa Bay or to properly evaluate the port's resources.

Leaders determined that those who used those resources daily were the ones who could accurately determine their maximum utilization. Therefore, PHWAG membership includes the Tampa, Manatee, and St. Petersburg Port Authorities; the Tampa Bay Pilots Association; vessel owners; terminal operators; ships' agents; and facility operators. The advisory group also includes a COTP representative, who acts as a conduit for any PHWAG recommendations as well as the exchange of information to and from the COTP.



icated maritime professionals of the TBHSSC has resulted in substantial navigational safety advancements.

About the author:

LT Thomas Ayoub is a graduate of the United States Merchant Marine Academy, and currently works in the waterways management division of Sector St. Petersburg's prevention department. He is a fourth degree Knight of Columbus and carries a third mate unlimited license.

Endnotes:

¹ <http://www.tampaport.com>

² *Proceedings of the Marine Safety & Security Council*, Winter 07-08, p. 84.





Looking Out for Seafarers

The U.S. Coast Guard and seafarer welfare organizations.

by LCDR NORBERT JOHN PAIL, JR.
U.S. Coast Guard Sector Houston/Galveston

FATHER SINCLAIR OUBRE, J.C.L.
President, Apostleship of the Sea of the United States of America

The Coast Guard provides unique benefits to the nation because of its distinctive blend of military, humanitarian, and civilian law enforcement capabilities. Quite frequently, Coast Guard units blend the fundamental roles of maritime safety, maritime security, maritime mobility, national defense, and the protection of natural resources to meet the needs of the country and the seafarer simultaneously.

At times, however, mariner needs may be outside of Coast Guard boundaries.¹ This is where outside organizations, such as Apostleship of the Sea, The Mission to Seafarers, and other seafarer welfare organizations get involved.

Seafarer Welfare Organizations

Seafarer welfare organizations, whether faith-based or secular, welcome journeyers into ports throughout the United States. They offer hospitality to mariners who may not have seen land for weeks. These organizations work through a collection of personnel who roll out the port's "welcome mat." These personnel are commonly referred to

as ship visitors, and they offer solidarity, corporal gifts, and spiritual gifts to support these visiting mariners. Many times these gifts contain a local "flavor" to orient the seafarer to his or her present environment.

Other resources these organizations offer include access to free transportation and conveniences such as high-speed Internet and pre-paid phone cards. Many seafarer centers also have big screen televisions with international channels.

The relations between the local Coast Guard and seafarer centers keep the needs of the seafarer at the top of the list of port priorities.

Seafarer Access and Living Conditions

With the advent of the Maritime Transportation Security Act of 2002 (MTSA), critical facilities must outline how access is restricted to secure areas. Coast Guard requirements outline that owners of these facilities ensure coordination occurs to provide for the needs of crewmembers and the vessel in advance of the vessel's arrival. Seafarer welfare organizations provide Coast Guard officials feedback when the coordination breaks down and the crewmember or vessel becomes stranded.

Coast Guard program managers continue to move forward to further facilitate seafarer access. Recently, the Coast Guard determined that captains of the port (COTPs) may mandate that MTSA-regulated facilities provide reasonable access to seafarers. In cases where a facility denies access to seafarers, charges exorbitant rates to provide access, greatly limits the hours for access, or institutes other overly restrictive policies that discourage or refuse access, COTPs may invoke en-



Coast Guard Chief Warrant Officer Jamie Wilson, Sector Houston/Galveston marine inspector, checks a vessel's medicine chest. All photos U.S. Coast Guard.

In the summer of 2008, Coast Guard Sector Houston/Galveston staff worked with the Apostleship of the Sea to aid a mariner.

Excerpts from the e-mail correspondence follow.

5/25/08 Seafarer's spouse to Coast Guard

Coast Guard, Please help. My husband is aboard a vessel which is travels (sic) on the high seas between the United States, Europe, and Trinidad. He is very sick with the flu and the symptoms are causing him to slowly lose his hearing. He is not able to see a qualified doctor because such doctors are not available onboard the vessel or in Trinidad.

Now that the vessel has returned to the Gulf Coast of the United States, immigration personnel are unable to sign the referral form before the vessel leaves for the high seas. I do not know what to do because he will not be able to continue his work as a seafarer with a loss of hearing, and my family of three children greatly needs his full health and support. Please help me and my husband.

Signed ... Wife of foreign crewmember aboard a foreign-flagged chemical carrier calling on the port of Houston in May 2008.

5/28/08 Coast Guard to seafarer's spouse

Ma'am, we have inspected the vessel aboard which your husband works. During our crew interviews and competency assessments, we found that he is able to perform the tasks of his license and watchstanding duties, which are those of a third engineer. Your husband's medical needs are presently being taken care of by doctors here in Houston.

Signed ... Chief, Inspections Division, Coast Guard Sector Houston/Galveston.

5/28/08 Seafarer's spouse to Coast Guard

Thank you for your great help. Thank you very much because the medical attention needed by my husband requires constant oversight.

6/3/08 Seafarer's spouse to Coast Guard

Coast Guard, I am sorry if I interrupted you again but my husband has been diagnosed by the doctor with a perforated eardrum. He is diagnosed as being fit for work but is suffering through a lot of pain.

Can you help us to have my husband sent home and have the company provide medical assistance? The ship will be in the United States again on June 10. I am very sorry for my interruption but I do not know where to seek assistance. I hope you understand.

6/3/08 Coast Guard to seafarer's spouse

Ma'am, researching the Notices of Arrival supplied to the Coast Guard by the master, I see that the vessel trades regularly in the United States. May I direct you to seafarer representatives, who will be able to provide you with options of how to handle such requests? ...

... At the end of our correspondence, I have included a website that lists the people who minister to the needs of seafarers like your husband. I routinely work with two of the Texas port chaplains listed on this page. If you are not able to establish communication with a port chaplain, please let me know.

6/3/08 Seafarer's spouse to Coast Guard

Thank you very much. Indeed the information you gave me will give a lot of help for us. Thank you and God bless.

6/4/08 Coast Guard to the president of the Apostleship of the Sea in the United States

Good morning. Late yesterday, I responded to an e-mail provided to me from the wife of the third engineer aboard a foreign-flagged chemical carrier. The Coast Guard has been in contact with the engineer and with the wife and there are some areas of concern that are outside of Coast Guard jurisdiction.

I bring this to your attention in order to alert you of this ongoing situation, and of the reference I made to your good organization.

Signed ... Chief, Inspections Division, Coast Guard Sector Houston/Galveston.

6/4/08 Apostleship of the Sea in the United States to Coast Guard

I will keep an eye out for the vessel. Thanks for thinking about us. I will try to visit the ship when she comes into our port.

I will also pass the word along to other seafarer welfare organizations that might be able to help while the vessel is visiting another country.

Signed ... president of the Apostleship of the Sea in the United States.

6/25/08 Resolution

Vessel arrives in Vancouver, Wash. Through the efforts of the Coast Guard, the Apostleship of the Sea, the owner of the vessel, and shipping agents, the third engineer of concern is removed and provided the necessary medical treatment in his country of origin.

forcement action until seafarer access provisions are determined to be adequate.

Additionally, living conditions on a vessel are determined by the economic health of the operator and the cultural traditions of the crew. What is "clean" for one crew may be considered unhealthy or substandard by another.

Without specific international standards for living and working conditions, port stakeholders are left asking questions like: Do problems exist when vessels do not meet the hyper-clean standards Americans are used to? Is there sufficient quantity and variety of food, or are the dietary needs of the crews being put at risk?

It is much easier to determine whether the lifeboat davits work than to know if the vessel provides adequate accommodations.





Sector Houston/Galveston marine inspector ENS Josh Love checks to ensure all seafarers aboard the vessel meet minimal age standards.



Ship visitors Sinclair Oubre and Doreen Badeaux welcome a vessel's master to port.

Help Is on the Way

The regulation entitled the Maritime Labour Convention of 2006 is expected to standardize the living and working conditions for mariners while at sea. These regulations are the first attempt to set minimum requirements for seafarers, including conditions of employment, hours of work and rest, accommodations, recreational facilities, food, health protection, medical care, welfare, and social security protection.

If ratified, much of the present ambiguity will be quantified by these new regulations, and the dilemmas port state control inspectors currently face will be significantly reduced.

Future Focus

Cooperation among the Coast Guard and seafarer welfare agents allows the concerns of mariners to be echoed throughout multiple communities. As resources increase and more organizations get involved, concerns can be better acted upon.

Utilizing this interconnected network, which includes secular, spiritual, and regulatory representatives, solutions can be reached that are in the best interests of the mariner, fellow crewmembers, the employer, and the port community in general.

About the authors:

LCDR Pail has served in the U.S. Coast Guard for 15 years and has received the senior marine inspector designator. He has inspected foreign-flagged vessels and has written national policies for the inspection of foreign-flagged vessels for more than 13 years of his Coast Guard career. He is currently serving within Coast Guard Sector Houston/Galveston's Prevention Department.

Father Oubre is the president of the Apostleship of the Sea of the United States of America, a membership organization dedicated to promoting the Catholic ministry to the people of the sea. Additionally, he holds a merchant marine credential as AB-limited. He continues to sail during his vacation from parish work. He is the pastor of St. John the Evangelist Catholic Church in Port Arthur, Texas, and St. Paul Mission in Sabine Pass, Texas. He is also the unlicensed deck department member of the USCG Merchant Marine Personnel Advisory Committee.

Endnote:

¹ The guidelines Coast Guard inspectors use to assess the shipboard conditions available to seafarers are published in the International Labour Office's Merchant Shipping (Minimum Standards) Convention, 1976.



Ship crewmembers use the resources at one of the nation's seafarer centers.

SPEAK SOFTLY AND CARRY A TWO-BY-FOUR

Fr. Sinclair Oubre, J.C.L.: In the religious community, we like to use the phrase, "Speaking truth to power." However, I find it never hurts to have a nice two-by-four to get the attention of those to whom truth is being spoken.

In the maritime world, the U.S. Coast Guard in general (and port state control inspectors in particular) are tremendous assets in promoting seafarer welfare, and make great "moral" two-by-fours.

On one particular occasion, the radio officer of a flag of convenience ship called me on a Saturday evening. He was concerned that a concrete patch that was installed on the raw water intake would not hold when they went back out to sea. Though the Coast Guard inspectors had visited the vessel earlier in the ship's port call, they were unaware of the patch because it was under the deck plates.

I contacted our Marine Safety Unit, and the watch officer immediately contacted the port state control team. Within a few minutes, they were back with me. I passed on the information that was relayed to me, and they made a follow-up visit to the engine room, "just to look around."

They found the patch, and made arrangements for the ship to complete more permanent repairs.



Brownwater University

Improving understanding between the Coast Guard and the inland maritime industry.



by CDR HAL R. PITTS
former Waterways Manager
U.S. Coast Guard Sector Houston/Galveston

MS. TAVA FORET
Chairperson
Houston/Galveston Navigation Safety Advisory Committee

MR. RAYMOND BUTLER
Executive Director
Gulf Intracoastal Canal Association

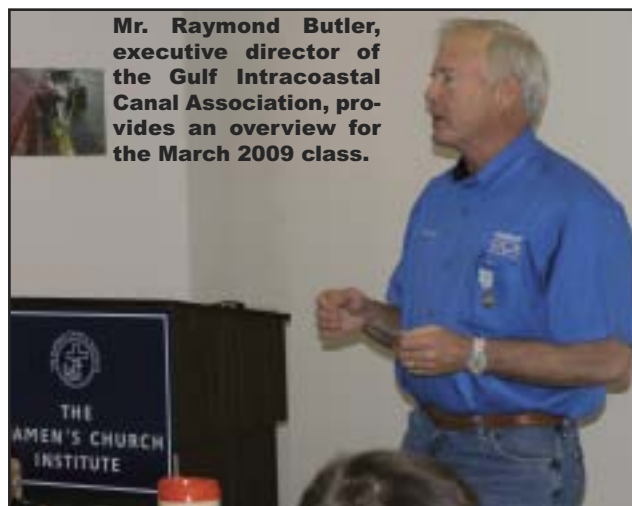
In the spring and summer of 2007, the Coast Guard's relationship with the maritime industry took center stage. U.S. Rep. James Oberstar proposed a potential solution to the perceived diminishing relationship between the Coast Guard and the maritime industry: Transfer the marine safety missions of the Coast Guard to another agency.

At the same time, Sector Houston/Galveston was receiving numerous comments from members of the inland towing industry saying that the Coast Guard did not understand their business and the issues they face.

In response, CAPT William J. Diehl, commander of Sector Houston/Galveston, and Mr. Raymond Butler, executive director of the Gulf Intracoastal Canal Association, met to address operational issues between the Coast Guard and the inland towing industry. These



CAPT William J. Diehl, commander of USCG Sector Houston/Galveston, welcomes the March 2009 class of Brownwater University. All photos by USCG Public Affairs Detachment Houston.



Mr. Raymond Butler, executive director of the Gulf Intracoastal Canal Association, provides an overview for the March 2009 class.



Classroom presentations.



Break time at Brownwater University.

discussions brought to light both the Coast Guard's and industry's general lack of understanding regarding the main goals of each entity.

Brownwater University

To address this disconnect, Sector Houston/Galveston decided to create an opportunity for local Coast Guard personnel to increase their understanding of the inland towing industry. Unlike the mariners who ply their trade in open ocean or "blue" water, these inland mariners who navigate the "muddy Mississippi" and other "brown" water have unique challenges and concerns. Reflecting this particular focus, the effort became known as "Brownwater University."

It became evident during initial planning efforts that the best way to achieve long-term success was to partner with industry. As a result, Brownwater University (BWU) was established as a joint venture between Sector Houston/Galveston and the Houston/Galveston Navigation Safety Advisory Committee (HOGANSAC).

Representatives from Kirby Inland Marine, Ingram Barge Company, Florida Marine Transporters, American Commercial Lines, DeLoach Marine Services, Buffalo Marine Service, Foret Enterprises (now the ACTION group companies), and the Gulf Intracoastal Canal As-



Captain Jerry Torok of American Commercial Lines provides simulator instruction as MST3 Emily Fulbright works the controls.



MST3 Emily Fulbright operates towboat controls in the Seamen's Church Institute bridge simulator while Mr. Larry Godfrey observes.

sociation answered the call from the Coast Guard and the navigation operations subcommittee of HOGANSAC to establish Brownwater University.

The development team was comprised of these representatives and Coast Guard personnel across all mission areas, and served as developers as well as students in the first class, held in September 2007.

The initial target audience: local Coast Guard personnel, but future expansion was envisioned to include inland towing industry personnel and individuals from other government agencies involved in regulating the industry. Given our mutual goal of better understanding between the Coast Guard and the inland towing industry, the focus of BWU was to build upon each other's existing training programs with a two-way training forum.

The "Plank-Owner" Class

Preparing for the inaugural class was a challenge, given the breadth and depth of information available from industry. Our industry partners could have easily delivered a semester-long, college-level course. The challenge was deciding how to structure the curriculum and how much information to present in each topic area to keep BWU within the agreed length of two days.

The development team and presenters met several times to complete curriculum edits and reviews and for a "dry-run" rehearsal prior to the first class. This plank-owner class consisted of 40 Coast Guard personnel from Sector Houston/Galveston and Marine Safety Units Port Arthur, Lake Charles, and Galveston.

The course critiques for this class were favorable overall, but noted some redundancy within various presentations. We needed to refine our curriculum further. Although rough around the edges, Brownwater University was clearly a step in the right direction.

Something for Everyone

BWU has been revised and the target audience has expanded to include personnel from the inland towing industry, other government agencies, congressional staff members, Coast Guard personnel throughout the Eighth Coast Guard District, and representatives from Coast Guard Atlantic Area.

The combination of students and presenters from the Coast Guard and the inland towing industry has improved the training forum and created many opportunities to strengthen relationships, particularly for new personnel or Coast Guard personnel with limited experience in the Gulf region. As such, BWU provides an opportunity for Coast Guard personnel to learn the unique characteristics of the inland towing industry from industry experts.

Similarly, it provides an opportunity for inland towing industry personnel to learn from Coast Guard experts about USCG regulations, vessel examinations, investigations, and other activities. Moreover, a clear highlight

of the experience was the opportunity for interaction among Coast Guard and inland towing industry personnel during class breaks and in the bridge simulators at the Seamen's Church Institute.

By supplying financial support and personnel to serve on the development team and as presenters, the inland towing industry and Coast Guard have contributed toward the development and upkeep of this important educational forum.

The curriculum has been updated between successive classes using a combination of the development team and a company specializing in the development of training presentations. Since its establishment, BWU now boasts more than 150 "graduates."

Successes and the Way Ahead

Brownwater University has been successful predominantly through the partnership between the Coast Guard and industry at the port level. We have found common purpose and common ground in our individual and collective roles to maintain a safe, efficient, and environmentally responsible maritime transportation system.

Most notably, BWU was recognized as a "best practice" at the National Harbor Safety Committee Conference in May 2008, when the Houston/Galveston Navigation Safety Advisory Committee was recognized as Harbor Safety Committee of the Year for 2007.

Although we have made great progress toward our goal, we are by no means done. The development team has completed a final curriculum revision, and future revisions will be scheduled triennially to keep the information current. Additionally, the Eighth Coast Guard District and Sector Houston/Galveston are identifying resources to support BWU in the future, and will continue to schedule the twice-yearly classes.

About the authors:

CDR Hal R. Pitts has served in the U.S. Coast Guard for 31 years—13 at sea—including command. He is presently the waterways manager at Sector Houston/Galveston and assistant designated federal officer for the Houston/Galveston Navigation Safety Advisory Committee.

Mr. Raymond Butler is a former towboat owner/operator, former executive within the inland barge industry, and now executive director of the Gulf Intracoastal Canal Association. He has spent his life on the Gulf Coast engaged in the operation of towboats and barges.

Ms. Tava Foret is the vice president of regulatory affairs for the ACTION group companies, a maritime compliance and training firm in Houston, Texas. The firm is staffed by maritime professionals with a total of more than 50 years of experience in the inland towing industry.





Houston, We've Had a Problem

*Managing chaos,
Texas-style.*

by CAPTAIN STEVEN W. NERHEIM, USN (RET.)
Director, VTS Houston/Galveston

When Hurricane Ike roared ashore in Texas in September 2008, it carried a 15-foot storm surge and 100-mph winds into one of the nation's largest petrochemical complexes (as well as one of its busiest ports). This event disrupted regional infrastructure; decimated Galveston Island, the Bolivar Peninsula, and other low-lying areas; and damaged or destroyed 58 percent of the aids to navigation along the Houston ship channel.

Storm forces filled a major stretch of the Gulf Intra-coastal Canal with debris and shoals, damaged or destroyed several key Coast Guard facilities, and severely damaged the major ports in USCG Sector Houston/Galveston.

Houston had a problem. But it also had a solution.

The Greater Galveston Bay Port Coordination Team
Houston/Galveston's port coordination team is rooted in the port emergency committee established following the December 21, 1992 collision between UTV *Freemont* and M/V *Juraj Dalmatinac*, in which a quantity of molten sulphur was spilled into the waterway.¹

The port emergency committee included industry representatives from the West Gulf Maritime Association, local pilot associations, American Waterways Operators, Texas Waterways Operators, oil refiners, chemical refiners, port authorities, and liquid terminals in addition to the USCG and U.S. Army Corps of Engineers. The committee expanded to include local government offices of emergency management and a broader cross-section of industry. Despite its effectiveness, like many growing committees, it was becoming unwieldy.

Then-Commander Tom Marian, the penultimate commanding officer of Vessel Traffic Service Houston/Galveston, gave the port coordination team (PCT) its present form and function by capturing, formalizing, and documenting procedures in a PCT protocol.



Marian's protocol, developed and refined between 2002 and 2005, was originally oriented toward post-September 11 port security issues to establish effective procedures for setting MARSEC 2 and 3 conditions. An expanded application was test-driven during a challenging 2003-04 fog season and during the Christmas Eve 2003 MARSEC 2 surge operations on the Houston ship channel.

These tests validated many concepts and proved the PCT's utility in managing the resumption of commerce within the marine transportation system following a prolonged closure or significant disruption. The exper-

rience also contributed to working out procedural “bugs” and fine-tuning the team’s composition.

A number of passionate discussions on team membership/composition ensued, but in the end it was recognized that a town hall meeting approach, open to the entire general stakeholder community, would be unworkable. This led to a representative rather than democratic approach and resulted in a compact, cohesive port coordination team made up of one delegate from each of our several port stakeholder constituencies.

NOAA, local pilots associations, towing industry partners, and USCG waterways management, aids to navigation, and VTS personnel.

How Does it Work?

This was not our first rodeo, and Ike was not our first heavy weather of the 2008 season, so while the storm was still churning east of Cuba, the Greater Galveston Bay Port Coordination Team convened to advise and inform the USCG captain of the port and implement/operationalize his guidance and directives. CAPT William J. Diehl, the sector commander and captain of the port, has developed a phased plan for heavy weather operations that includes stages such as:

tain of the port, has developed a phased plan for heavy weather operations that includes stages such as:

- Hunker down.
- Assess the mess.
- Go to work.

The PCT conducted its own operations in similar phases tied to the approach of heavy weather and escalating port conditions. They are very broadly described by their



Station Galveston sustained major damage following Hurricane Ike. USCG photos by Petty Officer Kevin Rofidal.

The port coordination team continued to evolve through experience with fog closures and heavy weather disruptions, building habitual relationships and deepening the mutual trust and confidence among participants. Importantly, the team’s personification of collaborative interdependence and its well-deserved reputation for success ensured that it held the complete trust and garnered the full support of a succession of sector commanders and captains of the port. That trust and support was essential when the PCT faced its sternest test to date—Hurricane Ike.

PCT Concept of Operations

In heavy weather situations, the PCT does not work alone in restoring commerce to the marine transportation system. It coordinates closely with the Texas joint hurricane response team (TJHRT), an Army Corps of Engineers Galveston District-led group focused on waterway conditions. It includes representatives from

end-states as:

- Empty the port.
- Secure the port.
- Validate the port.
- Reopen the port.

Operations During and Following Hurricane Ike

To cope with this event, the port coordination team’s internal battle rhythm followed a consistent pattern:

1. participant roll call
2. weather
3. state of the waterway
4. requirements of industry
5. pilot/towing industry/USCG coordination
6. the way ahead (COTP intent for the next 24 to 48 hours)
7. issues for COTP resolution

Pre-Landfall

Pre-landfall actions focused on sharing available information, promulgating the COTP’s intent, prioritizing



last-minute arrivals, and clearing the port. Early season storms and near-misses contributed to a near-record population of more than 90 ships in port as Hurricane Ike approached. We anticipated that three reduced operational capability MSC ships and one chemical tanker with an engineering defect would weather the storm in harbor.

PORT COORDINATION TEAM MEMBERS

The mature PCT includes representatives of the entire spectrum of local maritime interests and includes:

Port of Houston Authority
Port of Texas City
Port of Galveston
Port of Freeport
Offshore Port/Gulfport (Lightering)
Gulf Intracoastal Canal Association (Towing)
West Gulf Maritime Association
Houston pilots
Galveston-Texas City pilots
Brazos (Freeport) pilots
Oil refiners
Oil terminals
Chemical carriers
Chemical facilities
Non-VTS users (recreational/fishing)
Harbor tugs
NOAA (Navigation Response Team)
NOAA (National Weather Service)
U.S. Army Corps of Engineers
USCG Waterways Management (Sector and MSU)
USCG Vessel Traffic Service
USCG sector commander (or representative)

Nearly two dozen ships were moored at Houston ship channel facilities at landfall. The USCG's challenge in managing "intent to remain in port" notifications and secure moorings for these ships was well supported by the PCT's information sharing capabilities.

While the port coordination team focused on commercial operations, our cohorts on the Army Corps of Engineers-led Texas joint hurricane response team were finalizing ride-out locations for—and post-landfall survey plans by—a virtual armada of nearly 30 survey vessels of various capabilities spread across the entire Texas coast.

Landfall

With 11th-hour cargo operations completed, ships cleared, and those remaining securely moored, our focus shifted from emptying the port to securing the port. Many tasks occupied the PCT's attention, such as sharing information on barge fleeing area preparations, the movement of horsepower between fleeing areas, movement of USCG assets and pilot boats to heavy weather berths, the location of harbor tugs, and updating emergency and post-landfall communications plans.

Between our daily or twice-daily conference calls, which typically lasted only 40-45 minutes, PCT participants polled their constituents for input, relayed results of the most recent conference call, conducted the business of their company/agency, and made their personal preparations for the landfall.

The virtue of our conference call methodology was never more apparent than during the last conference call. Members participated from evacuation sites scattered all over Texas—indeed, all over the nation—without any degradation to the quality or quantity of information and insight provided. The last data point for the final pre-landfall conference call was the time of the first post-landfall call-in.

We also shared the ominous reminder that if phone contact proved impossible, members should make their way to a VHF-FM radio and we'd confer on bridge-to-bridge. Mercifully, the radio option proved unnecessary, and all constituencies were represented in our first post-landfall convening.

Post-Landfall: Assess the Mess

You can't have a storm of this magnitude pass through the heart of the nation's largest petro-chemical complex and expect anything but a mess. The port coordination team's most recent previous experience was in returning fog-delayed or storm-diverted ships to intact facilities. The team had not yet dealt with a "mess" of this magnitude.

Team members had to cope with wind and water damage to the Army Corps of Engineers Galveston Island office building, where survey data is normally evaluated; the devastation of USCG facilities on Galveston Island; a total lack of awareness of navigational channel conditions and no information on the condition of scores of facilities along those channels; and a certainty that the aids to navigation system supporting all waterways of Sector Houston/Galveston's two COTP zones was shattered.

The work of aids to navigation personnel post-Ike was excellent, and was covered in detail in a *Coast Guard Magazine* article.²

Go to Work

Initial post-landfall PCT conference calls were recovery-focused and concentrated on validation of the port infrastructure conditions. These calls were each preceded by a Texas joint hurricane response team (TJHRT) waterway restoration conference call. NOAA's forecasters remained engaged to provide the sea state and storm surge/rain run-off information vital to survey operations and off-shore pilot embarkation decisions. Survey results were reported, the execution status was updated, and plan adjustments were made among the various agencies, pilots/towing industry, and USCG aids to navigation (AtoN) personnel. Despite the scale, scope, and complexity of their tasks, both Army Corps of Engineers survey operations and USCG AtoN reconstruction operations demonstrated tremendous flexibility in reprioritizing their efforts to ensure channel reconstitution parallel with emerging industry capabilities and requirements.

One product of the TJHRT conference call was a recommendation to the COTP on the status and usability of federal waterways. Between the TJHRT call and the PCT call that followed, the COTP reached a decision on drafts and operating hours for the day's traffic movement.

Get Traffic Moving

"Moving traffic with a purpose" has always been the whole point of the PCT. In this situation, the regional devastation and initial uncertainty as to facility status and conditions was a new wrinkle for most port coordination team members. We needed to know things like: Who had a safe berth? What facilities had power, other services, available labor, and a need to receive raw materials or ship product?

We received clear tasking and objectives from the COTP to:

- Communicate, communicate, communicate.
- Coordinate port-wide waterways assessment.
- Coordinate port-wide facility readiness assessment.
- Ensure optimization of limited facilities inspectors.
- Ensure we were moving traffic with a purpose.
- Identify facilities most in need to receive first ships.
- Identify facilities able to berth ships.

The COTP requested representatives from Houston, Galveston, Texas City, Freeport, and the off-shore/Gulfport lightering interests to assist in facility validation. They convened almost immediately at VTS Houston/Galveston. Armed only with laptops and cell phones, this group worked with sector prevention department facilities inspectors to develop a new self-as-

"We can import resources and equipment, but we can't deploy the relationships that exist within the port coordination team."

—CAPT William J. Diehl, sector commander

essment form and a facilities tracking system that provided the COTP with domain awareness down to individual berths. This system permitted optimization of the available facilities inspectors, who were then able to focus on facilities that had completed an internal self-assessment and were ready to receive vessels.

The Way Ahead

Surveyors, data analysts, AtoN personnel, and PCT members across the board made possible an astonishingly rapid reopening of an economically vital waterway. We were lucky that our telephonic infrastructure was only degraded, not destroyed, and was rapidly restored to full capability.

We're all proud of the port coordination team's success, but we aren't resting on our laurels. We have yet to solve, or even identify, all the problems the next heavy weather event or waterway incident will reveal to us, and are looking at web-based conferencing and new tools such as Twitter to enhance our information sharing.

But, technology aside, it is our habitual relationships and the mutual trust and confidence among this group of Texas maritime professionals that makes the Greater Galveston Bay Port Coordination Team work. I'm confident that what we can't solve or identify in advance, we can deal with in real time.

This is Houston. We have a solution.

About the author:

Captain Steve Nerheim has been the director of VTS Houston/Galveston and a member of the Greater Galveston Bay Port Coordination Team since 2005. His previous experience was as a U.S. Navy surface warfare officer. While on active duty from 1968 to 2005 he commanded at sea and was additionally qualified as an underwater warfare specialist and a joint specialty officer.

Endnotes:

¹ Collision of the towboat *Fremont* and tow with the *St. Vincent* and the Grenadines-registered container ship *Juraj Dalmatinac*, Houston Ship Channel, December 21, 1992, marine accident report.

² PA3 Patrick Kelley, "Dark Waters: The Dirty Work," *Coast Guard Magazine* (www.uscg.mil/mag), 2008, Issue 4.





Securing Our Ports

TWIC outreach, operations, and oversight.

by LT SARAH HAYES
Waterfront Facilities Branch Chief
U.S. Coast Guard Sector Houston/Galveston

MR. JAMES PRAZAK
Senior Logistics Specialist
The Dow Chemical Company

LT STEPHEN BOR
Domestic Vessel Inspector
U.S. Coast Guard Sector Corpus Christi

In the wake of the attacks on the United States on September 11, 2001, the United States Coast Guard found itself at the forefront of homeland security in the maritime sector. The Maritime Transportation Security Act and subsequent SAFE Port Act specified criteria for a transportation security card, which was implemented through the Transportation Security Administration (TSA) and the Coast Guard.

TWIC

The Transportation Worker Identification Credential (TWIC) was rolled out as a means to heighten maritime

transportation infrastructure security. Its goal is to identify those who have access to our maritime transportation system, determine who poses a security threat, and deny unescorted access to individuals who do not meet certain requirements.

Issued to merchant mariners, longshoremen, and maritime

workers, TWICs contain biometric information, and all who obtain one are vetted through national security databases to ensure the safety of our ports. Through a long and arduous process, TWIC implementation has led to accountability for more than one million workers who have unescorted access into secure areas of U.S. ports.

The Transportation Security Administration developed the programmatic elements for the implementation of the TWIC program, and the U.S. Coast Guard is charged with reaching out to the maritime sector as the arm of enforcement. The Coast Guard outlined security requirements for maritime facilities and workers and reached out to industry to ensure maximum transparency of information flow.

The maritime industry is as diverse as the United States, so TWIC's impact is felt through a wide range of marine operations—small passenger vessel communities, cruise liners, the containerized shipping industry, oil and chemical refineries, etc. Vetting the entire nation's body of maritime workers is a task of monumental logistical effort. With unique circumstances in each port, the effort required untold man-hours of outreach, education, and problem-solving. The Coast Guard, already stretched to carry out its new security missions, found ways and people to help meet this additional requirement.



The TWIC reader at the Port of Brownsville. U.S. Coast Guard photo by LT Stephen Bor, Sector Corpus Christi.

Got TWIC?

Credentialing working group members conducted surveys, promoted outreach, and shared their best practices. The most recognized example of this is an exercise entitled "Operation Got TWIC."

The exercise was planned to survey all personnel accessing facilities in the port and to fulfill MTSA yearly exercise credit requirements. Planners issued a port security information bulletin to the port community announcing the exercise. It contained a spreadsheet to record information.

During the exercise, facility personnel asked every person who came to their security gates if they had a TWIC or had applied for one. Personnel conducted this exercise three times over the course of six months to gauge the health of TWIC implementation.

This information helped the working group judge whether the outreach was effective and provided an indication if there was enough equipment in the area to get everyone enrolled.

There's a daily hustle and bustle throughout the port complex. Oil tankers carry crude oil into refineries, towboats move barges, and vessels that support the daily needs of the industry move around the port. While many ports have similar numbers of vessels, the chemical tanker trade adds a level of complexity few ports in the U.S. experience. For example, it is not unusual for a chemical tanker to call on seven or more berths during its normal rotation through the area.

Credentialing Working Group

It became obvious that the Coast Guard was going to need some help to

Though the national implementation date for the transportation worker identification credential was April 15, 2009, the Coast Guard had worked for years to ensure that proper outreach enabled maritime partners to meet the new requirements. For example, Coast Guard sectors in the state of Texas (a major center for the energy industry) worked tirelessly in coordination with the maritime industry, agency partners, and local law enforcement to identify and resolve issues with TWIC implementation. These targeted efforts are captured in the credentialing working group from Sector Houston/Galveston as well as in the unique TWIC issues surrounding the Port of Brownsville, Texas, addressed by Sector Corpus Christi.

Captain of the Port Zone Houston/Galveston

This area encompasses the inland waterways and ports spanning the Ports of Houston, Galveston, Texas City, and Freeport. Some of the largest petroleum and petrochemical facilities in the world operate inside these expansive complexes.

In fact, Houston is home to the largest petro-chemical refinery complex in the U.S., second in the world to Rotterdam, The Netherlands.¹ A single facility can potentially lose millions of dollars a day if it is shut down, directly impacting the national economy. Houston also houses the largest TWIC enrollment population in the United States, originally estimated to be 260,000 transportation workers. The Coast Guard, in coordination with industry partners, ensures that these facilities operate safely, securely, and according to the new regulations.



Petty Officer 3rd Class Robin Lindsey (left) and Petty Officer 2nd Class Baron Barrera from Sector Houston/Galveston's Waterfront and Facilities Security Branch perform a random TWIC card check at the Houston refinery. U.S. Coast Guard photo by Petty Officer 3rd Class Renee C. Aiello.

implement this new security requirement, especially in this already-hectic environment. Industry in Sector Houston/Galveston ranges from small business operators to some of the largest petroleum manufacturers in the world. Ensuring that everyone has a voice and representation of all needs is a key to building stakeholder commitment.

With regard to TWIC implementation, the area maritime security committee created a credentialing working group shortly after the initial TWIC regulations were published. The group was led by Mr. James Prazak of Dow Chemical, and initially was made up of industry stakeholders and the Coast Guard. Over time, the group grew to include the Transportation Security Adminis-





U.S. Congresswoman Sheila Jackson Lee, 18th District Texas, activates her transportation worker identification credential at the TWIC center in Houston, Texas. LT Sarah Hayes of Sector Houston/Galveston and LTJG Quinton DuBose of Marine Safety Unit Galveston observe. U.S. Coast Guard photo by Petty Officer 3rd Class Renee C. Aiello.

tration (TSA), Lockheed Martin, the Seafarer Center, utility companies, and various other stakeholders.

The focus of the working group was laid out very early, and goals were stressed at almost every meeting: communicate, learn, conduct outreach, identify and solve issues, and leverage resources to avoid duplicate efforts.

Building Successful Partnerships

Each individual and organization came to the forum with preconceived notions, and in many cases, that bias could hinder further progress. The working group's success in resolving these issues speaks to the ability of these individuals and organizations to work together to achieve the overarching goal of security and safety.

When unique issues arose, the group held special meetings. For example, they had to discuss compliance from railroads. The working group coordinated meetings with Marine Safety Unit Galveston, industry stakeholders, and representatives of the local and national

railroads. The goal was to air any facility- or railroad-specific issues, then work to resolve these and come up with best practices.

The working group was critical in determining how to achieve overall security needs while minimizing the impact on commerce. Trends were identified, best practices shared, and efforts were coordinated with the enrollment centers.

Value of Partnerships

The partnerships fostered in the Houston/Galveston area enable the apparently seamless operations against a backdrop of complex port operations. These partnerships were not created recently or in response to recent events. They were developed over years and years of cooperation and relationship-building. This leads to trust, cooperation, and a willingness to work for the greater good.

Much of the resiliency found in this port is due to these relationships, whether it is the port coordination team helping to reconstitute the port after Hurricane Ike, or dealing with the more common issue of fog closure and backlog of vessels in the queue. The relationships in the maritime industry in this area are a key to success, and reflect the same approach taken by Sector Corpus Christi with the implementation of TWIC in the pilot Port of Brownsville.

Outreach in the Port of Brownsville

As the southernmost Coast Guard unit directly in touch with international borders, Marine Safety Detachment Brownsville, a satellite office of Sector Corpus Christi, was in a key position to assist TWIC implementation. The Port of Brownsville was selected to be a pilot port for TWIC, and tested card readers with biometric capabilities.

Unique to other pilot ports where the impact of the new technology was being tested, the Port of Brownsville is on the Mexico-U.S. border, and many of its economic provisions fall under the North American Free Trade Agreement (NAFTA). In addition to vetting U.S. citizens who require access to secure port areas, the Port of Brownsville is required to screen and determine the eligibility of Mexican truckers who are allowed into the port to pick up and receive cargo under NAFTA.

Now that the card readers for the TWIC cards have been installed, Port of Brownsville personnel are responsible for submitting information on the operability of the readers back to TSA headquarters. Coast Guard

Pilot Program

The Port of Brownsville is the largest provider of petroleum and energy products to Mexico, so it is critical to ensure the smooth flow of commerce while maintaining proper security measures. LT William Magness, chief of the facilities section for Sector Corpus Christi, orchestrated a colloquium on the TWIC regulations, inviting industry leaders and maritime workers to air their concerns and ask questions.

Additionally, more than 5,000 truckers work approximately 3,000 trucks that serve the Port of Brownsville from Mexico. Armed with literature and information, Port of Brownsville Chief of Police George Gavito coordinated meetings with trucking companies in Matamoros, Mexico, educating truckers about the new requirements.

“At this point,” Chief Gavito said, “the pilot program in Brownsville will identify and work to find solutions so that other ports do not go through the same issues.”

Since coming online, the readers successfully operated with the newly issued cards. As a card is scanned, the information is channeled directly to the control room at the port, where security personnel can verify eligibility for each individual entering that terminal.

Port of Brownsville Chief of Police George Gavito uses the portable card reader to check his TWIC. U.S. Coast Guard photo by LT Stephen Bor, Sector Corpus Christi.



personnel are continually on hand to evaluate and oversee the process. Under the new regulations, all those who have a valid reason to enter the secure areas of the port must have a TWIC.

Once a maritime worker receives a TWIC, port personnel program the card to specific sections of the port where that individual is allowed access. Coast Guard

members at Marine Safety Detachment Brownsville have been key to this oversight, and in communicating questions from port personnel up the chain to TSA.

Since this initiative involves brand-new technology and policy with far-ranging impacts on the movement of commerce, it is expected that challenges will arise. With that in mind, the Coast Guard, with the significant help of the credentialing working group in Sector Houston/Galveston and the Port of Brownsville, make every effort to ensure that the spirit of the program remains intact, and that the ultimate goals of national security and the free flow of commerce are achieved.

As CAPT Robert Paulison, commander of Sector Corpus Christi puts it, “Communicate, communicate, communicate. When you think you can’t communicate any more—communicate.”

About the authors:

LT Sarah Hayes has served in the Coast Guard for five years. She served on CGC Vigorous and as executive officer of CGC Adak in the Persian Gulf. She is currently serving as chief of the Waterfront Facilities and Security Branch at Sector Houston/Galveston.

Mr. James Prazak has worked for Dow for 20 years in various capacities. He currently works in supply chain environmental health and safety, focusing on marine and terminal activities. Mr. Prazak chairs the credentialing working group for Sector Houston/Galveston as well as the Chemical Transportation Advisory Committee, and serves as president of the Brazosport Marine Action Team.

Previously the chief of the Facilities and Containers Branch of Sector San Francisco, LT Stephen Bor is a domestic vessel inspector serving in Coast Guard Sector Corpus Christi.

Endnote:

¹ Port of Houston Authority website, <http://www.portofhouston.com>.





Customized Collaboration

Coast Guard certification of the world's deepest floating offshore installation.

by LT JEFF BYBEE
Marine Inspector

U.S. Coast Guard Sector Corpus Christi, Domestic Vessel Section

The Perdido Developments Host (Perdido) is a floating offshore installation (FOI) designed to produce oil and natural gas from oil and gas reservoirs beneath the sea floor in the U.S. Gulf of Mexico. Perdido uses a “truss spar” design, which is essentially a vertically floating tube that is the hull of the FOI. Portions of the lower tube consist of an open framework, with additional closed ballast tanks at the bottom. The “topsides” sit on top of the truss spar, and house personnel and equipment.

Perdido is currently the world's deepest spar production facility, operating with production wells in water depths from 7,500 to 10,000 feet.¹ Congress has mandated that floating offshore installations operating on the U.S. outer continental shelf (OCS) be inspected, and that responsibility has been delegated jointly to the Coast Guard and the Minerals Management Service. Coast Guard inspections include

plan review, construction oversight, and annual inspections of safety and engineering systems.



Figure 1: Perdido topsides are constructed at Kiewit Offshore Services in Ingleside, Texas. USCG photos by CWO Earl Schlemmer.

Industry and Coast Guard Adaptations

The majority of floating offshore installation new construction projects are inspected using the process in Navigation and Vessel Inspection Circular (NVIC) 10-82.² Using this process, the Coast Guard will accept certain plan review and inspection functions performed by a designated classification society for floating OCS installations or facilities that are classed and inspected under subchapter N of Title 33 CFR.

However, Shell chooses not to class its FOIs and therefore did not use the NVIC 10-82 process for Perdido. This places the entire responsibility for plan review and inspection on the Coast Guard. Not since the early 2000s has the Coast Guard been involved in an unclassified, non-NVIC 10-82 new construction project for a floating offshore installation.

Sector Corpus Christi partnered with Shell's regulatory compliance personnel to develop regulatory compliance procedures to facilitate the progress and minimize delays. These regulatory compliance procedures were a road map to successful construction approval, with the goal of obtaining a U.S. Coast Guard certificate of inspection (COI).



Collaboration

To facilitate Perdido's forward momentum, Coast Guard Sector Corpus Christi joined with Shell and Coast Guard units from across the country and around the world. As subsea systems and mooring systems were being prepared for the arrival of Perdido at its future location, there was a solid front of other construction activities underway. Sector Corpus Christi marine inspectors CWO Mark Locklear, CWO Earl Schlemmer, and CWO Keith Brown worked to qualify workers in Tulsa, Okla., to weld copper-nickel pipe in the fire main system.

CWO Schlemmer and CWO John LeFlamme from Coast Guard Activities Europe



Figure 2: Perdido's hull is shipped from Pori, Finland, to Ingleside, Texas.

teamed up with Shell's hull construction team and the designer and builder of the hull to conduct construction oversight of the truss spar hull in Pori, Finland. Meanwhile, CWO Locklear and CWO Scott Woods from Sector Houston/Galveston partnered with Shell to perform construction oversight of the quarters in Houston, Texas. Once completed, the quarters and hull were shipped to Ingleside, Texas, where they joined the topsides.

Inspections

For many new FOI construction projects inspected using the NVIC 10-82 process, the designated classification society would be a major contributor, sharing the workload of inspecting and testing systems as the installation was being constructed. Without this type of classification society involvement, Sector Corpus Christi had to designate marine inspectors throughout all stages of construction to conduct inspections, testing, and oversight. Moreover, due to Perdido's cutting-edge technology and remote location, it was necessary that marine inspectors assigned to the project be intimately familiar with the onboard systems, including gas detection, emergency shutdowns, fire protection, and firefighting.

Other inspection items included machinery tests, lifeboat and rescue boat davit load tests, and hydrostatic tests on vital systems occupying the topsides. All systems went through a series of testing by Shell and the Coast Guard to be certain they were operating correctly.

For example, marine inspectors oversaw hydrostatic testing of the firewater piping that extends through the entire installation consisting of the fire main, fire hydrants, fire pumps, and deluge systems. The firewater piping is tested by filling a section of the system with water and pressurizing it to 1.5 times the operating pressure. Marine inspectors then walk the entire sec-





Breaking Barriers

The Perdido, a cooperative venture among Shell, Chevron, and British Petroleum, is on track to begin producing oil and natural gas from the U.S. Gulf of Mexico by early 2010. This project employs a host facility to gather oil and natural gas from numerous subsea wells located in three surrounding oil fields. By utilizing one host facility to gather resources from multiple fields, Perdido will lower operating costs and minimize environmental impact.

Technology and Design

A regional host facility that could directly access multiple wells from different fields via a single location became the core design concept. This triggered the design for the first floating offshore installation ever to use a direct vertical access system, which allows separation of liquids and gases on the seabed. This technological capability reduces the amount of equipment required on the topside facility, enabling the design to be smaller and more cost effective without sacrificing well production.

The hull, a truss spar design, is suited for the harsh environment in the remote U.S. Gulf of Mexico. Secured with a spread mooring system, nine polyester mooring lines connect to chains attached to large cylindrical suction piles that are embedded in the sea floor. The spar hull itself measures 555 feet long, 118 feet in diameter, and equals the height of the Washington Monument.

A Home Away From Home

Sitting on top of the truss spar are the three decks that make up the topsides. The cellar deck (the lowest deck) contains utilities vital to the operation and habitability of the installation. The production deck contains processing and separation systems designed to prepare the oil and natural gas for injection into export pipelines. Last of all, the main deck contains two cranes, a drill rig, quarters for 150 personnel, and a helicopter landing pad.

Bibliography:
<http://www.shell.us>
<http://www.popsoci.com>

tion, looking for any leaks. Since there is no fire department to respond offshore, it is critical to ensure these systems will be fully functional in an emergency.

Precise Engineering

Back in Washington, D.C., the U.S. Coast Guard Marine Safety Center (MSC) carried out plan review and approval and kept a constant grasp of the project, providing support to field inspectors when needed. Mr. Ahmed Adam, MSC's naval architect, was sent on location to Ingleside, Texas, to be the Coast Guard's lead for overseeing weight tests for different sections of the topsides and to make certain these heavy components conformed to stringent stability requirements.

There is a slim margin of error when calculating the stability of such an enormous structure based on estimated weight and then comparing those calculations to the actual weight. Once the topsides are integrated onto the truss spar hull, the structure can become top-heavy, with little tolerance for inclination. It is critical that all calculations determining the overall weight of the FOI are accurate and precise to ensure the spar will sustain an upright position, even in the most extreme conditions encountered in the U.S. Gulf of Mexico.

The Project Nears Completion

In August 2008, the hull was towed from Ingleside, Texas, to its final location in the U.S. Gulf of Mexico. After construction was nearly complete on the topsides, it was placed on a barge and towed offshore to be integrated with the hull in March 2009. During the next two months, Sector Corpus Christi inspectors attended Perdido offshore with Shell's commissioning team to finish construction oversight and complete an initial certification. Sector Corpus Christi issued Perdido a temporary COI, which was necessary for personnel to start living aboard. A full COI exam will be completed prior to the start of processing hydrocarbons aboard.

Thereafter, to maintain the COI and stay operational, Perdido will be required to have annual Coast Guard COI exams, involving operational tests of machinery safety components, lifesaving apparatus examinations, firefighting system checks, and documentation verifications. It will also require confirmation of crew competency by running fire, man overboard, and security drills.

About the author:

LT Jeff Bybee has served in the U.S. Coast Guard for four years at Coast Guard headquarters in the Office of Vessel Activities, Domestic Vessel Compliance Division, and in the Domestic Vessel Section at Sector Corpus Christi. LT Bybee is a 2005 graduate of Maine Maritime Academy, with a bachelor of science in marine engineering technology.

Communication was very effective and consistent between the Coast Guard and Shell, which enabled the project to steadily progress as scheduled.

As Sector Corpus Christi's assistant chief of the inspections division and lead senior marine inspector assigned to the Perdido project, Mr. Gene Gonzales was actively involved throughout construction.

"The cooperation among all parties involved made this project a success," he said. "The collaboration to develop customized regulatory compliance procedures provided a detailed outline on what was expected by industry and from the Coast Guard."

ping for New Construction or Major Modifications of U.S. Flag Vessels.

Acknowledgments:

Special thanks to LT Stephen Bor, CWO Mark Locklear, and CWO Earl Schlemmer, U.S. Coast Guard International Training Division (formerly USCG Sector Corpus Christi Domestic Vessel Section).

Endnotes:

¹ <http://www.shell.us/>

² Navigation and Vessel Inspection Circular 10-82, Ch. 2, Acceptance of Plan Review and Inspection Tasks Performed by the American Bureau of Ship-



Perdido at its final location in the U.S. Gulf of Mexico.



Risk-Based Decision Making Tools

*Aids to make the right
decision at the right time.*

by CDR JOSEPH H. SNOWDEN
Chief of Prevention
U.S. Coast Guard Sector Detroit

Successful mission execution requires mitigating risk, solid decision making, process transparency, capturing experience and history for future use, communication, and resource allocation. How can a dynamic organization with changing priorities and limited resources look ahead while ensuring the best decisions are made and experience retained? With effective and consistent use of risk-based decision making tools. If you do not have tools or documented processes, it is time to begin.

But We've Always Done it This Way

Why should the Coast Guard or any maritime organization use tools or document processes? It improves efficiency, conveys process transparency to stakeholders, increases overall safety, mitigates risks, and ensures effective mission execution. Additionally, when these processes are developed with stakeholders at the grass-roots level, this strengthens working relationships, reinforces the understanding of capabilities and limitations, fosters ownership, and increases adherence to the agreed process or tool.

A progressive organization should be constantly searching for new ways to improve its effectiveness. As Winston Churchill said, "The pessimist sees difficulty in every opportunity. The optimist sees the opportunity in every difficulty."¹

The primary focus when developing risk-based tools or documenting processes is to keep it:

- Simple—If a person does not understand or is intimidated by the tool, he or she is less likely to use it.
- Functional—The tool should be intuitive to the user.
- Purposeful—The user should understand the intent of the tool and how the result will be utilized.
- Catalytic—The user will need to take action based on the results.

WATERWAYS MANAGEMENT

Maritime Transportation Recovery Unit Decision Making Process

As technology evolves, threats shift, and the maritime operating environment changes, so will risk evaluation, determination, and mitigation. After observing complex evolutions or simple operations long enough, a person discovers the major elements of a process will remain the same even though details change depending on circumstances.

This was the case when I was able to capture key processes involved in reopening a waterway by collaborating with U.S. and Canadian port stakeholders. The Maritime Transportation Recovery Unit (MTSRU) decision making process helps determine when to reopen waterways closed due to events such as a natural dis-

WATERWAYS MANAGEMENT

Maritime Transportation Recovery Unit Decision Making Process

aster; a vessel, facility, or infrastructure incident; a response to a transportation security incident; or a hazardous material release.

Common Elements, Unique Considerations

The marine transportation system recovery unit tool focuses on demonstrating where discrepancies are. It can also be used to develop strategies or recommendations to fix those for the incident commander. When comparing just two of the processes (a natural disaster and a transportation security incident, for example), there will be similarities such as “impact to search and rescue” and “safety of first responders.”

Conversely, the pivotal element unique to a transportation security incident is that terrorism is a primary consideration. This factor brings into play crime scenes, Federal Bureau of Investigation jurisdiction, and possible elevation in security posture. By keeping these commonalities and distinctions visible, the decision maker will not overlook them.

Vessel Prioritization Tool

At a recent Marine Transportation System Recovery Unit working group, U.S. and Canadian stakeholders addressed challenging questions:

- After a flood or marine casualty, how do you manage the queue of vessels that increased while you were addressing the crisis?
- When the waterway opens, will the policy be “first come, first served”?
- How do you address the needs and concerns of nations that share a critical connection waterway?

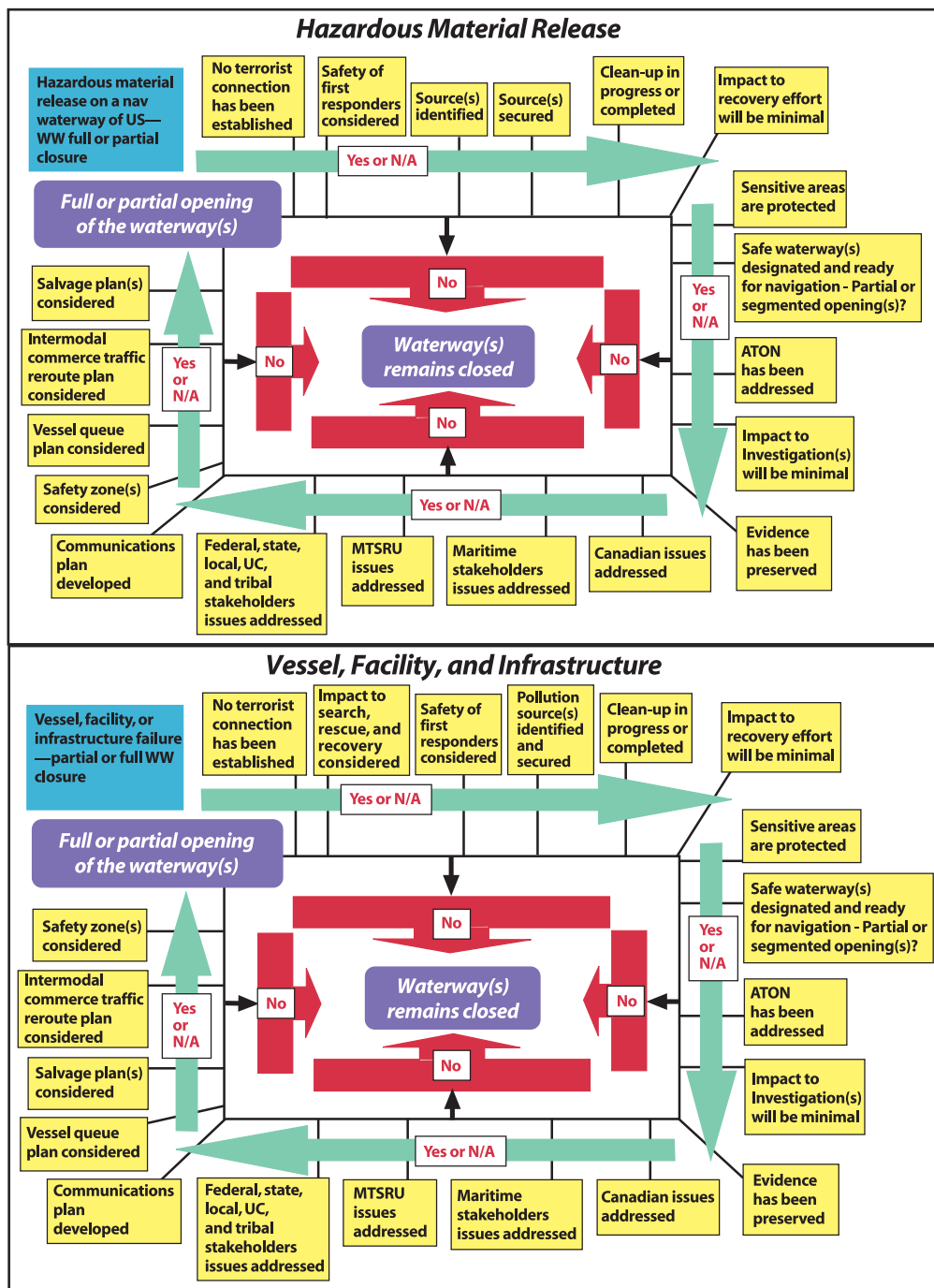
By working and collaborating with stakeholders prior to the crisis, you can identify acceptable and equitable standards together. After the discussions, we were able

to gather major concerns and essential elements to develop the vessel prioritization tool.

Elements for Success

To develop the prioritization tool, we considered five elements to be ranked to establish vessel priority:

- cargo stability,
- impact to economy,



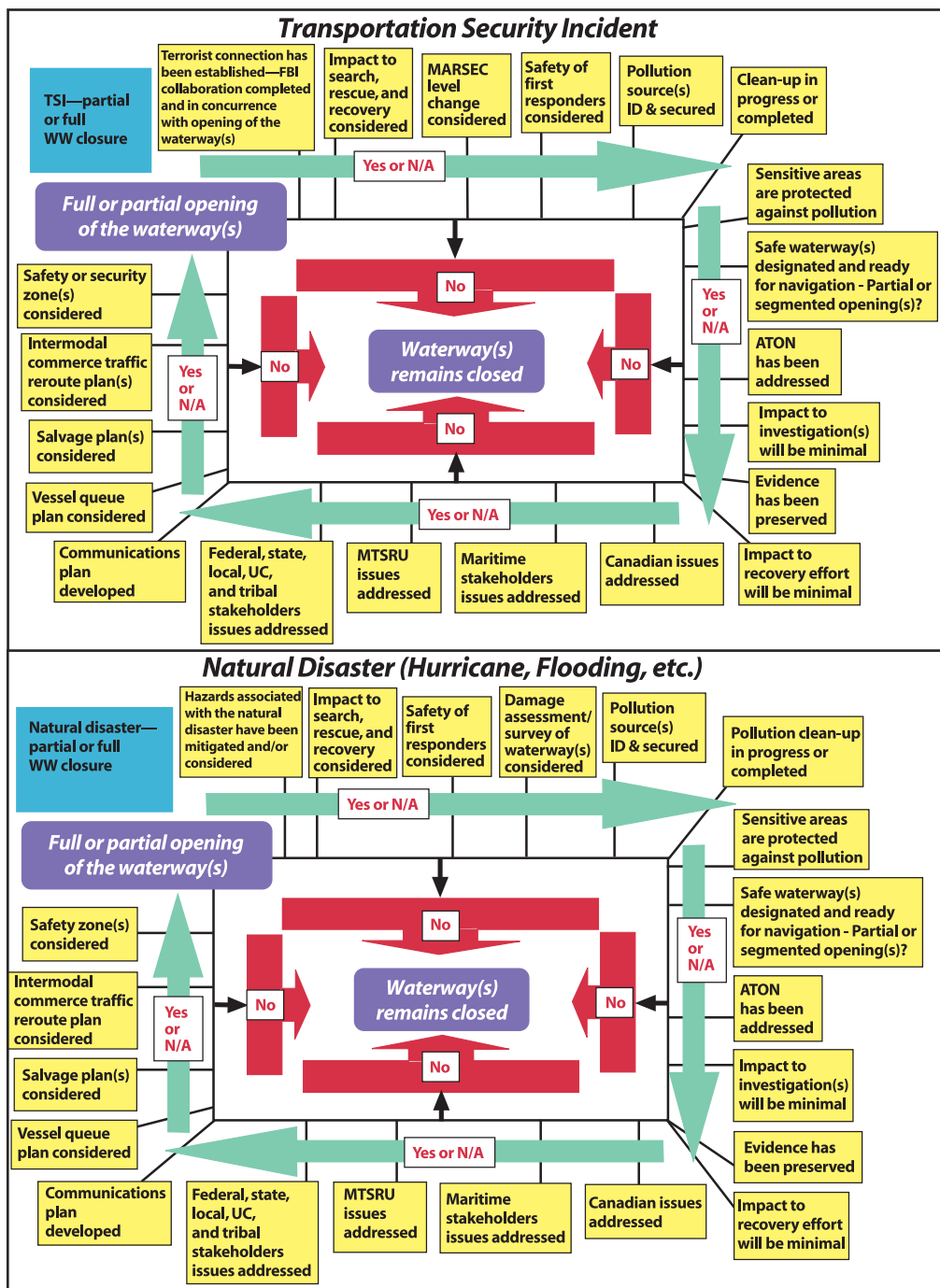
All the items in the yellow boxes must be addressed at some point while considering a full or partial opening of the waterway(s) and not in a step by step order. In fact, some items may be addressed simultaneously. If “yes” or “N/A,” move to the next item on the green path. If “no,” move along the black arrow to “no” and “Waterway(s) Remains Closed.”



WATERWAYS MANAGEMENT

Maritime Transportation Recovery Unit Decision Making Process

The Marine Event Risk Evaluation Tool



All the items in the yellow boxes must be addressed at some point while considering a full or partial opening of the waterway(s) and not in a step by step order. In fact, some items may be addressed simultaneously. If “yes” or “N/A,” move to the next item on the green path. If “no,” move along the black arrow to “no” and “Waterway(s) Remains Closed.”

- vessel capabilities,
- impact to receiving facility,
- impact to security.

This tool allows a waterway management team or maritime transportation system recovery unit to quickly identify high-priority vessels so activity can be resumed in the waterway in an orderly manner.

Risk-based tools can allow key decision makers to focus on risk when confronted with unique circumstances. While many marine events are routine in nature, there are some cases in which there is little history or precedence for comparison.

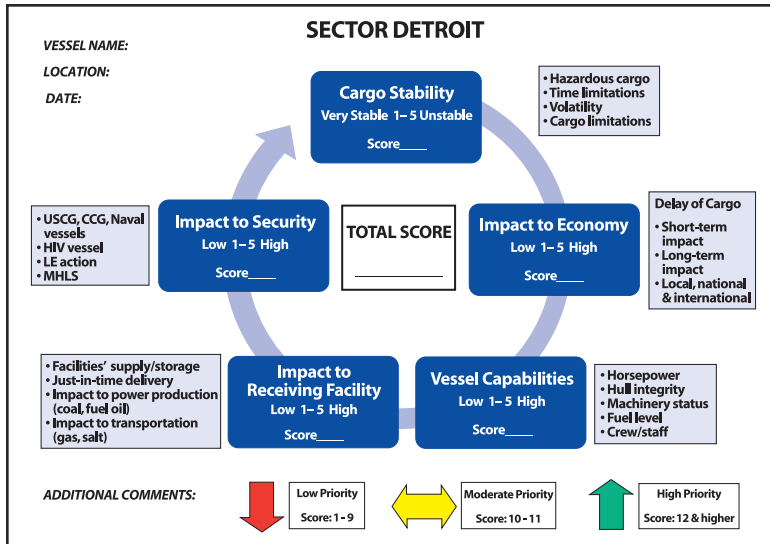
For example, how do you determine if you should approve a marine event permit for an air race over water? The marine event risk evaluation tool (MERET) allows Coast Guard or local officials with little or no experience in marine event evaluation to do just that. The tool identifies risk and justifies any denial, demonstrates how proposed risk mitigation action can lower the risk score, justifies a request for additional resources, encourages other government agency involvement, brings port stakeholders up to speed on risk in a high-profile or new marine event, briefs the chain of command on concerns or issues with a marine event, and gives a standard methodology for unbiased decisions (see page 64).

In Practice: The “Float Down”
Sector Detroit successfully used the MERET to prepare for the 2009 Port Huron Float Down, a marine event where participants use inner tubes, inflatable boats, or anything that floats to “float down” the St. Clair River. From inception, many stakeholders felt that this event might not be a good idea due to high current, the risk of hypothermia, alcohol use, and close proximity to commercial

traffic in a restricted waterway.

However, a small but determined group, the River Rat Society, was anxious to re-establish the event, which had been on hiatus since 1988. Interested parties from multiple jurisdictions, authorities, and localities were brought together to discuss this proposed unique and challenging marine event.

WATERWAYS MANAGEMENT Vessel Prioritization Tool



- expressed criticality of the cargo,
- vessel's ability in ice.

Each element has a value and the higher the value, the higher the priority for assistance. When there are multiple demands for one ice breaking resource, the decision maker can use this tool to prioritize missions with available resource constraints (see page 65).

Documentation

It can also be used to capture key decisions and the reasoning that went into them. As the circumstances present themselves in future ice breaking situations, this tool can be used for establishing precedence. Furthermore, as ice officers rotate out or are re-

placed with junior personnel, the lessons learned will not be lost. A review of this tool can reduce training

The USCG sector commander used the MERET to objectively determine that this would indeed be a high-risk event. Instead of just having a "feeling" that this event was not a good idea, he was able to use the MERET to transition the discussion into developing strategies to mitigate risks for the prospective participants. It also served to focus the group's thoughts and channel their broad experiences to lower the risk score.

It's a "Go!"

The multiple agencies then developed actions and strategies to mitigate the risks, lowering it from a high-risk event to a medium-risk event. The marine event risk evaluation tool helped to further focus efforts and benefitted operational planning and resource allocation. The float down was successfully (and safely) re-established in 2009 on its traditional third Sunday in August, with an estimated 6,000 participants.

Ice Breaking Mission Assignment Decision Making Tool

The ice breaking mission assignment decision making tool is under development in collaboration with Canadian and U.S. maritime industry stakeholders to assist tactical commanders with assigning ice breaking assets. It's comprised of several elements that take into consideration:

- hazards to the vessel or environment,
- flood control,
- facilitating navigation,
- servicing connecting waterways,
- commercial ice breaking availability,
- weather conditions,
- ice conditions,

placed with junior personnel, the lessons learned will not be lost. A review of this tool can reduce training



time, reinforce existing policy or implement new policy, and improve decision making consistency.

"GRAPES"

Documenting a process allows adherents to share and instill better work practices to ensure safety and the desired outcome. The Coast Guard unfortunately loses many hours of productivity when personnel are injured.

Prevention is key to lowering these numbers. The GRAPES safety/process cycle illustrates this point. The name "GRAPES" was chosen because it was unusual,

continued on page 66

WATERWAYS MANAGEMENT

MARINE EVENT RISK EVALUATION TOOL

Was the application received within 135 days prior to the proposed date? If yes, proceed. If no, consider denial.

•••••••Waterway•••••••

The event impacts the navigational channel.
 Yes=5 Might=3 No=0

The course will be marked with buoys and/or lights.
 No=5 Yes=0

There will be other marine activities.
 Yes=5 Near=3 No=0

Vessel traffic management required.
 Yes=5 Intermittent=3 No=0

Commercial vessel traffic present.
 Yes=5 Intermittent=3 No=0

River/water conditions (current, water temp, locations, etc).
 Two or more risk factors present=5 Few risk factors=3 Low risk factor=1

Waterway score:
 ____+____+____+____+____+____=____

•••••••Safety•••••••

The event may require a safety/security zone.
 Yes =5 Maybe=3 Not necessary=0

BNTM will be issued.
 Yes=5 Maybe=3 Not necessary=0

Number of Participants.
 100 or more=5 50 to 99=3 Fewer than 50=1

Established event rules and safety procedures/protocols.
 No=5 Yes=0

Adequate number of local responders on scene.
 No=5 Limited=3 Yes=0

Barge-based fireworks on scene.
 Yes=5 No=0

Safety Score: ____+____+____+____+____+____=____

•••••••Resources•••••••

Organizers' organic resources are sufficient.
 No=5 Limited=3 Yes=0

Coast Guard resources are sufficient.
 No=5 Limited=3 Yes=0

Patrol commander required.
 Yes=5 No=0

Resources score: ____+____+____=____

•••••••Security•••••••

Number of spectators.
 10,000 or more=5 1,000 or more=3 Fewer than 100=1

Organizers' organic security resources/plan is sufficient.
 No=5 Limited=3 Yes or n/a=0

Coast Guard resources are required.
 Yes=5 Limited=3 No=0

Local law enforcement resources are sufficient.
 No=5 Limited=3 Yes or n/a=0

Event located near critical infrastructure.
 Yes=5 Near=3 No=0

Security score: ____+____+____+____+____=____



WW ____ + **SAF** ____ + **RES** ____ + **SEC** ____ = **Risk score** ____

Low risk: 0-25 Medium risk: 26-75 High risk: 76-100

Low: Consider issuing marine event permit or letter.

Medium: Ask for additional information and/or consider additional risk mitigation action.

High: Require risk mitigation action prior to issuing marine event permit or recommend denial of request to COTP.



easy to remember, and is composed of the first letter of the elements in this cycle:

- G:** Gather all procedures, guidance, and appropriate personnel protective equipment (PPE).
- R:** Read and review all standard operating procedures, instructions, guidance, and references; request equipment, tools, or PPE.
- A:** Aptitude and attitude: Ensure personnel have the training and allotted time to do the task correctly.
- P:** Prepare the area and take precautions.
- E:** Evaluate the situation.
- S:** Stop and seek a supervisor if any of the conditions changed or an incident or injury has occurred.



Salvage Tactics and Risk Tool

Once risk has been identified, it is important to evaluate the risk and make a decision to either not proceed or take mitigating action to bring the activity within an acceptable range. A prime example of this is demonstrated in the salvage tactics and risk tool (START). This tool identifies seven common risk factors:

- location;
- vessel stability and strength;
- pollution and hazardous material;
- weather;
- diving operations;
- crane, helicopter, and tug and barge operations;
- emergencies/injuries.

These risks are each assigned values that are added together to produce a risk score.

Scoring, Ease of Use

The next step requires the decision maker to add values assigned to any mitigating action that addressed each risk factor. The “mitigated” risk score is subtracted from the original risk score, giving the decision maker an adjusted risk score. This is useful in determining how action can lower risk and increase safety during the operation.

Whether you’re a salvage veteran or novice, this tool is designed to be equally useful to both. Sector personnel have commented that they can take it out into the field, post it on the situational board in an incident command center, or use it to brief another government agency.

Risk-Based Tools in Use

As demonstrated by these examples, risk-based tools and documenting processes can be worth their weight in gold. They can quickly bring executive decision makers up to speed and provide them with the right perspective to make the right decision. These tools focus effort and recourse based on quantitative methods that can be recreated and eliminate the “gut check” method of evaluation. They capture experience and knowledge that can be lost when decision makers leave due to a permanent change of station or retirement.

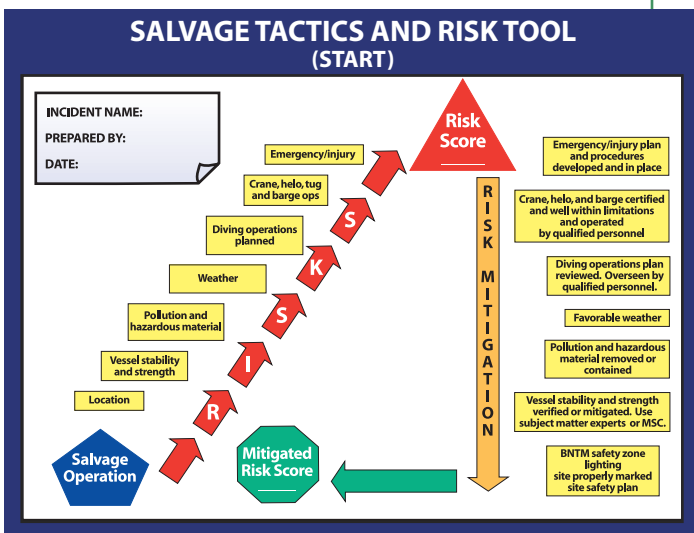
They also serve as springboards to generate discussion about primary elements or processes prior to action and serve to create a baseline or common ground for stakeholders with varying perspectives. Furthermore, inviting stakeholders to view these decision making processes increases the transparency of the processes and stakeholders’ trust in them.

About the author:

CDR Snowden is the chief of prevention at USCG Sector Detroit. He has 19 years of experience in marine safety and his previous tours include MSO Providence, MSU Houma, MSO Morgan City, MSO St. Louis, LANTAREA, and MSD Quad Cities. He earned a Master of Science degree from Troy State University in human resources management.

Endnote:

¹ <http://www.great-quotes.com>



RECOVERY

SALVAGE TACTICS AND RISK TOOL

RISK SCORE

Location (LO): Evaluate the area in which salvage operations are to take place. Identify hazards that may hamper shoreside responders and waterway users. Risk factors may include current, low lighting, terrain, high vessel traffic, low water temps, etc.

LO score: Two or more risk factors present=5
 Risk factors are present=3
 No risk factors identified=1 _____

Vessel Stability and Strength (VSS): Evaluate the current stability and strength of the vessel being considered for salvage. Consider stability and strength as vessel is being raised and modified for salvage operations.

VSS score: Vessel is very unstable and compromised=5
 Vessel stability and strength uncertain=3
 Vessel is stable=1 _____

Pollution and Hazardous Material (PHM): Evaluate the vessel and surrounding area for potential pollution or hazardous material release. Consider vessel's cargo, fuel, and structures near the salvage site.

PHM score: Pollution and hazardous material present=5
 Pollution and hazardous material may be present=3
 None present=1 _____

Weather (WE): Evaluate current and forecasted weather during expected duration of salvage operations. Risk factors may include rain, extreme heat/cold, high winds, hail, snow, lighting, etc.

WE score: Two or more risk factors present=5
 Risk factors are present=3
 No risk factors identified=1 _____

Diving Operations (DO): Evaluate the need for divers and the environment the divers will be operating in. Diving on a vessel presents many hazards such as sharp edges, cold water temps, depth, equipment failure, injury, limited water visibility, etc.

DO score: Two or more risk factors present=5
 Risk factors are present=3
 No risk factors identified=1 _____

Crane, Helo, and Barge (CHB): Cranes, helos, and barges each bring a set of hazards and limitations. Seek subject matter experts, review specifications, review certifications, review weight test results, etc.

CHB score: Crane, helo, barge ops present=5
 Crane, helo, barge ops considered=3
 No operations with cranes, helos, or barges=1 _____

Emergency/Injury (EI): Evaluate the potential for injury or other emergencies. How isolated is the area? How will emergency/medical personnel gain access to the area? Where are the nearest hospitals? Will you need specialized equipment (dive decompression chamber)?

EI score: High potential for injury=5
 Medium potential for injury=3
 Low potential for injury=1 _____

TOTAL RISK SCORE (RS):

LO _____ + **VSS** _____ + **PHM** _____ + **WE** _____ + **DO** _____ + **CHB** _____ + **EI** _____ = **Total** _____

RISK MITIGATION ACTION SCORE

Location (LO): Consider mitigation actions such as Broadcast Notice to Mariners, safety zone, lighting, site safety plan, site properly marked, marine chemist certificate, safety and occupational health coordinator.

LO score: Two or more risks mitigation actions present= -5
 Risk mitigations actions are present= -3
 No risk mitigation actions identified=0 _____

Vessel Stability and Strength (VSS): Current stability and strength of the vessel being considered for salvage has been evaluated by a subject matter expert (marine surveyor, marine inspector, Marine Safety Center) and found to be sound.

VSS score: Vessel is made stable= -5
 Vessel stability and strength improved by temporary repairs/modification= -3
 Vessel stability remains uncertain=0 _____

Pollution and Hazardous Material (PHM): Pollution and hazardous material should be removed and/or safeguards put in place to protect personnel and environment from exposure.

PHM score: Pollution and hazardous material removed= -5
 Pollution and hazardous material are present but contained= -3
 Pollution or hazardous materials present=0 _____

Weather (WE): Evaluate the current and forecasted weather during expected duration of the salvage operations. Consider fair weather operations only.

WE score: Fair weather= -5
 Small potential for foul weather= -3
 Foul weather expected=0 _____

Diving Operations (DO): Have a subject matter expert or certified dive master develop an acceptable dive safety plan.

DO score: Dive plan approved and in place= -5
 Certified oversight and no dive plan= -3
 No certified divers or plan=0 _____

Crane, Helo, and Barge (CHB): Seek subject matter experts, review specifications, review certifications, review weight test results, etc. All equipment must be within safety limitations and operated by trained and qualified personnel.

CHB score: Qualified personnel operating equipment within limitations= -5
 Uncertainty of operators' qualifications or crane, helo, or barge limitations=0 _____

Emergency/Injury (EI): Evaluate the potential for injury or other emergencies. Consider the isolation of the area. Identify access areas for emergency/medical personnel. Identify and coordinate with the nearest hospitals. Identify specialized equipment. Identify a qualified safety officer and develop a site safety plan.

EI score: Safety plan and site safety officer= -5
 No site safety plan or safety officer=0 _____

TOTAL MITIGATED RISK SCORE (MR):

LO _____ + **VSS** _____ + **PHM** _____ + **WE** _____ + **DO** _____ + **CHB** _____ + **EI** _____ = **TOTAL (-)** _____

Low risk: 0-7, Medium risk: 8-24, High risk: 25-35
TOTAL SCORE: RS _____ - MR _____ = FINAL RISK



Working Together

The Coast Guard and the Washington Island Ferry Line partner to develop marine inspectors.

by LT JERRY BUTWID

U.S. Coast Guard Marine Safety Detachment Sturgeon Bay



Congress originally created the Steamboat Inspection Service to safeguard the lives of passengers aboard steam-propelled vessels. The service employed experienced, skillful naval engineers to inspect vessel strength and durability to ensure vessels were equipped with sufficient safety and firefighting equipment. The Steamboat Inspection Service was eventually transferred to the U.S. Coast Guard, which built on the service's success.

Today, vessels are not typically steam powered. Likewise, today the Coast Guard appoints marine inspectors with diverse backgrounds and experiences. To provide these inspectors with a better understanding of the industry they regulate, the Coast Guard and the maritime industry created an industry training program. This training exposes marine inspectors to the business realities outside of the "regulatory bubble," such as how budget constraints and environmental conditions

affect decision making. Perhaps most importantly, industry training provides an opportunity to forge partnerships within the marine industry, and engenders a sense of mutual understanding and respect.

Small Passenger Vessel Inspection Training

In keeping with the intent of industry training, Coast Guard Marine Safety Detachment Sturgeon Bay and the Washington Island Ferry Line (WIFL) located in Washington Island, Wis., teamed up to create a smaller version of the program focusing on small passenger vessel (SPV) training. This initiative began in the sum-



One of Washington Island Ferry Line's ferries, the M/V Washington, transports passengers and vehicles. Photo courtesy of Mr. Dick Purinton, Washington Island Ferry Line.

mer of 2008, when WIFL's president Mr. Dick Purinton and I met. Our goal was to create a training program that would give small passenger vessel inspectors a practical understanding of operations.

As the president of WIFL and the former president of the Passenger Vessel Association, Mr. Purinton is no stranger to working with Coast Guard inspectors and has a firm understanding of the regulations that govern his fleet.

He stated, "The one-week snapshot of our operation is designed to impart a practical balance with the inspector's technical background. We hope to show, for instance, the importance of supporting customer and community needs; the importance of maintaining skilled crew ashore and afloat; the need for marketing, profitability, and prudent use of resources; [and] how a respectful, proactive corporate attitude toward official policy and regulation can influence our business in a positive way. In other words, vessel readiness and safety is all-important, but so are the many other things we do daily to stay in business."

Mr. Purinton also mentioned that the training allows his captains and crew to demonstrate what they do in a relaxed but informative way, which gives them a chance to demonstrate their proficiency to someone who has a technical background but maybe not the same skill sets.

Mr. Purinton and MSD Sturgeon Bay developed a flexible course syllabus, open to inspectors throughout the Coast Guard, with training objectives tailored to fit the inspectors' backgrounds and experiences. Through this training, Coast Guard inspectors gain hands-on experience of ferry opera-



Chief Warrant Officer Dale Metcalf, a 22-year Coast Guard veteran and lead small passenger vessel inspector, was selected to evaluate the Washington Island small passenger vessel industry training program. Photo courtesy of Mr. Dick Purinton, Washington Island Ferry Line.

tions, customer service, day-to-day company regulatory implementation, and other statutory obligations WIFL faces. Depending on background and experience, trainees may also help with special projects. In that way, the Washington Island Ferry Line may discover ways to improve operations. This experience helps inspectors engage in productive discussions with vessel operators and make informed, fair decisions when faced with controversial issues.

Program Evaluation

The Coast Guard sent Chief Warrant Officer Dale Metcalf, a senior marine inspector and lead SPV inspector from MSD Sturgeon Bay, to evaluate the initial curriculum and logistics of the program. CWO Metcalf has served in the Coast Guard for 22 years, has a strong background in engineering, and has an in-depth knowledge of the small passenger vessel program.

As part of his evaluation, CWO Metcalf worked aboard the ferries, performed duties expected of Washington Island Ferry Line staff and crew, interacted with the public, and witnessed first-hand the importance of the ferry line to Washington Island. According to Mr. Purinton, "Our ferry service is a community lifeline, so even short interruptions of service, for whatever reason, can cause widespread hardships."

Because of CWO Metcalf's background, he was able to assist the ferry line in developing a fuel transfer procedure. He also helped arrange a boom deployment exer-

cise that involved personnel from WIFL, MSD Sturgeon Bay, and Coast Guard Station Washington Island.

Station Washington Island is operational only during the summer months, which has traditionally limited the interaction between it and the Washington Island Ferry Line. Including the neighbor-



ing Coast Guard station in the exercise allowed WIFL personnel to meet the station's summer residents, which opened the door to future joint training opportunities. The exercise also improved Washington Island's pollution response posture and fostered relationships between WIFL and Station Washington Island.

Implementation

Upon completion of Metcalf's evaluation, a meeting was held to discuss ways to improve the program. Both sides considered the meeting a huge success. The training resumed when the Coast Guard sent a marine inspector trainee from MSD Sturgeon Bay, Chief Warrant Officer Shawn Mogen, to test the revised program. Mogen has served in the Coast Guard for 21 years and was working on his SPV qualification.

CWO Mogen was introduced to both engineering and deck operations. Through this introduction and hands-on training, he walked away with a better understanding of engine room procedures and vessel operations. His training concluded successfully, with both WIFL and the Coast Guard extremely optimistic and satisfied with the program. "It was a great opportunity to see firsthand the working side of industry and how our regulations affect it," Mogen mentioned. As the WIFL schedule shortened for the winter season at the time this article was written, we looked forward to resuming the program each summer.

A Look Ahead

Industry training has always been an effective program for developing Coast Guard marine inspectors and gives the maritime industry an opportunity to contribute to their successful development. Not only is it an avenue to develop more well-rounded inspectors, it also gives the maritime industry an opportunity to receive third-party recommendations on how to better improve their own operations.



Employees from the Washington Island Ferry Line and members of Coast Guard Station Washington Island work together to deploy containment boom during a training exercise. U.S. Coast Guard photo by CWO Dale Metcalf.

The knowledge gained from this smaller version of industry training is one step in the right direction for improving relations between the Coast Guard and the maritime industry. To learn more about this program, contact Mr. Dick Purinton, president of the WIFL, at 920-847-2546, or MSD Sturgeon Bay at 920-743-9448.

About the author:

LT Butwid is the assistant supervisor at Marine Safety Detachment Sturgeon Bay, where he conducts vessel inspections aboard the Great Lakes deep-draft domestic fleet. He is also the senior investigating officer for Sector Lake Michigan. His previous tours include senior investigating officer for Marine Safety Unit Galveston and duties within the Commercial Fishing Vessel Branch at Coast Guard headquarters.



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Lessons Learned



from Casualty Investigations

Unprepared for Disaster

Vessel grounds due to an ill-equipped and inexperienced crew.

by Ms. KRISTA REDDINGTON
Technical Writer

In the early morning of February 2, 2006, as the crew of the tank vessel *Seabulk Pride* worked to complete a routine transfer of petroleum products, the vessel broke free of its mooring lines at the Kenali Pipe Line (KPL) dock in Nikiski, Alaska. The break was initiated by a sudden force generated by the current and ice of the arctic Cook Inlet. The force pushed the vessel parallel to the dock, causing two spring wires to part within seconds of each other.

Even as the order was given to shut down the loading operation, mooring lines continued to part. The ship went adrift in the flood tide, and the cargo transfer hoses separated as the vessel drifted from the pier, discharging as much as five barrels of oil onto the Kenali Pipe Line dock. The vessel ran aground about one-half mile north of the pier, where it remained until it was re-floated following the initial damage surveys.

Though ice and current were clearly the causal factors leading to the breakaway, the investigation determined that human error was primarily responsible for the ca-



The double-hull oil tanker ran aground just over half a nautical mile north of the Kenali Pipe Line dock in Nikiski, Alaska. USCG photo.

sualty. At the time of the incident, the vessel was not in full compliance with the ice guidelines issued by the captain of the port of MSO Anchorage, and did not meet the recommendation to be in immediate standby. Several of the crewmembers were inexperienced or unfamiliar with extreme ice condition guidelines, and the bridge was not manned with an underway watch. In

A regular feature in Proceedings: "Lessons Learned From USCG Casualty Investigations."

In this ongoing feature, we take a close look at recent marine casualties. We explore how these incidents occurred, including any environmental, vessel design, or human error factors that contributed to each event.

We outline the U.S. Coast Guard marine casualty investigations that followed, describe in detail the lessons learned through them, and indicate any changes in maritime regulations that occurred as a result of those investigations.

It is important to note that lives were lost in some of the marine casualties we present in this feature. These were tragedies not only for those whose lives were lost, but also for the family and crewmembers who remain. Out of respect for all these people, the articles presented here mention no names of any person involved in any of the incidents.

addition to certain failures in the training and presence of personnel, the vessel was not moored in preparation for the worst-case scenario, considering the possible occurrence of heavy current and ice commonly present during the winter at Cook Inlet.

The Incident

The owner operates 10 U.S.-flagged chemical and petroleum product tankers engaged in Jones Act trade, which requires that U.S.-flagged vessels be owned and operated by U.S. companies and manned by U.S. crews. The vessel in question was a double-hulled petroleum oil tank ship, manned by 22 crewmembers, with a carrying capacity of 342,000 barrels of cargo in 14 tanks. The vessel's keel was laid on October 28, 1996, at Newport News Shipbuilding and it was delivered on October 15, 1998. Frequenting ports in Alaska, Hawaii, and the West Coast of the United States, the vessel made 25 trips to Nikiski and 17 trips to Valdez in 2005.

Association, the pilot on duty had substantial knowledge of ice guidelines and the danger the ice and current could present in Cook Inlet.¹ On the morning of the incident, he had been watching the ice and noticed that it had diminished around 3:00 a.m., and by 5:00 a.m. there was no observed ice in the vicinity of the vessel.

According to the pilot, by 5:15 a.m. ice had begun flowing near the vessel again and had quickly risen to 50 to 60 percent coverage.² Video footage from the Kenali Pipe Line facility showed a significant but not alarming amount of ice moving past the dock subsequent to the breakaway, and medium-sized pans of ice were evident.³ One dockworker observed that, after the vessel broke free from the dock, the ice appeared to be little more than slush, and there was no buildup around the vessel or the dock.⁴

Prior to the breakaway, strain gauges at the facility indicated that the strain in the mooring lines had in-

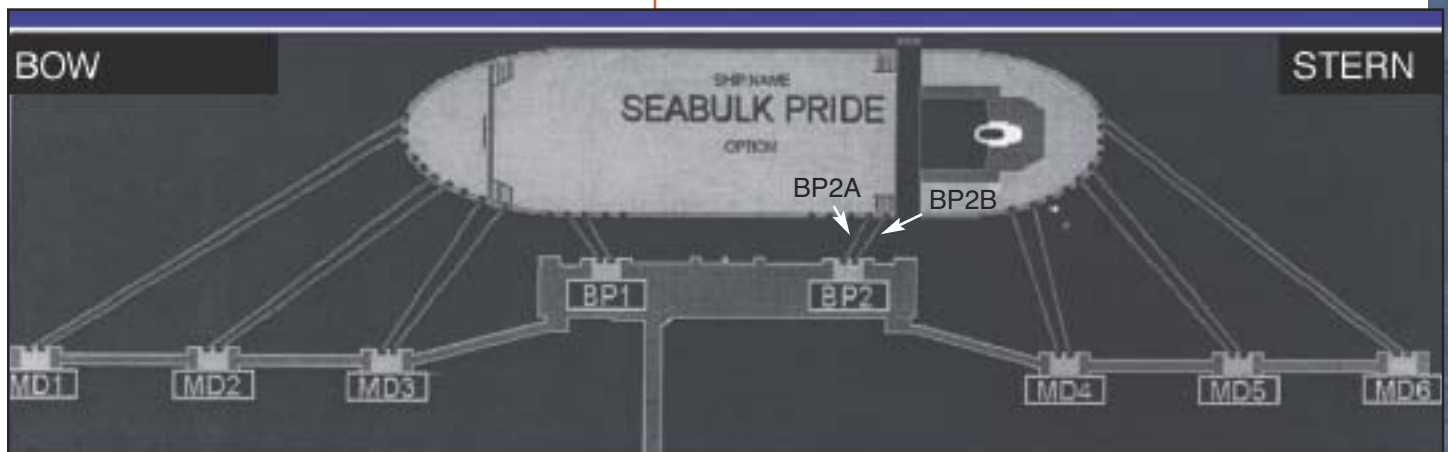


Figure 1: Sudden force generated by ice and current caused the aft spring wire BP2B to part, followed shortly by aft spring wire BP2A.

On the afternoon of January 30, 2006, the vessel arrived at the KPL dock in Nikiski, Alaska, to discharge a cargo of crude oil and load a cargo of heavy vacuum gas oil, high sulfur fuel oil, and regular unleaded gasoline. After taking on bunkers and washing the tanks, the vessel's crew began loading cargo. By 5:00 a.m. on February 2, 2006, the vessel had completed the high sulfur fuel oil loading and was taking on heavy vacuum gas oil and regular unleaded gasoline through two hoses.

The events leading to the incident began in a very routine manner. At 3:00 a.m., the master departed the bridge and returned to his stateroom. The pilot on duty was standing his first six-hour watch from midnight to 6:00 a.m., after which he was to be relieved by the other pilot aboard. With over two decades of experience and a 21-year membership in the South West Alaska Pilots

creased within a six-second period to an approximated tension of 50 to 100 tons. Due to the inexact readings the strain gauges provided when one line parted, the exact tension was impossible to determine. Before the line parted, the A/B (able-bodied seaman) on deck was in the process of tending the lines. Beginning at the bow of the ship, he worked his way aft, releasing the tension on the lines using the hydraulic winch controls.

At 5:23 a.m., two A/Bs were on watch conducting their second round of the vessel to slack the mooring lines when the after spring wire (BP2B) parted, followed shortly by the other spring wire (BP2A). Line BP2A had just been slacked, leaving most of the strain on the aft spring wire BP2B, causing it to part (Figure 1). The order was quickly given to halt the loading operation.⁵

A dockworker who had arrived at the KPL dock around 5:26 a.m. indicated that the ice “didn’t appear to be too bad” so he continued loading the ship.⁶ Shortly after his arrival, he witnessed the vessel starting to move away from the dock and immediately called for a shutdown of the petroleum transfer. He tried to proceed to the dock, but had to return to the control room to seek shelter from the mooring lines as they loosed from the vessel. In his statement, the dockworker noted that the dock camera was pointed away from the ship. He was able to shift the camera to bring the vessel into the frame when he then saw hoses separate from the vessel and land on the dock. After the vessel broke free from the dock and began to drift northward, the facility dispatched pumps to empty the product from the hoses. Any product that was left in the hoses was contained on the dock.

Initial Response

The pilot went to the captain’s stateroom to alert him to the situation and found the captain already on the phone with the chief engineer. After he had confirmed that the captain was aware of the situation, the pilot returned to the bridge in time to see the cargo hoses that were holding the ship to the pier break loose. The pilot immediately ordered anchors dropped. Because the starboard anchor was frozen in place by the ice, only the port anchor could be released. The pilot, afraid that a slight shift in heading would place the vessel in an unavoidable grounding situation, placed the rudder hard right in an attempt to stop the ship from turning toward shore. His efforts failed, however, and the current kept the bow pointed toward the shoreline.

At the time of the incident, the assistant engineer (A/E), though not on duty, was in the engine room having coffee and preparing for his port work day when the call came from the bridge to start the engine. He reacted quickly by disengaging the jacking gear, closing the drains for the turbochargers, opening the start air and distribution air, and shutting the air indicator cocks. The engines were then placed in control of the bridge.

According to the automation log in the engine room, the entire process took approximately four minutes. Once the engines were under the control of the bridge, the first start was immediately attempted at 5:27 a.m. The engines failed to start after 12 attempts. At 5:29 the start air receiver gave a low-pressure alarm for both receivers. Efforts continued until 5:35. Because multiple mooring lines fouled the propeller, leaving the main engine unavailable, the master was limited to using rudder and anchors to maneuver the vessel away from



The vessel remained grounded for more than 24 hours. The outer hull of the vessel was pierced by the rocks, but the double hull acted as designed, preventing further spillage. USCG photo.

shore. These attempts were futile. The vessel remained at the mercy of the current and grounded just over half a nautical mile north northwest of the KPL dock at 5:36 a.m.⁷

Lack of Maneuverability

An attempt was made to refloat the vessel that day. During this attempt, the lines leading from the winches to the propellers parted. A second attempt was made later the same day; however, that attempt was aborted due to mechanical problems aboard one of the assist tugs. The vessel was refloated at 7:30 a.m. on February 3, 2006.

After the vessel floated free and was en route to Homer, Alaska, a discrepancy was found between the ordered and actual RPMs—an indicator that a line was still wrapped around the propeller. Divers conducting an underwater survey of the vessel in Homer discovered approximately 100-150 feet of the synthetic mooring line wrapped around the propeller shaft between the aft stern tube seals and the propeller.

It was surmised that as the engine starts were attempted on the day of the incident, the turning motion drew the parted lines in and caused them to wrap around the propeller. The Coast Guard investigation observed that



the availability of a line-cutting device in the vicinity of the propeller would have given a crewmember the capacity to cut the line. This may have freed the propeller and allowed the main engine to start.

Fortunately, the double hull of the vessel functioned as it was designed. Though the outer hull was penetrated by rocks during the grounding, no oil contained within the tanks was spilled into Cook Inlet.

The Analysis

While moored at the KPL dock, Coast Guard ice guidelines were in effect and all parties involved were familiar with these guidelines. The ice guidelines were followed, but with several exceptions. There was no seagoing watch present on the bridge of the vessel—a requirement of extreme ice guidelines. The need for the assistant engineer to perform the necessary actions to ready the engines to start is evidence that the engine room was not manned sufficiently to keep the engines in immediate standby.

Though these deviations from the guidelines contributed to the failure to prevent the grounding of the vessel, a strict adherence to these guidelines alone may not have prevented the accident. According to the Coast Guard report, while the initiating event was the vessel being “pushed parallel to the dock by a sudden force generated by ice and current,” the on-scene risk assessment conducted was inadequate for the situation

faced. The only sure course of action that would have prevented this casualty was to require the ship to depart the terminal during the icing conditions experienced. The forces generated at max flood combined with ice present a substantial risk to a vessel moored at the KPL dock.”⁸

The coincidence of the off-duty assistant engineer’s presence in the engine room and his ability to quickly prepare the main engine to start saved the several minutes that it would have taken for an on-duty engineer to reach the engine room. It was determined that the failure of the engines to start was due to the synthetic mooring lines obstructing the propeller. During the first attempt to free the vessel, two mooring lines connected to winches on deck and leading into the vicinity of the propeller were freed. The release of the tension on these two lines allowed the motor of the direct-drive engine to generate enough force to start and run.

The operations manual at the facility necessitates mooring lines be doubled or tripled during extreme ice conditions, and required that transfer operations should be suspended within two hours of max flood or max ebb currents during ice conditions. The incident occurred within one minute of the calculated max flood, demonstrating a disregard for the policy requirement. The manual did not, however, distinguish between extreme ice conditions and standard ice conditions for the purpose of suspending transfer operations. The operations manual that the facility provided to the Coast Guard investigators had pen-and-ink changes stating that a sufficient number of lines should be used. The facility claimed these changes had been made prior to the incident, but no proof of routing or verification of the changes could be provided to the investigators. The ice section of the operations manual was not required by Coast Guard regulations.

During his Coast Guard interview, the master stated that at the time of the incident, the engine jacking gear was not engaged, which indicated that he was unaware of the exact status of the engine. In contrast, the engine room automation log showed that the A/E had to disengage the jacking gear to make the engine ready to start. The master was aware, however, that there would be a small delay in start time following the call for engines. He was comfortable, as were the pilots, with the response time of the engine room to the request for start attempts. The master’s failure to ensure that the vessel’s moorings were strong enough to hold during all anticipated conditions resulted in the Coast Guard



seeking a two-month suspension of his license and merchant mariner document.

The communication between the vessel and the facility regarding the status of the mooring lines and ice conditions was very limited. The KPL facility has the means by which to determine line tension; however, there was no method available to communicate this information to the vessel's crew as they tended the lines. Because the vessel did not have the necessary access to the line tension gauge information, the mate on watch had no warning of the increased strain on the mooring lines before they parted. Access to this information would have enabled the crew to properly adjust the lines instead of relying on the mate's visual assessment.

At least one of the able-bodied seamen aboard the vessel was not properly trained on the vessel's written ice guidelines or the specifics of line-handling during heavy ice conditions. One A/B on watch was working his first time in Cook Inlet during ice guidelines conditions after only 27 days aboard the vessel. As he worked the lines alone, his inexperience, combined with the lack of a seasoned A/B to provide him with the necessary guidance on the vessel's equipment, contributed to his releasing too much tension. This caused a strain on the other mooring lines, which then compromised the strength of the entire mooring system. Proper training and a briefing prior to the watch would have provided the crew with a review of the ice operation guidelines and any special precautions that would have been required for the conditions of the day.

Inspection records of the vessel for the three years prior to the 2006 incident revealed normal deficiencies, considering the vessel's age, route, and service. One outstanding condition was noted, however: An American Bureau of Shipping survey from October 20, 2005, referenced two small holes near the ship's ballast piping that were found to be temporarily patched. It was recommended that the temporary patches be removed and the piping be repaired or replaced before the dry docking survey that was due on October 29, 2006. A week prior to the incident, the vessel had suffered wind damage while moored at the KPL dock. The vessel had undergone substantial repairs and replacement of

mooring lines and re-setting of the winch brakes, yet the records and logging of these repairs were inadequate or missing.

Following the incident, drug and alcohol samples were collected from all members of the crew on watch at the time of the initial breakaway as well as those who had a direct role in the casualty. All alcohol test results were negative; however, the drug test results were cancelled due to improper handling on the federal chain of custody control form. The owner was notified of the test result cancellation on March 10, 2006, but did not notify the Coast Guard until November 27, 2006. The investigation into the circumstances of the drug test cancellation is ongoing. Though the results remain unconfirmed, they suggest that drugs and alcohol were not a factor in the casualty. However, as a result of the cancellation, the owner was charged with a failure to complete post-casualty drug testing as required by 46 CFR 4.06-1.

Coast Guard Recommendations

Following the investigation, the Coast Guard made some recommendations and requirements in the hope of preventing the reoccurrence of a similar event. Following the recommended guidelines and new procedures should facilitate better communication among the Cook Inlet facilities, vessels mooring at those facilities, and waterways users to avoid the equipment and personnel oversights that led to this casualty.

Following the investigation, it was recommended that the commanding officer of Sector Anchorage draft a letter to the Kenali Pipe Line facility, encouraging a review of mooring procedures as they relate to the observed weather and ice conditions. The review was to include the expected forces on the mooring lines at spring tide and in varying ice conditions. The intention of the review was to promote awareness of conditions to limit the chance of line and wire breakage and ensure that the safe working load of mooring lines would not be exceeded by vessels or the facility.

The owner and the KPL facility manager were both required to ensure all personnel working with mooring lines were adequately trained and briefed prior to each mooring evolution, including a review of all relevant information regarding vessel and facility written plans and recent updates. Sufficient on-the-job-training, instructions on all line-handling equipment with regard to limitations, and a formal accident reporting system on the mooring systems shared between the facility and vessel needed to be included. Following these require-

The Investigation

This article is based on the final U.S. Coast Guard casualty investigation report of this incident. All conclusions are based on information taken from this report.

ments would mitigate emergency situations involving mooring line tension and familiarize and coordinate all facility and vessel watchstanders' expectations during heavy weather situations.

The KPL facility was required to evaluate the feasibility of installing mousing hooks⁹ to prevent lines from breaking free of the hooks as ships surge against the pier. This simple safeguard would have kept several of the lines attached to the pier, which would have delayed the breakaway and allowed the crew more time to respond to the situation.¹⁰ The facility was also required to conduct an assessment to determine the possibility of installing an ice break bulkhead along the mooring pier to reduce the forces on vessels generated by large ice floes. This fix could prevent a similar situation and was recommended to be explored through additional engineering analysis.

The Coast Guard investigators also recommended that the facility needed to make line tensionometer readings available to the vessel crewmembers. The mate on watch could then have access to a visual display to aid supervision of the line-tending process and provide immediate visual alarm of high strain areas on lines. Investigators also recommended that vessels should sustain mandatory continual communication with line gauge readers within the facility to maintain crew awareness of line tension readings in order to facilitate proper line-tending maintenance.

COAST GUARD INVESTIGATION CONCLUSIONS

Lines

The Coast Guard Marine Safety Center suggested that mooring lines with a higher breaking strength may have prevented the incident, as the mooring system was inadequate for the extreme conditions faced on the day of the casualty.

- One line that was found to be hand-spliced, creating a decrease in strength, should have been evaluated and replaced.
- Improper slacking of the mooring lines during the tending process was another contributing factor. Tension gauges showed several points during the tending process when line strain was above the safe working load of the mooring lines.
- The failure of the first line was intensified by the failure of the other lines to carry any significant load or halt the aft motion of the ship. Most of the lines intended to stop the aft movement of the vessel were not carrying the load outlined by the mooring arrangement, causing the first line to carry the bulk of the fore-aft loading.
- Had the lines that were not carrying an adequate load been properly loaded before slacking the lines that were exceeding the safe working load, the possibility exists that the mooring system would not have failed.

Manning

- The manning of the engine room did not adhere to the Coast Guard ice guidelines, as it did not have adequate personnel to allow for maneuvering operations at the time of the initial incident, nor did it meet the requirements to keep the engines in immediate standby. Thanks to the coincidental presence of the assistant engineer in the engine room as he prepared for his work day, attempted starts were made quickly.
- Despite this, there was still a four-minute delay between the breakaway and the first attempt to start the engines.
- While the assumption of those responsible for the vessel was that a five-minute lag before the first start attempt was adequate to meet U.S. Coast Guard ice rules, Coast Guard investigators found that the lag was not in compliance with the immediate standby requirements.

Force of Ice

- It is logical to assume that the massive force directed on the bow of the vessel (pushing it parallel to the dock) was caused by the max flood current and a large flow of ice.
- This is not a generally expected risk, as ice in Cook Inlet will usually wedge between the vessel and the shoreline, generating a force perpendicular to the dock, rather than parallel.
- The magnitude of the force placed on the vessel by the ice flow suggested that it was unlikely that any action the ship's crew could have taken would have saved it from grounding once it had broken free of the dock.
- It is true, however, that the pilot on watch did not properly identify the risk that the ice presented to the vessel.

It was recommended that the commanding officer of Sector Anchorage, along with the Cook Inlet Navigational Safety Committee, re-write the ice guidelines to include a more comprehensive definition of "immediate standby" to clarify the exact standards for diesel, steam, or gas turbine propulsion plants as well as acceptable conditions relative to the term. With a more specific definition, response times of vessels during

As a direct result of this grounding, the Coast Guard continues to conduct shoreside spot-checks of vessels mooring at Cook Inlet facilities to ensure they take adequate precautions in preparation for extreme weather. These spot-checks include the following tasks:

- Affirm proper vessel mooring.
- Ensure all deck personnel are equipped with protective winter clothing.
- Conduct an operational test of steering gear.
- Confirm a properly heated wheelhouse and living quarters.
- Conduct an operational test of ballast and emergency fire pumps.
- Conduct an operational test of all deck mooring winches and anchor windlasses.
- Confirm that a heated medium is available to primary and secondary sea chests to prevent icing.
- Confirm that all systems and machinery will be operable in ice-filled waters and air temperatures to -40°F.
- Ensure that the emergency generator is fully fueled and the generator is set to automatic mode and do an operational test of the generator, conducted by setting it to “manual” and back.
- Conduct a briefing for the vessel’s personnel to discuss the requirements needed to maintain compliance with ice guidelines while at the dock or underway.

emergencies were expected to decrease and eliminate the chance for grounding and potential pollution spills.

It was also recommended that the commanding officer of Sector Anchorage hold a pre-season meeting with waterway users and waterway facilities to discuss ice guidelines and lessons learned from the previous winter. In addition, a post-season debrief was to be conducted to assemble information and review the lessons learned at the end of each winter. Providing a forum in which ideas and experiences could be exchanged would cultivate winter safety knowledge among waterway users and reduce the probability of marine casualties.

The commanding officer of Sector Alaska was also advised to conduct random spot checks during extreme ice conditions to ensure that all procedures were being followed. This recommendation was made to affect compliance with ice guidelines and extreme ice guidelines and result in reduced casualties. The commanding officer also needed to consider a regulatory project to adopt the ice operating guidelines for Cook Inlet into a regulated navigational area, as described in 33 CFR part 165, to allow the Coast Guard to execute further control over the facility or operating company for those vessels not in compliance.

In order to foster better communication, it was recommended that both the KPL dock and any vessel moor-

ing discuss mooring arrangements and ice conditions. Similar to a declaration of inspection, as required by 33 CFR 156.40, the discussion and written documentation would be developed by a working group of the Cook Inlet Navigational Safety Committee and needed to include an understanding of conditions that would require the vessel to depart the terminal and project any deviations from the standard mooring arrangement that could be required.

The Coast Guard has implemented the preseason meetings and has met with the Southwest Pilots Association, Cook Inlet marine operators,

and other industry partners, as well as the National Oceanic and Atmospheric Administration, to discuss the ice guidelines and necessary actions to facilitate safe travel during the winter season. As anticipated, this forum is providing much-needed communication among parties and enabling them to evaluate and update the ice guidelines throughout the season.

The ice guidelines are available online at <http://www.piersystem.com/clients/c780/117334.pdf>.

About the author:

Ms. Krista Reddington most recently worked as a technical writer in the Office of Standards and Evaluation at U.S. Coast Guard headquarters. Before writing for the Coast Guard, she was a government affairs associate for the American Waterways Operators, and she has also worked for Xantix, an international satellite telecommunications company.

Endnotes:

1. “Coast Guard Summary of Investigation: Grounding of the Tank Vessel *Seabulk Pride* in Cook Inlet, February 2nd, 2006,” p. 8.
2. *Ibid.*, p. 9.
3. *Ibid.*
4. Official statement of Kenali Pipe Line dockworker to Coast Guard investigators.
5. Coast Guard summary of investigation, p. 9 (see endnote 1).
6. Kenali Pipe Line dockworker statement (see endnote 4).
7. Coast Guard summary of investigation, p. 10 (see endnote 1).
8. *Ibid.*, p. 3.
9. Mousing, the process by which a hook is safety-wired shut to prevent straightening, can be performed using spun yarn or wire. Beginning at the back of the hook and winding around to the bill, the open part of the hook becomes effectively closed off to prevent slippage due to the motion of a vessel.
10. Coast Guard summary of investigation, p. 15-16 (see endnote 1).

Nautical Engineering Queries

Prepared by NMC Engineering Examination Team

Q

uestions

1. The properties of good refrigeration oil include _____.

- A. low wax content
 - B. high pour point
 - C. high viscosity
 - D. all of the above
-

2. In accordance with the Coast Guard regulations (46 CFR), which of the following situations requires an official logbook entry and is considered the responsibility of the chief engineer?

- A. ensuring that the emergency lighting and power systems are operated and inspected at least once each week the vessel is navigated
 - B. seeing that all lifeboat winch control apparatus including motor controllers, limit switches, etc., are examined at least once every three months
 - C. obtaining a sample of all fuel oil received on board to be used as fuel along with ascertaining all particulars such as vendor, producer, flash point, etc.
 - D. all of the above
-

3. AC circuits develop resistance, inductance, and capacitance. The inductive reactance of a circuit is expressed in _____.

- A. ohms
 - B. farads
 - C. mhos
 - D. henrys
-

4. The main difference between a motor control circuit containing low voltage protection and low voltage release is that the latter contains _____.

- A. normally open line contacts
- B. thermal overload protection
- C. a maintained contact start button
- D. a momentary contact start button

1. A. low wax content **Correct Answer.** To prevent wax-type crystal precipitation in evaporator and refrigeration lines, a refrigerant oil requires a low wax content.
- B. high pour point **Incorrect Answer.** Good refrigerant oil requires a *low* pour point to prevent the refrigerant from clinging to the cold evaporator surfaces, which would result in reduced evaporator capacity.
- C. high viscosity **Incorrect Answer.** Good refrigerant oil should have an adequate viscosity range due to the extreme temperature changes the oil is subjected to. The viscosity range should be sufficient to ensure proper lubrication of the compressor and allow the return of any entrained oil from the low temperature evaporator.
- D. all of the above **Incorrect Answer.** Choice "A" is the only correct answer.
-
2. A. ensuring that the emergency lighting and power systems are operated and inspected at least once each week the vessel is navigated **Incorrect Answer.** 46 CFR 97.15-30(a) states "Where fitted, it shall be the duty of the master to see that the emergency lighting and power systems are operated and inspected at least once in each week that the vessel is navigated to be assured that the system is in proper operating condition."
- B. seeing that all lifeboat winch control apparatus including motor controllers, limit switches, etc., are examined at least once every three months **Incorrect Answer.** See 46 CFR 131.570 (a) and (c). Although lifeboat winch control apparatus must be examined every three months, it is not the responsibility of the chief engineer to make an entry in the official logbook.
- C. obtaining a sample of all fuel oil received on board to be used as fuel along with ascertaining all particulars such as vendor, producer, flash point, etc. **Correct Answer.** 46 CFR 97.15-55 (a) states "It shall be the duty of the chief engineer to cause an entry in the log to be made of each supply of fuel oil received on board, stating the quantity received, the name of the vendor, the name of the oil producer, and the flashpoint (Pensky-Martens Closed Cup Method, ASTM D 93) for which it is certified by the producer."
- D. all of the above **Incorrect Answer.** Choice "C" is the only correct answer.
-
3. A. ohms **Correct Answer.** The opposing force an inductor presents to the flow of alternating current is inductive reactance (X_L) and is measured in ohms.
- B. farads **Incorrect Answer.** The farad (F) is the standard unit of capacitance in the International System of Units (SI).
- C. mhos **Incorrect Answer.** The siemens (S), or mho, is the standard unit of conductance in the International System of Units (SI).
- D. henrys **Incorrect Answer.** The henry is the standard unit of inductance in the International System of Units (SI).
-
4. *Note: A low voltage protection (LVP) controller de-energizes a motor in a low voltage condition, and prevents the motor from re-starting automatically upon return of normal voltage. A low voltage release (LVR) controller de-energizes a motor in a low voltage condition, and automatically restarts the motor when normal voltage is restored.*
- A. normally open line contacts **Incorrect Answer.** Both LVR and LVP controllers utilize normally open line contacts to the motor. Pushing the motor start button energizes an operating coil, causing the normally open contacts to close and start the motor.
- B. thermal overload protection **Incorrect Answer.** Both LVR and LVP controllers utilize thermal overload protection to protect the motor from overheating due to overload.
- C. a maintained contact start button **Correct Answer.** A LVR controller utilizes a maintained contact start button. In the event of a power failure, the motor will automatically restart when power is restored. It is not necessary to re-push the start button, because the maintained contact (snap-action) switch remains in the start position.
- D. a momentary contact start button **Incorrect Answer.** A LVP controller utilizes a momentary contact switch. The "start" button is held normally open, and the stop button normally closed, by their respective springs. Pressing the "start" button closes the motor contacts and an auxiliary (sealing) contact. The auxiliary contact provides a bypass around the "start" button, so that releasing the "start" button does not stop the motor. In a low voltage condition the motor contacts and auxiliary contact open, and the motor stops. When power is restored, it is necessary to push the "start" button to restart the motor.

Nautical Deck Queries

Prepared by NMC Deck Examination Team

Q

uestions

1. Which knot reduces the strength of a line by the least amount?

- A. carrick bend
- B. square knot
- C. sheet bend
- D. bowline

2. You are berthed at a cargo facility where you have just completed discharging a dangerous cargo from your barge. You must complete topside repairs on the barge involving hot work before sailing. Which statement is true?

- A. You can make repairs with permission of the facility owner since you are empty and the cargo has been discharged.
- B. The repair area must be inspected by a marine surveyor to ensure that it can be done safely.
- C. Hot work repairs at such a facility are prohibited.
- D. The facility operator must notify the captain of the port before conducting welding or hot work.

3. Small passenger vessels on river routes in cold weather must be provided with life floats of an aggregate capacity to accommodate _____.

- A. at least 50% of all persons aboard, or meet certain construction standards
- B. 25% of the crew and 50% of all passengers allowed to be carried
- C. not less than 50% of all passengers aboard at the time
- D. all persons aboard (100% of all passengers and crew)

4. BOTH INTERNATIONAL & INLAND Which signal may, at some time, be exhibited by a vessel trawling?

- A. two white lights in a vertical line
- B. a white light over a red light in a vertical line
- C. two red lights in a vertical line
- D. all of the above



1. A. carrick bend Incorrect Answer. This knot is used to tie two lines of the same size together, and retains 55-60% of line strength.
- B. square knot Incorrect Answer. The square knot (or reef knot) is used to tie two lines of the same size together, and retains 43-47% of line strength.
- C. sheet bend Incorrect Answer. The sheet bend knot is used to tie two lines of different sizes or textures together, and retains 48-58% of line strength.
- D. bowline **Correct Answer. When employed, the bowline does not slip or jam, and retains 67-75% of line strength.**

2. *Note: 33 CFR 126.30(b) states: "Regardless of whether or not the Captain of the Port required notice, the facility operator must notify the Captain of the Port before conducting welding or hot work ..."*

- A. You can make repairs with permission of the facility owner since you are empty and the cargo has been discharged. Incorrect Answer.
- B. The repair area must be inspected by a marine surveyor to ensure that it can be done safely. Incorrect Answer.
- C. Hot work repairs at such a facility are prohibited. Incorrect Answer.
- D. The facility operator must notify the captain of the port before conducting welding or hot work. **Correct Answer. 33 CFR 126.30(b).**

3. *Note: 46 CFR 180.208 (a)(1)(2) states "... each vessel certified to operate on a rivers route in cold weather must either: (1) Be provided with life floats of an aggregate capacity that will accommodate at least 50% of the total number of persons permitted on board; or (2) Meet standards for collision bulkheads and subdivision or standards for subdivision and damaged stability prescribed in this chapter."*

- A. at least 50% of all persons aboard, or meet certain construction standards **Correct Answer. If the standards described in the note above are not met, then the vessel must provide life floats to accommodate at least 50% of the total number of persons.**
- B. 25% of the crew and 50% of all passengers allowed to be carried Incorrect Answer.
- C. not less than 50% of all passengers aboard at the time Incorrect Answer.
- D. all persons aboard (100% of all passengers and crew) Incorrect Answer.

4. *Note: Annex II Additional Signals for Fishing Vessels Fishing in Close Proximity, International 2(a)(i)(ii)(iii) Signals for Trawlers and Inland 85.3 Signals for Trawlers states:*

"(International) Vessels of 20 meters or more in length (and Inland: vessels without regard to length), engaged in trawling, whether using demersal or pelagic gear, may exhibit: (i) when shooting nets: two white lights in a vertical line; (ii) when hauling their nets: one white light over one red light in a vertical line; (iii) when the net has come fast upon an obstruction: two red lights in a vertical line."

- A. two white lights in a vertical line Incorrect Answer.
- B. a white light over a red light in a vertical line Incorrect Answer.
- C. two red lights in a vertical line Incorrect Answer.
- D. all of the above **Correct Answer. All of the above answers are correct.**



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