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Soza & Company, Ltd. Desktop Publishing Under Contract DTCG23-95-D-HM5026

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> DIST (SDL No. 133) A: ac(2); ebfghijklmnopqrsuv(1).
> B: nr(50); cefgipw(10); bklqshj(5); xdmou(2);vyz(1).
> C: n(4); adek(3); blo(2); cfgijmpqrtuvwxyz(1). D: ds(5); abcefghijklmnopqrtuvwyz(1). E: kn(2). F: abcdehjkloqst(1). List TCG-06.

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AB Seaman Wray Sweatt (1) and Heley Maino help change a hook off a crane aboard the 1st Lt. Alex Bonnyman, a military prepositioning ship with civilian crew, operated by Maersk Lines.

Photo courtesy of Seafarers International Union

## FOCUS ON THE HUMAN ELEMENT

By RADM James C. Card

In recent issues of *Proceedings*, we have focused on the role the human element plays in the overall safety of the marine transportation system. Our May-June 1995 issue was devoted entirely to a broad treatment of that subject. The human element continues to be central to our national and international efforts to reduce marine casualties. Our "Prevention Through People" initiative, for example, is designed to engage the broad spectrum of all who influence the way commercial vessels are managed, operated, and maintained. In this issue, we will consider that vital component of the human equation that most directly influences the safety of marine transportation — the mariners themselves.

The articles in this issue represent a variety of viewpoints on how to enhance the

training, certification and safe performance of those who operate all types of commercial vessels. There are examples of partnerships between government and industry, which seek to identify and correct the primary causes of casualties. Other articles cover a variety of merchant marine personnel training and qualification issues, including how various institutions are using the latest technology and instructional techniques to improve the skills that are so essential to those who operate today's highly complex vessels.

The interest in mariner qualifications has also been receiving a great deal of attention internationally. Recently, the International Maritime Organization amended the International Convention on Standards of

Training, Certification and Watchkeeping (STCW). The STCW amendments identify specific standards of competency, as well as methods and criteria for demonstrating competence. They become effective on February 1, 1997, and will go a long way toward raising the competency of seafarers internationally.

The STCW amendments, safety partnerships, and new technology will have significant effects on the way mariners will go about qualifying for, obtaining or renewing their licenses. For example, we will soon be seeing an increased reliance on classroom training and the use of vessel maneuvering simulators. As a result, mariners will be better equipped to handle the increasing complexities of their daily duties and to respond to emergencies.

Mariner training and qualification is an integral part of the continual process of preventing marine casualties and environmental damage. It is part of a larger human element component in the marine transportation system. International conventions, improved training and licensing procedures, and safety partnerships are all part of the improvement process. However, fostering a "culture of safety" among the mariners who operate the vessels plying our waterways and the world's oceans is our true objective. Only then can we expect the percentage of casualties attributable to the human element to drop appreciably.

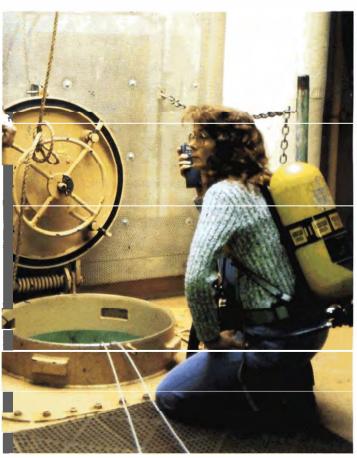
Life at sea has always involved unique risks. It is not reasonable to expect a seagoing workplace to be risk-free. However, we can do a lot to equip mariners to better prepare for and manage

the risks they will inevitably face.

Our focus on the human element is a long-term effort to rebalance the safety equation. We have just completed the Prevention Through People-Quality Action Team report and are now developing an implementation plan. Please watch for more information in subsequent *Proceedings* issues.

RADM James C. Card is chief of the Office of Marine Safety, Security and Environmental Protection. Telephone: (202) 267-2200.

Photo Courtesy of Paul Hall Center Tankerman Safety Operations on the Empress.





M/V Observer, measuring 100'x 117', is one of two training vessels assigned to the Kirby Training Center as a training platform.

Photos for this article by Diane Meredith.

### Training in the Inland Towing Industry

By Mr. Roy L. Murphy

### TRAINING: to coach in or accustom to a mode of behavior or performance.

The towing industry has historically relied almost exclusively on OJT (on-the-job training) programs as its primary method of providing practical vocational and technical instruction. That is all about to change. We have come to understand that today's training programs must address more than simple skills training. To be successful, they must also influence, in a positive way, behavior with respect to customer service, quality, safety, and the environment.

Competition, technological advances, and new regulatory pressures are causing this industry to rethink its approach to training. These forces will have a profound effect on how, when and why training is done. To understand how they are influencing training today and beyond, I think it is necessary to take a look back. The luxury of hindsight cannot be overemphasized and is of great

benefit in understanding how far we have come and, more importantly, how far we have yet to go.

### **Revival of Waterways Transportation**

The revival of the Inland Barge and Towing Industry began with the Transportation Act of 1920 and continued through the early 1970's. The railroads' poor performance during World War I demonstrated to the United States Congress that a revival of waterways transportation was absolutely necessary to ensure efficient, inexpensive, and highly competitive transportation to Inland America as well as to Seacoast States. Congress made its intention clear with the passage of the Transportation Act of 1920. Section 500 of the act declared that it was Congress' intention to promote, encour-

### Continued from page 3



The Basic Deck Hand Program supplements formal classroom instruction with practical hands-on training sessions in Kirby's fleet.

age and develop water transportation, service, and facilities in connection with commerce of the United States, and to foster and preserve both rail and water transportation. During this time period, competition had very little impact on training, principally because competition between members of the industry was not viewed in the same light as it is today. Industry members were united and focused on a common goal—the rebuilding of the inland navigation system. The real competition, in their minds, was the other modes of transportation. And, when measured against the cost and efficiency standards of the day, the Inland Barge and Towing Industry was more than competitive.

The introduction of new technology during the revival period was almost nonexistent. This is illustrated by the fact that the most significant technological advancement of the day was the introduction of the marine diesel engine. The design, construction and operation of boats and barges saw little change throughout the period. Yet, despite the lack of technological advancement, the inland barge industry as a mode of transportation was the uncontested leader in safety, efficiency, and cost savings. That fact is still true today. In industry's view, it was hard to improve on something that had worked so well for so long. Technology and the training which would have come along with it were viewed as unnecessary expenses.

The most significant regulatory pressure came in 1971 when the Coast Guard promulgated regulations requiring that operators of uninspected towing

vessels be licensed to serve in that capacity. The license could be obtained only by passing a Coast Guard examination. The training requirements imposed by these regulations were meager and for the most part could be addressed by on-the-job training programs. However, the new regulations did facilitate a new industry—License Preparation. These so called "schools" were accomplished at capturing the exam questions and drilling the candidates with those questions and the appropriate responses. However, little real training occurred.

In 1972, the Inland Barge and Towing Industry began to realize a need for something more than traditional on-the-job training. The National River Academy was established in response to these needs. The Academy, affectionately know as "Towboat U", was a private nonprofit school, which was solely owned and operated by the industry. It was chartered by Congress as "The National River Academy of the United States of America". This institution was the first effort to address those training needs which could not be addressed by more traditional OJT programs. At its height, the Academy offered a

Kirby 101 Tank Barge Simulator -Six compartment barge simulators fitted with state-of-the-art equipment including high level alarm system, vapor recovery, Hermetic gauging, overfill protection systems, gage sticks.



Tankerman Trainees receive briefing on Kirby 101.



multitude of training programs, from entry-level deck hand through pilot. In addition to these, the Academy provided training programs for the U.S. Coast Guard as well as for numerous dockside and shore facilities.

Hard economic times saw support for the school dwindle; in June of 1986, the Academy ceased operation and the Inland Barge and Towing Industry lost its most valuable training resource.

### TRAINING...TODAY AND BEYOND

New technology, regulatory compliance, personnel safety, quality, and concerns for the environment are all placing new demands on industry training programs. The big question is, how will we meet these training challenges today and beyond? One thing is certain: the on-the-job training programs of the past are not equipped to do so.

### Technology

The Inland Barge and Towing industry views technology differently today. New technology and the training associated with it is being employed to improve customer service, protect the environment, improve the quality of the service, or facilitate employee safety. The old attitude that technology is only attractive if it improves the bottom line has gone by the wayside. For example, Kirby Marine Transportation Corporation began to install vapor recovery systems aboard its tank barge fleet several years ago. These systems were installed despite the absence of regulatory pressure or the ability to enhance the vessel's revenue-producing capability. What then was the motivation for installing this costly equipment? The answer to that question demonstrates just how far we have come-it was simply the right thing to do. The protection of Kirby personnel and the environment from potentially hazardous vapors outweighed the cost.

Other examples of new technology include satellite tracking systems, computer hardware and software for recordkeeping and reporting, electronically controlled engines, electronic charts, and pollution prevention systems.

### Regulatory

With human error continuing to be the principal cause of marine casualties, a lot of regulatory

attention is being drawn to personnel qualifications, certification and training. Recently developed regulations which deal with these issues are taking a new approach. The Coast Guard, working with industry through committees like The Towing Safety Advisory Committee (TSAC) and Merchant Marine Personnel Advisory Committee (MERPAC), has proposed regulations which will establish training requirements, operational requirements and certification procedures for towing vessel operators New regulations are also proposed for the training of persons in charge of, and assisting in the handling, transfer, and transport of, oil and certain hazardous liquid cargoes in bulk aboard vessels. The Coast Guard has traditionally relied on written examinations to ensure that these persons were competent to perform their duties. However, the new regulations recognize that this approach is flawed. While written exams can test a candidate's knowledge, they do little to ensure that an applicant is proficient in the operation of a towing vessel or in the safe transfer of cargo aboard tank barges.

The recently published and long awaited Interim Final Rule on Qualifications for Tankerman and for Persons in Charge of Transfers of Dangerous Liquids and Liquefied Gases is an example of the new approach. The new regulations, which take effect March 31, 1996 add a new Part 13 (Certification of Tankermen) to Title 46 of the Code of Federal Regulations. They establish six new endorsements for tankermen: Tankerman - PIC (Person in Charge), Tankerman - PIC (Barge), Restricted Tankerman - PIC, Restricted Tankerman -PIC (Barge), Tankerman Assistant, and Tankerman -Engineer. Endorsements may be obtained for either dangerous liquids (DL) or liquefied gas (L\$) cargoes. The completion of a Coast Guard approved course for Dangerous Liquids or Liquefied Gas and firefighting has replaced the traditional written examination.

The Interim Rule also prescribes the requirements applicable to schools offering courses required for a tankerman endorsement and to courses that are substituted for experiences with transfers of liquid cargo in bulk required for the endorsement. The regulations also provide a course curriculum for each of the endorsements cited above.

New regulations are in the works which will address the licensing and certification of towing

vessel operators. It appears that they too will replace certification by written examination with the completion of approved courses and demonstration of proficiency.

Kirby Corporation owns and operates the largest tank barge fleet in the United States. With more than 500 tank barges and some 115 inland towing vessels, the training demands are already great. The additional training requirements imposed by these new rules offer a tremendous challenge.

We at Kirby believe that effective training programming is essential and we view the cost associated with such training as an investment rather than an expense. In keeping with this belief, Kirby has given departmental status to the training function and has established a Corporate Training Center, employing a full-time training staff. The physical plant includes modern classroom facilities, administrative offices, two training vessels, (a 117' X 35' towing vessel and a 100' x 26' passenger vessel), shore tank facility, dock facility, and tank barge simulator. The Training Center is tasked with the design, development, instruction and administration of training programs for the Kirby Marine Transportation Group. The curriculum includes vocational and technical training programs for entry-level deck hand through pilot. Programs employ the latest training techniques and include both formal classroom and hands-on instruction.

As previously mentioned, The Kirby Training Center offers a number of courses including Hazardous Waste Operations & Emergency Response (HAZWOPER), Intermediate Barge Tankerman, Tankerman - PIC (DL), Vapor Recovery, Basic Deck Hand, Chart Navigation & Piloting, and Rules of the Road. Space does not permit us to describe them all. However, the two described below illustrate the design and attention to detail of the rest.

### Basic Deck Hand Program (12 days -120 hours)

This program is intended for entry-level personnel who have little or no experience. Trainees live and train aboard a training vessel. The program includes formal classroom instruction which is supplemented with practical hands-on exercises in the fleet.

Students learn industry terminology; basic

decking skills including line handling and line throwing; tow building skills, safety practices and procedures; marlinespike seamanship; and First Aid & CPR. Trainees also receive training in the Coast Guard Benzene Standard, OSHA Hazardous Communication Standard, Hazardous Cargoes, and OSHA Bloodborne Pathogen Standard.

### Tankerman - PIC (Barge) (12 days - 120 hours)

This program is intended to meet the requirements of the Coast Guard's Interim Final Rule, which addresses the qualifications for tankermen and for persons in charge of transfers of dangerous liquids and liquefied gases. The program employs both practical hands-on training and formal classroom instruction.

Trainees gain valuable hands-on experience in a controlled environment through the use of a unique tank barge simulator.

Students learn the duties and responsibilities of barge tankermen, cargo classification, loading and discharging procedures, principals of vapor recovery, rules and regulations for tank vessels, pollution prevention, emergency response procedures, hazardous cargo handling, cargo pumps and piping, inerting, and fire theory. Trainees also receive training in the Coast Guard Benzene Standard, OSHA Hazardous Communication Standard, OSHA Hazardous Waste Operations and Emergency Response Standard, OSHA Bloodborne Pathogen Standard, Confined Space Entry, and American Red Cross First Aid & CPR.

To be competitive in today's transportation market you can no longer afford to maintain the status quo. Business as usual does not cut it anymore! We have come to understand that the lowest rate does not necessarily ensure success. Customer service, quality of service, safety, and environmental awareness have become equally important. It is clear that these can be delivered only by a qualified, well trained, and motivated work force which is dedicated to continuous improvement. Today, how people perform is the single greatest influence on a company's bottom line.

Make no mistake about it, competition today and beyond is about people.



Tankerman receive instruction in Vapor Recovery.

## IT'S THE PEOPLE, SMARTY!

By Mr. Robert J. Alario

Once upon a time in the offshore marine industry, there was a shortage. Then, there wasn't. Then there was. Some years later, there wasn't. Now, there is. Same old story. Same old cycle. Now you have it. Now you don't. Once there was aplenty. And now, not so many.

We're talking PEOPLE here. Reminiscent of the most recent presidential campaign's bumper sticker call to arms, "It's the ECONOMY, Stupid!", the essence of the maritime industry's most persistent crisis can be summed up with, "It's the PEOPLE, S\_\_\_\_\_\_"! SMART companies are paying attention...among other things.

Like other sectors of the U.S. Merchant Marine—and the priesthood—the offshore industry is facing a critical shortage of willing, enthusiastic and qualified personnel. The first problem for the offshore industry is to develop a basic, stable marine work force from which to draw reliable, competent personnel. In short, the industry needs a work force reservoir with adequate raw numbers from which to eventually glean the necessary highly qualified first team players and backups who can be trained, ultimately, to take over positions now being held by experienced and well trained "old timers" who will soon hang up their cleats.

The second part of the problem alluded to, besides quantity, is quality. While we must ensure that there are enough individuals to man the vessels in our fleet, we must also ensure that the individuals who eventually are placed in charge of navigation and operation of the vessels are qualified, demonstrably competent personnel. The Coast Guard, among others including insurance companies, increasingly attributes the majority of accidents and the consequential costs of accidents to the human factor. Analyses by various groups reflect that human error is suspected to be the cause in 70 to 80% of maritime accidents. Consequently, the Coast Guard has initiated a Prevention Through People program which focuses on this conclusion. This represents a diversion from the original point of view that most accidents were caused by technical design faults or other inadequacies in the equipment.

The Offshore Marine Service Association and its member companies, for example, are taking a fresh look at this old, persistent problem. The offshore industry is analyzing what must be done to establish a progressive infrastructure of employment for interested, competent personnel who wish to consider a career of service aboard our vessels. The objective is to establish a clear career path for these people by redefining the orientation, training, and career opportunities that must work together to provide real promise and return for the people interested in this industry, as well as for the employers.

There are many obstacles which stand in the way of a clear and easy solution to this cyclical problem with respect to marine personnel. Some of the factors related to the problem are regulatory in nature, some are market driven and some are purely people problems. Whatever causal highlight might be featured. human resources are more often than not at the root of the problem. After all, no matter how simple or complex the physical marine asset, such as an offshore vessel, the true, primary assets of that company are the people who crew the vessel and who are in charge of the navigation and operation of that vessel. Without them, and without their operating at their highest level of functional ability, the company's physical assets. profits and commercial survival are extremely vulnerable. The quality and competence of the crews determine whether or not any vessel-operating company will be competitive.

On this subject, in a recent article by Greg Szczurek of EXAMCO, Inc., Szczurek noted that traditional methods of certifying mariner competence are being called into question. In fact, it would appear that dramatic changes are ahead for the qualification of vessel personnel for U.S. licenses and certificates.

### REGULATIONS/TRAINING/ OUALIFICATION

vessels inder the threat manning alapse inc wanted of flag watches, and cannot work alternately in deck and

engine departments, and get credit accordingly. In France and other countries, this formerly strict policy of "departmental" service has been modified. Personnel are now trained and can serve and receive sea service credit in alternate functions. Maritime labor unions have apparently opposed this concept because of concern that the practice would lead to a loss of positions and produce a collateral impact on safety. The offshore industry is not interested in reducing manning complements where to do so would compromise the overall safety of the vessel. That is the key. Thus, if it does not affect the general safety and welfare of the crew and vessel, the public and/or the environment, and if it would promote the U.S. flag fleet's ability to compete with foreign vessels, such reform of U.S. manning and licensing statutes should be considered. Where crew member training and service are not confined to a rigid departmental structure, the master has broad flexibility in assigning crews to watches as he deems appropriate for the safe navigation and operation of the vessel. We reiterate that the object is not to have one crewman doing two jobs that really need to be done by two different people. We are, however, intensely interested in the concept of one crew member serving and being trained at the entry level, without penalty, in either or both the engine and deck departments (though obviously not both at the same time). Eventually this practice should qualify the crew member to perform either of two jobs, in the engine or deck department as his/her choice and circumstances dictate, without bureaucratic obstacles preventing that training or service. An additional benefit would be that the master of the vessel would have increased flexibility in assigning personnel as circumstances demanded.

Above all, this reform would be useful in terms of obtaining and retaining the more competent entry-level prospects. Presumably, these are the people that could be developed over time into the most highly qualified, interested personnel. They could move on, within a now more open and productive career path, to the positions within the deck or engine department which appeal most to them as an ultimate career. This is a particularly valid concept aboard small work boats such as offshore supply vessels and other service vessels operating in the offshore industry where alternative assignment and capabilities could very arguably be an advantage that would promote safety rather than detract from it.

The examination system that is required of people who are seeking certification or licenses is admittedly deficient. Yet it is difficult to replace. The U.S. Coast Guard has finally come to the conclusion that comprehensive training and sea service experience, not one or

the other but in combination, are necessary to achieve higher standards of professionalism and to reduce casualties. In other words, as Szczurek points out, ships' personnel will have to demonstrate proficiency as well as exhibit knowledge. As V. Taylor says, "We need all the technical training we can lay hold of. But let us not mistake qualification for ability; it is the use of a tool rather than the possession of it which gets a job done."

This is consistent with the attitude reflected in the recent STCW Convention revisions. Hands-on experience and training/instruction are being viewed as increasingly important and more indicative of whether or not the candidate for a license or certification is qualified potentially. Naturally, the theory will inevitably come into conflict with practicality, at certain points. Demonstrating proficiency as a practical matter is extremely expensive and difficult, if not altogether impractical in some cases. Simulators and other technologically-based training and testing systems are accepted but expensive. Yet they cannot handle the volume of people that are required or even new coming through the system.

Giving technology its due respect, much of what will need to be done-such as one-on-one training on the job-will still be left in the hands of ship's officers and personnel. Therefore, concentration on improving the management and supervisory capability of ships' officers (and their communications and training skills) will, in our opinion, have the most reliable, sustained, and practical impact on vessel personnel and safety in the short and long run.

### MARKET CONDITIONS/PERSONNEL SUPPLY AND DEMAND

As usual, when market conditions in the offshore industry are at their peak, there is a very direct and noticeable strain on the ready reserve of personnel. At such a time, access to the pool of people that are available is subject to intense competition between all offshore marine sectors requiring licensed or welltrained people. To the contrary, when things are slow, it has not escaped the large majority of the people in the personnel pool that they are vulnerable to salary cuts, periods of temporary inactivity (without pay) or, more drastically, layoffs. Consequently, the recent historical lack of employment stability in this industry is an obstacle to enticing the numbers and quality of people that the industry requires for healthy growth and development.

Generally, problems faced by operators in today's offshore marine industry with respect to personnel revolve around two major themes: first, supply and demand, and second, assurance of competence. With respect to supply and demand, the traditional reservoir of personnel has been largely depleted. These are the local work forces that, to a large extent, originally came from the shrimping and fishing industries with basic maritime skills. Later, they came from the standard labor pools of south Louisiana, Texas, Mississippi, and Alabama. They were people from the farming communities looking for part time work. They were attracted by the "X" days on, "X" days off, part-time system. Today, more and more operators are having to look toward the marine academies and work forces outside the coastal states to find the licensed and certificated people they need. The people they want are even harder to find.

Presently, the retention rate is not particularly attractive. Turnover is high and difficult to manage. For insurance reasons, among others, hiring practices have necessarily become much tighter. The screening process, in particular the regulatory drug and alcohol screening procedures required of operators, has produced a loss ratio of from 16 to 34% and, in some cases, even higher. It is difficult and expensive to maintain the kind of work force stability that is necessary for effective training and reliable advancement with preemptive screening causing that kind of loss ratio. The problem is intensified with the routine but significant turnover rate that occurs when some personnel become disenchanted with the industry or their particular career path. Usually, companies that are losing the highest ratio of personnel will resort to raiding other companies for their trained people by offering a slightly higher wage.

The level of sophistication required to operate some of the newer equipment of the future will put an even heavier strain on the makeup of the work force offshore. Without a doubt, this will increase competition between companies in terms of hunting and hiring personnel with the appropriate licenses and level of experience. Advance planning, intelligent preparation by the industry and cooperation could substantially alleviate this prospective problem, which will be further exacerbated by the newly revised Standards of Training and Watchkeeping Convention. Recently brought out of the International Maritime Organization's chambers in July of 1995, this revised Convention will generate substantial changes in U.S. domestic rules in order to align our existing domestic regulations with international standards. Some of the basic changes that may be expected are as follows:

- Basic training for all seafarers prior to being assigned shipboard duties. Under the Convention, the Coast Guard has discretion to modify these requirements for seafarers on ships (small boats or large vessels) typical to the offshore industry. With no modifications, this training is estimated to take at least one week in shoreside facilities (fire fighting facilities, water survival, etc.).
- Training record books and approved onboard training programs. In order for seafarers to qualify for licenses in a timely manner, they would have to complete an approved onboard training program and document such training in a record book; the idea is to be able to demonstrate practical competence as well as to reflect classroom knowledge.
- Sea service and training for ratings (for any seafarer other than the master or a licensed officer who make up part of the navigation watch). Now that U.S. regulations are being written with focus on a revised Convention, it is likely that this issue will be addressed more broadly.
- Deck officers serving on board ships that are equipped with ARPA or GMDSS will be required to have special training and/or pass special examinations for appropriate endorsements on their licenses.

Not only, then, must we be concerned with filling the berths aboard our vessels, but we must also offer the appropriate opportunities and a clear career path for personnel who show an inclination to enter this industry. We see that the second personnel problem faced by operators is that of developing and demonstrating competence levels; this would involve special orientation and training.

In essence, the clear signal sent by the administration and the international community, which the merchant marine corporate community has accepted in principle, is that the pressure to operate competitively would not result in a degradation of safety of life at sea or an increase in the risk of damage to the marine environment. To do that practically, as opposed to theoretically, is the challenge.

The cost/benefit factor and its impact on physical operations cannot override the safety requirements for the crews that man our vessels or a concern for the public welfare. That is understood. However, there must be balance. Risks to the safety of the ship and the personnel aboard, as well as risks to the environment must, realistically, be considered in the context of the cost required to avoid those risks. Any objective party will agree that there is no fail-safe operation. There is no equipment capable of guaranteeing that an accident

will not occur, no matter how much money is spent. A cost/benefit analysis is imperative. There is still the inevitable, unavoidable issue of and conflict between self-interest and competing special interests to be found in consideration of safety aboard vessels. Cost management and safety can co-exist. But, unfortunately, the concepts are relative, and the problem is often seen as a basic impasse between two parties-the vessel operator and the personnel that crew the operator's vessel. However, we should not ignore the role played by a third party, who can very often dictate, to a large extent, the environment within which the matter of operating cost management, the cost of safety and the provision of safety exists. That third party is the customer. In the offshore business, the demands from the customer to reduce costs have become shrill and expanded. The customer expects more from the vessel operator, at a lower cost. The rationale is that their profit is shriveling and therefore leaner and meaner operations are dictated. And, they maintain, what is good for the goose is good for the gander. If they, the customer, must downsize, if they, the customer, must economize, so shall it be with the vendor and the provider of services. And that cost control pressure is inexorably pushed down toward the relatively "manageable" elements of cost, of which personnel is among the highest. The pressure, at that point, creates tension between the vessel operators and the marine employees they are compelled to rely upon to make their businesses viable, and safe.

And there are limits. So, the catch-22 appears and the cycle repeats itself. How will this persistent problem and pressure be dealt with successfully? Can it be resolved successfully? You can believe we're working on it.

### PEOPLE PROBLEMS

Today, then, it is people that are and should be considered the focal point of much of the fresh attention that needs to be given to maritime operations. Consequently, as indicated, operators are increasingly addressing themselves to improving hiring practices, screening potential candidates, providing adequate investigation, preparation and orientation to entry level personnel and, most importantly, to providing a career infrastructure and training regimen that will be appealing to young, better-educated people who will look to the marine industry as a place where their real future may reside. At this time, not many young people are inclined toward this industry, either as a preferred work-place or as a career opportunity. And, to borrow a quote, "When people don't want to come, nothing will stop them."

The industry, therefore, must recognize that it has to be aggressive and creative with respect to attracting the attention and the inclination of a new, better and more reliable reservoir of personnel. In addition, vessel operating companies must be able to improve their retention rate and, after considering and taking appropriate action on the perceived causes, they must drastically reduce the turnover rate that has been the norm in the offshore marine industry, as well as in the other U.S. maritime sectors.

The higher the turnover, the more expensive the personnel factor is in terms of operating costs. The less competent and less sophisticated the employee, the more expensive he or she becomes to the marine operating company. The less attractive the opportunity is at any given company, the more there will be a loss of personnel to competing companies. This will result in the collateral loss of income and profit due to increased costs in the personnel line item. Less training and a lower level of loyalty will work indirectly as a detriment to the company, because such personnel will not take care of the physical assets as will a welltrained, proud and loyal employee who is treated as a marine professional or, at least, as a prospect with recognized potential at the company which employs him. The higher the turnover, the lower the morale. The lower the morale, the less efficient the vessel's operation will be. The less efficient, the more expensive and the less profitable.

In the end, it's the people! It is an increasingly complex and difficult problem. Companies simply must redesign and maintain their personnel programs and sensitize them as required. Generally, the less advanced, less thoughtful marine employers will get the employees they deserve. Companies that invest the necessary level and amount of attention and resources will most likely avoid being devoured by the problem. They would rather have, as they say, one man or woman working with them, rather than three working for them.

When it comes to personnel and personnel management, the offshore marine industry is, like every other maritime sector, entering a new dawn. The old ways must be adjusted to meet the requirements of the new operating environment, improved and more sophisticated ships, and a much more complex regulatory scheme, both domestically and internationally. Long live the people. Or else.

Robert J. Alario is President of the Offshore Marine Service Association

# THE PREDICAMENT OF LOWER-LEVEL LICENSED MARINERS

By Captain John R. Sutton

We of the American Inland Mariners Association (AIM) are pleased to accept the Coast Guard's invitation to contribute to this issue of Proceedings as concerned mariners. While some statements may appear critical of Coast Guard policy, we believe that this article reflects the true and accurate opinions of today's active "lower-level" mariners.

The Coast Guard has established and maintained a long-standing dialogue with towing and passenger vessel owners and the associations that lobby for them and represent their interests. This relationship provides the Coast Guard with only a portion of the information it needs to regulate the industry, although it does provide easy access to the industry.

On the other hand, the Coast Guard has never sought nor established a close working relationship with the mariners it licenses and regulates. In fact, in selecting members for important federal advisory committees like MERPAC and TSAC, the Coast Guard has repeatedly ignored applications for working "lower-level" mariners unless they held a "management' position or a union affiliation. The term "lower-level", which the Coast Guard applies to licenses of under 1,600 gross tons, appears to imply that these mariners' outlook and opinions are not. worthy of Coast Guard consideration. By allowing this questionable state of affairs to continue, the vessel owners and the Coast Guard have virtually silenced the voices of 70% of all licensed deck mariners. same "lower-level" mariners move most of the nation's waterborne commerce.

Nevertheless, these "lower-level" licensed mariners have experience-based opinions on many aspects of their jobs that merit consideration by the Coast Guard and other regulatory agencies. Licensed mariners bear the responsibility for operating transportation equipment worth millions of dollars. They also must protect the public and the environment by obeying government regulations. Here are some of the issues our Association is interested in:

 The American Inland Mariners Association supports proficiency and competency evaluation as long as active, working mariners perform it. The key is "active working mariners", as opposed to assigned to office duty who have not sailed for years.

- AIM supports basic entry level training for ALL boat personnel including full first aid, CPR, fire, and deck seamanship training. Staffing towing or passenger vessels with "green hands" is unsafe and it unfairly burdens licensed personnel.
- The "uninspected" status of towing vessels lies in stark contrast to the "inspected" status of other comparable workboats. This has led to a popular misconception both by politicians and the general public that the towing industry is unregulated. Consequently, AIM took the initiative and published the Towboatman's Guide to Federal Regulations to inform its members and other concerned mariners of existing regulations.
- The Coast Guard never established or maintained a direct line of communication with the licensed personnel it regulates. It does not inform them effectively and clearly of regulatory changes in the industry. The Coast Guard does not have a mailing list of licensed and certificated personnel and does not even know how many licenses it has issued or how many are still active. A secondary purpose of publishing the Towboatman's Guide to Federal Regulations is to tell our members and other concerned mariners how to find public information that already exists.
- AIM believes that reasonable and enforceable inspection and manning requirements for uninspected towing vessels will create a level playing field in the towing industry. Licensed mariners need protection from "substandard operators" with poorly maintained and inspected equipment, under-manned or overloaded boats, and untrained personnel. These conditions threaten all responsible mariners' licenses and livelihoods. However, we do not equate the term "substandard operator" with "small operator" and we trust that the Coast Guard will not make this error. We note that the Coast Guard is developing workable alternatives to the burdensome formal inspection process.
- AIM believes that the Coast Guard should recognize
  the importance of all "lower-level" licensed mariners
  and should actively seek their opinions on matters
  that are of legitimate concern to them. Included in
  these issues are licensing, the relationship of horse-

power to tow size, vessel manning, expanded "emergency equipment," and human factors such as the fatigue involved in an 84-hour work week. The Coast Guard must include active, working lower-level mariners on federal advisory committees. The Coast Guard must include active, working mariners in all District and MSO meetings where it discusses areas of concern to working mariners.

AIM wants to see the Coast Guard focus on the responsibilities of persons who actually transfer dangerous liquids including bunkers. We deplore making a Captain who does not participate in a transfer responsible for a spill from that transfer. On towing vessels, for example, an unlicensed engineer generally transfers fuel to the vessel. We support the Coast Guard's new posture that will require training persons in charge (PIC) of transfers rather than a multiple choice test approach or simply relying upon on-the-job training (OJT). The National Transportation Safety Board appears to support our contention that OJT is questionable at best in many segments of the industry.

A towing vessel operator (i.e., "pilot") must know his vessel and the waterways it traverses. He must meet the qualifications and service criteria of his employer and the Coast Guard. This involves a long-term commitment and career choice rather than simply accepting a job opportunity. We believe that present health criteria and new proposals threaten the careers of many mariners. These criteria hinder license renewal for reasons not directly related to job performance. The Coast Guard's 80% approval rate for requests for health related waivers proves this.

Normal channels of appeal for health related problems lie with a person's physician and his employer. Punishment for drug and alcohol related problems are a matter for police, courts and possibly employers. We deplore any intrusive penalty beyond existing sanctions.

While we deplore crimes like Driving While Intoxicated (DWI) or Driving Under the Influence (DUI) of drugs or alcohol on the highway, we believe that current laws and regulations governing mariners are sufficient. We believe that employers are now and should continue to be responsible for maintaining their vessels drug and alcohol free.

Although it is convenient for the Coast Guard to hold meetings in Washington, it could devise no more effective way to discourage mariners from being informed and being heard. Meetings to discuss proposed regulations at the District level would be a great improvement over the existing system. It is many hundreds of miles and dollars from Washington to St. Paul, St. Louis, Houston, New Orleans, and Mobile.

- A clear and unmistakable majority of all mariners
  work on vessels under 1600 gross tons. Coast Guard
  officers serving in COTP, MSO and REC billets
  need extensive training in all aspects of the maritime
  industry dealing with "small" vessels. We question
  the significance of the training that new Coast Guard
  officers receive. Upper-level, deep-sea criterion
  applied to this part of the industry is uninformed,
  counterproductive, and a waste of the taxpayers'
  money considering the shrinking size of the U.S.
  Merchant Marine deep-draft fleet.
- Licensed mariners and certificated tankermen have two masters. They have a responsibility to carry out their employer's instructions under the threat of losing their job. They also have a responsibility to obey federal regulations or lose their license and/or MMD. This also equates to the loss of their job. AIM supports responsible legislation that would provide the mariner with the protection of a method of resolving these conflicts.
- Towing vessels and all commercial vessels under 1,600 gross tons should carry one or more persons trained in and specifically assigned to engine and auxiliary equipment operation and maintenance.

The American Inland Mariners Association is not a labor union. Rather, it is a voluntary association of concerned professional mariners that wishes to play a meaningful and constructive role in improving the maritime industry and the safety of our nation's waterways.



Photo courtesy of Boat Photo Museum, Maryville, Illinois



## Paul Hall Center: Meeting Industry's Needs Since 1967

by Mr. William Eglinton

Since 1967, the Paul Hall Center for Maritime Training and Education continually has prepared a skilled American work force for the operation of U.S.-flag vessels for deep sea, Great Lakes, inland waterways and coastal use. Jointly operated by the Seafarers International Union (SIU)—the major unlicensed seamen's union in the U.S.—and American shipping companies, the non-profit training center has been acclaimed by academic, business, union, and government professionals as a model of labor-management cooperation.

Located on 60 acres in picturesque Piney Point, MD at the confluence of the Potomac River and St. George's Creek, the Paul Hall Center is the largest school for boatmen and unlicensed mariners in the United States. Named for the dynamic late president of the SIU who contributed extensively to the Americanflag shipping industry until his death in 1980, the center is entirely funded with private monies.

While the Paul Hall Center's facilities and curriculum regularly undergo improvements, the school's mission remains unchanged. That goal is to

train seamen and boatmen to ensure the U.S.-flag shipping industry of a continuous flow of proficient and qualified manpower for all three shipboard departments (deck, engine and steward). Whether providing basic training for young men and women who are beginning a seagoing career or offering more advanced courses to seasoned mariners who seek to upgrade their skills and prepare for U.S. Coast Guard exams for advanced marine ratings and licenses, the Paul Hall Center prides itself on teaching the latest in shipping technology and safety.

More than 40,000 rated and licensed seamen have completed upgrading classes at the training center, which encompasses the Harry Lundeberg School of Seamanship (named for the SIU's founder and first president). In addition, 20,000 young men and women from every state in the U.S., Puerto Rico and several U.S. territories have graduated from the trainee program for those just beginning their maritime careers.

When the school first opened, a relatively limited number of courses was available. But today, the Paul Hall Center boasts a comprehensive vocational curricu-

## "On a ship, you work. At the Paul Hall Center, you learn. Put those two together and you're a better seaman."

lum that includes dozens of finely honed courses, many of which feature practical work on one or more of the facility's half-dozen state-of-the-art training vessels. The school also offers specialized courses for people who work in particular segments of the industry (aboard passenger ships or LNG vessels, for instance) and, in some cases, for individual shipping companies.

The classes are structured to ensure that American seamen remain expert and adept with technological changes in every shipboard department and the many federal regulations and safety practices which concern shipping. The school's administrators and instructors believe that it is vital for all of the Paul Hall Center's training programs to thoroughly and efficiently teach Seafarers the skills required by an industry in which vessels have become enormously expensive, increasingly more sophisticated and technologically more complex.

This holds true whether a Seafarer works in the deep-sea fleet aboard a tanker or containership, on the Great Lakes aboard a self-unloader, in the inland trades aboard a towboat and barge or a harbor-docking tug, aboard a military prepositioning ship or Ready Reserve Force (RRF) vessel, on a deep-sea passenger cruise ship or an inland riverboat or gaming vessel, or in any other segment of the diverse SIU-contracted marine fleet.

Courses are available covering such topics and skills as oil spill prevention, recovery and containment; sealift operations and maintenance; basic and advanced fire fighting; first aid and CPR; tanker operations and safety; navigation, radar operation and bridge management; lifeboat/water survival; welding, hydraulics and marine electrical maintenance; diesel engine technology; pumproom maintenance and operations; refrigeration system maintenance and operation; menuplanning and nutrition; inventory control and requisitioning procedures; food preparation and cooking methods, and much more.

Students (who are not charged tuition or roomand-board fees) take part in hands-on instruction in virtually all the classes. From the training-vessel fleet to the modern ship-handling simulator, and from the fully equipped engine-department workshops to the state-of-the-art culinary training facility and beyond, the Paul Hall Center houses top-flight training equipment. "The success of the courses is evidenced by the students' high rate of success in passing Coast Guard tests for licensing and various rating endorsements, as well as by the consistently safe and efficient operation of SIU-crewed ships," says Neil Alioto, vice president of the Paul Hall Center.

Curriculum at the school is developed through a series of consultations among shipping companies, the SIU and the Paul Hall Center's instructors and staff. Through these exchanges, the training center has stayed a step ahead when it comes to meeting the industry's needs. For instance, the school began offering a comprehensive, 40-hour oil spill prevention and containment course a full year prior to the passage of the Oil Pollution Act of 1990. More recently, the center in 1994 developed and conducted a refrigeration technician certification class, enabling Seafarers who work with refrigeration equipment to earn Environmental Protection Agency (EPA) certification well before the government deadline.

The skilled crew members who graduate from the school increase the operating efficiency and productivity of U.S.-flag ships. Their expertise is an invaluable component of an American industry which competes in a world shipping market dominated by government-controlled fleets, government-subsidized marine companies, and shipping groups with no national allegiances operating under substandard conditions in an environment free from strong government regulations.

As one seafarer who has taken several courses at the school put it during a celebration of the Paul Hall Center's 25th anniversary, "The school benefits the industry as a whole. You learn how to properly treat equipment, shipments and shipmates. Nowadays, I believe you have to keep upgrading in order to understand the industry. It's a complex field that changes every day.

"On a ship, you work. At the Paul Hall Center, you learn. Put those two together and you're a better seaman."

For more information about the Paul Hall Center, contact: Office of the Vice President, Paul Hall Center, P.O. Box 75, Piney Point, MD 20674, telephone (301) 994-0010.

# Correcting ILO-147 Deficiencies, A Coordinated Approach

by Mr. Douglas B. Stevenson

Sub-standard ships threaten lives, property and the marine environment. Lack of adequate control over conditions on ships by some flag states has prompted port states to protect their interests by increasing inspections of foreign ships in their ports. Both port states and flag states are giving more attention to human factors in their ship inspections. Seafarers welfare agencies, like the Seamen's Church Institute (SCI) of New York and New Jersey can assist administrations by helping to identify and verify unsafe living and working conditions on ships.

Seafarers continue to get hurt and die in alarming numbers on ships. Some of them endure bad food and water, unhealthy accommodations, and anxiety and fear due to no contracts, no pay and dangerous working conditions. Some are abused, discriminated against, denied medical care, denied access to legal protections and otherwise deprived of basic human-rights.

Such problems once thought of as welfare or charity issues—to be dealt with by unions and voluntary agencies like SCI—are now recognized as having a big effect on maritime safety. A key element in improving maritime safety and quality in shipping is to take good care of the people who work on ships. The IMO, the U. S. Coast Guard, and many shipping organizations are emphasizing "Prevention Through People" and "human factors" in their efforts to improve safety and quality. Business managers and risk managers have identified that the main assets in any business, as well as the main liabilities, are its people. Port state and flag state control inspectors are putting increased emphasis on human elements of maritime safety when they inspect ships.

The principal instrument used by inspectors that comprehensively addresses human factors of shipboard safety is the Merchant Shipping (Minimum Standards)



The Center for Seafarers' Services delivers hospitality and assistance to seafarers entering the Greater Port of New York-New Jersey. Port chaplains visit ships daily bringing books and magazines, foreign language newspapers, and a mobile phone enabling crew members unable to leave the ship to call home.

Because they keep the seafarers' confidence and trust, port chaplains are often the first to learn of seafarers' right issues aboard a vessel. As such, it is helpful for the staff of the Center for Seafarers' Rights to work closely with port chaplains. Doug Stevenson joined port chaplain Francis Cho on a recent ship visit.

Convention, 1976, commonly called ILO-147. This convention sets international minimum standards for crew competency, hours of work, manning, social security, shipboard conditions of employment, and living arrangements. It was designed to improve the efficiency and safety of navigation, enhance measures to protect the marine environment and protect seafarers' health, safety, working conditions and labor rights. ILO-147 requires flag states to exercise effective jurisdiction and control over their ships and to verify that their ships comply with the standards prescribed by the convention. ILO-147 also contains port state control authority for ratifying states to verify that foreign ships in their ports comply with the convention's standards.

One of the difficulties that inspectors have with ILO-147 is that its standards tend to be subjective. Traditionally, routine compliance inspections have focused primarily on the quantifiable equipment standards and recordkeeping requirements found in SOLAS and MARPOL. It is a relatively straightforward task to measure the thickness of steel, figure out whether the fire main system is working properly, or to determine whether the chief engineer is properly licensed. It is much more difficult to verify compliance with some of the subjective crew-related standards found in ILO-147. Determining whether crew accommodations are in a clean and decently habitable condition or whether a ship's food supplies are suitable in respect to quality, variety and nutritive value can pose serious questions for an inspector.

Inspectors know that under ILO-147 they can detain ships with deficiencies that are clearly hazardous to seafarers' safety or health. They also know that they should not unreasonably detain or delay ships. Many inspectors and administrations have looked to other institutions to help them deal with human elements on ships.



One such organization is the Seamen's Church Institute of New York and New Jersey. Its Seafarers' Services Division delivers hospitality and assistance to over 200,000 seafarers from over 60 nations who call on the Port of New York and New Jersey each year. SCI's port chaplains visit ships of all descriptions and provide comfort, hospitality, and assistance to all seafarers, irrespective of their nationality or religion. Seafarers trust port chaplains. They share with these chaplains their innermost feelings about life at sea, feelings they would rarely share with anyone else. As a result of their access to ships and the people who work on them, port chaplains possess a unique wealth of experience and information about the human conditions on today's ships.

The Center for Seafarers Rights is a unique worldwide legal assistance program for merchant seafarers. It provides free legal assistance and advice to needy merchant seafarers and to the port chaplains

serving them in 400 other seafarers missions around the world. The Center also seeks to improve national and international protections for seafarers by sharing its experience and insights with international organizations, national governments and administrations, and maritime industry organizations. The Center helped the U. S. Coast Guard develop the first Commandant Instruction that established policy for enforcing ILO-147, and it continues to cooperate with the Coast Guard to seek improvements in its implementation.

training programs that enhance the professional competency of seafarers and increases their awareness of the necessary standards of care for their vessel, their crew, and the environment. Courses in ARPA, radar certification, ship handling, bridge team management and other specialized topics are conducted in its four interactive bridge simulator labs and on board ship.

SCI's experience in working with seafarers through its hospitality, advocacy and training programs gives it a unique insight to the human side of shipboard life and safety. It views itself as a resource to help flag administrations, port states and maritime industry institutions protect seafarers' rights and to improve conditions on ships. It cooperates directly with the U. S. Coast Guard and flag administrations by helping them identify and verify sub-standard conditions on ships and by working together with them and operators to correct deficiencies.

For example, the Center for Seafarers' Rights recently received a call from an SCI port chaplain regarding problems he had encountered on a foreign ship in Port Newark. The chaplain had been trained by the Center for Seafarers' Rights regarding ILO-147.

standards. The ship, which was preparing to sail on a trans-Pacific voyage, had poor and inadequate bedding and blankets, inoperative air conditioning, inoperative toilets, and clogged drains in the rating's water closets. The chaplain had tried, unsuccessfully, to convince the ship's master to correct the deficiencies before leaving port. The Center for Seafarers' Rights coordinated with the Coast Guard Marine Inspection Office and the ship's flag administration office in New York. The Coast Guard and the ship's flag administration inspected the vessel and determined that the deficiencies needed to be corrected. The master corrected all of the deficiencies before the ship departed the United States. No detention order was necessary.

There are many good reasons for providing seafarers safe and decent living and working conditions. The principal instrument that comprehensively sets international minimum standards for safe and decent living and working conditions is ILO-147. Although the subjective standards contained in ILO-147 may be difficult for administrations to verify and enforce, seafarers' welfare and maritime safety depend upon improved implementation of the convention. All of us who are interested in maritime safety and in protecting shipping's most valuable asset—its seafarers—must work together to improve ship operations and to rid the oceans of sub-standard ships.

Douglas B. Stevenson directs the Center for Seafarers' Rights, a world-wide legal aid, education and advocacy program of the Seamen's Church Institute of New York and New Jersey. He is a maritime lawyer and retired U.S. Coast Guard Commander.

Photos by Katharine Andriotis



At the forefront of maritime education, the Institute's training programs are designed to assist the industry when new rules and regulations develop and enhance the individual seafarers' professional competency. Here, mariners take advantage of the Center for Maritime Education 5-screen bridge simulator.

## SIMULATOR-BASED PERFORMANCE ASSESSMENT FOR LICENSING OF **MARINERS**

By David S. Nieri and Robert C. Von Der Linn, SIMCOR U.S.A., Ltd.

In the United States, licensing of professional mariners has been based on sea time and the successful completion of a written multiple-choice examination. While the examinations provide adequate coverage of nautical, navigational, management, regulations and engineering knowledge, (with the exception of radar observer certification and flashing light communications for deck officers), there has been no requirement for a license candidate to demonstrate the ability to perform under operational conditions. Acknowledging that there will always be a need to examine a license candidate's knowledge, a skill proficiency demonstration that duplicates the conditions, initiating cues, and consequences of the real world is necessary to assure that the license candidate has the ability to do the job. The 1995 revision to the Seafarer's Training, Certification, and Watchkeeping Code (STCW) will in fact, require licensed mariners to demonstrate the ability to perform specific tasks in order to receive and maintain a license.

### Use of Simulators in the Maritime Industry

The maritime industry has been slow in embracing the technology that has been utilized by the airline industry for decades. In the last ten years, however. marine simulators-whether they be for shiphandling, propulsion plants, or cargo operations-have finally caught on.

The real strength of these tools ties in their ability to duplicate the operational environment, compress time (and therefore experience) and prepare the mariner for emergencies that are too risky to duplicate with actual equipment. Many fleet operators and maritime training institutions alike now consider simulators essential to the training and development of mariners. Over the years, providers of simulator-based training have often informally observed the actions of their students and rated their abilities. Many have long contemplated adopting a formal simulator-based skill assessment process such as that used by the Federal

Aviation Administration. Recently, such a process became a reality.

### The Master-Level Proficiency Course

In February of 1995, the U.S. Coast Guard approved a new license examination option for the Master (ocean, any gross tons) license. This new methodology incorporates a performance assessment on a bridge simulator in combination with a written examination. This two-week training and certification program, known as the Master Level Proficiency Course, or MLPC, was developed by SIMSHIP CORPORATION for the RTM STAR Center in Dania, Florida. During the first week of the MLPC, the candidates review the topics relevant to the simulator portion of the examination in the classroom and become familiar with the simulator operations. During the second week, each candidate spends approximately eight hours on the simulator undergoing voyage segments as master of a simulated vessel. His/her performance is scored by a certified Examiner, who is himself a highly experienced master or pilot. During the balance of the second week the candidate takes other required tests, such as Flashing Light or Radar Observer re-certification, and the written examination sections covering those areas of knowledge required for the license which are unsuitable for assessment via simulation, such as celestial navigation, ship stability, maritime law, ship's business, etc. The written examination questions are drawn from the U.S. Coast Guard's deck officer examination database.

### **Development of the Simulator-Based Examinations**

During the development of the simulator-based examination there were literally hundreds of important considerations that had to be addressed in order for the exam to be acceptable to the USCG and to the mariners who would opt for this examination method. A few of the more significant challenges that had to be met included the following:

#### Continued from page 19

- Identifying the topic areas in 46 CFR 10.910, Table 10.910-2 that were suitable for evaluation by simulator was a straightforward job. The problem was specifying tasks that could be performed in simulation that would prove a license candidate had proficiency in that topic area.
- Once the specific tasks were identified, performance criteria that could be readily observed by an examiner had to be determined for each task. These criteria had to be specific enough to remove any subjectivity by the examiners, so that every examiner would interpret an action the same way, and so that each examiner will always interpret an action the same way. The scoring sheets that were created for this purpose were refined over three separate trial periods involving over 120 hours of simulation.
- Another significant challenge was to minimize the possibility of exam compromise. There are five general exam topic areas covered by simulation, each of which currently has ten variations. Each variation is conceptually identical but all the scenario details are unique. At the current level of throughput for the MLPC (the program is offered quarterly, for a maximum of four candidates per session) this is sufficient to prevent compromise. As throughput increases the number of variations will increase.
- Another concern was maintaining the illusion that the candidate is in an actual shipboard operating environment (face validity), which is critical to eliciting the responses that would be indicative of the individual's performance at sea under the same conditions. For this reason, the examiner has to remain as unobtrusive as possible. It was also necessary to provide a staff of licensed mariners to serve as watch officers and helmsmen during the examinations. All participants were trained in the overall examination process and the specific responsibilities of their roles.

### **Summary**

The pressures exerted world-wide on the maritime industry to improve the safety of marine operations in coastal waters has resulted in the STCW requirement for licensed mariners to demonstrate the skills necessary for the safe operation of a vessel. The technology exists to establish simulator-based performance assessment as the primary evaluation method for the certification of mariners. The best application of the current technology is to provide a composite examination process that includes knowledge assessment via written examination, and skill proficiency demonstrations on part-task simulators (e.g., radar/ ARPA) supplemented by full-mission simulator exercises that examine integrated skills and competency under operational pressures and stress. It is time that the assessment methods catch up to the technology that today's mariner is expected to use competently at sea.

## The United States Coast Guard National Maritime Center

By Ms. Marcia Landman

The United States Coast Guard's (USCG's)
Office of Marine Safety Security and Environmental
Protection is undergoing a major reorganization.
Through re-engineering of its current business practices, the Office will improve services to its customers.
The effort is supported by a newly formed National
Maritime Center (NMC). The NMC is an independent
USCG Headquarters unit responsible for initiation and
execution of marine safety activities and services at the
national and international levels. The NMC will
maintain an active public and industry awareness
outreach program aimed at communicating USCG
regulatory activities and policy guidelines.

The NMC consists of several programs:

The Shipbuilding, Design and Operations
Facilitation Division will promote a globally competitive U.S. maritime industry by fostering partnerships between industry, academia, and government. The Division will work with affected customers to identify and resolve ship production and operations problems and promote innovative marine research, design, construction and repair, and operations to achieve established levels of safety/reliability while minimizing any regulatory burden. Division activities will include application of cost/benefit assessment as an element of risk management. This will provide a decision maker with an objective tool to evaluate the cost of various options and benefits.

The Container Inspection Training and Assistance Team, in support of the NMC maritime industry facilitation mission and working with USCG field units and other federal, state and local agencies, will assist shippers to enhance their capability to comply with the Hazardous Materials Regulations and the Safety Approval of Cargo Containers Regulations. The Team will coordinate USCG participation in local hazardous materials enforcement "Strike Force" joint inspections. Team activities will entail inspections of intermodal freight containers and portable tanks for compliance with the Hazardous Materials Regulations and the Safety Approval of Cargo Containers Regulations.

The Pilotage Coordination Division is responsible for the administration of the Great Lakes Pilotage Act and enforcement of the Great Lakes Pilotage regulations as well as general coordination of national pilotage issues in support of the NMC maritime industry facilitation mission.

The Marine Safety Center under the direction of the NMC will continue to provide technical services in review and approval of plans for the design, construction, alteration and repair of U.S. commercial vessels and marine structures subject to the marine inspection laws; issue safety certificates and exemption certificates in accordance with the currently effective International Convention for Safety of Life at Sea (SOLAS); and administer the provision of the International Convention of Tonnage Measurement of Ships, 1969. The MSC will provide direct support to USCG On Scene Commanders during a pollution incident response. In addition, the MSC will provide technical support to USCG/industry problem solving teams, in support of the NMC maritime industry facilitation mission.

The Marine Personnel Division maintains scentral records for merchant marine personnel. It also administers programs for merchant mariner documentation, and examination and licensing of merchant marine personnel. (See pages 22 and 29 for more on Marine Personnel Division.)

The Publications and Information Division will plan, gather and analyze information and publications of interest to the marine community. Using state of the art technology, the Division will assess and incorporate all available sources of information and provide access to this information to the marine community at large. It will publish the *Proceedings of the Marine Safety Council*, the Marine Safety Newsletter, the Marine Safety Manual, the NVICs and the Office of Marine Safety World Wide Web home page.

The National Vessel Documentation Center will plan and administer a central system for the documentation of U.S. vessels and ensure proper

## SAIC Helps National Maritime Center Computerize MMDs and Sea Service Records

By Mr. Phil Bridges

In October of 1993, the Coast Guard's National Maritime Center launched a research and development effort called the Mariners Identification (MID) Project. The scope of this project was to convert the paper-based Merchant Mariner's Document (MMD) to a longer-lasting plastic ID card and to develop a software package that would assist the maritime industry in electronically reporting voyage and sea service information to the Coast Guard.

Science Applications International Corporation (SAIC), a world-wide information systems and integration firm, was contracted by the Coast Guard to support this project and to develop these new, state-of-the-art computer systems.

### **New Plastic MMD Cards**

Using ID badging technology from DataCard Corporation, SAIC developed the Merchant Mariners Document (MMD) System which produces a plastic mariner identification card in place of the oversized paper-based MMDs which have been issued to mariners for over 50 years. The new plastic card is quicker and cheaper to produce and is more durable and secure than the old laminated paper IDs. Similar to a creditcard, the new MMD has mariner information encoded on the card's magnetic stripe, and each ID card features

the mariner's color photo, signature, and thumbprint. The card also contains printed information (e.g., name, address, social security number, physical characteristics, and ratings) which is downloaded to the card from the Coast Guard's central mariner database. This automation enables the MMD card to be produced more quickly and more accurately.

SAIC installed the new MMD badging systems in the Coast Guard Regional Examination Centers (RECS) last fall. By the end of the year, all RECs were in full production and issuing the new MMD cards. With the five year MMD renewal cycle, there is expected to be a transition period of five years before all mariners will have the new ID card. The Coast Guard estimates that by the end of this year approximately 20,000 new MMD cards will have been issued using the new computerized badging systems.

Each MMD badging system is configured using a personal computer, a digital color camera, a magnetic stripe encoder, and a plastic card printer. SAIC is continuing to make improvements to the systems as well as providing technical support to the RECs by phone and by modem. Mariners may receive a new MMD card either by visiting a Coast Guard REC or by mailing in an application.



### **New Industry Software Tool**

SAIC is also working with the National Maritime Center and the maritime industry to develop the Mariner Employment Information System (MEIS), which is a personal computer software package that will allow shipping companies to collect and report voyage and mariner sea service information more quickly and easily than before. Currently in a test stage with over 60 industry participants, the MEIS will provide shipping companies with a user-friendly tool for gathering and reporting seatime activities.

In conjunction with the Coast Guard Authorization Act of 1993, this new software will enable shipping companies to electronically transfer mariner sea service information to the Coast Guard, bypassing mail delays and costs and reducing Coast Guard data entry costs. Both the Coast Guard and industry are expected to save hundreds of thousands of dollars each year, thanks to this new electronic submission capability.

Shipping companies using the new software package will experience a reduction in the manual (and repetitive) tasks which are associated with preparing voyage reports. The system will retain a permanent electronic record of each voyage and of each mariner. Information entered once into the system can be reused on future voyages without retyping.

The software can be used in an office of on board a vessel. For example, office personnel will be able to prepare multiple crew lists and send each one electronically to their respective vessels. The MEIS will also be able to transfer mariner information from the magnetic stripe on the back of the new MMD cards into the crew list for a faster and more accurate crew check-in procedure. The system will perform automatic calculations (e.g., wages and sea time) and will work easily with other desktop applications such as word processing, database, or spreadsheet programs.

Shipping companies that are now testing MEIS report savings of the time and paper which are normally

report savings of the time and paper which are normally required to prepare voyages. The point and click Windows interface makes MEIS easy to learn and use. SAIC expects the new MEIS software to be ready for Coast Guard and industry distribution around the end of this year.

Phil Bridges is Coast Guard MID Project Manager at Science Applications International Corporation, (615) 481-2800.



The Coast Guard is expected to save many thousands of dollars because of MEIS, a software that will enable shipping companies to electronically transfer mariner sea service inormation to the Coast Guard. Photo courtesy of Paul Hall Center.

(National Maritime Center)
Continued from page 21

recordation of vessel transactions. The centralization of the vessel documentation services will allow USCG to provide more efficient and effective service by enhancing uniformity, specialization, and expertise of the documentation staff.

The Marine Safety Laboratory provides forensic oil analysis and expert testimony in support of oil pollution law enforcement efforts for Coast Guard field investigators, districts, hearing officers, National Pollution Fund Center, Department of Justice, and other federal agencies. The lab will also plan and conduct research and tests in specific areas identified by Program Managers and approved by the NMC in support of Coast Guard regulatory and international goals.

# U.S. Coast Guard National Vessel Documentation Center **Centralization Update**

The National Vessel Documentation Center began operating on August 1, 1995. The Center was created by consolidation of the U.S. Coast Guard Vessel Documentation Offices located at the ports of Boston, Cleveland, Juneau, New York, Philadelphia, Norfolk, Miami, Houston, New Orleans, Los Angeles, San Francisco, Portland, Seattle, and St. Louis. Documentation staff located at Coast Guard Headquarters are now also part of the new Center.

The 18,000-square-foot Center, located in the Spring Mills Industrial Park at Falling Waters, West Virginia, will have a staff of 101. The new facility, which is leased from a private owner, was designed to enhance the natural work flow and to permit employment of improved processes. It has been occupied and work has begun. The rest of the staff currently assigned in a temporary building will soon move to the new facility.

Vessel documentation, established by the Eleventh Act of the First Congress, is one of the oldest continuing government services. Its primary purpose is to provide evidence of U.S. nationality in the international arena. In addition, it provides evidence of eligibility to engage in specified trade. It also helps to provide capital for the maritime industry by providing for preferred mortgage recording.

Major functions performed at the Center include issuing Certificates of Documentation for vessels operating in coastwise or foreign trade, the U.S. fisheries, or for recreational purposes; filing, recording, and indexing instruments affecting the title to documented vessels; and researching vessel records to provide ownership and lien information in the form of a Certificate of Ownership.

Although the regulation that established the Center also officially closed the 14 former ports of record, limited service is still available at those ports. In order to help with the transition process, the former ports of record will accept instruments for filing and assign them a filing time and date. The instruments will be forwarded to the NVDC where they will be recorded. A copy will be returned after the recording has been completed. Customers who perceive a problem at a port should speak directly to the Coast Guard Unit's Executive or Commanding Officer. If the problem remains unresolved, a call should be made to Mr. Thomas Willis, the NVDC manager, at (304) 264-3815.

Recreational vessel applications should be sent to the NVDC. Until October 1, 1995, owners of commercial vessels may have their applications for documentation processed by documentation personnel in New York, Philadelphia, Norfolk, Houston, New Orleans, Cleveland, and San Francisco as an alternative to submitting requests to the NVDC. Because of the upsurge of shipbuilding and associated commercial work for the New Orleans Office, a small documentation detachment from the NVDC is continuing on a temporary basis. For all other transactions after October 1, submissions must be sent directly to the NVDC for processing.

The records from all ports except Philadelphia, Pennsylvania have been shipped to an accessible storage facility just outside Falling Waters, at Martinsburg, West Virginia. Members of the NVDC staff go to the storage facility every week day in order to retrieve vessel records needed by customers. Although customers who need abstracts of title may place their orders at one of the old ports of record, they will receive faster service by sending their requests directly to the NVDC, along with a check for \$25.00 for each abstract ordered. With few exceptions, abstracts are now being sent out within three days of receipt of the request. Upon request, a copy of the abstract will be faxed as well as mailed. During the transition period, there will be no additional fee for this service.

The toll-free number is 1-800-799-VDOC, the direct number is 304-271-2400, and the fax number is 304-271-2405.

By the end of November, the full complement will be on board. At that time, improved services will be available including payment by credit card. Eliminating the need to send a check will permit customers to order abstracts of title and copies of instruments by telephone.

The Center, which operates under the direction of Coast Guard's National Maritime Center, is managed by Mr. Thomas L. Willis. Mrs. Patricia J. Williams is the assistant manager and is responsible for new, rebuild, and wrecked vessel rulings as well as extraordinary citizenship determinations. The commercial and recreational branches are headed by Ms. Joan Woody and Mr. Dennis Nelson, respectively. The head of the Data Management Branch is Ms. Laura C. Burley.

### PREVENTION THROUGH PEOPLE

Human error is a leading causal factor found in many marine casualties. To reduce these incidents, the Coast Guard has implemented the Prevention Through People initiative which will address human error from an overall systems perspective.

The Coast Guard has identified five categories of human error.

- Management (faulty standards, legislation, inadequate communications or coordination)
- Operator status (fatigue, carelessness, and lack of attention)
- Working environment (poor equipment design, hazardous natural environment)
- Knowledge (lack of technical knowledge and shipboard operations information)
- Decision making (poor judgement and inadequate information)

Common human errors are caused by fatigue, lack of technical knowledge, and lack of crew coordination. Communication or coordination among the crew, pilots, and other vessels is necessary for the safe operation of ships. Two recent passenger vessel incidents demonstrate the lack of effective communication.

### M/V NIEUW AMSTERDAM

On August 9, 1994, the passenger vessel Nieuw Amsterdam ran aground while executing a starboard turn between Blank Island and Gravina Point, Alaska. The vessel sustained severe damage to the port bow resulting in minor injuries and pollution.

#### Communication Failure:

 The communication between pilot and master was inadequate since the planned approach to Ketchikan was not discussed. The master did not have a clear idea of when or where the pilot intended to initiate the turn.

The principles of the Prevention Through People initiative emphasize communication such as between the master and pilot, change of watch information exchange, and ship to ship communication.



By LT Shelley Atkinson

### M/V NOORDAM and M/V MOUNT YMITOS

On November 6, 1993 the passenger vessel Noordam and the freight ship Mount Ymitos collided in the Gulf of Mexico. Both vessels sustained damage from the collision; however, no serious injuries or pollution resulted.

#### Communication Failure:

- The third officer on the Mount Ymitos was the first to notice the inbound Noordam but failed to immediately notify the master and pilot.
- Attempted radio communications between the two vessels were unsuccessful.
- Both vessels failed to sound whistle signals.

This incident might have been avoided through effective communication between the two vessels.

Together these two cases demonstrate how the Coast Guard's Prevention Through People initiative may impact the overall safety of maritime operations. Prevention Through People emphasizes the importance of effective use of people and the resources available to them.

The Coast Guard specifically aims to employ human error detection, assessment, and prevention techniques as part of its marine safety boardings, examinations, and inspections. G-MAO is tasked with improving investigative methods, data collection, analysis and feedback necessary to support the Prevention Through People initiative.

The readers of **Proceedings** are encouraged to comment on this column and to suggest topics to be covered. Contact LT Shelley Atkinson with comments and suggestions at (202) 267-1418.

## Prevention Through People Depends on Human Resource Development— It's a Strategic Issue

By Mr. Stephen L. Civilla

The fact that human error is the major cause of marine casualties is not new. For some time data has been available that shows that between 75 and 96% of all marine casualties are related to this cause in one way or another. The Coast Guard's Prevention Through People (PTP) initiative and report identified the high risk segments of the marine industry, which showed the following distribution of fatalities and oil spills, as a percentage of total casualties, among the illustrated segments of the marine industry.

Segment	Fatalities	Oil Spills
Towing Vessel/Barge Operations	11%	23%
Tank Ship Operations	3%	60%
Fishing Operations	45%	3%
Passenger Vessel Operations	10%	_
Offshore Supply Vessel Operations	3%	_
Totals	69%	86%

As a result of their program, the U.S. Coast Guard and the Towing Safety Advisory Committee (TSAC) are engaged in a collaborative effort to address human error from a systems approach. In addition to this PTP ititiative, changes affecting the maritime work force are now forcing the industry to adopt a more strategic approach to personnel management and development. Rather than viewing personnel issues as events, which are often focused on making sure the vessel sails in compliance with prescribed manning standards, some companies are now approaching personnel management as a long-term process consisting of a logical and natural number of steps that include:

- Recruiting and screening individuals for suitability and longevity characteristics
- Orienting and indoctrinating new hires properly for the job and corporate culture

- Implementing systematic individual training for professional development and career advancement
- Developing team attitudes in crew members
- Enhancing stability through employee assistance and retention programs
- Implementing systems of accountability, assessment and rewards

A primary factor producing this shift in

attitude is a continuing high turn-over rate which, according to Tim Zeringue of Hornbeck Offshore, can approach 60% a year, together with an unacceptable level of accidents. Increased employment opportunities, spurred in part by the opening of new jobs and a continued good marine business climate, is making it more difficult for marine companies to meet their personnel needs. In

the Gulf of Mexico, for example, those needs have grown as the number of boats operating in the Gulf has increased by 16% in the last two years, according to statistics gathered by the Propeller Club of Lafourche Parish, Louisiana.

To compound the problem, significant changes in the work population are likely to increase the pressure in coming years. A Work Force 2000 Report issued by the Hudson Institute projects that there will be 3.8 million fewer workers aged 25-34 by the turn of the century. Moreover, the percentage of women, minorities and immigrants in the work force will continue to grow, requiring marine companies to adapt their corporate cultures for more diversity, and to plan strategically for development and retention of their workers.

The form of administering a personality profile or similar instruments to determine if an individual displays the behaviors and characteristics

important to long-term employment within the marine environment and within the company. Personality screening can also provide information about a potential new-hire's strengths and weaknesses so that training can be targeted to improve the interpersonal skills necessary for good team establishment and function on the vessel.

Many companies now conduct extensive training and cultural development of new-hires to address their pre-determined views of what the industry is like, and what potential it has to offer. At Hollywood Marine, for example, new-hires undergo a twelve-day orientation/training course which covers everything from knot tying to building a tow. This allows the employee to evaluate the job environment and the company, and the company evaluates them while providing a transition into their new environment and their jobs. Marine companies are now learning what their shoreside counterparts learned some time ago-another 20% of employee turnover can be attributed to inadequate orientation into the company, its unique culture, and the new environment the employee will be thrust into.

Once an individual begins work the process of individual and team development must begin. Career development programs are now being implemented to provide a path of career opportunities within the company. "The deckhand that we hire today is potentially tomorrow's captain," says Tom Smith, Vice President of Human Resources at Canal Barge Company. "We try to help them understand that with hard work and a little guidance, they can go from deck hand to a candidate for pilot trainee in about four and a half years, which gives them a real reason to stay with the company." According to Dave Foreman at Hollywood Marine. if employees are offered career paths and provided with assistance in reaching their goals, many will put forth the effort required to succeed." This can pay off with a reduced accident and oil spill rate that can be directly related to the focus companies are making on reduction of turnover, and development and retention initiatives they have instituted. In the last six years Foreman has seen twenty-four people at Hollywood Marine promoted through the ranks from entry-level into the wheelhouse.

When a company spends more resources on recruitment, selection and development, it must also take positive steps to retain its valuable employees. Since it is the licensed individuals on the boats who

have the most impact on crew stability and retention, focus must be put on developing leadership and management skills in the vessel officer. This is an area that has been almost totally neglected in the training and development of vessel officers. As Tom Smith of Canal Barge notes, "The master of the vessel is truly that—not just the driver of the boat. He must also be a manager, leader and supervisor. If you are communicating with your people and preparing them for the job, and your supervisors understand what the plan is and they have the skills needed to do the job, the turnover can dramatically improve."

Unfortunately, the marine industry has been slow to recognize the impact of leadership and human behavoir training on crew retention and reduction of accidents. The world's largest marine service company, Tidewater Marine Services, is breaking new ground in developing and implementing a comprehensive strategic human resource development program. Their program is aimed directly at reducing accidents and to develop and retain a skilled and dedicated work force. Tidewater has contracted with Houston Marine Training Services, a New Orleans based marine training organization that is marketing a six-part program designed to provide a systems approach to human resource development within marine companies. Houston's program strives to combine training and development, organizational development, and career development in order to improve personnel retention and individual, group, and organization effectiveness. It is their belief that these combined elements work not only to improve recruiting and retention, but they lead to dramatic decreases in accident rates. With Houston's help, Tidewater has begun implementing the program within their massive organization for these very reasons.

Houston is currently assisting Tidewater with delivery of their basic and advanced training programs to newly hired personnel, and they are proposing development and implementation of behavoiral screening which is targeted directly to the type of individuals who are most likely to fit the tidewater culture, and whose basic makeup is consistent with a long career in the marine industry. In addition, Tidewater and Houston Marine have devised a unique personnel development program

### Continued from page 27

called the "Tidewater Advancement Program" (TAP) to assist personnel in upgrading their licenses and certificates, and to enhance the management, leadership, and technical skills of their officers.

The upgrading portion of the program, conducted with study materials specially designed by Houston for Tidewater, is mandatory for all ordinary seamen at Tidewater who have completed a specified period at sea. Tidewater particularly likes the concept of self-study because it provides flexibility and serves as an indicator of the employee's dedication, both to his career and to the company. Upon completion of the self-study portion of the program, students go to a study center in New Orleans, Houston, Mobile, Pensacola, or Panama City to complete their study, and to receive help with all their processing and testing at the Coast Guard. Houston then tracks the career and sea service of the individual for Tidewater and notifies them immediately when one of their employees is qualified for upgrade. Tidewater picks up all the costs of such training and licensing, making it as simple as possible for personnel to achieve their maximum potential, and ensuring that there is a ready pool of Coast Guard licensed and documented employees available at all times.

Another component of Tidewater's program developed and implemented by Houston is called the "Vessel Officer Seminar." It is designed to develop and enhance the leadership and human relationship skills of masters, mates and engineers within the fleet. The program focuses on human behavior as well as performance standards to assist the officer in his or her role as vessel manager. In a second series of Vessel Officer Seminars, licensed personnel will learn specific bridge management and accident reduction skills, including error-chain analysis and prevention. By the end of next year, Houston Marine and Tidewater intend to conduct the third phase of this training with a bridge simulator.

This far-reaching and creative program is Prevention Through People in action. According to Ron Newton, an instructor for Houston Marine who conducts the Vessel Officer Seminars, "Safety is 99% communications. A company must determine what corporate and functional teams can do to enhance communication, provide them with the appropriate tools, and teach them to use those tools effectively. You have to play to the strengths of the average maritime personality, recognizing that the

typical officer has excellent command skills but they often cover their inherently weak communication skills by being more authoritative." In the Vessel Officer Seminars, officers are taught to communicate with different personality types and learn ways to open lines of communication between the crew and the wheel house, and to begin the process of learning to manage diversity. Tidewater Marine Service expects this increased attention on "soft skills" will enable individuals to work safer and smarter, thereby significantly reducing personal injuries, as well as collisions and property damage. "Quality operations are inherently safe," says Larry Rigdon, Senior Vice President of Tidewater. "With the price of everything, including insurance rates, going up by leaps and bounds, a reduction in accidents puts money back into everyone's pockets." Since beginning its new human factors initiative, Tidewater has seen a reduction in lost-time accidents by over 70%.

As evidenced by the steps these companies are taking to create a process rather than merely cope with events, strategic human resource development is not only good for their people, it is good for business today, and may be essential to the future of marine companies who will compete fiercely for human resources. It is time for the Coast Guard and the maritime industry to undergo the cultural change needed to address the human-related issues.

Steve Civilla is the Chief Operating Officer of Houston Marine Training Services in New Orleans, LA, and chief architect of the strategic human resource development process described in this article. He is also a member of the U.S. Coast Guard's Towing Safety Advisory Committee working group on Prevention Through People.

# Mariner's Seabag

### **Merchant Marine Examination Publications**

The Merchant Marine Engineering Examination New and Revised Questions, COMDTPUB P16721.37B, has been released to the public. This publication makes available the new and revised questions in the merchant marine examination question bank. The public has the opportunity to review and comment on the questions' clarity and accuracy. This publication should be used in conjunction with the others in this series.

The questions in this collection reflect additions and changes to the questions in the data bank as of 1 July 1995. The Coast Guard will continue to develop new questions and use them in merchant marine examinations prior to releasing them to the public. The questions as printed herein will serve as a guide to the types of questions that may be encountered on the exams.

Some questions require the use of the MERCHANT MARINE ENGINEERING EXAMINATION ILLUSTRATION BOOK, COMDTPUB P16721.7C, dated June 1995. This publication contains all the illustrations referred to by engineering questions. Copies of both publications are available from the Government Printing Office at the following address:

> Superintendent of Documents U.S. Government Printing Office Washington, DC 20402 Telephone: 202-512-1800

The Merchant Marine Deck Examination New and Revised Questions, publication number COMDTPUB P16721.40, dated May

1994, is the last deck question publication to be issued. Another deck question publication is expected to be published early in 1996.

### New Address

The Office of Marine Safety, Security and Environmental Protection has reorganized and established the National Maritime Center. The Marine Examination Branch (NMC-4B) is composed of the former Merchant Marine Personnel Division's Qualifications Branch and Merchant Marine Examination Branch. It is now located and assigned to the National Maritime Center. It includes:

- 1) Pilotage Coordination Division, formerly G-MVP-7, now NMC-2, responsible for Great Lakes Pilotage programs;
- 2) Marine Personnel Branch, formerly G-MVP-1, now NMC-4A, responsible for Merchant Mariner Documents, licenses/MMD databases, and mariner's sea service (shipping articles and certificates of discharge).

Licensing and manning issues have been redistributed to G-MCO-1 and G-MOS-1 and are located at Coast Guard Headquarters. The overall functions of these groups have not changed significantly, with the near term goal being to improve service.

The address for the Examination Branch is:

National Maritime Center (NMC-4B) **Examination Administration Branch** 4200 Wilson Blvd., Suite 510 Arlington, VA 22203-1804 FAX Number 703-235-1062

The following deck questions should be answered using chart number 12221TR, Chesapeake Bay Entrance.

The draft of your tow is 27 feet (8.2 meters). There is no gyro error, and the variation is 10° W. The deviation table is:

HDG. MAG	DEV.	HDG. MAG	DEV.	HDG. MAG	DEV.
000°	<b>0</b> °	<b>120°</b>	2° W	240°	3° E
030°	1° W	150°	1° W	<b>270°</b>	3° E
060°	2° W	180°	1° E	300°	2° E
0 <b>90</b> °	4° W	<b>210°</b>	2° E	330°	1° E

- 6. Your 0200 position is LAT 37°23.5' N, LONG 76°09.2' W. Your speed is 8 knots, and your course is 095° T. Which statement is TRUE?
- A. The depth of the water in your vicinity is about 38 to 40 fathoms (69.1 meters to 72.7 meters).
- B. You are less than a mile from a sunken wreck which could interfere with your tow.
- C. The closest major aid to navigation is New Point Comfort Light.
- D. You will pass through a disposal area on your present course.
- 7. At 0315, you obtain the following loran readings:

9960-Y-41588.0 9960-X-27240.0

What is the true course from this position to the entrance of York Spit Channel?

- A. 203°
- B. 208°
- C. 211°
- D. 217°
- 8. From your 0315 position, what time can you expect to reach York Spit Channel Buoys "37" and "38"?
- A. 0405
- B. 0412
- C. 0417
- D. 0423

- 9. The engineer has advised that it will be necessary to secure the gyrocompass and the electronic equipment. From your 0315 position, what is your course per standard magnetic compass to York Spit Channel Buoy "38", if there is no current?
- A. 212° psc
- B. 214° psc
- C. 216° pscD. 218° psc
- 10. Which chart could you use for greater detail of the area at the south end of York Spit Channel?
- A. 12222
- B. 12224
- C. 12226
- D. 12254
- 11. You leave York Spit Channel at buoy "14" at 0600 with an engine speed of 12 knots. You receive orders to rendezvous with the tug "Quicksilver" and her tow at Hog Island Bell Buoy "12". What is your ETA at the rendezvous point, if you pass through Chesapeake Channel to buoy "CBJ", through the outbound traffic separation lane to buoy "NCA" (LL#375), and then to the rendezvous point?
- A. 0830
- B. 0850
- C. 0910
- D. 0935

12. You arrive at the rendezvous point, secure the tow, and head back southward. At 1200, you take the following loran readings:

9960-Y-41534 9960-X-27114 9960-Z-58691

What is your 1200 position?

- A. LAT 37°10.5' N, LONG 75°33.0' W
   B. LAT 37°12.0' N, LONG 75°35.0' W
   C. LAT 37°15.0' N, LONG 75°37.5' W
   D. LAT 37°19.0' N, LONG 75°40.5' W
- 13. From your noon position, if there is no set and drift, what is your course per standard magnetic compass to the "NCA" (LL #375) buoy?
- A. 215° psc B. 217° psc C. 219° psc D. 221° psc
- 14. Your gyro and electronic gear are again operating. At 1710, Chesapeake Light bears 137° pgc at 6.6 miles. The current is setting 160° T at 2 knots. At your speed of 6 knots, what is your true course to steer to remain in the inbound traffic lane?
- A. 269° B. 265° C. 261° D. 250°
- 15. At 1810, you obtain the following lorah readings:

9960-X-27158.0 9960-Y-41292.5 9960-Z-58546.9

What is your position?

- A. LAT 36°56.0' N, LONG 75°58.5' W
  B. LAT 36°55.4' N, LONG 75°56.0' W
  C. LAT 36°54.9' N, LONG 75°53.8' W
  D. LAT 36°56.8' N, LONG 75°55.6' W
- 16. What speed have you made good from 1710 to 1810?
- A. 4.2 knots B. 4.9 knots C. 5.5 knots D. 6.3 knots

- 17. If you make good a speed of 6.0 knots from your 1810 position, what is your ETA at Chesapeake Channel Lighted Bell Buoy "2C"?
- A. 1833 B. 1845 C. 1855 D. 1900
- 18. You passed Cape Henry Light at 0730 outbound at maximum flood. What approximate current can you expect on entering Chesapeake Channel?
- A. Slack before ebb
  B. Slack before flood
  C. Ebb current
  D. Flood current
- 19. The coastline by Cape Henry is best described as
- A. rocky with pine scrubs
  B. såndy hills about eighty feet high
  C. low wetlands
- D. low and thinly wooded with many beach houses
- 20. Inbound, the color of Cape Henry Light will
- A. change before you reach Chesapeake Channel Lighted Bell Buoy "2C"
- B. change after you reach Chesapeake Channel Lighted Bell Buoy "2C"
- C. remain the same
- D. \*alternate regardless of your position

### **ANSWERS**

6-B, 7-B, 8-A, 9-C, 10-A, 11-C, 12-C, 13-B, 14-A, 15-D, 16-D,17-A, 18-D, 19-B, 20-A.

If you have any questions concerning Nautical Queries, please contact the National Maritime Center. Telephone: (703) 235-1300.

### **Final Rule**

CGD 94-902, Obsolete Bulk Hazardous Materials (46 CFR Parts 30, 150, 151, and 153) RIN 2115-AF06 (June 29)

The Coast Guard is amending its regulations on carriage of bulk hazardous materials by deleting commodities from its regulations that are no longer viable as bulk liquid cargoes, and cancelling the classifications of obsolete commodities not included in those regulations. This action will help to ensure that Coast Guard requirements are current and that the hazardous materials tables and lists are free of entries that unnecessarily complicate the Coast Guard's regulations.

DATE: This rule is effective on August 28, 1995.

Addresses: Unless otherwise indicated, documents referred to in this preamble are available for inspection or copying at the office of the Executive Secretary, Marine Safety Council (G-LRA/3406) (CGD 94-056), U.S. Coast Guard Headquarters, 2100 Second Street, S.W., Room 3406, Washington, DC 20593-0001 between 8 a.m. and 3 p.m. workdays. Telephone: (202) 267-1477.

For further information, contact: Mr. Curtis G. Payne, Hazardous Materials Standards Branch (G-MOS-3), (202) 267-1577.

### **Final Rule**

CGD 95-901, Noxious Liquid Substances Lists (33 CFR Part 151) RIN 2115—AF08 (June 29).

The Coast Guard is amending its Noxious Liquid Substances (NLS) regulations to include substances recently authorized for carriage by the Coast Guard or added to the IMO Chemical Codes and by making minor technical and editorial changes and corrections. This action also updates the current lists of oil-like and non-oil-like NLSs allowed for carriage.

DATE: This rule is effective on June 29, 1995.

Addresses: Unless otherwise indicated, documents referred to in this preamble are available for inspection or copying at the office of the Executive Secretary, Marine Safety Council (G-LRA/3406) (CGD 94-056), U.S. Coast Guard Headquarters, 2100 Second Street,

S.W., Room 3406, Washington, DC 20593–0001 between 8 a.m. and 3 p.m. workdays. Telephone: (202) 267-1477.

For further information contact: Mr. Curtis G. Payne, Hazardous Materials Standards Branch (G-MOS-3), (202) 267-1577.

### **Final Rule**

CGD 95-057, Clarification of Coast Guard Rulemaking Procedures (33 CFR Parts 1, 23, and 177) RIN 2115-AF20 (June 30).

The Coast Guard is revising the regulations describing its rulemaking procedures to accurately reflect the rulemaking procedures currently in use. This revision clarifies delegations of authority and removes references to hearing officers, which the Coast Guard no longer uses in its regulatory process. It also clarifies who is designated to receive service of process and requests to testify on behalf of members and employees of the Coast Guard.

**DATE:** This rule is effective on June 30, 1995.

Addresses: Unless otherwise indicated, documents referred to in this preamble are available for inspection or copying at the office of the Executive Secretary, Marine Safety Council (G-LRA/3406) (CGD 94-056), U.S. Coast Guard Headquarters, 2100 Second Street, S.W., Room 3406, Washington, DC 20593-0001 between 8 a.m. and 3 p.m. workdays. Telephone: (202) 267-1477.

For further information, contact: LT R. Goldberg, Staff Attorney, Regulations and Administrative Law Division, Office of Chief Counsel, U.S. Coast Guard Headquarters, (202) 267-6004.

#### Final Rule

CGD 88-049, Waterfront Facilities Handling Liquefied Hazardous Gas (33 CFR Parts 126 and 127) RIN 2115 AD06 (August 3, 1995).

The Coast Guard is amending its regulations for waterfront facilities capable of transferring liquefied hazardous gas, or "LHG", in bulk, to or from vessels. The transfer of LHG presents hazards similar to those from the transfer of liquefied natural gas, or "LNG", yet facilities capable of transferring LNG in bulk are

subject to much more stringent requirements. The amended regulations will strengthen the requirements for the transfer of LHG and move those requirements from part 126 to part 127.

**DATE**: This rule is effective on January 30, 1996. The Director of the Federal Register approves as of January 30, 1996 the incorporation by reference of certain publications listed in this rule.

Addresses: Unless otherwise indicated, documents referred to in this preamble are available for inspection or copying at the office of the Executive Secretary, Marine Safety Council (G-LRA/3406) (CGD 94-056), U.S. Coast Guard Headquarters, 2100 Second Street, S.W., Room 3406, Washington, DC 20593-0001 between 8 a.m. and 3 p.m. workdays. Telephone: (202) 267-1477.

For further information contact: CDR Dennis Haise, Vessel and Facilities Operating Standards Branch, Office of Marine Safety, Security and Environmental Protection. Telephone (202) 627-6451.

#### Final Rule

CGD 08-94-006, Regulated Navigation Area; Mississippi River, Miles 88 to 240 Above Head of Passes (33 CFR Part 165) RIN 2115-AE81 (July 25).

The Coast Guard is adopting as final an interim final rule published in April 1994 extending the upper limits of the Mississippi River Regulated Navigation Area to cover the area between river miles 127 and 240, above Head of Passes, up to the Port of Baton Rouge. This regulation is necessary to improve the safety of barge fleeting areas that exist on the Mississippi River between New Orleans and Baton Rouge, Louisiana, an extremely confined navigation area with a high volume of marine traffic. The Coast Guard believes that the extension of the Regulated Navigation Area has resulted in a decrease in the number of barge breakaways along the lower Mississippi River between New Orleans and Baton Rouge, Louisiana, although the lack of a high water season earlier this spring may have also contributed to this reduction.

**DATE:** This rule is effective on July 25, 1995.

For further information, contact: CDR Harvey R. Dexter, Marine Safety Division, Eighth Coast Guard District, telephone (504) 589-6271.

### **Final Rule**

CGD 94-070, Facsimile Filing of Instruments (46 CFR Part 67) RIN 2115-AE98 (August 7).

The Coast Guard is amending its vessel documentation regulations to provide for optional filing of commercial instruments by facsimile, and to establish a filing and recording handling fee for filing instruments by facsimile. The option of filing commercial instruments by facsimile complements the centralization of Coast Guard vessel documentation services. Facsimile filing of commercial instruments will assist the centralized vessel documentation center to deliver timely services to distant vessel documentation customers and is responsive to time sensitive matters. Filing commercial instruments by facsimile will further streamline the vessel documentation process.

Date: This rule is effective on October 1, 1995.

Addresses: Unless otherwise indicated, documents referred to in this preamble are available for inspection or copying at the office of the Executive Secretary, Marine Safety Council (G-LRA/3406) (CGD 94-056), U.S. Coast Guard Headquarters, 2100 Second Street, S.W., Room 3406, Washington, DC 20593-0001 between 8 a.m. and 3 p.m. workdays. Telephone: (202) 267-1477.

For further information, contact: Ms. Patricia Williams, National Vessel Documentation Center; (800) 799-8362.

### **Final Rule**

CGD 94-056, IMO Special Areas (33 CFR Parts 151 and 155) RIN 2115-AE97 (August 21).

The Coast Guard is issuing regulations to designate the Antarctic area as a special area under Annexes I (oil), II (noxious liquid substances), and V (ship generated garbage) of MARPOL 73/78. It is also issuing regulations designating the Gulf of Aden as a special area under Annex I, the Baltic Sea area and the Black Sea area as special areas under Annex II, and the Wider Caribbean region as a special area under Annex V, of MARPOL 72/78.

**DATE:** This rule is effective November 20, 1995.

Addresses: Unless otherwise indicated, documents referred to in this preamble are available for inspection or copying at the office of the Executive Secretary, Marine Safety Council (G–LRA/3406) (CGD 94–056), U.S. Coast Guard Headquarters, 2100 Second Street, S.W., Room 3406, Washington, DC 20593–0001 between 8 a.m. and 3 p.m. workdays. Telephone: (202) 267-1477.

For further information, contact: LCDR Ray Perry, Policy Contact, Environmental Standards Branch (G-MOS-4). (202)267-2714.

### **Final Rule**

CGD08-94-032, Drawbridge Operation Regulations; Lafourche Bayou, LA (33 CFR Part 117) RIN 2115-AE47 (August 21).

At the request of the Greater Lafourche Port Commission, the Coast Guard is changing the regulation governing the operation of the following two drawbridges across Lafourche Bayou, in Lafourche Parish, Louisiana: (a) The State Route 1 (Galliano-Tarpon) vertical lift span bridge, mile 30.6, at Cutoff, Louisiana, and (b) The State Route 1 (Cote Blanche) pontoon bridge, mile 33.9, at Cutoff, Louisiana.

This new regulation will require that the bridges open on signal; except that, from 2 to 3 p.m. and from 4:30 to 5:30 p.m., Monday through Friday, other than Federal holidays, the bridges will be permitted to remain closed to navigation.

Presently, the draws of the bridges are required to open on signal at all times. This action will provide for the uninterrupted flow of school bus and other vehicular traffic while still providing for the reasonable needs of navigational interests.

**DATE:** This regulation becomes effective on September 20, 1995.

Addresses: Unless otherwise indicated, documents referred to in this preamble are available for inspection or copying at the Office of the Commander (ob) Eighth Coast Guard District, 501 Magazine Street, Room 1313, New Orleans, LA 70130-3396, between 8 a.m. and 3 p.m. workdays. The telephone is (504) 589-2965.

For further information, contact: Mr. John Wachter, Bridge Administration Branch, at the address given above. The telephone is (504) 589-2965.

### **Final Rule**

CGD 93-081, Designation of Lightering Zones (33 CFR Part 156)RIN 2115-AE90 (August 29).

The Coast Guard is designating four lightering zones in the Gulf of Mexico, each more than 60 miles from the baseline from which the territorial sea of the United States is measured. By using these lightering zones, single hull tank vessels contracted for after June 30, 1990, and older single hull tank vessels phased out by the Oil Pollution Act of 1990, will be permitted to offload oil in the U.S. Exclusive Economic Zone until January 1, 2015 for transshipment to U.S. ports. This rule establishes the first lightering zones designated by the Coast Guard. It also establishes three areas in the Gulf of Mexico where all lightering will be prohibited.

DATE; This rule is effective on August 29, 1995.

Addresses: Unless otherwise indicated, documents referred to in this preamble are available for inspection or copying at the office of the Executive Secretary, Marine Safety Council (G–LRA/3406) (CGD 94–056), U.S. Coast Guard Headquarters, 2100 Second Street, S.W., Room 3406, Washington, DC 20593–0001 between 8 a.m. and 3 p.m. workdays. Telephone: (202) 267-1477.

For further information, contact: CDR Stephen Kantz, Project Manager, (202) 267-1934.

### **Notice of Termination**

CGD 82-058, Safety Standards for Self-Propelled Vessels Carrying Bulk Liquified Gases (46 CFR Parts 40 and 154) (September 5).

This rulemaking was initiated to amend the Coast Guard's regulations concerning safety standards for self-propelled vessels carrying bulk liquefied gases. The proposed rules would have aligned the regulations with the amendments to the IMO Code on which the regulations were based. At this time, the Coast Guard wishes to focus its available resources on actions of higher priority. Therefore, the Coast Guard is terminating further rulemaking under docket number 82–058.

**DATE:** This notice was dated August 18, 1995.

For further information, contact: Mr. Thomas J. Felleisen, Hazardous Materials Standards Branch (G-MOS-3), Office of Marine Safety, Security and Environmental Protection, (202) 267-117.

# Simulation Training at Our Nation's Federal and State Maritime Academies

by Captain R. J. Meurn, Master Mariner and Captain, U.S. Naval Reserve (Ret.)

A chain of errors caused by the inability to prioritize procedures on the bridge of a merchant vessel results in the grounding of the vessel. The vessel overshoots its position into the channel and runs hard aground one mile north of the Muelle Pier in Limon Bay, Panama. Thousands of barrels of oil are leaking into the bay and the southbound transit of the Panama Canal has to be suspended. The third mate has no idea how the vessel overshot its wheel-over position. The vessel's master had stepped off the bridge moments before and told the third officer the bearing and distance from the east breakwater for the change of course into the channel.

Fortunately the vessel is the simulated tanker MV CAPELLA on the Marine Safety International Computer Assisted Operational Research Facility (CAORF) ship bridge simulator at the U.S. Merchant Marine Academy, Kings Point. The third officer was a cadet on a watch team consisting of the officer of the watch, navigator, radar observer and helmsman. All are senior cadets who have completed their year at sea.' There is no real damage or pollution, and now the watch team will be debriefed for an hour by a certified instructor who possesses a Master's license and has sailed as master. He will discuss all evolutions along with the chart, passage plan, departure check list and contingency plans. The instructor had been observing the team from a control station, taking notes, watching the two fixed and three remotely controlled low-light television cameras and making printouts from the bird's eye view of the vessel and its track. Through careful, low key and non-accusatory techniques, the instructor will help the cadets ascertain the cause of the grounding and they will learn valuable lessons from the experience.

The above scenario is one of ten one-hour enactments cadet watch teams will be involved with during a ten-week quarter at the U.S. Merchant Marine Academy. The training consists of scenarios shown in Table One. Similarly, cadets at the Massachusetts Maritime Academy, Maine Maritime Academy, Texas Maritime Academy, California Maritime Academy,

Great Lakes Maritime Academy and the State University of New York Maritime College (Fort Schuyler) are being trained through the utilization of ship bridge simulators. At all the academies, the bridge watchstanding course is the capstone course in the deck curriculum where theory and practice are brought together under the guidance of experienced master mariners. All training is coordinated through the Maritime Academy Simulator Committee. Known as MASC, it is composed of two simulator instructors from each academy, a Maritime Administration Training Specialist and a U.S. Coast Guard representative from Merchant Vessel Personnel. The purposes of MASC are to:

- 1) Determine common standards for certification of simulators, programs and instructors.
- Develop a standardized curriculum for ship bridge simulation of cadets.
- Determine sea time equivalency ratios for full mission and part task simulators.

Standards of instruction were developed at a "Train-the-Instructor Course," which was held at the U.S. Merchant Marine Academy from 14 through 18 August 1995. Two instructors from each maritime academy attended the week-long course. Topics covered included generic lab teaching, hydrodynamics for simulation applications and limitations, development of a ship bridge simulator-based learning system, and development of instructional strategy for simulation via design workshop and instructor attributes. The instructors were able to observe USMMA cadets in an exercise simulating arrival at Cristobal and the debrief. Then they debriefed the debrief.

They also used the State University of New York Maritime Academy's NORCONTROL ship bridge simulator to design an exercise and test their exercise on cadets. The availability of the ship bridge simulator at Fort Schuyler for two days was instrumental in the success of this course. In addition to the above, the



Control station operator John Rizzuto and Captain George Sandberg observing cadet team on simulated bridge of MIV Capella. On the control station of the MSI CAORF ship bridge simulator the same visual scene as the cadets observe on the bridge (on much larger screens) can be seen across the top with TV monitoring screens and the bird's-eye view of the visual situation display, whose scale is controlled by the mouse. In addition, all bridge conversations can be heard and VHF or sound-powered communications can be initiated from this control #Mblod courtesy of CAORF.

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Maritime Administration, in conjunction with the

Volpe National Transportation Systems Center
(VNTSC), has allocated moneys for the following two research projects.

- Evaluate proposed standards for certification of simulators, training programs and instructors.
- Validation of Model Simulator Curriculum: Refine and evaluate a standardized curriculum for cadet simulator training.

With the research above (which is close to

completion) and the work of MASC, we can look forward to a very strong certified ship bridge simulator course at all the maritime academies where training is standardized and cadets are trained by extremely well qualified instructors. Safety at sea can demand no less than this high quality of the overall learning experience insofar as this learning transfers effectively to actual

operations. It appears that transfer has occurred in varying degrees, although the mariner-instructors believe that optimal transfer has been inhibited by variability in the bridge resources management practices aboard ship. Continued research will validate the effectiveness of training, because concern about recent marine casualties has focused attention on the use of ship bridge simulators for the training, performance evaluation and license assessment of mariners.

Robert J. Meurn, master mariner and Captain, U.S. Naval Reserve (Ret.) has sailed with several merchant lines and as a gunnery officer with the U.S. Navy. He is a member of the International Marine Simulation Forum and the International Radar and Navigation Simulator Lecturers Conference, and is currently a full professor in the Department of Marine Transportation at the U.S. Merchant Marine Academy.

### **USMMA Cadet Ship-Bridge Simulator Scenarios**

Each section is divided into Bridge Watch Teams of 3 or 4 Cadets each. Watch teams meet as follows:

Teams	Time	
Al and A2	0700 - 1000	
A3 and A4	0700 - 1000	
Bl and B2	0700 - 1000	
B3 and B4	0700 - 1000	
	Al and A2 A3 and A4 Bl and B2	

After each hour on the simulator, the watch team is thoroughly debriefed for an hour. Prior to the scheduled time on the simulator, each watch team prepares, for at least an hour, for the scheduled event.

The entire section (Groups A and B) meets every Friday from 1310-1400 for the classroom session for debriefing and preparation for the next week's scenario.

Time on Simulator

#### **VOYAGE NEW YORK TO PORT INTERNATIONAL SCENARIOS**

For Each Watch Team	
1/2 hour	Bridge and Vessel familiarization.
3/4 hour	Vessel at Stapleton - Prepare for Sea Master on bridge weigh anchor; Full away - Master departs bridge (day)
1 hour	Prepare for arrival and arrive New York (night) Sandy Hook pilot boards, Master in cabin, Pilot/Watch Officer relationship and transfer of watch in pilotage waters.
2 hours	At-Sea Rules of the Road scenarios; various steering failures and reduced visibility (day and night).
1 hour	Prepare for arrival and arrive Cristobal anchorage (sunrise); begin grading watch teams.
1 hour	Prepare for departure and depart from Cristobal (day).
1 hour	Transit Singapore Straits and transfer of watch (night).
1 hour	California Coast watch in vessel traffic lane and transfer of watch (day).
1 hour	Arrival preparation and arrival Santa Cruz Channel for Port International (day).
1 hour	Depart Port International under Santa Cruz VTS in a mine swept channel for sea (night).



# **MEBA Engineering School Training for the 21st Century**

By Mr. Lawrence H. O'Toole and Mr. Arthur Newberry

For more than 120 years the Marine Engineer's Beneficial Association (MEBA) has provided highly trained merchant marine officers to crew ships of major U.S.-flag shipping companies such as Sea-Land Services, American President Line, Lykes Lines, Waterman-Central Gulf, Keystone Shipping, Maritime Overseas Corporation, and Marine Transport Lines. MEBA is America's first maritime union, established in 1875. The nation's first union-company operated maritime school, the Calhoon MEBA Engineering School in Baltimore, Maryland, began in 1966 under the direction of Roy A. Luebbe. It was established by the MEBA Training Plan. The School had a USCGapproved Cadet Program that operated for over 22 years and graduated more than 2,000 highly trained third assistant steam and motor engineers. In conjunction with the Cadet Program, continuing education courses were offered to seagoing members so they could improve their professional skills and upgrade their license requirements.

Today the MEBA Engineering School is located in Easton, Maryland. It offers its members 23 different professional courses. The facility has a 100-room dormitory, classrooms, and complete facilities for its different courses. These include laboratories for Electronics, Electricity, Refrigeration, Instrumentation and Global Maritime Distress and Safety System (GMDSS); workshops for Machine Shop and Welding; simulators for Diesel Engine Throttle and Steam Plant; a full-size low-speed diesel engine trainer; and a swimming pool for Water Survival. With these facilities, MEBA can offer ships' engineers and deck officers of our contracted companies an outstanding selection of regulatory required and professional courses.

The student body is composed of all levels of licensed engine, deck, and radio officers sailing for U.S. shipping companies under contract with MEBA. These companies are involved with varying types of

marine transportation operations—containers, break bulk, tankers, liquefied natural gas (LNG) carriers, bulk carriers, passenger ferries, and Military Sealift Command. The educational background of the MEBA membership is quite varied. Its members include male and female graduates from the Calhoon School Cadet Program, federal and state maritime academies, unlicensed seafarers of the Merchant Marine, and former Navy and Coast Guard personnel with seagoing experience. The students range from recent graduates of maritime academies to senior Merchant Marine officers. This diverse background of MEBA membership challenges the instructors to develop courses that meet the needs of this wide range of backgrounds. Increasingly stringent requirements of international and governmental agencies such as the IMO, USCG, and Environmental Protection Agency demand that today's mariner not only master the operation of the vessel, but also be acutely aware of the potential environmental hazards, environmental regulations, and their correct relationship. The MEBA School meets these challenges of the regulatory requirements in today's shipping industry by offering courses in Tankship Safety, Dangerous Liquids (For the Person in Charge

[PIC]), LNG Tankship Liquefied Gas (PIC), Advanced Firefighting/Hazardous Materials Technician, Refrigerant Transition and Recovery certification, Benzene Awareness, CPR, Inert Gas System-Crude Oil Washing (IGS-COW), and Ship's Medicine.

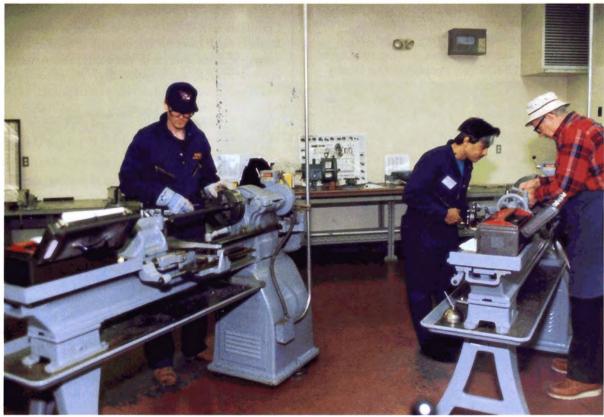
Shipping companies expect senior officers to be adept at managing personnel and computer technology as well as at operating plants effectively and efficiently without damaging the environment. The Ship's Management, Computer Operations and Program Usage, and Marine Engineering Seminar courses focus on state-of-the-art topics and are offered to develop the management skills of marine officers. The School hosts seminars on topics related to the Maritime Industry such as ISO 9000 and Maritime Training.

The use of electronics in ships' control systems has required the marine engineer to expand his or her knowledge base beyond main propulsion and auxiliary systems. In addition to our marine engineering courses in Diesels, Machine Shop and Welding, Steam, and

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Machine shop training.







Electricity course training.

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Refrigeration, we have expanded the area of electricity and electronics by offering courses in Electrical Troubleshooting, Instrumentation, Analog and Digital Electronics, and GMDSS for operators. Our faculty developed many of these courses using the International Maritime Organization (IMO) Model Courses. They are USCG approved for sea service credit.

Drawn from the industry, our faculty is composed of men and women with senior licenses who have decades of seagoing experience as well as those with expertise in education, training development and shore-side electricity and electronics. Because of the wide range of topics and the expertise required, the faculty is made up of both full- and part-time instructors. This highly qualified faculty creates the success of our educational program. They pay attention to sound principles and techniques of learning to enhance the success of every student.

MEBA's commitment to meeting the needs of mariners into the 21st century results in a broader educational program. In addition to the training it offers in Easton, Maryland, MEBA sends instructors throughout the country offering short courses in the Union halls in Refrigerant Transition Recovery

Certification, IGS-COW, and Benzene Awareness. Members also have the opportunity to take selected correspondence courses in electricity, electronics, instrumentation, and ship stability. We allow members to take approved manufacturer's courses such as those offered by Woodward Governor and Caterpillar Diesels. The first of many planned educational videos, *Vapor Recovery*, is now available to members for shipboard viewing.

The MEBA is dedicated to providing, through its training plan, Merchant Marine Officers of the highest caliber to the Maritime Industry.

The International Maritime Organization has established its objective: "Cleaner Oceans and Safer Ships." We support this objective at the MEBA School through our programs and courses. At the MEBA School we have our own principle. It is "A Well Trained Crew Means a Safe Ship."

For further information about training programs at MEBA, call Larry 0'Toole, Director, or Art Newberry, Assistant Director, Academic Programs, at (410) 822-9600.

# Award Recognizes Excellence in Marine Environmental Protection

By CDR Thomas R. Reilly

Symbolic of the joint efforts of the U.S. Coast Guard and leaders of the maritime community in protecting the marine environment, the William M. Benkert Award was created to recognize excellence in marine environmental protection. The first annual William M. Benkert Award ceremony was held at Coast Guard Headquarters on 20 September 1995. Deputy Secretary of Transportation Mortimer L. Downey, Coast Guard Commandant Admiral Robert M. Kramek and RADM James C. Card, Chief, Office of Marine Safety, Security and Environmental Protection presided over this groundbreaking ceremony.

This premier national award is named after RADM William M. Benkert (1923-1989), a distinguished Coast Guard officer who is remembered as the father of the Coast Guard Marine Environmental Protection Program. As the first Chief of the Office of Environment and Systems, from 1972-1974, RADM Benkert initiated many of the programs stemming from the Federal Water Pollution Control Act of 1972. Throughout his career he was admired for his very unique leadership style and his role as a world leader in marine environmental protection.

The William M. Benkert Award Ceremony formally recognizes leaders in the maritime community who are truly committed to doing what is needed to ensure a pristine marine environment. This award is

intended to provide both national and international recognition to industry leaders displaying innovation, creativity and a true commitment to protection of our complex marine environment from adverse impacts connected with human activities.

### Awards

Companies competed in four categories. The Benkert Application Report was the primary instrument used in the evaluation process.

The 1995 William M. Benkert Award winners and runners-up, per category, are as follows:

Deputy Secretary of Transportation Mortimer Downey speaks as ADM Kramek (l) and RADM Card attend.

- The Large Vessel Operator winner is Kirby Corporation. Honorable mention award recipients are Maritrans, Incorporated and Mobil Shipping and Transportation Corporation.
- Small Vessel Operator winner is Yutana Barge Lines, Incorporated. Honorable mention award recipients are American Heavy Lift Corporation and Morania Oil Tanker Corporation.
- The Large Facility Operator winner is Occidental Chemical Corporation's Ingleside, Texas plant. The honorable mention award recipients are Norfolk Naval Shipyard and Star Enterprise's Port Arthur facility.
- The Small Facility Operator winner is Portland Pipe Line Corporation. Honorable mentions go to Cape Canaveral Marine Services, Incorporated and Cliff Berry, Incorporated.

### **Environmental Management Systems**

Concerning the Benkert Application report, the first category, environmental management systems, is linked to recent international standards' developments. Adhering to President Clinton's Regulatory Reinvention Initiative, the Coast Guard has established a goal of



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utilizing international standards to the maximum extent possible. In keeping with this goal, the Coast Guard endorses the use of the International Standards Organization's Guide to Environmental Management Principles, Systems and Supporting Techniques, which was used as the basis for evaluation of the first section of the Benkert Application Report.



Mrs. William M. Benkert and ADM Robert M, Kramek at the first annual William M. Benkert Award ceremony.

Effective implementation of an environmental management system requires an organization, and its senior management, to demonstrate a strong commitment to marine environmental protection. This generally involves a highly disciplined approach including the prioritization of environmental issues, and the development of policy, objectives and targets. Both Occidental Chemical Corporation and Portland Pipeline excelled in this area.

### **Programs and Services**

Environmental programs, technologies or services provide the basis for the second Benkert Application Report evaluation category. Programs could be designed to reduce risk or, perhaps, to increase a targeted performance indicator. New technologies might address such areas as alternative processes, product redesign or other technical innovations designed to both increase opportunities for competitive advantage and increase marine environmental protection. Innovative and profitable services are also encouraged. In the area of providing environmental services that are making a difference to the marine environment, Yutana Barge Lines, Inc. is a clear leader. Yutana Barge Lines' vessels provide petroleum products to the small villages in America's final

frontier, the hinterlands of Alaska. Specifically, Yutana Barge Lines, Inc. is lauded for their collection of solid waste for proper disposal on their vessels' return trip, thereby helping to preserve Alaska's pristine frontier environment.

### Outreach

Providing environmental education and outreach, the basis of the third section of the Benkert Application Report, increases the awareness of large sectors of marine users. Perhaps the best environmental outreach example was provided by Star Enterprise's Port Arthur facility which has a number of environmental outreach products designed to educate the public through an array of ingeniously devised formats. The CAPT WOW magazine and coloring book provide an entertaining vehicle for relaying a strong anti-pollution message.

### **Partnerships**

Environmental Partnerships, the theme of the fourth section of the Benkert application Report, are formed to pool scarce resources with other organizations with similar environmental goals. As "Stewards of the marine environment," the Coast Guard's environmental goals are numerous and inspire strong partnerships for enhancing the quality of our marine environment. Kirby Corporation provided a particularly outstanding example of effective environmental partnering with the Galveston Bay Foundation. Specifically, the 20 acres of marshland reestablished through volunteer planting projects and the six tons of trash picked up during shoreline cleanup projects are exemplary. By providing measurable benefits, Kirby Corporation clearly set the standard in the partnership category.

### **Conclusion**

Both the government and the private sector are challenged to provide marine environmental stewardship. The William M. Benkert Award is emblematic of the joint efforts of the U.S. Coast Guard and leaders of the maritime community to protect the marine environment. As the winners of the 1995 William M. Benkert Award share the spotlight, the Coast Guard Office of Marine Safety, Security and Environmental Protection is preparing to begin the 1996 William M. Benkert Award process in January. Representatives of Coast Guard field units will again be requested to distribute the award program brochure to the appropriate local marine customers in February, 1996. Private sector organizations desiring a brochure should write to Commandant (G-MRO-1), 2100 Second Street SW, Washington, DC 20593-0001.

CDR Thomas R. Reilly is the Environmental Standards Branch Chief of the Operating and Environmental Standards Division.

### **Safety Note:**

Maritime vessel operators are encouraged to review the operation of their integrated bridge systems to identify failure modes that could result in undetected changes to the autopilot function. In a recent casualty, a vessel grounded after a navigation signal cable separated and the autopilot function reverted, undetected, to dead reckoning.



Above: Deckhands Willis Kingston (l) and John E. Parks race across a barge to the tugboat Arthur F. Zemen Jr on Lake Erie near Cleveland.

Front cover: Boatswain Carlos Loureiro (top) and Day Man A. Alwaseem "hang in there" to get the job done.

Above and front photos courtesy of Seafarers International Union.

Photo on back cover supplied by Coast Guard Headquarters.

U.S. Department of Transportation

### **United States Coast Guard**

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