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ART OF TOWING

A Tale of Two Tugs

WHAT'S NEW

NTSB Most Wanted List - SMS

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Letter from the Editors

Staying Focused



"You cannot escape the responsibility of tomorrow by evading today."

~ Abraham Lincoln

These are interesting times. These are reactionary times. It is easy to lose focus; easy to make decisions that aren't in the greatest good of all: our employees, the environment, and the communities we serve. It is easy to become distracted, reactionary and scattered in our efforts and therefore misdirect our energy without producing anything of value or benefit.

If you are a successful tomato grower then you know that the best yielding plant is a result of pinching back energy zappers that don't yield any fruit and tiny leaves that lie between support branches and re-direct energy away from the end goal of producing a ripe tomato.

With so many new safety initiatives on the horizon, it might be a good time to prune your plant, eliminate the energy wasters and diverters, but before you do, stand back, re-group and re-visit core values, mission statements, policies and primary objectives, so your short term decisions or in-decisions do not become long term disasters.

We have some very thoughtful articles in this issue for you to ponder. We are very grateful to our regular contributors and to the Captains who participated in our SMS Survey. These mariners represent a lot of experience and talent on the water that we will be losing over the next 10 years, so their feedback is of great value moving forward with safety priorities and decisions for the greatest good.

Welcome aboard to our new writers David Russo for *Legal Bitts* and Cynthia Wold for *Healthy Mariner*.

Enjoy and Safe Voyage,

Dean & Dione

The Art of Towing

A Tale of Two Tugs

by Captain Jeff Slesinger

Owner - Delphi Maritime



Tug Masters and Type Certification

Two tugs lay alongside a pier, sitting squat in the water, resting in the diffused light of a low morning sun. From the pier I can hear their engines idling. One sound is the deep throated rumble of a Fairbanks Morse engine and the other is the smooth rhythm of a pair of Caterpillar engines. Both tugs cast their lines off the pier and head out into the morning sun to begin their work for the day. One tug is a 45-year old single-screw YTB of about 1800 HP; the other is a new generation 3600 HP Azimuthing Stern Drive (ASD) tug. I was fortunate enough to witness this scene in Yokosuka, Japan this past April.

The U.S. Navy, based in Yokosuka, had just received delivery of its new ASD tug, the first in a series designed to modernize and replace its fleet of single-screw YTB's. As the two tugs sailed off I reflected on the skills and experience required to drive each. Of course some skills are common, whatever the tug, but many are critically different. So different in fact that becoming competent in one vessel does not equate with competence in the other. Assigning a conventional tug captain to operate an ASD, or vice-versa, is not much different than asking an airplane pilot and helicopter pilot to step in their counterpart's cockpits. Both require talent and skill, but those talents and skills are very different.

The first job was to assist a Navy ship into its berth. In Yokosuka, the ships enter through a short, narrow, buoyed channel and, once clear of the inner buoys, slow or stop, then turn to make their approach to berths housed by several finger piers. The tugs must catch the ship as it exits the buoyed channel and have only a few minutes to approach the ship, pass lines and be in a position ready to work. The YTB will take the ship's port shoulder and the ASD will take the port quarter. Both tug masters have to be proficient at positioning their tug within restricted time and space parameters. However, each tug master will have to bring forth different sets of knowledge, experience and skill in order to safely and efficiently bring the tug alongside the ship.

The YTB master has stationed his tug just outside the channel by the last inbound buoy. The tug is in a standby position, drifting with its engine idling and out of gear, lying perpendicular to the course of the incoming ship, and holding 3-4 tug lengths outside the ship's projected path. Just as the ship's bow comes abeam of the tug, the tug master clutches in, sending propeller wash astern, propelling the tug ahead. At only four tug lengths off the ship, it will not take long for the tug to close the distance and "T-bone" the ship. While the tug continues to close, the tug master's hand lies quietly on the helm, waiting for the right moment to turn hard to port and bring the tug around parallel to the ship's course and nestle in alongside.

**“ competency in one
does not equate to
competence in another ”**

The tug continues to close toward the ship, picking up speed even though the main engine RPM is just at an idle. This maneuver is not for the faint of heart--the flair of the ship's bow looms overhead, the gray mass of the ship is sliding by the wheelhouse windows at about 3-4 knots, and all the while the tug continues steaming directly for the ship's side. Just at the point when an inexperienced tug master would be throwing the engine in reverse and the deckhands would be running for the stern, the tug master throws the helm to port.

The tug responds immediately, its bow holding off the ship while the stern swings toward the ship. As the tug swings in parallel to the ship's course, the tug master eases the rudder and clutches out, allowing the tugs momentum to pace the ship and maintain position close aboard. A bollard recessed in the side of the ship lies abeam of the tug's headline bitt; but this is no coincidence. This is precisely the bollard the ship's pilot had requested the YTB to grab for the assist. The tug master nudges the rudder, brings the tug gently alongside the ship, and angles the bow in while the crew passes the headline around the bollard. A quarter line is passed from the tug to the ship's upper deck to help hold the tug in a push/pull position. It has been 2 ½ minutes since the tug master first clutched in and now announces on the radio "Tiger 9' ready to work".

The untrained eye may not appreciate the three types of knowledge and skill sets this tug master had to possess in order to make this a safe and efficient maneuver. First, he had to have intimate knowledge of his tug—the delay between clutching in and the first signs of wheelwash, the tug's speed through the water at an idle, how much time it takes for the rudder to go from midships to hard over, how quickly the tug will begin to turn, what kind of turn rate he can expect and where the tug's pivot point will be when turning hard at slow speeds. Second, he had to have had experience on single-screw tugs in order to plan his approach, consider what could go wrong, have a "plan B" and know how to abort the maneuver if necessary. And third, he had to have both intellectual and practical knowledge of the hydrodynamic interaction between tug and ship.



These skills and knowledge cannot be acquired or measured exclusively in a classroom. This was not a "text book" landing. The text books would have had the tug start by running parallel to the ship several tug lengths off, match the two vessels' speed and then slowly work over towards the ship. The problem is that the "text book" maneuver won't work well in these circumstances because it will most likely exceed the tight restrictions of time and space. Instead, this tug master chose to head directly toward the ship in order to efficiently close the distance between tug and ship. He knew his tug's turning response, how much speed would be taken off in the turn, and the amount of "push" he could expect off this ship's pressure wave at the bow. He intuitively put all this together so that as he approached the ship and executed his turn the combination of the tug's pivot point and the ship's pressure wave held the tug's bow off the ship while the stern rotated around until the tug was parallel and abeam of its working position.

The ASD tug master will use similar types of knowledge and skill to bring his tug in position alongside the

ship's quarter, but the content will be markedly different. Instead of a bow pressure wave, he will have to deal with stern suction. Instead of the flair of the bow, he will have to deal with the ship's counter at the stern, and with the rotating propeller and subsequent turbulent water. Instead of approaching bow first he may be forced to approach stern first in order to remain safely clear of these obstacles and still be in a position to work the designated chock. And of course—most important—he will have to possess the knowledge and skill required to competently and simultaneously manipulate the tug's two 360° thrusters.

Neither tug master would be willing to switch roles with the other unless they had on-the-job and “live” tug practice and training. They know from their personal experience the time and practice required to learn how to safely handle their own type of tug. In their eyes, throwing them the keys to a multi-million dollar tug without sufficient training would create an unacceptable level of risk.

“the towing industry is quite diverse both in equipment and applications, with a variety of hull designs, steering and propulsion systems”

Many visionary towing companies recognize this risk and have developed good in-house training programs. However, these programs do not embody a common, recognized and measurable high standard of competence. A tug master trained in ASD operations by a U.S. West Coast company may share some of the competencies of his counterpart in the U.K. but neither one of those companies would accept the other's certificate of training as an equivalency.

The towing industry is quite diverse both in equipment and applications, with a great variety of hull designs, steering and propulsion systems, connection systems as well as river, inland, coastal and ocean applications. In this regard, the towing industry is quite similar to the aviation industry—an industry that recognizes the diversity within its own transportation mode and requires type and route certifications for different aircraft and their purposes. You can't jump from a single-engine piper cub into the cockpit of a 737 unless you've met a recognized standard of experience, knowledge, performance and competency.

The two tug masters operating the YTB and ASD recognize this. They are constantly asking each other questions—what's your drive unit configuration when you approach the ship backwards, how much rudder do you use when you're pacing the ship, etc., etc? Both seek the knowledge of the other so that they can feel competent handling a different type of tug. This type of discussion takes place every day between tug operators. They know that all tugs and tug operators are not created equal.

It is in the best interest of both the towing industry and the professional mariner to broaden this discussion to establish standards of competency that recognize “type” differences between towing vessels and the specialized skills required to operate them.

Captain Jeff Slesinger is owner of Delphi Maritime, L.L.C. a company that specializes in training tug masters and implementing safety programs in the towing industry.

Risk Based Internal Auditing

by Dione Lee
President - QSE Solutions



Over a year ago we started offering Risk Based Internal Auditing (RBIA) services to our clients. It is a huge success, for a number of reasons: first, it provides a foundation for satisfying the new ISM Code requirements to “assess all identified risks and establish appropriate safeguards” and secondly the activity itself helps the Company at different levels of management take the leap from a “check the box” segregated SMS “program” to a meaningful integrated “system” that helps them manage their jobs better and safer.

After years of assisting Companies with their SMS to finally discover the “tool”, the “hook”, the “key”, that gets management at all levels fully engaged and actually excited about their SMS is a BIG deal and a rewarding experience.



I believe the root cause for this paradigm shift is that a Risk Based Internal Audit is a self-discovery process for safety that uncovers the WIIFM (What’s In It For Me) piece that has been missing. Because of its enormity in scope, SMS as a whole can seem somewhat elusive

and outside most managers’ normal realm of responsibilities, until audit day, when you are asked a bunch of questions and required to produce records. Using a Risk Based Internal Auditing approach requires different questions to be asked during the audit in order to draw out each manager’s biggest headaches and facilitates them toward finding resolution using their own SMS as the cure.

RBIA, simply stated, is a facilitated process by changing-up a normal internal audit using a shorebased risk-assessment tool, other than a JSA/JHA. Each manager who is scheduled to be interviewed during the audit including Captain(s) is instructed ahead of time on how to complete the assessment tool prior to the audit. During the audit interview, each person’s assessment is reviewed and discussed. At the end of the audit, findings are presented in the closing meeting in order to prioritize identified risk by significance and determine control measures for mitigation.

In addition to satisfying the risk assessment requirement of your SMS, with prior planning, you can also effectively and efficiently incorporate your quarterly Objectives & Targets meeting and annual Management Review.

Dione has over 20 years experience working with the maritime industry, partnering with individuals and organizations to implement quality, safety, environmental and competency management systems. She has developed and fine tuned a unique approach for bringing positive and sustainable change within organizational operating environments. To learn more visit us at www.qsesolutions.com.

Passenger Vessel Operators Now Subject to ADA

by David Russo
Partner - Sterling & Clark



It finally happened. The Department of Transportation has issued its rules, effective January 3, 2011, which make the Americans With Disabilities Act (ADA) applicable to public and private passenger vessels. Specifically, these rules subject ferries and overnight cruise ships to ADA requirements. The Department of Justice is expected later this year to issue its own rules governing other types of passenger vessels (e.g., dinner cruise ships). Although the scope of the new ADA rules is too detailed to include in this newsletter, the following briefly highlights the types of issues that passenger vessel owners and operators will have to deal with in the coming years.



Generally speaking, these ADA rules require that the vessel owner make the ship and any related facilities, such as docks and terminals, accessible to the disabled. For example, the rules would require that vessel owners/operators provide passengers who have vision or hearing disabilities with functional alternatives for receiving and participating in all vessel communications (e.g., assistive listening devices, text telephones, etc.). Such an accommodation would have to be made, for the most part, without any advance notice to the vessel owner/operator that disabled persons would be aboard the vessel. In other words, vessel owners must have these accommodations readily available.

A narrow exception to this general rule exists, however, for those instances where there are legitimate safety constraints. But even then, only the least restrictive measures are allowed. This will ultimately mean that the vessel owner/operator will have to assess these issues on a case-by-case basis, which could expose it to litigation and an increased administrative burden. For instance, if services are not made available to a disabled person, the vessel owner/operator must provide a written statement within ten days to the person denied access explaining the reasons for denial of service. What is more, these requirements extend to the owner/operator's contractors.

Moreover, the vessel owner/operator will often times bear the differential cost of providing access. For example, if accessible accommodations on a cruise ship can only be offered to a disabled customer by providing access to a higher class of cabin than requested by that customer, then that costlier cabin must be offered at the same price as the lower class of service requested by the customer. Nor can the vessel owner avoid the increased risk of liability for accidents involving disabled persons aboard ships by contracting out of it. The ADA prohibits any such liability limitation.

These new rules will require that the vessel owner/operator provide a reasonable accommodation in and around the ship. This includes assistance in moving from the terminal to the vessel, as well as assistance in moving around the vessel. For instance, disabled persons must be provided assistance on the vessel in order to get around physical barriers that cannot otherwise be modified. Obviously, the manner of accommodation and its attendant cost are matters that will be explored more fully as we move forward and implement the rules. What has been made clear is that the rules go so far, for example, as to identify needed assistance in such areas as food services, where vessel owners will be required to open food containers or identify food where necessary to provide the same level of service to disabled passengers.

There is some difference between public entity operators and private operators under these rules. The public entity vessel owner has a higher burden in terms of providing auxiliary aid (e.g., assistive listening devices). The public entity must provide any type of aid requested by the customer, if it is possible. Only where the request creates an undue burden may an alternative be provided. In contrast, the private vessel owner need only provide reasonable auxiliary assistance of its choosing.

A vessel owner/operator cannot question the need for the assistive services; it must accommodate wheelchairs and service animals, for example, without actual proof of disability. Additional administrative burdens will also come about because of the mandated need for the vessel owner to have a Complaint Resolution Officer. That individual is designated to address complaints from disabled passengers and implement a resolution process. Ultimately, unresolved complaints can not only lead to litigation, but to investigation of the complaint by the Department of Transportation and enforcement actions by the Department of Justice. Thus, passenger vessel owners and operators will now need to have a manager well trained in ADA compliance who can address these issues and respond to complaints in cooperation with counsel.

As we move forward, passenger vessel owners/operators and their counsel will have to carefully navigate through this new set of rules as they work towards compliance.

David Russo is a partner at Sterling & Clack, a San Francisco maritime law firm (www.sc-law.us). He can be reached at drusso@sc-law.us.

The Human Element

Invest in the Hiring Process

by Barbara Stallone

Partner–HR Umbrella



The economy has started to rebound and you are feeling more comfortable with expanding your workforce by hiring more employees. This presents both a challenge and an opportunity. If you hire the right person, you may reach your goals, if you hire the wrong person, it can be disastrous.

Discrimination legislation, worker's compensation costs, benefit costs such as medical, dental and vision insurance and the potential of litigation should be the primary motivator to take the necessary steps to hire the right person for the right job. Too often employers get in such a hurry to fill a position they don't take the time to invest in the processes necessary to ensure the best possible outcome.

Before you begin the hiring process you should carefully consider what you want to achieve. There are multiple issues at stake:

- What do you want the employee to accomplish?
- What outcome are you looking for?
- What are the skills and abilities necessary to be successful in the job?
- How do you find someone with those attributes?



To find the right person for your job, you may need to look at non-traditional ways of looking for candidates. The Internet is now the most common way for employers to solicit candidates, but should not be the only way. Your current workforce is an excellent source of referrals, the state employment service in your area, professional organizations and trade associations, direct contact with prospective workers, websites that list job openings at no cost to the employer, newspaper advertising that offers internet postings and don't forget to list your job opening on your company website.

By now, if you have a well written job description, and are offering a competitive wage and benefits package for your position, you should have candidates to interview. Go through resumes or applications and ensure the person you are considering meets the minimum qualifications for the position you are trying to fill. Schedule interviews with those candidates that you feel might be successful in your position. Have them complete your company application, as that is the legal process, to become an applicant.

After you have applications in hand begin your interview process. There are multitudes of ways to conduct job interviews but the most successful companies ensure that the company's process is legally protected. This may include asking the same questions to each applicant with documented responses, a one on one interview with the hiring official documenting the question and response, group interviews, team interviews, or any other manner of interview that is non-discriminatory. One of the reasons companies use standardized questions is to ensure the questions asked do not violate any of the legislation that is considered to be discriminatory.

One of the best predictors of future job success is past performance. Ask the applicant to explain how they have addressed various situations in the past. Leave your questions open ended so you don't get a text book answer.

After you have a final candidate or candidates in mind, ensure you do your due diligence before you make a final decision or make a job offer. This should include doing a background check, and may include drug testing, reference checks, education checks, criminal history check and a credit check if state law allows and it is relevant to the job being filled. These processes are just as important as the interview and may help determine if you hire the best person for your opening. The cost is nominal when you think about the potential liability for hiring the wrong person.

The most successful companies invest in the hiring process, ensuring the probability of the best possible match between the person and the position. These companies have the highest productivity levels and demonstrate the most innovation and flexibility resulting in low employment related expense structures.

A company may buy and sell their assets but until they realize their employees are their greatest asset, they can never be truly successful.

Barbara Stallone is a partner in The Human Resource Umbrella; an Anchorage based Human Resource Consulting Company. If you have questions you would like answered in future columns, she may be contacted at Barbara@HRUmbrella.com or 907-727-2111. The Human Resource Umbrella, LLC is a member of AGC.

Avoid the “Smack Down” Effect

by Adam Easter and Dione Lee

Have you ever been in a situation where you busted your butt and felt pretty good about your accomplishment and then a group of people come by to *audit* your work and tear it a part. Not only did they nitpick your efforts, but they also highlighted your flaws and publicized it for the world to see? Welcome to a “Smack Down”.

I will never forget the time when one of my Process Improvement Groups, which I facilitate, just completed an equipment change out. This change out normally takes 8 hours, but they accomplished it in just over 5 hours! Wow a 40% improvement! After the crew finished, they were taking a well-deserved break when all of a sudden the Management System Group came around to do a surprise audit.

First, this Process Improvement Group, composed of 7 cross function shop floor personnel, met three times prior to the change out. During these meetings they discussed the problems, came up with action plans and developed strategies on how to implement the plans. Their plans for this change out considered all aspects of the process including safety, housekeeping, productivity and quality.

Second, the team was motivated. They wanted to meet their objective. On their own initiative they came in 2 hours early (5:00am) to prepare for the changeover: gather their tools, inspect the equipment, and conduct a thorough safety briefing. At 7:00am they were ready to go.

So when the auditing team, with total disregard for what they had just accomplished, whipped out their clip boards and started to ding the crew for their “lousy” performance, I stepped in and had to tell the Management System Group (in a very colorful way) to leave.

Auditing can be a very valuable tool or used, in the example above, as a weapon of morale destruction. To prevent the “smack down”, It is important to spend a considerable amount of time developing your program and planning on how best to implement it. This includes allocating necessary time to communicate the program and its objectives with management and your workforce.

Key elements to avoid the “Smack Down” include:

- Involve the people who will be audited in the development process.
- During the audit, keep a big picture perspective, while focusing on the details.
- Audits need to celebrate the positive findings as well as uncover opportunities for improvement.
- Allow those who are audited to develop the improvement plan.
- All significant efforts to improve should be rewarded equitably.
- Audit the auditing program.

Used carefully, audits can help engage employees to identifying nonconformities and develop action plans to correct them. These action plans can also motivate employees if they know their efforts will be recognized. Nobody likes a “smack down”.

Adam Easter has over 25 years of experience in heavy manufacturing as a project and operations manager. He is recognized as a leader in the steel industry, specializing in applying lean manufacturing, behavioral based safety, and Six Sigma techniques in the workforce.

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safety

environmental

management of change

training

continual improvement

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SMS Survey for Captains – Room for Improvement

By QSE Solutions

We conducted an informal survey of Captains nationwide to gather feedback on their perception of Safety Management Systems. To ensure honest feedback, a confidential interviewing process was used.

In summary, the majority of Captains surveyed:

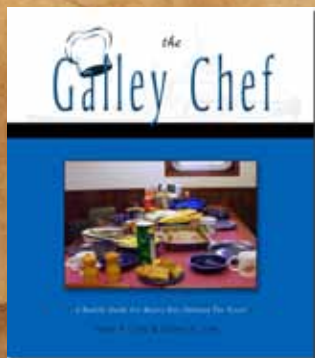
- Felt inhibited to provide honest input for fear of losing their jobs.
- Did not see the relevance of an SMS or that it is helping them to be safer.
- Perceived the SMS as a way for the Company to shift their responsibility and make the Captain more liable if something should go wrong.
- Thought that it is impossible to be in 100% compliance with their Companies' policies and procedures – “to be in 100% compliance would mean to never leave the dock”. One Captain shared that he was terminated for violating procedure(s), but in his tenure with the Company, never had an incident or injury. Another Captain mentioned that there is even a procedure covering nose picking.
- Felt overwhelmed by the added administrative functions onboard. One Captain stated that if all the forms disappeared, they could and would still complete the job in the same fashion with less stress and no risk of violating policy.
- Felt an SMS is mostly a “smokescreen”, “fluff that has become this sacred cow”.
- Felt the root causes to failure in the field are mainly due to the double standard the companies apply to it. When it is convenient for shoreside management it is a “standard”, when it isn't convenient it is a “guideline”.
- Reported that the number one item to improve safety would be to add more crewmembers to ensure mariners get adequate rest to perform their jobs. It is still common practice for some companies to require a single crew to work around the clock. “Sailors don't mind the work, just the legal ramifications if you have an accident on hour 13 of your day”.
- Stated they do not receive enough hands on time with veteran mariners doing the difficult onboard maneuvers.

We (industry) have our work cut out for us. The good news is that the tug and barge industry is perceived by the Captains we interviewed as safer than it has ever been, especially when compared to the fishing industry; the bad news is that somewhere, somehow we have failed our mariners with good intent.

NEW BOOK FOR MARINERS

Cooks from various workboats share their favorite recipes, including premier Chef Chris Starkenburg

The Galley Chef - "A Healthy Guide for Hearty Eats Onboard the Vessel"



"..... I browsed through the cookbook tonight, and there are some great ideas/information. The recipes also provide substitutes (for those with allergies, etc), cooking ideas, enhance by a pinch of this and pinch of that, and great serving suggestions... this is a great opportunity to eat well & live happy by ordering!" - Janice Loresa Krukoff, resident Dutch Harbor, AK

"This Book helped me through a very stressful first week and with the quality of meals that I was able to prepare, it made for a very happy crew."
- Curtis Garrison, Cook/Deckhand

"First and foremost... I am blown away. The Galley Chef has tremendous benefit and value ... should be placed on every workboat."
- Gregg Trunnell - Director, Pacific Maritime Institute

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Healthy Mariner

No Kinks in the Cable

By Cynthia Wold



Tugs, bones and muscles

Recently, I had a tour of a Seattle tugboat. Walking around the deck of the tug I saw signs everywhere that this vessel was built to work--large bits and cleats, thick lines and wires, heavy shackles, a big winch on the back, the tow wire wrapped neatly on the winch, and the lines coiled ready to work. I was struck by the impeccable cleanliness of such a powerful working boat—everything was neatly in its place and ready to be used. I don't know much about tugboat work, but I appreciated the importance of maintaining this state of readiness. If someone had to jump to, things were ready to go. Our bodies function the same way. Like a tug, your physical body has ways of functioning that can be compromised if your body's machinery—your bones, muscles and joints—are not aligned and staged for work. This article discusses a few things about the structure and function of the body and how they relate to body mechanics in a mariner's daily life. Better body mechanics lead to a healthier mariner.

Mechanical Advantage- it works for tugs, it works for your body

Like a tugboat, you perform best by utilizing mechanical advantage. Your body creates mechanical advantage through leverage. Basically, your bones are levers, the joints are the fulcrum or pivot points, and muscles provide the energy. Your brain and nervous system are the processors that take these principles and translate them into useful and effective body movement. Your brain considers the task at hand and then sends out nerve signals to your body. These nerve signals trigger muscles that stabilize groups of bones and move them to create the mechanical advantage necessary to complete the task. Mechanical advantage is generated when your brain and nervous system align bones to create a lever, utilize fulcrums by selecting joints where movement will occur, and choose muscles that act either to stabilize the body structure or create the movement for the task at hand.

When you first set out to learn a task, the process seems very conscious—you have to think about it. But with time and usage, the pattern of nerve signals and muscle firing becomes embedded in your nervous system. In other words, you develop a habit—you just do it. However, even though something feels natural, it may not be optimal for your body. We've all experienced how the wrong body movement can result in strains, sprains or other injuries.

To correct a wrong habit, you have to retrain your brain, nervous system and muscles. The retraining requires three steps. The first step is to recognize that you are not using your body optimally. The second step is to acquire or develop a better understanding of the skeletal and muscular structure of your body and the impact of posture and alignment on your body's performance. The third step is supervised practice using specific

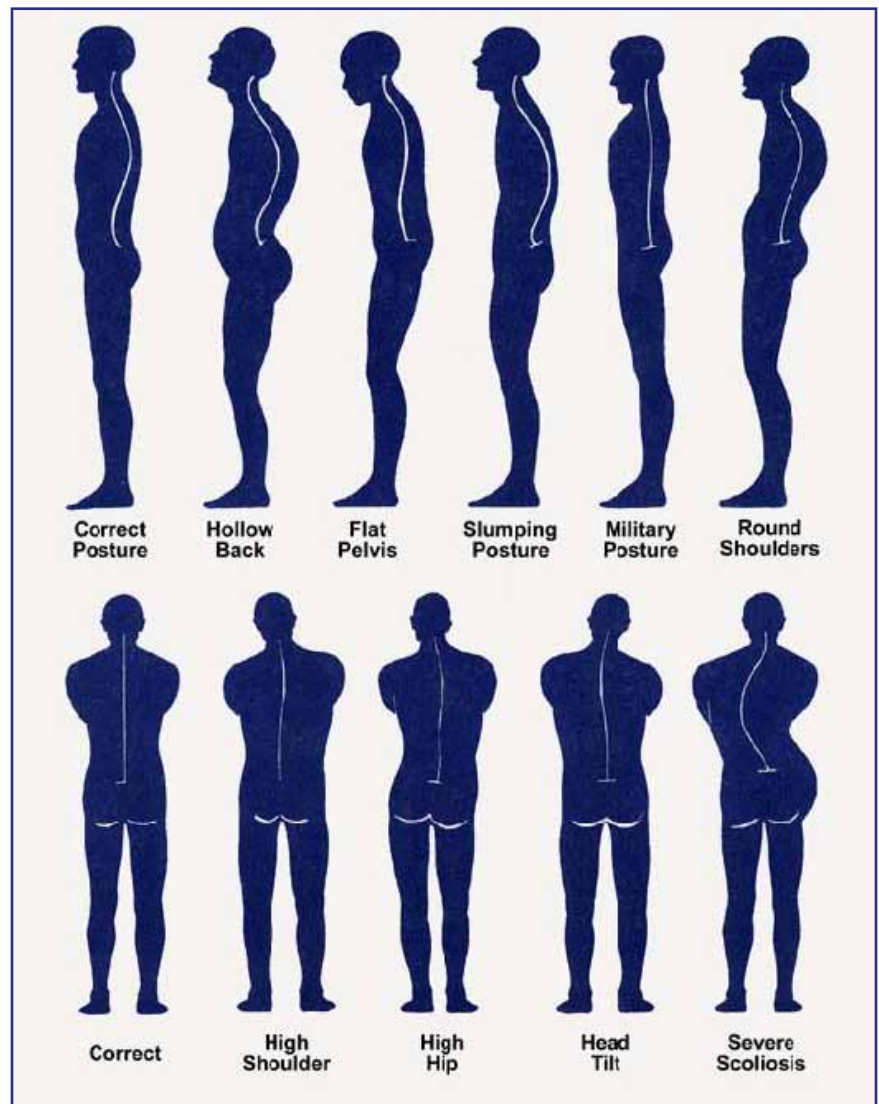
exercises designed to do two important things. One is to enhance awareness of your skeleton, joints and muscles and how they interrelate and support one another. The second is to show how good postural alignment sets up a body structure that gives good mechanical advantage, efficiency of movement and less potential for injury.

One example of how bad body mechanics can result in injury is how we sit at a desk using a computer. The tendency for many people is to reach for the keyboard and move their head closer to the screen. This results in the head and neck being in front of the shoulders and causes the shoulders to be rounded. A good posture while sitting will keep the bones of the neck and the rest of the spine stacked up to bear the weight of the head. A slumping posture forces the muscles in the neck and shoulders to become the primary means of holding the head up and work harder than they should. This can result in tension and pain and, over long periods of time, numbness and tingling into the neck, arms and hands.

Now let's talk of a common function aboard a tugboat that illustrates these same principles—pulling a line.

Pulling a line

You've probably heard that when you pull on an object such as a line you should bend at your knees and hips, keep your upper body stable and use the strong muscles in your legs to provide the power to pull. Yet even when you follow this sound advice injury may still occur. That's because you might not understand how body posture aligns your skeletal structure to create a fulcrum for mechanical advantage. When pulling on a line, some people get into a posture where they bend at the waist as well as the hips. Functionally, this weakens their mechanical advantage because they've created an additional fulcrum that requires the smaller and less powerful muscles surrounding the spine to engage. Proper postural alignment of the spine is essential to keep the fulcrum in the hips and fully utilize the powerful hip and leg muscles. Shifting the fulcrum into your back is like putting a kink in a cable—it creates a point of weakness.



To correct a poor postural habit, you need to follow the three-step process described above. The first step, as we said, is to develop a conscious understanding and awareness of how you're using your body. As an example, imagine you're standing on a rolling deck with no handrail. To keep your balance as you move around the deck you will naturally suck your belly in towards your spine in order to engage the abdominal muscles required to stabilize the spine. And, to keep your balance, you will constantly have to shift your hips over your legs and feet. Your body is listening to the movement of the ship through your feet up through your legs and into your hips. With that sensory awareness, you adjust to the ship's motion and keep your posture and your balance. The trick is now to make a habit of creating that same awareness when you're pulling a line.

The second step, you'll recall, is to gain an understanding of the skeletal and muscular structure of the body and of how posture and alignment impact performance. As an outsider on a tugboat I understand that in order for the tug to push or pull there has to be some alignment between the main engine and the propeller. It's the same with your body. You need to keep the spine aligned in order to transfer the power of your legs through the fulcrum created by your hip joints in order to bring the line towards you. Mechanics use tools to line up the tug's machinery. Mariners need to use good postural awareness to create good alignment.

Supervised practice is the third step. Use specific exercises designed to enhance awareness of skeleton, joints and muscles, of how those body parts interrelate and support one another, and how good postural alignment sets up mechanical advantage. As an example, take the simple matter of getting out of a chair. As in pulling a line your hip is the fulcrum when you get out of a chair. And to get out of the chair using the full mechanical advantage of your body, you press your body weight into your foot. As your body weight is driven into the floor, the flow of energy is driven through the shaft of the lower leg and the thigh bone, straightening the hip joint and causing your hips and upper body to rise. The same principle applies to pulling a line except that instead of moving your hips vertically, you shift them horizontally and vertically. In either case the most effective power to move the hips is through the legs utilizing the hip joint as a fulcrum. One way to practice keeping the spine optimally aligned is to imagine the sensation of someone gently lifting your head so that your spine feels stretched and lengthened. This sensation is not imaginary; it can be created by training your body to gently keep your spine in alignment. This is no different than keeping constant tension on a cable in order to keep it from kinking.

Maintaining proper body alignment and utilizing its structure effectively requires training and practice. No athlete acquires physical prowess and skill without the guidance of a coach and hours of practice. It's not different for the mariner.

A mariner's body is his or her tool of the trade. The longevity of a professional mariner's career depends in part on how well that tool is maintained and properly used. I'm sure that the tug has manuals for its mechanical components. How many of us have an owner's manual for the physical body we walk around in? If we did, the first chapter would include an understanding of how the body's natural mechanical advantage is created through structure, alignment and the natural levers that lie within our musculo-skeletal structure.

Cynthia Wold, LMT, specializes in massage therapy, Pilates method instruction, and educational programs to help clients with body mechanics, posture and movement.

Greek Salad

by Sara Craig - Crowley Maritime Corporation



Directions:

Chop up all ingredients except romaine and toss with dressing. Then place chopped romaine on plate, then add mixture on top. Serve with pita bread, tzatiki dressing or humus. Makes a great light snack as well.

Bon Appetite!

1 Cup	Chopped Red Pepper	3	Small Sized Scallions or Red Onion Sliced
1 Cup	Chopped Green Pepper	1	Head Romaine Lettuce
3	Large Roma Tomatoes Diced or 10 Pear Tomatoes Sliced in Half	4 T	Olive & Vinegar Dressing (below)
1 Cup	Feta Cheese Cubed	$\frac{3}{4}$	Extra Virgin Olive Oil
$\frac{1}{2}$	English Cucumber Sliced	$\frac{1}{4}$	Balsamic Vinegar
4-5	Pepperocini Peppers Sliced - add more if you like it with bite!	$2\frac{1}{2}$	Teaspoons Dried Oregano

Over Reliance on ECDIS

by Captain Jill Russell



“Captain, can you come to the bridge?” asked the Mate over the radio. “I’m on my way”, I replied as I started moving toward the pilothouse.

I had been relieved by Frank just 30 minutes earlier. Although we were transiting through a part of the Inside Passage that was new to him, Frank had 7 years of mate experience and was confident that this stretch wouldn’t be a problem. Prior to taking the watch, Frank had read the coast pilot and had done a comprehensive voyage plan covering the area he would be transiting. As I turned the watch over to Frank, my confidence in him was quite high. Now he was asking for my help.

“The route on the ECDIS got messed up and I’m not sure where the turn is”, he said with clear distress in his voice as I stepped into the pilothouse. He had his head buried in the glow of the ECDIS screen, cursor darting back and forth across the display as if that was going to lead to some sort of divine insight into where we were.

I looked at the chart table and was confused. Frank should have changed charts about 20 minutes earlier. Why was the wrong chart still on top of the chart table? But one look out the window followed by a glance at the radar told me we were about a mile beyond where we should have made a large turn to the west. Frank mumbled again, “I’m not sure what’s wrong with the chart plotter.” “OK, but nothing is wrong with the radar”, I replied. “Do you know where we are?” Frank just looked at me with embarrassment in his eyes. I was reaching for the throttles as we ran aground.

Fortunately for both me and Frank, the grounding didn’t occur in the rocky isolation of Alaska’s Inside Passage. It happened in a simulator at the Pacific Maritime Institute in Seattle, Washington. And unfortunately for our industry, Frank was just one of hundreds of mates that I had watched make the exact same mistake. Part of a standardized and objective watchkeeping assessment, this exercise was developed to determine an officer’s skills in communications, multi-tasking, prioritization, navigation, vessel handling, situational awareness, and adherence to company SOPs. There are no ‘tricks’ thrown at the watch officer; every vessel encounter or equipment issue are ones that could, and do, happen during the course of a watch at sea, and the watch officers are given a familiarization to the simulator and equipment the day before their exercise.

About 10 minutes into Frank’s simulation exercise, he tried to input a new route into the ECDIS. While doing so, he inadvertently hid the route that already existed, and got so caught up in trying to fix his problem that he failed to navigate the vessel. He had not been plotting fixes on a chart; he hadn’t even glanced at the radar more than once or twice during the entire exercise. He lost his situational awareness and that directly led to the grounding.

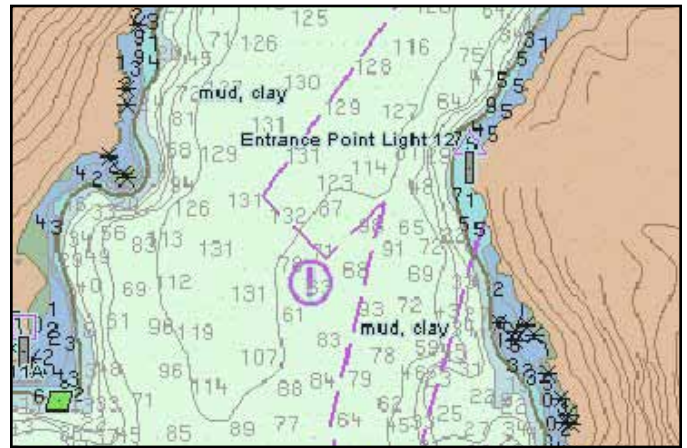
After running almost 200 of these, and similar, exercises over the past year, I am truly frightened by the trend I recorded of watch officers overly relying on an electronic chart system. Could this just be an anomaly of the

simulator, and not something that happens on a vessel? Unfortunately, I have read too many National Transportation Safety Board and Marine Accident Investigation Branch (UK) reports that cite a loss of situational awareness due to equipment malfunction to believe that this behavior is confined to the simulator.

So, how can you, as a leader in your organization, ensure that the watch officers on your vessels aren't just lucky? In my last column, I discussed the improvement of an onboard safety culture, fostered through the development of individual safety maturity. The development of individual navigational maturity, exemplified by an outstanding watchstanding culture onboard a vessel is just as, if not more important.

This begins, of course, with the basics. The company Safety Management System should identify the prioritization of position fixes, which should be reinforced in the Captain's Standing Orders. It continues with shore-side and onboard training in the use of electronic chart systems, and finally, it grows through the constant reinforcement of good watchkeeping habits.

- While transiting in pilotage waters, navigation should be done through a combination of visual and radar fixes, plotted on a chart. DRs (dead reckoning) need to be placed on the chart and updated at regular intervals. The ECDIS information should be correlated to the radar fix, and water depth should be checked to ensure it also jibes with the other information.
- When I teach navigation courses, I liken this approach to the use of a flashlight with a focussed beam. Narrow the beam to the radar and look at your location. Open the beam and look out the window and correlate the two. Narrow the beam again and look at the ECDIS. Open the beam and look out the window again, etc. as you scroll through your instruments. The main focal point, however, should always be the window.
- The chart plotter, whether it is an ECS or a full ECDIS, is a powerful tool. And just like all tools, it requires training for proper use. This should begin with an STCW ECDIS course. Even if your vessel does not carry an IMO compliant ECDIS, I recommend taking this course to learn about choosing scales, potential errors of interpretation and validity of input data.
- Onboard training should address equipment specific operation, including the input of routes, changing scales and setting safety contours. Also, I have read more than one accident report in which ECDIS-assisted groundings occurred due to a lack of recognition of the GPS input going into DR mode. Therefore, I would also conduct training for each watchstander that included recognizing alarms.
- The best training doesn't just tell, it shows. For example, you should fail the GPS input into the ECDIS and show the watchstander what the alarm looks like, how to acknowledge it, and what to do about it. Not only will this training hopefully circumvent any errors due to lack of recognition, it would also rein-



¹ I am constantly asked by my river sailing brothers and sisters about the practicality of plotting on a chart while transiting a narrow river. Having spent more than a few years sailing on the Columbia / Snake River System, I empathize with their situation. My low tech answer to the fast moving pace on the river was to cut out an arrow from a sticky note and move it along the chart as we motored along. I never lost track of which buoy I was looking at, even if I was momentarily distracted by a radio call or question from the AB.



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force to the watchstander that the chart plotter is subject to errors, and that it must be verified against the radar at all times.

Soon after Frank's exercise began, I knew that my confidence in him might have been misplaced. I watched him on the closed-circuit television and winced as I realized that he was 'navigating by video game'. With his eyes never leaving the electronic chart plotter, Frank had already neglected to recognize that he had a close call with a sailing vessel that was not transmitting an AIS signal. I was afraid it was going to get worse, and it did.

After running aground, Frank and I sat down and discussed what had happened. The good news was that Frank took responsibility for his mistake. "I know better!" he said several times during the debrief. "This is never going to happen again!" he vowed. Most importantly, however, Frank also promised that he would talk to his Captain about his experience and show the other watchstanders on his vessel how he allowed himself to become distracted and how he should have primarily been using the radar and visual information for position fixing instead of being glued to the chart plotter screen.

That is an example of navigational maturity, one sailor at a time.

Captain Jill Russell has over 20 years experience in the maritime industry and is considered an expert in training and training techniques that work both ashore and onboard.

Fire at Sea

By Peter Squicciarini

Master Mariner, USCG Atlantic Area
Towing Vessel Marine Safety Specialist



A fire starts in your engine room, you've got a 100,000 barrel loaded oil barge on the wire, it's blowing a gale, and you're up against a lee shore. Yes you are having a bad day. If you lose power there will be one of two outcomes. Bad or worse.

The goal of this story is to present an actual casualty and some "Lessons Learned" so they don't become your "Lessons Relearned". In this case the accountability resulted in felony convictions of the Company, former company President, and the Master. The Company was fined 8 million dollars. The former company President was fined \$100,000 and 3 years of probation. The Master was fined \$10,000 and 2 years of probation. The oil spill topped 800,000 gallons.

The accident was exactly as described; uncontrolled fire in an engine room of a tug towing over 100,000 barrels of home heating oil in a gale, and sailing close to a lee shore. The consequences were the total loss of the tug, serious damage to the beached barge, and an oil spill of 96,000 barrels (828,000 gallons) which was the second largest spill along the New England coast up until that time. Thankfully there were no deaths or serious injuries to the tug's crew and let's not forget the Coast Guard and Good Samaritans rescue vessels and crews who risked themselves.

This voyage was doomed before it ever sailed. The disaster was in motion when the Master's sailing orders were sent from the office. The accident had already "happened" with but merely 20 hours of clock time to catch up from getting underway to when the General Alarm was sounded.

The sailing orders were for a simple trip of about 30 hours. The weather forecast, which was predicted a full 24 hours in advance, correctly called for a coastal storm warning which was issued. Predictions called for 20 foot seas and 40 knots of wind. It was January. The Master had seen these conditions before and all it would mean was that it was going to be a lumpier ride. By the time the disaster occurred it was blowing 45-55 knots and seas were about 25 feet with restricted visibility, and getting worse.

The barge was a single skin tank barge typical of the barge fleet at the time. The first of a number of dangerous conditions was that the barge's anchor windlass had just been removed for repairs and the anchor jury rigged with line and wire rope. Did the Master know the barge would be near impossible to anchor?

If the Master prepared a Voyage Plan the investigation didn't specifically show it. Among many components of a safe and effective Voyage Plan is accounting for predicted weather, underway times, heavy weather layovers, divert ports, engineering, deck preparations and personnel readiness. It's hard to believe the Master



decided to get underway with a gale forecast. Every other company boat took shelter. Makes me wonder if he would have gotten underway in pea soup fog too?

The investigation isn't explicit about the conduct of his pre-sail checks. Some may be thinking that the office could have "pressured" the Master to get underway "or we will find somebody else to take the boat". Possibly, but I am convinced that the vast majority of dispatchers and Operations Managers do not threaten that sort of nonsense. If that happens, then any Master worth his salt will still lay over and provide the office with a justifiable reason. It's a lame excuse that "they made me sail".

The Master sailed right around 1800 and proceeded towards the Sound to head east. The weather was deteriorating but the Master thought he could squeeze by if nothing went wrong. Whenever I hear that phrase, "if nothing goes wrong" I fear for my life.

The watches rolled smoothly through the night and into the next afternoon. At about 1300 a crewmember in the galley smelled and then saw smoke coming from the fidley (upper engine room).

The alarms in the wheelhouse sounded. The chief engineer and a deckhand below heard an explosion. They then tried to enter the fidley with portable fire extinguishers. In those first few minutes from ignition of the fire to attempting to empty a couple of handheld extinguishers on the blaze, the fire grew into a monster.

The crew continued to attempt to extinguish the flames. Another crewmember attempted to set "fire boundaries" around the engine room to secure ventilation and to establish some smoke boundaries. This too was unsuccessful and air continued to pour into the space further feeding the fire. Other watertight doors that were required to be closed when underway were left unsecured. A CO₂ hose reel and controls to the fire pump were located in the engine room with no remotes. There was now no possibility of reaching those primary fire fighting equipments. The crew quickly realized they weren't going



to get this fire under control.

Topside, the wind was howling at 45 – 55 knots. The seas were 15 – 25 feet setting the tow onto the beach. When the fire started they were about 4 miles off the beach. Not a lot of sea room if something went very wrong. Now adrift, the crew had little time to keep the tug and tow off of the rocky beach.



After a little less than 40 minutes since the fire started, the Master finally put out a mayday. Only 6 minutes later he reported to the Coast Guard that they were abandoning ship. The crew retreated to the bow of the burning tug and donned their survival suits. The Coast Guard scrambled their closest small boats and also larger cutters, though they were further away. At the same time two Good Samaritan vessels close by, a small harbor tug and a fishing vessel, proceeded to the scene to try to help. The small tug was completely overwhelmed by the seas and size of the tow and abandoned efforts to assist. The fishing vessel approached the disabled tug in an attempt to take the crew off. The fishing vessel launched their life raft and tried to guide it to the crew on the bow of the tug but was unsuccessful.

Unbelievably the Coast Guard arrived on scene only 55 minutes after the first mayday. A precious 40 minutes were lost because the Master delayed that long in notifying the Coast Guard that he had a problem. Those 40 minutes could have easily meant the difference between life and death.

The 44 footer maneuvered in close and one crewmember, the Chief Engineer, jumped onboard the boat. While attempting to approach the burning tug to rescue the rest of the crew another explosion rocked the tug. With that, the 5 remaining crew jumped overboard. Air and sea temperatures were about 34 degrees, waves running 25 feet and restricted visibility getting worse. The 5 men may have been off their burning boat but they were still in mortal danger. The 44 footer and rescue swimmer recovered all 5 men.

The next action was to attempt to anchor the barge and keep it and the still burning tug off the rocks. In the gale and seas the 44 footer was able to put the Chief Mate and the Chief Engineer onboard the barge which was a feat itself.

They found the windlass was indeed missing. All attempts to break the lashings and shackles were unsuccessful. There was no anchoring the barge. The Chief Engineer jumped (again) onto the 44 footer as the burning tow was entering the surf. The Chief Mate got to ride the barge up onto the rocks. Later, a CG helicopter hoisted the Chief Mate off the barge. The tug was burning and pounding on the rocks and the barge was impaled spilling 828,000 gallons of oil.

A series of errors and ill thought out decisions ensured the tragic results. Lessons Learned:

- **Prepare an effective Voyage Plan** taking into account all of the factors that could align the “death stars” and result in that big accident you have been trying to avoid your entire career. Pay particular close attention to potential hazardous conditions such as weather and navigationally constrained areas.
- **Know the condition of your boat and tow** and their fitness for the intended voyage. If the barge anchor hadn't been jury rigged they might have gotten the anchor down and kept the tow from going ashore or slowed it until a salvage tug arrived. Known electrical problems in the boat may have been the cause of the suspected electrical fire that started the blaze. Housekeeping counts. The boat had wood, flammables, and other combustibles in the fidley stoking the fire.
- **Know your boat's systems.** Make sure everyone else knows the boat. The Master didn't know there were external fuel shutoffs and thought he had an installed CO₂ system. He didn't keep the engine room doors fully closed per the stability letter. The crew (except Engineer) didn't know how to engage and line up the fire pumps or where the remote shutoffs were located. They didn't know how to operate the portable CO₂ system.
- **Notify the Coast Guard early** even if you aren't yet requesting assistance. Precious time can be saved if you end up needing help. Every minute you delay is one less minute to save the boat or a minute that comes off your survival time.
- **Leave yourself an out.** Have a divert haven planned before you get to the choke point of no return. Revise the Voyage Plan to buy yourself time and sea room options. He could have delayed his sailing, sought safe haven, or jogged away from a lee shore. At least he wouldn't have had to face a fire at the worst possible time and place.

Learn the lessons from others' disasters and near misses. When the stakes are high and the outcomes disastrous, do more, not less, in advance, to take extra precautions to control your risks.

I bet nothing in this piece is new to anyone. If you want to share your “there but for the grace of God” moments, maybe you'll prevent a tragedy. Perhaps I'll tell you my 8,000 tons, 34 knots, 200 FEET from the reef Lessons Learned.

“This article is based on U.S. Coast Guard reporting and is intended to bring safety issues to the attention of the reader. It is not intended to judge or reach conclusions regarding the ability or capacity of any person, living or dead, or any boat or piece of equipment.”

Peter Squicciarini is the Coast Guard's Atlantic Area Uninspected Towing Vessel Marine Safety Specialist and a Licensed Master Mariner. He can be contacted at peter.d.squicciarini@uscg.mil

New Training Program on Vessel General Permit

A new training program is available for vessels mandated to comply with a set of EPA discharge requirements: the “Vessel General Permit” or “VGP”. This week it was announced that the Coast Guard will monitor compliance with the EPA regulations during regular vessel boardings and inspections.

Maritime Training Services and QSE Solutions released a new DVD Training Program called “VESSEL GENERAL PERMIT: Protecting the Marine Environment”. The training program includes a video, training guide, all-in-one sample inspection form, review exercise and certificate of completion for both shoreside and vessel personnel.



The 15 minute video provides a general overview and understanding of the VGP necessary for shore-side managers and vessel officers. The training guide describes the details or “nuts and bolts” to ensure VGP compliance onboard the vessel, especially coming into U.S. waters.

The objective of the training program is to provide a simple yet practical approach to a complex subject that allows both vessel operators and crews to integrate the inspection, monitoring and reporting required by VGP into their ongoing best practices, and/or their existing Safety Management Systems.

Maritime customers are dealing with an increasing amount of environmental regulation and paperwork and this program makes it easier to understand the steps necessary to achieve compliance and how to effectively manage the process.

The producers of Vessel General Permit had strong support and participation from the Washington State Ferry System and the Washington State Department of Ecology.

The video, is subtitled in Spanish, French and Russian.

Maritime Training Services is an onboard training solution provider. www.maritimetraining.com

QSE Solutions is a Maritime Consulting Company. www.qsesolutions.com

*To Get Your Copy of the VGP Training Program Visit
www.maritimetraining.com/PRODUCT/644*

National Transportation Safety Board's Most Wanted List - SMS

In addition to addressing Human Fatigue, Safety Management Systems have recently made the NTSB's most wanted list.

"NTSB accident investigations have revealed that, in numerous cases, safety management system (SMS) or system safety programs could have prevented loss of life and injuries. Although an impaired operator or mechanic, a broken vehicle part, or severe weather may be the initiating factor in a transportation accident, there frequently is evidence of a continuous safety problem long before the accident occurred. These programs continually monitor operations and collect appropriate data to identify emerging and developing safety problems before they result in death, injury, or significant property damage. Having identified these risks, these programs then devise interventions and evaluate how well they perform at successfully mitigating risk."

National Transportation Safety Board

For more information on NTSB's Most Wanted List click here: <http://www.ntsb.gov/safety/mwl.html>

MITAGS-PMI Mariner Update: Able Seafarer Deck to STCW95 Officer In Charge of a Navigation Watch



The U.S. Coast Guard has amended its policies toward upgrading from Able Seafarer (Deck) to Officer In Charge of a Navigation Watch (OICNW) / Mate (Near Coastal and Oceans). NMC Policy Letters 01-02 and 16-02 were cancelled on July 1, 2011, and replaced with CG-543 Policy Letter 11-07. This new Policy Letter provides guidance for mariners seeking the following licenses and certificates:

- Third mate oceans / near coastal, any gross tons and OICNW
- Second Mate oceans / near coastal
- 500/1600 tons, and OICNW
- Mate OSV, OICNW

To address these changes, MITAGS-PMI has developed three separate training plans to ensure that you have a choice of the amount of time and money you spend to qualify for your OICNW license endorsement.

For more information on these training plans, please email Gregg Trunnell at gtrunnell@mates.org.