

Gulf Coast Mariners Association



P. O. Box 3589
Houma, LA 70361-3589
Phone: (985) 879- 3866
Fax: (985) 879-3911
www.gulfcoastmariners.org

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Prepared By: Capt. Richard A. Block &
Chief Engineer Glenn L. Pigott.

REPORT TO CONGRESS: THE FORGOTTEN MARINERS MARITIME EDUCATION & TRAINING FOR ENTRY-LEVEL DECK & ENGINE PERSONNEL

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BACKGROUND

The Gulf Coast Mariners Association And Lower-Level Mariners

The Gulf Coast Mariners Association speaks on behalf of those merchant mariners who serve on commercial vessels of less than 1,600 gross register tons. The licensing term “lower-level” carries this tonnage in its definition.

Merchant Mariners?

The U.S. Merchant Marine traces its history back to before the founding of the United States itself and has played a significant role in our nation’s history ever since although the size, power, technology and the scope of its activities has changed significantly throughout the years.

The U.S. Coast Guard also traces its history back to the time of Alexander Hamilton and the first revenue cutters. All this heavy History notwithstanding, in recent years a huge gap has grown between the “upper level” merchant marine officered increasingly by graduates of various maritime academies and fully qualified under the Standards

of Training, Certification and Watchkeeping and the “lower-level” merchant marine populated by our mariners largely without academic degrees but plenty of savvy and practical experience afloat.

In the closing years of the 1990s, the major maritime unions attempted to bridge the gap between the “upper” and “lower” levels by offering to improve the lot of our lower-level mariners. Each of the four unions operate first-rate maritime training facilities. Unfortunately, in both instances, short-sighted company management fought this assistance that they viewed as an overt and unwelcome effort to “unionize” their workers. However, these unions were fully capable of providing our lower-level merchant mariners with the type of training the maritime industry desperately needs but has been slow to admit. They also offered the skill and organization to provide mariners with employment services, health care coverage, and retirement benefits – all items very much in demand by workers and their families. On June 30, 2003, the unions had no choice and threw in the towel – leaving only GCMA to speak for the basic safety, health, and welfare of our lower-level mariners. As a mariner Association, we continue to do so.

The Lower-Level Mariner Personnel Shortage

The Coast Guard stands aloof from involvement in “labor disputes” – as it should. What they face today with lower-level mariners is no longer a “labor dispute” but the stark reality of nothing less than a maritime personnel disaster that commissioned Coast Guard officers stood by and allowed to take place gradually over the past 35 years. The Coast Guard seldom committed its best and brightest to superintend the administration of merchant marine personnel. Frequent moves from Washington, to Oklahoma City, to Arlington, and now to Martinsburg, West Virginia characterize frequent movements of the staff at the national level with even more frequent changes and movements of personnel at the local Regional Examination Center level.

For years, the Coast Guard never even had an accurate count of how many merchant mariners it serviced. GCMA and other associations actively sought that information as early as 1992. At the time of the 9/11 attacks we still had no definitive count to say nothing of knowing who these mariners were or where they lived. Finally, in the Spring 2005 issue of Proceedings, the Coast Guard reported a total mariner population of 204,835. We accept that figure as being all the merchant mariners they knew about as of December 31, 2004. We have seen several figures since then that contain some minor variations but believe it is a good sign they are finally keeping count of mariners.

Of Course, the Coast Guard Numbers are Wrong!

Using the 204,835 figure, GCMA estimated from the Proceedings count that 126,000 of all mariners fit into their category of “lower-level” mariners. This was a very conservative estimate based upon the Coast Guard’s own numbers and breakdown of credentialed mariners in its database at the National Maritime Center (NMC). GCMA knows how hard the NMC worked to arrive at these figures and especially appreciates the efforts of Mr. William Chubb at the National Maritime Center in particular. We find the published figures credible – but only as far as they go.

THE FORGOTTEN MARINERS

About Those Forgotten Lower-Level Mariners?

When Congress in 1972 decided not to inspect the nation's towing vessels, the Coast Guard concentrated on other tasks and put all towing vessels along with other "uninspected vessels" on its back burner. After all, if Congress isn't overly concerned and does not provide money and resources, the Coast Guard really has little choice but to withdraw and concentrate on those missions that Congress considers important and is prepared to fund.

The first group of "uninspected" vessels to attract national attention were the nation's commercial fishing vessels during the 1980s. An abominable industry safety record crowned by the sinking of the three infamous "A-boats" was hard to ignore. The Coast Guard took some ineffective "voluntary" steps that industry ignored until Mrs. Peggy Barry, the wife of an Ambassador and a grieving mother of a son lost at sea in a fishing accident, appeared before the House Merchant Marine and Fisheries Committee. Congress then focused Coast Guard resources on "uninspected" commercial fishing vessels.

Towing vessels were the second group of "uninspected" vessels to attract Congressional attention. The human toll of the bridge allisions at Bayou Canot, the Queen Isabella Causeway, and Webbers Falls and the pollution at San Juan, Moonstone Beach, and Buzzards Bay focused Congress on the "uninspected" and neglected status of towing vessels. "Voluntary" Coast Guard methods of dealing with the issues including the industry trade group's "Responsible Carrier Program" initiated in 1995 failed to stem the casualties.

The Coast Guard's approach to the mineral and oil industry was different because the industry under the leadership of Robert J. Alario and the Offshore Marine Service Association actively sought the intervention of Congress to study the licensing, education, and training situation. The Newman Report (GCMA Report #R-428-A) prepared by senior Coast Guard Captain C.T. Newman in 1972 prevented the Coast Guard from imposing a system on the industry that likely would have severely stunted the growth of an industry that has become increasingly important in supplying the nation's sources of energy.

Later, in the 1970s, the Coast Guard prepared a lengthy Functional Jobs Analysis study (GCMA Report #R-428-B) where Coast Guard officers rode the boats and learned about the industry first hand. By 1980, the Congress decided to follow the "inspected" rather than the "uninspected" route with offshore supply vessels, a move that seen in today's light was probably fortunate. By 1990, the move to inspected status was complete by its incorporation of "Liftboats" as inspected offshore supply vessels.

Unfortunately, by the early 1980s, new Coast Guard personnel allowed these reports to gather dust on the shelves and went back to running things from their swivel chairs in remote offices. The industry sunk into a decade-long economic slump yet somehow managed to survive with its most tenacious personnel.

Coast Guard Imposes Foreign Standards On Our Lower-Level Mariners

In the late 1980s, there were rumors that there would be significant licensing changes ahead for lower level mariners.

Well intentioned and reasonable changes were undertaken by Commander (later Rear Admiral) George Naccara starting in 1987. Unfortunately, these changes were insignificant in relation to the abrupt and sweeping changes that occurred with the amendments to the Standards of Training, Certification, and Watchkeeping (STCW) that were dumped on our mariners in July 1995 – literally out of the blue!

The Coast Guard, worked quietly in the background with the International Maritime Organization in London on a series of sweeping changes designed to change the entire marine industry throughout the world – at least that portion of the marine industry that operated in international waters.

After Mr. Naccara was "promoted" from the Merchant Marine Personnel Division, our lower level mariners were scarcely considered, were never represented in any forum, and certainly were never consulted although we later learned the Offshore Marine Service Association, an industry management trade association, was kept in the loop.

The STCW scheme involved lower-level mariners only on its periphery. Although the scheme did not affect mariners working on inland waters, it would affect lower-level mariners who worked on vessels of more than 200 gross tons on international waters by February 1, 2002. Nevertheless, the initial thrust to prepare for STCW always was directed at upper-level mariners who would require additional training and certification to comply with new international standards.

Upper-level mariners were much better prepared to cope with the bewildering blizzard of indecipherable paperwork than were our lower-level mariners. Many upper-level mariners are college or academy deck and engine graduates with a considerable amount of formal training in contrast to most of our lower-level mariners. In addition, most licensed and unlicensed upper-level mariners belong to established labor unions that have standing contractual arrangements with management to provide their mariners with the necessary training. In contrast, only a small number of lower-level mariners belong to labor unions and have any access to such training. At this point, we want to reiterate that the majority of all American mariners are lower-level mariners.

While the need to upgrade the deep-sea merchant marine to comply with the standards adopted by the rest of the world was of primary importance at the national level and was vigorously pursued, the Coast Guard ignored and still ignores our lower-level mariners.

The offshore oil industry was the area of lower-level mariners that was most immediately affected by STCW. However, it was not until April 1999 that most of our mariners in that industry received the first clue that they would be required to undergo one week of formal hands-on Basic STCW training. The Coast Guard made no provisions whatsoever for providing or paying for this mandatory training and simply left it up to mariners to comply with requirements before the deadline – displaying a total lack of foresight and leadership our mariners have come to expect.

Four major maritime labor unions, through the Gulf Coast Mariners Association Education Fund (established as a separate entity from GCMA) obtained a \$4,000,000 grant from the U.S. Department of Labor to help defray the tuition costs of many mariners. However, management and specifically the Offshore Marine Service Association, saw this as an attempt to unionize their workers and actively discouraged and dissuaded their employees from attending these classes. Instead, they sought and obtained other

training funds by raiding state budgets.

While the offshore oil industry managed to comply before the deadline date, the STCW system imposed a whole new level of bureaucratic controls and paperwork upon mariners who were least able to comprehend what was happening. At the same time, lower-level mariners were faced with steeply rising tuition costs to attend enhanced training courses. Where it had cost about \$1,000 to attend class to obtain a 1,600-ton Master's license to run an offshore supply vessel (OSV) in the late 1980s, by 2002 that figure had risen to about \$15,000 to \$20,000.

The changes would also impact other areas as well. Lower-level mariners would eventually learn that the imposition of new international tonnage measurement standards would increase their exposure on many coastwise and oceangoing towing vessels previously admeasuring less than 200 tons – especially those making voyages to the Caribbean.

Information concerning the complex new towing license training requirements and the initiation of a Designated Examiner program that gradually was “phased in” during a five-year period starting on May 21, 2001 through May 21, 2006 was inadequately disseminated by Coast Guard authorities and industry management. This led to a great many problems that mariners were left to resolve on their own by struggling through an inadequately staffed system of Regional Examination Centers that often took as long as sixteen weeks to process a single license application.

Focus on Vessels but not Personnel

Although it focused on disasters and vessels, Congress really has yet to focus on the “lower-level” mariners who make up the vast majority of the U.S. Merchant Marine. Congress may be slow, but the Coast Guard has been even slower. When and if they ever do consider our mariners, the Coast Guard will find it has some tough explaining to do – and they may be uncomfortable doing so because of the number of “lower-level” merchant mariners they neglected to count or even consider for the past 35 years.

Lower-level mariners have now become a “security” issue as well and, as such, certainly will draw the attention of Congress. After all, Congress expects the Coast Guard to “advise” them and keep them posted. The Coast Guard may have difficulty explaining how so many of their officers ignored so much for so long. There is no need for them to debate the issue – they can read about it right here!

TWIC & NVIC Backfires on the Coast Guard

The Coast Guard, with its workforce of organized and uniformed government employees (unfortunately, many hyped by their own self-importance), wants to show Congress that it is on top of everything that it should be. After 9/11 its ranks swelled and its budget increased. Its glib response to Hurricane Katrina won the nation's acclaim and gratitude. Now, the smoke has cleared and the taxpayers want to see the results they continue to pay for.

Coast Guard statistics show 43,339 merchant mariners with “entry-level” ratings. “Entry-level” means that a mariner has a Merchant Mariner Document (z-card) with only an ordinary seaman/wiper/food-handler rating. However, z-cards are not issued to most mariners who serve on vessels of less than 100 gross register tons – and there are thousands of these vessels. Nor are z-cards issued to most mariners, except tankermen, who serve on vessels in inland service.

Thousands of “lower-level” merchant mariners work on America's inland rivers, lakes including the Great Lakes, bays, and sounds and even offshore. These merchant mariners are not part of the Coast Guard's 204,835 count. The Coast Guard knows little if anything about these individuals. The exclusions (i.e., <100 GRT and inland waters) could double the number of “lower-level” mariners the Coast Guard should be responsible for – but isn't. However, if their Homeland Security mission is to protect ports and facilities, the Coast Guard will have to learn much more about these “forgotten” mariners. The Coast Guard's partnership with the Transportation Security Administration (TSA) shows that they still have a lot to learn. Unfortunately, these are things they already claim to know.

When the TWIC proposals were being introduced at various advisory committee meetings attended by GCMA, the Commanding Officer of the National Maritime Center somberly stated that every mariner with a merchant mariner credential (i.e., at least the 204,835 Dec. 31, 2004 figure previously cited) must obtain TWIC – even a large number of uninspected passenger vessel (“six-pack”) operators.

While those words may have put the “threat” into words, the perceived horror felt by many employers was that all of his mariners working on commercial vessels would have to negotiate the Transportation Workers Identity Credential maze in addition to the maze they already had to endure at the already broken and dysfunctional Regional Exam Centers (REC).

Criminal Background and Citizenship Checks

The Coast Guard, itself, has become almost ruthless in pushing its criminal checks of existing merchant mariners at these RECs (i.e., the same 204,835 certificated individuals). Coast Guard employees hounded our mariners and made life miserable for many of them by opening old wounds that many mariners thought time had healed. Flippant clerks at Coast Guard RECs became “confessors” for many mariners forced to re-live portions of their past lives that may have best been forgotten. Each credentialed mariner with a “rap sheet” was treated as if he or she was a criminal unless he or she could document the contrary.

At the same time, “Big Brother” also decided he would become the custodian of every mariner's medical and health record. In a draft NVIC⁽¹⁾ The National Maritime Center identified 202 “potentially disqualifying” conditions that could prevent a mariner from obtaining or retaining a maritime credential. In spite of assurances that this was nothing more than the existing practice, its potential impact upon our mariners may be devastating. ^[⁽¹⁾NVIC = Navigation and Vessel Inspection Circular. This NVIC was published in the *Federal Register* of September 28, 2006 and is available in Docket #USCG-2006-25080 on the internet Go to dot.dms.gov and search 25080 or to the GCMA website and look under Research Reports for GCMA Report #R-435-A.]

Two Coast Guard doctors that mariners will never meet in person, a small but growing cadre of bureaucrats assembling in the mountains of eastern West Virginia, and a new “medical advisory committee” henceforth will hold the career of every single credentialed mariner in their hands. Each mariner will now have a medical “confessor” that will tell him which medical tests to take, the nature of the reports he must make, and when and how often he must make them. It is questionable how many of our lower-level mariners will be able to continue in this line of work as a career until he or

she reaches retirement age – and, the maritime industry has made little if any provision for their retirement.

By contrast, pick up any union newspaper and look at the list of pensioners that are leaving active employment at sea. “Union busting” as practiced by the towing industry and the offshore oil industry sectors in the past two decades left our mariners to fend for themselves with a bleak future and fragmented benefits.

Although the National Maritime Center assures mariners that not many additional mariners will be turned down for medical reasons, the number having to obtain medical waivers and undergo medical tests that are an out-of-pocket expense is expected to increase. In a recent edition of the Waterways Journal the mere mention a possible 2% loss of mariners was characterized as “devastating” to the industry. However, neither of these is the largest issue of all.

Will Every Mariner Have to Get a TWIC?

Good question, but there is no answer, yet.

If the Coast Guard has its way, every mariner with a credential will need a TWIC at a cost of \$139 with a small discount if you can prove you have already been “identified” at one of their RECs.

Will every credentialed mariner have to have his fingerprints taken at a Regional Exam Center no matter the cost or inconvenience. Yes. It has already cost much in both time and aggravation – and it’s clear in reading the January 2006 rulemaking, that cost, travel expenses, and time are of little concern to Coast Guard bureaucrats.⁽¹⁾ Even the tone of the rulemaking has become Draconian. [⁽¹⁾ 71 Fr 2559, Jan. 17, 2006, Docket #USCG-2005-22541.]

What will become of those thousands of “forgotten” mariners currently without credentials? Obtaining a TWIC may be necessary from a security standpoint because our government clearly has lost control of our borders and more and more individuals with questionable citizenship status continue to apply for jobs afloat. This problem involves more than just “illegals”, but rather the entire group of “forgotten” mariners that the Coast Guard chose to ignore for years. The Coast Guard doesn’t know how many there are to say nothing of who they are and whether they will pose any “security” problems.

These are our mariners, who ever they are and wherever in America or its territories they may be. They are “lower-level” mariners because they work on vessels of less than 1,600 GRT. Unfortunately, nobody in Washington represents these mariners’ views or acknowledges their significance. The Gulf Coast Mariners Association can only raise the alarm.

The typical treatment our “lower-level” mariners receive from the Coast Guard is nothing less than appalling. However, that’s not our point here. Many feel that the system has always treated them as second-class citizens and will continue to do so. Our mariners are at the bottom of the heap and we are constantly dumped on not only by the government bureaucracy but also by employers who developed their own “partnerships” with the Coast Guard and make their political donations to keep our mariners “in their place.”

The Incarceration Factor

At GCMA, we encourage our mariners to do their best, give a day’s work for a day’s pay, and live within the law. However, we do not deceive ourselves that every lower-level mariner is now or has always been a “choir boy.”

Last year we fielded a vocal complaint from a very unhappy river pilot who indicated that the entire crew on his boat was recruited from ex-convicts that the state of Alabama had somehow subsidized. He opted to get off the vessel because his crew was incompetent, lazy, and threatened him with physical harm. Under such conditions, it was wise to leave. Management has a duty to see that such conditions do not arise on its vessels.

We then did some checking on the internet. We passed along the question to one of the longest serving employees of the National Maritime Center who apparently knew nothing about any such program. If anyone at the NMC should have known, this person certainly should have.

Then, after the TWIC program was announced in late Spring 2006, we began to receive an increasing number of calls from our mariners to the effect that “If the Coast Guard makes my crewmembers get a TWIC, I will lose half of my crew because of their past criminal records.” These complaints were from experienced mariners who had crews they could work with but were afraid of losing. Certainly, the Coast Guard already knows about any misdeed by credentialed mariners, but they know nothing about those mariners who have no credentials. The Coast Guard has nothing they can take away from these mariners under existing Administrative procedures such as suspension and revocation (S&R).

On January 20, 2004 in his State of the Union Address, President Bush uttered these words: “...Tonight I ask you to consider another group of Americans who need help. This year, some 600,000 inmates will be released from prison back into society. We know from long experience that if they can’t find work, or a home, or help, they are much more likely to commit crime and return to prison. So tonight, I propose a four-year, \$300,000,000 prisoner re-entry initiative to expand job training and placement services...America is the land of second chance, and when the gates of prison open, the path ahead should lead to a better life.”

George Bush ought to know about “second chances.”

Many ex-convicts seek work on commercial vessels, most as “lower-level” mariners. The U.S. Department of Labor through its Work Opportunity Credit program provides businesses with a tax incentive to hire individuals from groups that have a particularly high unemployment rate or other special employment needs. These groups include ex-felons, veterans, high-risk youth that live in certain disadvantaged communities, food-stamp recipients, or recipients of assistance under Temporary Assistance for Needy Families (TANF). Employers, who hire “lower-level” mariners from these groups wonder if their government, who provides opportunity with one hand – even to the point of bonding their conduct for up to a year to help them secure meaningful employment, will take it away with the other hand and, in doing so, put employers out of business.

If senior Coast Guard officials in charge of Merchant Marine personnel don’t have a clue about the “Work Opportunity Credit” program and continue to offer cavalier treatment to ALL lower-level mariners and treat them like the scum of the earth, they may well run large segments of the marine industry out of business. They already screw so many of our mariners that it is at least in part to blame for the growing personnel shortage that ties a number of boats to the dock and causes others to run short-handed. Can it get worse? Of course it can unless the Coast Guard changes course.

**INCOMPETENT MANAGEMENT OF MERCHANT
MARINE PERSONNEL: A COAST GUARD
TRADEMARK**

Following the PELICAN disaster in 1951 with the loss of 45 lives, the Coast Guard began nationwide inspection of small passenger vessels and licensing their operators in 1958. Twelve years later, the Coast Guard licensing program still had made little impact on licensing crewboat operators in the Gulf of Mexico. Push came to shove; the Coast Guard pushed, and industry shoved.

At industry's request, Senator Russell Long stepped in and the Coast Guard gave in and was forced to undertake a more reasonable approach to understanding and working with our lower-level mariners. The Coast Guard had to actually stop and consider our "lower-level" mariners' educational attainment level and the nature of the jobs they performed.

During the next eight years (1972-80) many lower-level mariners at least obtained minimal training (that they paid for out-of-pocket) and earned licenses and MMD endorsements. They became "legal." The following five years, brought most of the offshore oil industry's vessels under inspection.

The Coast Guard thought that licensing somehow solved the industry's educational problems. By 1980, the clueless Commander of the Eighth District stated as much in a letter. Ignorance is bliss! With its hands full inspecting vessels, the Coast Guard turned its attention away from the lower-level mariners who manned the vessels.

The Coast Guard appears to be much more attuned to solving marine engineering problems than it is in solving or even recognizing social problems. They try to find a technical fix for everything. However, by the early 1990s it was clear that the huge toll of accidents and injuries in the industry were a result of "human factors" and not mechanical problems. The Coast Guard set out on its well intentioned "Prevention Through People" crusade.

The Coast Guard is ill-equipped to handle personnel problems posed by our merchant mariners. As a quasi-military organization, they have unlimited authority over several hundred thousand civilian merchant mariners who increasingly resent their authoritarian treatment. Since the Coast Guard has its own officer and enlisted personnel manning its "floating assets," they readily – but not always accurately extrapolate their knowledge to the civilian maritime industry. They do not do it particularly well.

Rather than provide their junior officers with an opportunity to go out in the field aboard commercial vessels for an adequate orientation, they immediately put them to work regulating an industry with which they have little or no first-hand experience. Most of these officers have precious little first-hand knowledge of any of our lower-level working mariners except for those that run afoul of local Investigating Officers.

As a government agency, the Coast Guard does not waste a great deal of time with mariners who have had drug, alcohol, or other social problems. They place the entire burden on the mariner to rehabilitate himself and then prove to the Coast Guard's satisfaction that he is cured. The system is daunting, and many mariners with irreplaceable skills but problems that could be solved with a little bit of

care and guidance never sail again because they are unwilling or unable to mount the bureaucratic heights to regain their lost credentials.

The Coast Guard also oversees mariner training albeit a tardy second thought at best. After it dumped the entire marine industry into the unfathomable Standards of Training, Certification and Watchkeeping bureaucracy in July 1995, it left our "lower-level" mariners to sink or swim. When the Coast Guard terminated its Merchant Vessel Personnel Division (G-MVP) in the mid-1990s and replaced it with the National Maritime Center, it failed to provide it with the talent and resources it needed. They did develop a bureaucracy that cranked out paper as if there was no tomorrow – in the best traditions of the new STCW that was crammed down lower-level mariners' throats without warning. For the most part, lower-level mariners in the offshore oil industry never even found out about STCW until April 1999. Even then, if it had not been for a \$4,000,000 grant from the U.S. Department of Labor and copious state training funds, it is doubtful whether many oilfield vessels would be sailing today. Towing vessels under 200 GRT initially appeared immune to the international requirements, but that is quickly changing with the imposition of increased international tonnage.

Requirements for Basic Safety Training

Few if any Coast Guard or OSHA regulations currently require basic safety training to protect entry-level personnel serving on the types of "commercial vessels" listed below. In fact, "entry-level" personnel ratings of "ordinary seaman", "wiper" and "food handler" only appear on Z-cards issued to mariners working on certain vessels of over 100 gross register tons. Nevertheless, Congress now requires each OSV and towing vessel be inspected because of serious safety concerns.

In a 1996 memorandum of understanding between the U.S. Coast Guard and the U.S. Department of Labor, the Coast Guard accepted responsibility for carrying out the provisions of the Occupational Safety and Health Act as they apply to inspected vessels whereas the Department of Labor remained responsible for OSH-type regulations on uninspected vessels. Just try to get OSHA to inspect one of the nation's 17,000 uninspected dry cargo barges. We did, and we documented the problem as we have documented so many other problems! The question is: Who is responsible for training entry-level personnel on any of the following vessels to ensure that they can work safely in the marine environment on these specific vessels...

- Deckhands, deckineers, and unlicensed engineers on small passenger vessels (SPV) of less than 100 Gross Register Tons (GRT).
- Deckhands, deckineers, and unlicensed engineers offshore supply vessels (OSV) up to 100 GRT.
- Deckhands, deckineers, unlicensed engineers, and cooks on offshore supply vessels (OSV) between 100 and 200 GRT. Yes, cooks need training in food preparation and sanitation to protect the health of those they feed.
- Deckhands, deckineers, unlicensed engineers on uninspected inland and offshore towing vessels up to 100 GRT.
- Deckhands, deckineers, unlicensed engineers, and cooks on inland and river towing vessels up to 1,600 GRT.
- All crewmembers on uninspected fishing industry

vessels (FIV) to 200 GRT. In 1989, Congress expressed safety concerns on fishing vessels that fell short of legislation requiring vessel inspection and licensing.

- There are other entry-level jobs on other uninspected commercial vessels such as vessels on dredging and construction work that need basic safety training as well as some form of protection and guidance on how to advance in their careers in the marine industry:

The Coast Guard clearly expanded its role and grown its fat bureaucracy into areas outlined by Congress. However, like a cancer, shapeless, insensitive bureaucracy also crept into areas where it was never invited and is metastasizing to an extent that threatens to kill the nation's maritime industry. It is clear that Congress needs to perform some drastic surgery or the patient will die.

The Gulf Coast Mariners Association believes that Congress is the only surgeon – and it needs to examine Coast Guard actions as they affect our “lower-level” mariners with much more scrutiny than ever before.

LOWER-LEVEL MARINER TRAINING ISSUES

[Introduction. On April 25, 2005 GCMA wrote the following letter to The Coast Guard office of the Chief, Office of Operating and Environmental Standards (G-MSO) titled: MERPAC - Providing Training Opportunities for Lower-Level Engine-room Personnel.]

“The Gulf Coast Mariners Association has taken the initiative by presenting several GCMA Reports to Members of Congress in order to re-consider the subject of training lower-level engineers – an issue last discussed by Congress in 1972.

“We also brought the subject of lower-level engineering personnel to the attention of the Coast Guard in Docket #USCG-2004-19977 as regards the inspection of towing vessels.

“However, GCMA would like to bring this subject to the attention of MERPAC⁽¹⁾ for its discussion and deliberation since it involves a training issue that is NOT limited to towing vessels. In fact, it applies to small passenger vessels, offshore supply vessels, and towing vessels and in areas where customary breakpoints of 100 and 200 GRT may not necessarily be applicable. [⁽¹⁾MERPAC, the Merchant Marine Personnel Advisory Committee, is a Coast Guard Federal advisory committee that advises the Coast Guard on personnel issues. Chief Engineer Glenn L. Pigott, a member of the GCMA Board of Directors, was appointed by the Secretary of Homeland Security to serve as a member of MERPAC.]

“We believe that the absence of properly trained engine room personnel may be connected to the information you recently supplied on the sinking, capsizing, and flooding of a number of towing vessels (possibly 1300+) although we have requested further study on that matter. The lack of engine room personnel trained in common engineering subjects such as ship structures, temporary repairs, pump operation, and related topics also may be part of the problem.

“Part of the problem may be that unlicensed “deckineers” who avoid engine room assignments because of their excessive heat, noise, grease, oil, and dirt are more

easily attracted to a more attractive air conditioned pilothouse. The offer of meaningful training that also could have application to shoreside tasks in demand in the job market might attract candidates to service in the engine room if the Coast Guard enforced more OSHA-type safety standards in the workplace. In separate papers, we have discussed important topics such as hearing protection and asbestos protection.

“Although it is arguable whether it is our job to do so, we prepared a “Proposed Task Statement” for possible consideration by MERPAC. The proposed task statement lists four (4) enclosures that contain background information on lower-level engineer-related topics we believe would be useful to MERPAC members in discussing the subject. There is no copyright claimed on this material.”

Second Letter to USCG Headquarters

[Having received no reply to our first letter, we drafted a second letter to G-MSO on September 14, 2005 repeating the first paragraph of our earlier letter and adding in part:]

“We also brought the subject of lower-level engineering personnel to the attention of the Coast Guard in Docket #USCG-2004-19977 as regards the inspection of towing vessels.

“However, GCMA would like to bring this subject to the attention of **MERPAC, TSAC, and NOSAC** for its discussion and deliberation since it involves a training issue that is **NOT** limited to towing vessels. In fact, it applies to small passenger vessels, offshore supply vessels, and towing vessels and in areas where customary breakpoints of 100 and 200 GRT may not necessarily be applicable.

“We believe that the absence of properly trained engine room personnel may be connected to the information your office supplied (us) on the sinking, capsizing and flooding of a number of towing vessels although we have requested further study on that matter – although we have had no word on whether the Coast Guard will make such a study. The lack of engine room personnel trained in common engineering subjects such as ship structures, temporary repairs, pump operation and related topics possibly also may be part of the problem....”

We then went on to explain that we believed the topic would also be significant to the Towing Safety Advisory Committee and the National Offshore Safety Advisory Committee where GCMA Directors **Captain Joseph Dady** and **Captain Roland Rodney**, respectively, represent the interests of lower-level merchant mariners. At the same time, we wrote to the National Transportation Safety Board informing them of our request to the Coast Guard.

Our reply came about six months later.

MERPAC Accepts USCG Task Statement #55

As reported in GCMA Newsletter #39, pgs. 3-5, MERPAC accepted a Task Statement based upon GCMA's request. MERPAC then assigned Chief Engineer Glenn Pigott as Chairman of the Working Group. The other two advisory committees were not asked to participate.

We then asked a select group of our mariners to look over these documents, especially the check-lists, to see if this approach addresses the problems they were facing on their boats within the framework that MERPAC directed.

We Asked Our Mariners to Consider....

- Consider **only unlicensed or unrated positions** on tugboats, towboats, offshore supply vessels, or small passenger vessels and **NOT** discussing any area that the Coast Guard licenses. We are **NOT** discussing “ratings” such as Oilers, Able Seamen, or Tankermen that Coast Guard regulations already have set requirements for, except perhaps as goals for unrated and unlicensed individuals to reach before advancing towards these licenses and ratings. We are discussing **deckhands** and, at a somewhat higher level of responsibility, deckineers who must accept responsibility for properly operating and maintaining the vessel’s “power plant” for which there are few if any regulatory training and knowledge requirements.

Deckhand Training

- Remember that a mariner’s career often starts with his first job opportunity. We cannot control whether that opportunity first appears on a small boat or a large one. However, there are certain skills common to all commercial vessels manned by lower-level mariners. If a person wants to go to sea on oceangoing ships, there is already a well-established program established by the Seafarers International Union (SIU) that provides full training. We are concentrating on lower-level mariners who are a majority of all mariners in the U.S. Merchant Marine. It is about time our mariners were recognized for what they must know – even if the Coast Guard does not fully understand it.
- If you are the Master of the vessel or a licensed officer on watch (e.g., on a tugboat, towboat, offshore supply vessel, or small passenger vessel) you are in charge of the vessel or the watch. You may only have one other person on the boat that is on watch that you can call upon at any given time. That person must be prepared to handle any eventuality.
- If this person knows nothing, was never trained properly, and is just a “live body,” you may have very little that you can work with. Nevertheless, you are in charge of the boat or the watch and you are responsible for everything your boat does or fails to do. Your crew’s training or lack of training probably is not documented. As a licensed officer, you have nothing to fall back on if there is an accident (e.g., the boat sinks because the deckhand forgot to close the E/R doors in a storm) that may not really be your fault as you are on duty in the pilothouse.
- Does this mean it is up to you to train your deckhand? If so, what do you expect to train him to do? The checklists can provide you with some knowledge of his qualifications or lack of qualifications to work with you. You know where to start if you have the time and are inclined to do so.
- Remember, as Master or Watch Officer (e.g., mate or pilot), you cannot be two places at once – like in both the Engineroom and in the Pilothouse. In 1993, the Master of the small towboat M/V CHRIS pushed his barge on the bank to help his “deckineer” change a fuel filter. The tow came loose and rammed the Judge Seiber Bridge in

New Orleans killing a pregnant mother and injuring two other motorists seriously. Don’t get in a bind and make a mistake like this?

- Consider whether it is fair to you to be sent a “green” deckhand? That is only a question you can answer. However, we recognize that there are different shades of green that we believe can be determined by obtaining an inventory of the skills of each deckhand assigned to your boat based on these check-lists.
- We believe part of the value of this project is to have a new deckhand or “deckineer” tell you how much he knows and how much he doesn’t know using the check-lists. If you contribute to this report by wracking your brain to see what we missed, you may create a (computerized) checklist you could use when a new man steps on your boat. Let him tell you in writing what he knows and does not know by marking the YES and NO answers. You will get an idea of the new man’s strengths, weaknesses, and knowledge very quickly. You might also decide to put him back in the crew van if he seems to be more of a liability than an asset. Short of that, you could even file a report on his “hitch” by using the same form. This could establish a meaningful “paper trail.”
- Since there are very few requirements for new-hire deckhands, you may understand the extent of “training” the man somehow must receive “on the job.” If you are too overworked to do the necessary training, you now have an idea of the scope of the job dumped in your lap. In addition, many licensed officers have enough to do and do not choose to train mariners. They expect mariners to come to them already trained.

“Deckineer” and Unlicensed Engineer Training

- There are many state, private, and company “schools” that offer basic deckhand training, but fewer that train “deckineers.” Training costs money, and some companies do not want to invest in what they see as a transient workforce that drifts from company to company. That’s where state job training schools, union schools, and training grants to companies fit in. We do not believe that all the additional training should have to fall on the back of overworked lower-level licensed officers who must stand watch 12 hours out of every 24 hours and then often are expected to perform additional paperwork and security duties on their own time.
- However, you are responsible by law for conducting certain drills. When you sign the logbook saying that you have conducted a “drill” or a safety meeting it must have been a legitimate drill or meeting.

Conclusion

- We do NOT expect every deckhand or deckineer will have to be trained in every single item on each checklist. Different types of boats have different requirements. If you run a small 45-foot inland towboat, your training requirements will differ from those of an OSV Master on a 120-foot utility boat or Master of a 99 ton high speed passenger ferry or, God help us, a 99 GRT 185-foot supply boat sent to sea with a crew of four!

- By reading the Preamble to this report, you will learn a little of the past History of entry-level mariner training (i.e., and the lack thereof) and possibly understand how it has led to the widespread personnel shortages in the marine industry. Lack of training, and more recently, the excessively high price of training lower-level mariners still are expected to shoulder and the number of off-duty hours that training consumes, has steered many people away from the maritime industry.
- We believe the checklists we developed, if perfected, could assist USCG to properly investigate accidents and assign fault based on lack of documented training based on the examination of a company's training records – if a company is required to maintain such records.

**EDITED COMMENTS
FROM LOWER-LEVEL MARINERS**

1. The SIU has the best school facilities anywhere. They are just underutilized. The electrical lab is second to none. The problem is there are no classes set up for the inland guys.
2. The industry has gone to great lengths to create the “push-button” engine room. They are finding out “automated” is not “automatic.”
3. A standardized “check-off” form that could be varied for different types of vessels under 100-tons and an “oiler”-type exam for “deckneer” – and, of course, a pay increase for obtaining this and other endorsements.
4. Let sea-time count as deck and engine time for a clear, straight, and uncluttered path to the Designated Duty Engineer (DDE) license.
5. We need a path for the small-craft guys to upgrade to 1,600-ton class licenses in the engine room.
6. With the Coast Guard wanting to get out of the testing business and the schools doing the testing, it is the fox guarding the henhouse.
7. They are not doing enough for the entry levels, and the schools are pricing many people out of this industry.
8. From what I have seen of the schools, all that is taught is the answers to test questions. You still need hands-on experience.

**REGULATORY SHORTCOMINGS FOR T-BOATS
RECOGNIZED BY NTSB**

In his letter to former Coast Guard Commandant Admiral Kramek, NTSB Chairman James Hall made these additional points concerning shortcomings of the new small passenger vessel regulations:

M-95-40 ARGO COMMODORE. Establish mandatory standards for qualifications and training of

crewmembers aboard small passenger vessels. **STATUS:** The new regulations at 46 CFR §122.420, § 122.520, §122.524, §185.420, §185.520, and §122.524 are only duty requirements and not qualification standards as was requested. Without any personnel qualification or performance standard, there is no mechanism to determine if a crewmember is actually trained and ready to respond to an emergency. Consequently, because these are final rules, Safety Recommendation M-95-40 has been classified “Closed – Unacceptable Action.”

Deckhand Qualification Standards: The Safety Board believes that the sophisticated equipment, vessel size, routes, and passenger loads of today's small passenger vessels demand qualified and trained personnel. The lack of qualification standards for deckhands aboard small vessels results in passengers on such vessels being subject to greater risk than the cargo on a freighter or tanker. [*Comment: This statement was made after publication of “voluntary guidelines” in NVIC 1-91 and the new small passenger vessel regulations in 1996. The voluntary nature of these guidelines renders them as useless today as they were in 1991. The voluntary guidelines for personnel towing vessels in NVIC 1-95 also suffer from the same problems. A new towing vessel inspection rulemaking project is currently in progress.*]

INTRODUCTION TO MERPAC TASK #55

The Task Statement

Task Statement #55 titled Recommendations to Develop a Voluntary Training Program for Deck and Engine Department Entry Level Mariners on Domestic and Seagoing Vessels was accepted by MERPAC at its April 2006 meeting. At that meeting, a working group was established under Chief Engineer Glenn Pigott. A preliminary draft was prepared by Chief Engineer Glenn Pigott and Richard A. Block with meaningful input by Captain Ken Dawson of Rigdon Marine. The draft report (on the following pages) was submitted to the Executive Director and all MERPAC members prior to the September MERPAC meeting. Unfortunately, because Chief Engineer Pigott was at sea and unable to attend the MERPAC meeting, further discussion was deferred until the next meeting. Consequently, the following pages are a **work in progress and nothing more.** They are only an enclosure to this GCMA Report. The material in the enclosure has **NOT** been acted on or “approved” by MERPAC at this time.

The Significance of the “Check-Lists”

It is unfortunate that most “lower-level” merchant mariners receive little if any formal training before “going to sea” whether it is on the oceans, in lakes, bays, and sounds, or on America’s rivers. Some never even receive a basic orientation to life afloat other than signing on at a company office or with an employment service.

Working “on the water” means working in a dangerous environment where a simple fall overboard can end in tragedy. The towing industry has a poor safety record as we discuss in GCMA Report #R-351, How Safe Is The Towing Industry?, a reprint of a Coast Guard document. The safety record in the fishing industry is also quite poor

although it has received a great deal of attention by the Coast Guard in recent years.

While some companies have meaningful orientation programs for deckhands, we are concerned that many companies introduce their new-hires directly into engine rooms and machinery spaces without adequate training and warning of the dangers involved.

The Coast Guard has been much less pro-active than OSHA in protecting mariners in the workplace. A serious exception, however, when the workplace is one of over 17,000 dry cargo barges, for example, the protections including basic lifesaving gear are practically non-existent. OSHA cannot even inspect these barges unless they are brought alongside the dock. The Coast Guard, with their easier access, ignores many of their obvious safety hazards because they are “uninspected” vessels.

It is interesting to note that the entire licensing program for lower-level engineers does **NOT** require attendance at a formal training school that offers classroom instruction. Mariners are left to pick their way through textbooks and banks of multiple-choice questions without meaningful guidance. The Coast Guard virtually abdicated any concern for our lower-level mariners working in the engine department other than offering license exams to qualified applicants at Regional Exam Centers.

Worst of all, both industry and the Coast Guard have sold our entry-level mariner short. Although many job vacancies exist, the average applicant sees these as “dead end” jobs – jobs with few benefits, a complicated path for advancement in some cases, and no path at all for others. These are jobs that only the most disadvantaged Americans are eager to take. Those who take the jobs often find the going so difficult and unrewarding that they first change employers and eventually change careers. The retention rate for new-hires in many companies is abysmally low. Without adequate retention, it becomes an endless circle of wasted effort.

In order to retain a permanent workforce, there must be a clear path for advancement some concrete inducements to obtain further training. When the cost of tuition sharply advanced from a “few hundred” to “thousands” of dollars in the span of a few years with the coming of STCW and other advanced training requirements from the Coast Guard, fewer and fewer applicants could afford to enter a career as a lower-level mariner.

The Coast Guard, although ushering in STCW and other advanced training requirements, did nothing to help provide for financing these changes. At the same time, the imposition of “User Fees” and deterioration of service at the nations Regional Exam Centers overloaded with STCW paperwork also served to discourage countless mariners

Industry’s failure to recognize the amount of material a new-hire must assimilate is another problem. As companies throughout the industry consolidate and technology advances, management tends to lose touch with its lowest level employees. The old idea that anybody can be a deckhand or a “deckineer” dies hard. **A glance at the scope of the check-lists on the following pages show how daunting the task is for any new-hire.** It is especially difficult to serve on undermanned vessels in 24-hour service, especially when Congress forgot to put a reasonable limit on the hours in a workday and industry chisels on the number of hours it provides for a mariner’s uninterrupted sleep.

**VOLUNTARY TRAINING INVENTORY FOR
DECK & ENGINE ENTRY-LEVEL MARINERS
ON DOMESTIC & SEAGOING VESSELS**

**ENCLOSURE
MERPAC TASK #55**

Scope of the project. The maritime industry presents many employment opportunities for mariners at the entry level. However, mariner jobs afloat or on the waterfront offer a number of challenges to entry-level employees that are not present in land-based jobs and that **are not addressed in existing regulations** and require training to promote maritime safety, security and protection of the environment.

One of today's most significant challenges is finding and retaining an adequate number of "lower-level" mariners. Existing Coast Guard personnel qualification regulations appear to slight many small vessels under 100 gross register tons and most uninspected vessels. The seriously mistaken assumption is that these positions can be filled with inexperienced and untrained individuals. Unfortunately, this places a burden upon the Master of the vessel and may place him, the vessel, other crewmembers, and passengers in an untenable position in an emergency. It also trivializes the amount of knowledge and the skills required for an entry-level mariner to progress along a career path in the marine industry. Failure to provide a basic training program as envisioned in existing NVICs discourages entry-level mariners to seek permanent jobs in the industry. Constant turnover of entry-level personnel will doom the industry if allowed to continue. In many instances, false expectations of tapping minimum-wage immigrant labor on temporary visas for jobs as deckhand, "deckineer" or unlicensed engineers will further limit English-speaking officers from safely managing their vessels.

There are countless **examples** of inadequately trained crewmembers, but one of the most famous was the Fire Aboard U.S. Small Passenger Vessel Argo Commodore in San Francisco Bay, CA, on the evening of Dec 3, 1994. ⁽¹⁾ [⁽¹⁾NTSB/MAR-95/03.PB95-916403.]

Example: An engineroom fire broke out on the M/V Argo Commodore, during an evening dinner cruise in San Francisco Bay. Although all 41 passengers and four crewmembers were safely evacuated by a passing yacht and a Coast Guard vessel, the crew's performance was less than stellar. The **Master** was only a part-time relief Captain. Although he had considerable experience, neither he nor any other crewmember even was aware that the vessel was equipped with a CO² system in the engineroom.

The **senior deckhand** also was a part-time employee with no previous marine experience and worked as a steward and bartender during evening cruises. Although he had worked on the vessel 5 to 8 times previously, he stated that he did not know there was a fire pump and hose in the engineroom. He revealed he was not trained in firefighting and did not know which type of fire extinguisher to use to extinguish different classes of fires. He never was asked to participate in emergency drills during his employment. He possessed minimal knowledge of the CO² system aboard the vessel. He had only a limited knowledge of the engineroom and its machinery in spite of the fact that his "checklist" outlining his duties clearly stated it was his duty to monitor the engineroom for smoke or fluid leaks.

The **deckhand** had been with the company for about 3½ months and had no previous marine experience. During the day, she worked for an insurance company and worked part-time on company vessels at night. The **cook** had been with the company for three months; this was the first time she worked on one of the company's vessel on a cruise. Usually she cleaned the vessels while they were at the dock. Fortunately, a San Francisco firefighter and an airline cabin attendant were passengers on the vessel and offered leadership in the crisis.

The vessel's owners had failed to implement the "guidelines" suggested in NVIC 1-91 that had been prepared with the help of the Passenger Vessel Association for the purpose of preparing entry-level personnel to accept their responsibilities on small passenger vessels. Instead of a well-trained crew, the Master (himself a part-time employee) had only part-time employees and casual labor he could rely on in an emergency. The NTSB recognized the potential for disaster and brought it to the attention of all the parties involved. Unfortunately, NVICs, unlike Regulations, are not enforceable as law.

The resulting NTSB report brought out the fact that the Coast Guard had not completed action on 55 outstanding NTSB safety recommendations from previous accidents. The accident hastened the publication of extensive new small passenger regulations on January 10, 1996 but the problem of properly training deckhands, "deckineers," and unlicensed engineers persists today. This project addresses this problem.

Few if any Coast Guard or OSHA regulations currently require basic safety training to protect entry-level personnel serving on five types of "commercial vessels" listed below. In fact, "entry-level" personnel ratings of "ordinary seaman", "wiper" and "food handler" only appear on Z-cards issued to mariners working on certain vessels of over 100 gross register tons. Nevertheless, Congress required each of these five classes of vessels be inspected because of serious safety concerns. In a 1996 memorandum of understanding between the U.S. Coast Guard and the U.S. Department of Labor, the Coast Guard accepted responsibility for carrying out the provisions of the Occupational Safety and Health Act as they apply to inspected vessels whereas the Department of Labor remained responsible for OSH-type regulations on uninspected vessels:

- 1)The small passenger vessel (SPV) sector with vessels up to 100 Gross Register Tons (GRT).
- 2)The offshore supply vessel (OSV) sector with vessels up to 100 GRT.
- 3)The offshore supply vessel (OSV) sector with vessels between 100 and 200 GRT(*)
- 4)The offshore towing industry sector with vessels up to 100 GRT.
- 5)The inland and river towing industry sector with vessels up to 1,600 GRT.

There are other entry-level jobs on other uninspected and/or recreational types of vessels whose mariners need to be accorded some form of protection and be given some guidance as to how to advance in their careers:

- 6)Uninspected fishing industry vessels (FIV) to 200 GRT. In 1989, Congress expressed safety concerns on fishing vessels that fell short of legislation requiring vessel inspection.
- 7)Paid unlicensed crewmembers of uninspected passenger vessels (UPV).
- 8)Paid crewmembers of yachts.

Existing guidelines. During the 1990s, the Coast Guard reached agreements with two important sectors of the maritime industry in establishing guidelines that a new-hire, before setting foot in the marine environment. These guidelines were formalized as:

- NVIC 1-91, Recommended Qualifications for Small Passenger Vessel Deckhands.
- NVIC 1-95, Voluntary Training Standards for Entry-Level Personnel on Towing Industry Vessels

Both Navigation and Vessel Inspection Circulars (NVIC) employed a voluntary approach to training, orientation, and familiarization with the maritime environment applicable to employment. This involved acquiring certain specific **deck safety and awareness skills** to survive in a maritime environment with its unique set of hazards. In NVIC 1-91, the Coast Guard recognized that the employment and training of qualified deckhands on an inspected vessel is the responsibility of the marine employer under 46 CFR 15.103. We will call this basic “deckhand” training.

However, on any commercial vessel, the duties on deck and duties in the engineroom often run together because of the small crew size of the vessel. This starts out at a very basic level on a two-man boat consisting of a Captain (i.e., licensed officer) plus one other person. Even a “four-man” boat in 24-hour service operates most of the time on the same basis. Consequently, since the Captain cannot be two places at once, the deckhand often becomes responsible for performing engineroom duties almost immediately after he is hired. Nevertheless, these duties require additional safety and awareness skills not normally given a typical “deckhand” who accepts initial employment on these vessels. We will call these **engineroom safety and awareness skills**. Such deck and engineroom safety and awareness skills require training and evaluation.

In this project, subject to legal interpretation, the requirement in 46 U.S. Code §8104(e)(1) stating that “a seaman may not be engaged to work alternately in the deck and engine department” applies to vessels of more than 100 GRT.

Training, testing, and evaluation. Training, testing, and evaluation may be provided by the employer in:

- ?Orientation sessions when a deckhand is initially hired.
- ?In formal or informal classroom training sessions.
- ?In a school setting that offers a defined course of instruction.
- ?In “on-the-job training” aboard ship by licensed officers or other crewmembers when suitable time is provided for such training and the training tasks are clearly defined..
- ?By means of video training.
- ?In instructional manuals including textbooks and specific equipment training materials..

Progression based on accepting responsibility. The industry recognizes a natural upward progression from deckhand to unlicensed engineer on smaller commercial vessels, specifically vessels of less than 200 GRT in offshore service and up to 1,600 GRT in inland and river towing and passenger service. Even though a majority of entry level personnel may seek a career on deck, a mariner on a small commercial vessel who has accepted responsibility for operating the vessel’s “power plant” as the term is used in its broader sense, and who not mastered engineroom skills on his way to the pilothouse, is NOT a well-rounded mariner.

A person on a small commercial vessel who must work as needed both on deck and in the engineroom of a vessel not required to carry a certificated rating or licensed engineer is informally called a “**deckineer**.” The terms “deckhand” and “deckineer” should represent two distinct levels of entry-level training for “lower-level” merchant marine personnel.

Existing personnel shortage. In recent years, there has been a high turnover and overall shortage of entry-level employees in the marine industry. Licensed Masters, Mates, and Pilots on vessels including crewboats, ferries, tugboats, towboats, and small offshore support vessels complain that their deckhands lack the knowledge, training, and skills to perform their duties effectively. These licensed officers also complain that with added duties involving increased paperwork and duties imposed by “homeland security” they do not have the time to both run the boat and train the crew. Yet they are blamed when the vessel fails to perform as expected. For example, in a 12-year period, Coast Guard figures report that the nation’s 5,200+ tugs and towboats (as uninspected vessels) reported over 2,504 allisions, 1141 collisions, 607 sinkings, 593 floodings, 494 fires, and 115 capsizings among a

litany of other mishaps.

Many “deckineers” believe they are expected to perform too many duties with too little help and without receiving adequate training. We note the almost complete absence of engine department training facilities (e.g., schools or Coast Guard approved courses) for the past 35 years. We consider these lost opportunities to establish an informed, well-rounded, and healthy industry. **This project offers a remedy**, a remedy that requires a greater emphasis on training.

Although vessel manning, crew size, and hours of service are closely related areas, **they are studied and addressed elsewhere and are NOT examined here.**

This project **is NOT intended to address** offshore supply vessels or tugs of greater than 200 GRT operating beyond the boundary lines that are required by the Officers Competency Act of 1938 to carry licensed engineers. It **is NOT intended to address** established requirements for Able Seamen, Oilers, or QMED for any vessel over 100 GRT or for Tankermen as these are spelled out in existing Coast Guard regulations.

Since Ordinary seamen (OS), wipers, and food handlers (FH) are entry-level ratings that apply to vessels of between 100 and 200 GRT operating beyond the boundary line, and since these entry level ratings do not specify any training or skill levels, this project **is intended to address these ratings.** However, we use the terms “deckhand” and “deckineer” to more accurately identify the mariners we intend to address.

Many deckhands, with or without any background working on vessels of any size, are used to perform engineering functions at the dock, underway, or in preparation for vessel inspections. However, any progression from the deck to the engine room should contain concrete inducements in the form of additional safety training, vocational, and specialized training to seek to improve and retain more candidates for ratings as Able Seaman, “QMED,” “Oiler,” and Tankerman. Beyond that, training should progress so as to prepare interested and qualified candidates for deck and engine licenses to work on larger, more sophisticated vessels with licensing requirements.

Recent changes. Recent changes affecting “lower-level” mariners introduced “Assessors” on certain OSVs and “Designated Examiners” on towing vessels to assist in various specific assessment tasks in “Training Record Books” and on “Towing Officer Assessment Records” respectively. We **do NOT address either of these established programs in this project.**

Project builds on existing guidelines. In NVIC 1-91, the Coast Guard and passenger vessel owners agreed upon a number of “Recommended Qualifications for Deckhands on Inspected Small Passenger Vessels.” In NVIC 1-95, the Coast Guard working through the Towing Safety Advisory Committee (TSAC) recommended that the towing industry adopt Voluntary Training Standards for Entry-Level Personnel on Towing Vessels. This project builds directly upon these consensus foundations, adding in several areas not covered in the earlier guidelines. In 2004, Congress instructed the Coast Guard to inspect commercial towing vessels. Consequently, the authors of this project assert that entry-level personnel in both sectors of the marine industry need certain, defined basic qualifications.

This “voluntary” training presumably took place during the past 10 to 15 years. Consequently, it should have affected large numbers of personnel serving in three important sectors of the U.S. Merchant Marine. Mariners on the tugs, towboats, small passenger vessels, and offshore support vessels represent a majority of all active U.S. merchant mariners. However, as a result of high turnover rates, many licensed officers report that they are saddled with “green” deckhands that are often untrained, uninformed, incapable of performing their jobs, and often liabilities where they should be assets. Some entry-level mariners are potential “accidents looking for a place to happen.”

These two NVICs, when combined, call for the following levels of training for entry-level personnel. In the table below, we show any additional qualifications required on towing vessels by a (*). Lesser qualifications were not recorded. Note that this project changed the numbering and the order of items to place most engine-related items in one place. There were a only few additional items shown in italics as follows:

- ? “*Stability*” was not mentioned in either NVIC and is *added here in italics.*
- ? “*Security*” was not mentioned in either NVIC and is *added in italics.*
- ? “*Sanitation*” & “*Food Handling*” was not mentioned in either NVIC although it may be part of the job.
- ? “*Cargo loading, securing, and baggage handling.*”

A. Basic qualifications.

“Every deckhand (on a small passenger vessel) should be at least 16 years of age, (*towing vessel =18 years) should be qualified as to sight, hearing, and physical condition to perform the deckhand’s duties and should be physically able to perform all duties associated with the protection and evacuation of passengers during emergency situations.”

- (*)Substance abuse regulations and policies.
- (*)Hearing protection regulations, and policies (e.g., guidelines).
- (*)Company safety policies and vessel safety rules.
- (*)Workplace hazards including chemicals in vessel stores or cargo)
- (*)Personal protective equipment and apparel.

Basic vessel stability considerations, posted instructions in the stability letter, or in a stability booklet.

B. Emergency conditions.

“Every deckhand should be familiar with the following matters relating to emergency conditions:”

(*)Vessel orientation regulations, equipment, vessel terminology and protocol aboard vessels.

C. Man Overboard.

1. Location and use of lifesaving equipment.
2. Notification procedure for a man overboard.
3. The vessel's maneuvering characteristics.
4. Emergency communications skills.
5. Proper recovery procedures.
6. Station bill assignment and duties.

D. Fire.

(*)Fire safety and prevention.

1. Fire detection and alarm systems.
2. Classes of fires and the appropriate fire fighting techniques.
3. Location and operation of fire fighting equipment.
4. Location and operation of power, ventilation and fuel shut-offs.
5. Location and operation of watertight doors, hatches, fire-screen doors, and escapes.
6. Mustering passengers.
7. Station bill assignment/duties.

E. Abandon Ship.

1. Location, launching, and operation of survival equipment and survival craft. This includes, but is not limited to lifeboats, life rafts, buoyant apparatus, life floats, survival suits, and personal flotation devices.
2. Proper method of abandoning the vessel, mustering, and debarking passengers (and crew).
3. Proper emergency communications procedures (i.e., EPIRB, distress signals).
4. Station bill assignment/duties.

F. Foul Weather.

1. Location and operation of watertight and weathertight closures.
2. Means of access to weather information.
3. Location and operation of bilge and emergency pumping systems.
4. Station bill assignment/duties.

G. Medical Emergency and Sanitation.

1. Red Cross certified in first aid and CPR. (Minimum of 50% of required deckhands)
2. *Ship Sanitation*
3. *Food Handling*

H. Collision.

1. Location of watertight doors.
2. Methods of dewatering.
3. Station bill assignment/duties.

I. “**Deckhands assigned to seamanship duties, engineering or passenger safety/control duties** should be familiar with the appropriate vessel operational matters based on their assigned positions”:

(*)Winches and windlass.

(*)Hardware, rigging, etc. for towing.

(*)Running light and mooring light placement.

(*)Use of hand signals.

Cargo loading, securing, and baggage handling.

J. Bridge.

1. All navigational equipment
Engine alarms/indicators, controls, gauges,
Communication procedures.

K. Safety.

1. Crowd control,
Rigging

Line handling,
Casualty control, first aid and CPR.

2. *Security.*

At each MARSEC level
Vessel Security Plan
Vessel secure area access and TWIC requirements

L. Vessel Assistance.

1. Search and rescue techniques, towing, and superior shiphandling skills.

M. Seamanship.

1. Knots,

Linehandling, (*including proper line securing and stowage before getting underway*).
Docking/undocking procedures,
Basic navigation (i.e., piloting, dead reckoning).

N. Senior Deckhand. [*Note: A “Senior Deckhand” is NOT an Able Seaman and has no Z-Card.*]

A. “In many situations it is important for the vessel’s master to have available a more highly qualified deckhand, for example, where the Officer in Charge, Marine Inspection has allowed the deletion of the required mate. In addition to having a more in-depth knowledge of the above subjects, the Senior Deckhand should also have practical experience on the vessel on which he or she is serving. The recommended experience for the Senior Deckhand is:

1. 30 days experience on board the vessel.
2. 30 hours at the helm under supervision of a master or mate.
3. The Senior Deckhand will provide an increased level of experience on vessels where there is only one licensed officer required. The Senior Deckhand will be responsible for supervising the other deckhands while the vessel is underway and act as the team leader in response to any emergencies on board. He or she will be able to assist the master in the operation of the vessel, and will be available to operate the vessel in the event the master becomes incapacitated. In order to properly identify this individual, the vessel’s master should designate the Senior Deckhand in writing and a copy of this designation should be retained on board the vessel.”

O. Engineering.

1. Main and auxiliary machinery,

Steering systems,
Alarms,
Refueling techniques,
(*)Orientation to pollution prevention and applicable laws.
(*)Confined space entry hazards.
Emergency procedures (i.e., fuel, electrical, ventilation, etc.).

**OUR PROJECT ADDED THESE BASIC SAFETY TRAINING ITEMS FOR ALL “DECKINEERS”
AND UNLICENSED ENGINEERS**

- P1. Engineroom safety must begin with exercising common sense and some basic skills.
- P2. Protection of your hands – your most important and valuable tool.
- P3. Personal protective gear required in use of hand and power tools.
- P4. Instruction in safe use of standard hand tools (e.g., U.S. Navy hand-tool book or equivalent.)
- P5. Instruction in and observation of the safe use of all authorized power tools and personal protective gear.
- P6. Proper storage, protection, replacement and accounting for tools. (All required tools are furnished to the vessel).
- P7. The use of measuring tools (gages, tapes, calipers, tables) and measuring techniques.
- P8. Painting and painting safety including instruction in reading Material Safety Data Sheets (MSDS) for paints, thinners, and all other hazardous substances used on board (including diesel fuel).
- P9. Access to the engineroom and each machinery space.
- P10. Using your senses of sight, smell, hearing and touch in the E/R and machinery spaces.
- P11. Examine the overhead in the E/R for low head clearances.
- P12. Examine all deck plates, hand rails, hand holds, guards, and lighting.
- P13. Demonstrate that you can identify each major item of equipment or machinery in the E/R including propulsion engine(s), generator(s), pumps, and storage tanks.
- P14. Identify all utility outlets in the E/R including hot and cold water, electricity and compressed air. (Each electrical outlet should be labeled to show its voltage).
- P15. Identify all warning or cautionary lights (e.g., red, yellow, blue) or warning signals.
- P16. Identify all communication stations in the E/R and other machinery spaces.
- P17. Only enter the E/R when wearing the proper protective gear, clothing, and shoes.
- P18. Providing training material such as operator manuals and videos.

- P19. Use the dipstick before starting any main engine, generator, marine gear, or compressor.
- P20. Expect that you will take oil samples and change oil only under proper supervision.
- P21. Diesel engine operation.
- P22. Auxiliary machinery operation.
- P23. Electrical safety.
- P24. Electrical distribution.
- P25. Tanks: Soundings, tank safety, tank capacity tables, and tankage blueprints.
- P26. Handling and disposal of used oil, used oil and fuel filters, oily bilge slops, garbage, and sewage.
- P27. Refueling.
- P28. Cleaning the E/R.
- P29. Pumps (including identification of characteristics of different pump types) and pumping.
- P30. Practical stability and temporary repairs.
- P31. Federal regulations governing the type of vessel you are working on.
- P32. Lock out-tag out procedures.
- P33. Use of Insulation, Lagging, and Shields.
- P34. Gas, compressed or liquefied gas, and gas cylinder safety.
- P35. Maintaining a fire watch.
- P36. Good Housekeeping.

“In instances where a larger vessel with complex engineering systems or other factors has been required by the OCMI to have unlicensed engineers in the required complement, these individuals will require a greater in-depth knowledge of and training in the subjects noted above. The OCMI may require specific training and qualification requirements for these individuals.” *[Note: Entry-level “Deckineers” hired to work on offshore on vessels over 100 GRT are called “wipers” and require an entry-level Merchant Mariner’s Document (MMD). There are no small passenger vessels in excess of 100 GRT although there are many offshore towing vessels that size. On tugs greater than 100 GRT operating beyond the boundary line, any ordinary seaman (OS), wiper, or food handler (FH) must have a Merchant Mariners Document (i.e., z-card).]*

ADVANCEMENT

Formal education required. With the changes in today’s technology on new tugs, towboats, offshore supply vessels, and small passenger vessels lower-level licensed engineers will need to become technically proficient. Technicians must have the education necessary to read and follow technical manuals. Consequently, before you advance further and more fully benefit from attending further training courses at your expense, at the expense of your employer, or at the expense of the State or Federal Government you must be able to show that you have attained at least a High School Equivalency Diploma. If you can function at this educational level, this should allow you to successfully pursue vocational course offerings you will find useful in your career.

You can take these USCG-approved courses to advance in your career on vessels of this size.

Deck:

- Q. Able Seaman, Special (OSV) limited to service on offshore supply vessels.
- R. Able Seaman, Special
- S. Able Seaman, Limited
- T. Able Seaman, Any Waters, Unlimited.

Engine Department:

- U. Qualified Member of the Engine Department (OSV).
- V. Oiler.
- W. Tankerman.

Also, you can take Vocational Training courses such as: Basic Math including conversion tables; Basic Electricity; Basic Electronics; Boat construction; Blueprint reading; Safety Codes; Diesel Engines; Arc Welding; Gas Welding and Cutting that will be useful in the E/R.

=====

INVENTORY CHECKLISTS

Mariner’s Name: _____ **Date:** _____

MERPAC developed a series of checklists expanding upon the list of voluntary entry-level training guidelines in NVIC 1-91 & 1-95. These employer can use the checklists to:

- Encourage each entry-level deckhand and deckineer to report on his/her own skills and request additional training at the initial job interview by truthfully answering basic “Yes and No” questions.

- To initially evaluate and schedule training for each entry level mariner before dispatching him/her to the boats.
- To tailor the checklist (available on computer) to fit company operations by adding or deleting items appropriate to the vessel(s) in service. (The full checklist is for a large, well equipped vessel.)
- Serve as a management tool to determine when a new-hire can be assigned safely to a vessel.
- Serve as an initial entry-level training record that can be updated periodically based on service.
- To accompany the mariner to the boat to inform the Master of his/her background, knowledge, and (reported) proficiency.

The Master can utilize, verify, evaluate, and build upon this information immediately.

- Can assign other licensed officers or experienced mariners to check, evaluate, and further train the new mariner.
- Use the checklists as a written evaluation of the mariner’s observed knowledge and skills after a tour of duty.
- Record formal assessments and instruction he performs.
- Record the mariner’s attendance at drills and formal and informal training sessions including OJT.
- Record detailed explanations or answers keyed to specific questions on separate sheets as necessary.
- Record specific progress or recommendations for advancement toward a USCG certificated or licensed position.

INDIVIDUAL CHECKLISTS

A. Every deckhand (on a small passenger vessel) should be at least 16 years of age (towing vessel = 18), should be qualified as to sight, hearing, and physical condition to perform the deckhand's duties and should be physically able to perform all duties associated with the protection and evacuation of passengers during emergency situations.

[Instructions: Circle EACH Yes” or “No.”

“Explain” means a verbal explanation which is either “S” (satisfactory) or “U” (unsatisfactory). You may be asked for a verbal explanation for any “YES” answer.

“Demonstrate” means to show by using installed equipment.

The symbol © means for you or an authorized company employee to initial & date that particular entry.]

Use these letters to show HOW trained: (SCH) = School; (V) = Video; (OJT) = On the Job training. (D) –Drill or demonstration. (ASMTE) = formal assessment (SM) = Safety Meeting. (W) Withdrew qualification after faulty explanation or demonstration.]:

Basic Qualifications (including Physical Exam, Career Guidance, and Orientation)

A1. Yes or No. Is the company physical exam is comparable to the Coast Guard entry-level physical exam. © _____

A2. Yes or No. Is the entry-level mariner physically qualified to pursue a career in the merchant marine? © _____

(*)Substance abuse regulations and policies.

A3. Yes or No. Did you complete orientation on drug & alcohol testing requirements of 46 CFR 16 & 49 CFR 40?

A4. Yes or No. Were you informed of the company’s drug & alcohol policy & Employee Assistance Program (EAP)?

A5. Yes or No. Did you pass a SAMSHA pre-employment drug test as required by law.

(*)Hearing protection regulations, and policies (e.g., guidelines).

A6. Yes or No. Was your hearing tested during the physical exam?

A7. Yes or No. Were you provided with hearing protection devices? Explain.

(*)Company safety policies and vessel safety rules.

A8. Yes or No. Did you complete reading the Company Operations Manual or equivalent employee rules? © _____.

A9. Yes or No. Did you complete the company orientation program as a new-hire? © _____.

A10. Yes or No. Did you receive “Slips, Trips, and Falls” training? © _____

A11. Yes or No. Did you receive back safety training? © _____

A12. Yes or No. Did you receive “Right to Know” training? © _____

A13. Yes or No. Did you receive “Confined Space” training? © _____

A14. Yes or No. Did you receive training on atmospheric testing in confined spaces? © _____

A15. Yes or No. Did you receive training in the use of a Combustible gas indicator (explosimeter)? © _____

A16. Yes or No. Did you receive “Blood Borne Pathogen” training. © _____

A17. Yes or No. Did you receive “Benzene” hazard training? © _____

(*)Workplace hazards including chemicals in vessel stores or cargo)

A16. Yes or No. Were you advised of general safety hazards in orientation or in Company Manual? © _____

A17. Yes or No. Were you instructed how to complete a Declaration of Inspection at a fuel dock © _____

A18. Yes or No. Were you instructed in company smoking policies & smoking safety policies? © _____

A19. Yes or No. Were you shown and explained the contents of the vessel’s stability letter. © _____

(*)Personal protective equipment and apparel.

A20. Yes or No. Were you provided (or do you own) a hard hat? ☐ _____

A21. Yes or No. Were you provided (or do you own) work gloves? ☐ _____

A22. Yes or No. Were you provided (or do you own) effective safety boots or shoes? ☐ _____

A23. Yes or No. Were you provided (or do you own) safety glasses and/or goggles? ☐ _____

A24. Yes or No. Were you provided (or do you own) a flashlight? ☐ _____

A25. Yes or No. Were you provided (or do you own) eye protection for welding fire watch? ☐ _____

A26. Yes or No. Were you provided (or do you own) a dust mask or paint respirator? ☐ _____

A27. Yes or No. Do you have a folding knife with a maximum 4" blade? ☐ _____

A28. Yes or No. Do you have safety sunglasses? ☐ _____

A29. Yes or No? Do you have a cap with a bill? ☐ _____

A30. Other: List specific items) _____

B. Emergency Conditions. "Every deckhand should be familiar with the following matters relating to duties and emergency conditions":

(*)Vessel orientation regulations, equipment, vessel terminology, and protocol aboard vessels.

B1. Yes or No. Familiarized with the vessel characteristics [46 CFR 15.405].

B2. Yes or No. Were you shown a copy of Code of Federal Regulations applicable to vessel you are on? ☐ _____

B3. Yes or No. Were you familiarized by a tour of "deck" areas and terminology by a licensed officer? ☐ _____

B4. Yes or No. Were you familiarized by a tour of "engine" spaces and terminology by licensed officer? ☐ _____

B5. Yes or No. Were you familiarized by a tour of the vessel's accommodation spaces by a licensed officer? ☐ _____

B6. Yes or No. Were you explained your duties under vessel's Emergency Instructions by a licensed Officer? ☐ _____

B7. Yes or No. Were you explained protocol & chain of command by a licensed officer? ☐ _____

B8. Yes or No. Were you told not to leave the boat without the Master's permission? (i.e., "Desertion") ☐ _____

C. Man Overboard.

C1. Location and use of lifesaving equipment.

C1A. Yes or No. Demonstrated donning personal lifesaving equipment (PFD, life vest, immersion suit). ☐ _____

C1B. Yes or No. Explain how to use a life float properly. ☐ _____

C1C. Yes or No. Explain how to use an inflatable liferaft properly. ☐ _____

C1D. Yes or No. Can you swim in calm water and stay afloat unaided for 15 minutes? (*Required for STCW)

C1E. Yes or No. Were you approved to ride in a small boat, rescue boat or skiff. ☐ _____

C1F. Yes or No. Approved to operate a small boat or skiff as part of his duties. ☐ _____

C1G. Yes or No. Received boating safety training for recreational boats comparable to USCG Aux. training?

C1H. Yes or No. Demonstrated on rowing and paddling skills by licensed officer. ☐ _____

C1J. Yes or No. Demonstrated knowledge of operating the outboard motor before a licensed officer. ☐ _____

C1K. Yes or No. Demonstrated safe boating skills before a licensed officer. ☐ _____

C1L. Yes or No. Demonstrated safe and proper use of the rescue boat launching appliance. ☐ _____

C2. The vessel's maneuvering characteristics.

C2A. Yes or No. Instructed in the vessels maneuvering characteristics as they affect crewmember. ☐ _____

3. Emergency communications skills.

C3A. Yes or No. Were you Instructed in the proper use of the VHF Radio including handheld models? ☐ _____

C3B. Yes or No. Were you Instructed in the proper VHF channel usage? ☐ _____

C3C. Yes or No. Have you used the vessel's sound-powered telephone system successfully. ☐ _____

C3D. Yes or No. Do you possess an FCC Radio Operator's License?

4. Proper recovery procedures.

C4A. Yes or No. Explain proper notification to pilothouse of a man overboard.

C4B. Yes or No. Demonstrated using ring buoy, heaving line, life-safer, life-sling in man overboard drill. ☐ _____

C4C. Yes or No. Demonstrated proper use of small boat in man overboard drill. ☐ _____

5. Station Bill assignment and duties.

C5A. Yes or No. Explain your Muster List station and responsibilities correctly to a licensed officer? ☐ _____

D. Fire.

(*)Fire safety and prevention.

D*. Yes or No. Were you Instructed in fire safety & prevention measures? ☐ _____

1. Fire detection and alarm systems.

D1A. Yes or No. Were you Instructed in the vessel's fire detection & alarm system? ☐ _____

D1B. Yes or No. Were you instructed in how to maintain a "fire watch"? ☐ _____

2. Classes of fires and the appropriate fire fighting techniques.

D2A. Yes or No. Were you instructed in fighting different classes of fires with portable fire extinguishers? ☐ _____

3. Location and operation of fire fighting equipment.

D3A. Yes or No. Were you shown the location of all vessel fire fighting equipment? ☐ _____

D3B. Yes or No. Were you shown how to use each item of installed fire-fighting equipment? ☐ _____

D3C. Yes or No. Did you participate in a fire drill? ☐ _____ ☐ _____ ☐ _____ ☐ _____

4. Location and operation of power, ventilation and fuel shut-offs.

D4A. Yes or No. Were you shown how to turn off all ventilating fans & air conditioning equipment in a fire? ☐ _____

D4B. Yes or No. Were you shown how to manually close air access to machinery spaces? ☐ _____

5. Location and operation of watertight doors, hatches, fire-screen doors, and escapes.

D5A. Yes or No. Do you know how to operate each means of access and escape? ☐ _____

6. Mustering passengers. ("Passengers" include "Persons in addition to the crew.")

D6A. Discuss how and where to muster passengers in an emergency. ☐ _____

D6B. Discuss the required "Passenger Orientation" before getting underway.

D6C. Discuss how you would conduct required "Passenger Orientation." ☐ _____

D6D. Discuss which information you would or would not pass on to passengers during an emergency. ☐ _____

D6E. Describe your role as a "Watchman" to enforce company rules while the vessel is underway. ☐ _____

7. Station Bill assignment/duties.

D7A. Describe your Station Bill (Muster List) assignment, duties, and responsibilities? ☐ _____

E. Abandon Ship.

1. Location, launching, and operation of survival equipment and survival craft. This includes, but is not limited to lifeboats, life rafts, buoyant apparatus, life floats, survival suits, and personal flotation devices.

E1A. Yes or No. Were you instructed in how to launch the survival craft assigned to your vessel? ☐ _____

E1B. Yes or No. Have you participated in an Abandon Ship Drill? ☐ _____ ☐ _____ ☐ _____ ☐ _____

E1C. Yes or No. Do you know the Abandon Ship Signals?

2. Proper method of abandoning the vessel, mustering, and debarking passengers (and crew).

E2A. Yes or No. Were you instructed when and in what order the crew will leave the vessel? ☐ _____

E2B. Describe additional provisions you would make to care for injured or disabled persons? ☐ _____

3. Proper emergency communications procedures (i.e., EPIRB, distress signals).

E3A. Yes or No. Have you been instructed in how to use pyrotechnic distress signals? ☐ _____

E3B. Yes or No. Have you been instructed in what an EPIRB is and how it works? ☐ _____

E3C. Yes or Know. Have you been instructed in what a SART is and how it works?

F. Foul Weather.

1. Location and operation of watertight and weathertight closures.

F1A. Yes or No. Were you instructed as to when weathertight and watertight closures must be closed? ☐ _____

2. Means of access to weather information.

F2A. Describe how your Captain gains access to current weather information?

3. Location and operation of bilge and emergency pumping systems. (Also see Section P (below)).

F3A. Yes or No. Do you know how many bilge pumps there are on the vessel?

4. Station Bill assignment/duties.

F4A. Yes or No. Were you instructed on personal precautions to take during heavy weather, day & night? ☐ _____

F4B. Yes or No. Were you instructed on passenger precautions including life jacket use in heavy weather? ☐ _____

G. Medical Emergency and Sanitation.

1. Red Cross certified in First Aid and CPR. (Minimum of 50% of required deckhands)

G1A. Yes or No. Have you completed a Red Cross First Aid Course? ☐ _____

G1B. Yes or No. Have you completed a Red Cross CPR Course or equivalent? ☐ _____

2. Ship Sanitation

- G2A. Describe the procedure for handling the vessel's potable water fill and supply safely. ☺ _____
- G2B. Explain the procedure to use, treat, and pump out the ship's sanitary sewage system (MSD). ☺ _____
- G2C. Describe your duties in maintaining internal shipboard sanitation and housekeeping? ☺ _____
- G2D. Yes or No. Were you instructed in what is expected of you as regards personal hygiene aboard ship? ☺ _____
- G2E. Yes or No. Were you instructed in the company's smoking health and smoking safety policies? ☺ _____

3. Food Handling

- G3A. Yes or No. Do you have any disease or medical condition that restricts preparing or handling food?
- G3B. Yes or No. Were you been instructed in sanitary food service and food preparation? ☺ _____
- G3C. Yes or No. Were you instructed in the need to put cover open foods & refrigerate them? ☺ _____
- G3C. Yes or No. Were you instructed in diet, nutrition and healthy eating for crew endurance management? ☺ _____

H. Collision.

1. Location of watertight doors [See D5 & F1 above]
2. Methods of dewatering. [See F3 above]
- H2A. Yes or No. Do you know if there are any buckets, scoops, hand, or portable bilge pumps on board? ☺ _____
3. Station Bill assignment/duties. [See D7A Above]

I. Deckhands assigned to seamanship duties, engineering or passenger safety/control duties should be familiar with the appropriate vessel operational matters based on their assigned positions:

(*)Winches and windlass.

- I1A. Describe how to use each installed winch, capstan, or anchor windlass on board? ☺ _____
- I1B. Demonstrate how to use each installed winch, capstan, or anchor windlass on board.

(*)Hardware, rigging, etc. for towing.

- I1C. Yes or No. Are you familiar with procedures used for rigging or towing?
- I1D. Yes or No. Were you instructed in the dangers of towing or being towed by hawser? ☺ _____
- I1E. Yes or No. Did you ever read and study the Deckhand's Manual or equivalent on barge safety? ☺ _____
- I1F. Explain how to use barge rigging including ratchets to make up a tow? ☺ _____
- I1G. Explain and Demonstrate how you would carry heavy rigging on the deck of a barge. ☺ _____
- I1H. Explain and Demonstrate how to set a bumper when entering a lock. ☺ _____
- I1I. Explain how, how often and when to check for leaking barges in your tow. ☺ _____
- I1J. Explain and Demonstrate how to pump out a leaking barge. ☺ _____
- I1K. Explain how to report distances to the pilothouse when approaching a lock or dock. ☺ _____
- I1L. Explain how to "shingle" a leaking barge. ☺ _____

(*)Running light and mooring light placement

- I1ML. Yes or No. Were you instructed how to check each side light, masthead light, stern and towing light? ☺ _____
- I1N. Yes or No. Were you instructed how to change the bulb in each "running light" and the bulbs to use? ☺ _____
- I1O. Yes or No. Have you read the Rules of the Road and know which lights and signals to use and when?
- I1P. Describe your duties standing "Lookout" in the pilothouse. ☺ _____
- I1Q. Describe your duties and reports you must give standing "Lookout" on the bow, stern or head of tow? ☺ _____
- I1R. Explain the dangers of working on a barge at night. ☺ _____

(*)Use of hand signals.

- I1S. Describe any hand signals you are expected to use on the job? ☺ _____

Cargo loading, securing and baggage handling.

- I1T. Describe your duties in securing cargo and loading freight and baggage. ☺ _____

J. Bridge. (Pilothouse).

1. All navigational equipment

- J1A. Identify and explain the purpose of each major item of navigational equipment in the pilothouse. ☺ _____?
- J1B Explain what emergencies you might encounter in the pilothouse and how to handle it. ☺ _____

2. Engine alarms/indicators, controls, gauges.

- J2A. Explain what actions you would take if you observe unusual readings on indicators & gauges. ☺ _____?
- J2B.Explain which controls you must never touch without first obtaining permission. ☺ _____

3. Communication procedures. [See C3 above]

K. Safety and Security.

1. Safety: Crowd control, Rigging, Line handling, casualty control, first aid and CPR.

K1A. Yes or No. Did you receive training in crowd control beyond the required Emergency Check-off List? ☐ _____

K1B. Yes or No. Did you receive instruction in how to safely board or debark the vessel? ☐ _____

K1C. Yes or No. Were you instructed in how to use a safety harness or bosun's chair when going aloft? ☐ _____

K1D. Yes or No. Were you instructed in safe lifting techniques? ☐ _____

2. Security.

K2A. Yes or No. Were you instructed in vessel security? ☐ _____

K2B. Yes or No. Did you read and study the vessel security plan?

K2C. Yes or No. Can you identify the Vessel Security Officer on this vessel?

K2D. Yes or No. Can you identify the Company Security Officer?

K2E. Yes or No. Do you have or have you applied for a TWIC? ☐ _____

K2F. Yes or No. Do you have a Merchant Mariner's Document (MMD or Z-card)?

K2G. Yes or No. Do you have a state driver's license of valid picture identification?

K2H. Describe how vessel security is enhanced at MARSEC Levels 2 & 3. ☐ _____

L. Vessel Assistance.

1. Search and rescue techniques, towing, and superior shiphandling skills.

L1A. Yes or No. Have you received formal training in Search and Rescue (SAR) techniques?

(*L1B. Explain your duties when engaged in hawser towing (i.e., towing astern). ☐ _____

(*L1C. Explain your duties when towing another vessel alongside (i.e., "on the hip"). ☐ _____

(*L1D. Explain your duties when towing by pushing ahead. ☐ _____

M. Seamanship.

1. Knots. Yes or No.

M1A. Follow the instructions in section Q (below)

2. Linehandling.

M2A. Demonstrate coiling and securing a line to prevent it from falling overboard? ☐ _____

M2B. Name and Describe the four lines used to tie up a boat and explain the purpose of each line. ☐ _____

M2C. Explain and Demonstrate how to use spring lines in docking and undocking procedures? ☐ _____

M3D. Explain and Demonstrate how to successfully pass a line to shore? ☐ _____

M4C. Explain and Demonstrate how to use a heaving line? ☐ _____

M4E. Explain and Demonstrate tossing a line over a piling from a distance? ☐ _____

M4F. Explain your duties in anchoring your vessel safely? ☐ _____

M4G. Demonstrate carrying out your duties setting the anchor. ☐ _____

M4H. Demonstrate your duties in retrieving and stowing the anchor and anchor line. ☐ _____

3. Docking/undocking procedures.

M3A. Explain and Demonstrate your duties when the vessel is docking? ☐ _____

M3B. Explain and Demonstrate how to perform your duties when the vessel is undocking? ☐ _____

M3C. Explain your duties immediately following docking or undocking? ☐ _____

4. Basic navigation (i.e., piloting, dead reckoning).

M4A. Yes or No. Do you know how to steer the boat right or left?

M4B. Explain and Demonstrate how you would follow steering orders issued by a conning officer? ☐ _____

M4C. Explain and Demonstrate steering a course by compass within 5 degrees in calm conditions? ☐ _____

M4D. Yes or No. Were you instructed in using the paper or electronic charts used on your vessel? ☐ _____

N. Senior Deckhand. [Note: A "Senior Deckhand" on a small passenger vessel is NOT rated as an Able Seaman and is not issued a Merchant Mariner's Document (MMD).]

A. In many situations it is important for the vessel's master to have available a more highly qualified deckhand, for example, where the Officer in Charge, Marine Inspection has allowed the deletion of the required mate. In addition to having a more in-depth knowledge of the above subjects, the Senior Deckhand should also have practical experience on the vessel on which he or she is serving. The recommended experience for the Senior Deckhand is:

1. 30 days experience on board the vessel.

2. 30 hours at the helm under supervision of a master or mate.

3. The Senior Deckhand will provide an increased level of experience on vessels where there is only one licensed officer required. The Senior Deckhand will be responsible for supervising the other deckhands while the vessel is underway and act as the team leader in response to any emergencies on board. He or she will be able to assist the master in the operation of the vessel, and will be available to operate the vessel in the event the master becomes incapacitated. In order to properly identify this individual, the vessel's master should designate the Senior

Deckhand in writing and a copy of this designation should be retained on board the vessel.

N1A. Yes or No. Were you previously qualified (as per above) to serve as a "Senior Deckhand" on any vessel? ☐ _____

Advanced Deck Ratings

O. Able Seaman Ratings.

[Able Seaman is an advanced rating requiring between 180 days and three years at sea depending upon the specific rating as described at 46 CFR Subpart 12.05 and as shown in ascending order (below). As a prerequisite, a mariner must hold a Merchant Mariner Document (MMD/z-card) and serve on a vessel of greater than 100 Gross Register Tons. This, by definition, leaves out all small passenger vessels and only includes towing vessels of greater than 100 GRT in coastwise and ocean service. We limit our project to marlinespike seamanship issues.]

? Able Seaman, Special (OSV) limited to service on offshore supply vessels.

? Able Seaman, Special

? Able Seaman, Limited

? Able Seaman, Any Waters, Unlimited.

Knot tying skills. All of the following knots and splices are required of an Able Seaman to pass a Coast Guard examination. Some, a few, many, or all these knots may be required by your employer. Circle the letter of every knot you can tie. Letters "O1" through "O16" are the knots required on various Coast Guard Able Seaman tests as well as a short splice and an eye splice.

O1. Bowline ☐ _____

O2. Square Knot ☐ _____

O3. Clove Hitch ☐ _____

O4. Sheet Bend ☐ _____

O5. Carrick Bend. ☐ _____

O6. Rolling Hitch. ☐ _____

O7. Stopper Hitch ☐ _____

O8. French Bowline. ☐ _____

O9. Running Bowline. ☐ _____

O10. Bowline on a Bight. ☐ _____

O11. Fisherman's Bend. ☐ _____

O12. Timber Hitch. ☐ _____

O13. Catspaw. ☐ _____

O14. Figure Eight. ☐ _____

O15. Barrel Hitch. ☐ _____

O16. Round Turn and Two Half Hitches. ☐ _____

O17. Tugboat hitch. ☐ _____

O17. Other knots required by your employer. Explain. _____

O18. Other useful knots you can tie. Explain _____

O19. Worming, Parceling, and Serving. ☐ _____

O20. Short Splice. ☐ _____

O21. Long Splice. ☐ _____

O22. Other splices you can make. Explain. _____

P. Deckineer [Explanation: A "deckineer" is a mariner who, because of the tonnage of his vessel or the service it is engaged in, or the waters on which it operates, is not required by law to hold either a merchant mariner document (MMD) or license. His duties may be split between service on deck and service in the engine room. However, service in the E/R presents a number of safety hazards and requires knowledge and skills in addition to those used on deck as outlined below. A "deckineer" who spends most of his time working in the engine room may progress to become a competent unlicensed engineer in charge of a valuable power plant with adequate training.]

P1. Engine room safety must begin with exercising common sense and some basic skills.

P1A. Yes or No. Have you had experience working in enclosed machinery spaces like this engine room before? ☐ _____

P1B. Yes or No. Do you consider training in the engine department as an important career step in this industry? ☐ _____

P2. Protection of your hands – your most important and valuable tool.

P2A. Yes or No. Do you have gloves to adequately protect your hands against all hazards of this job? ☐ _____

P3. Personal Protective Gear (PPG) required in the use of hand and power tools.

P3A. Yes or No. Do you have safety glasses, goggles, or a full face mask to protect your eyes? ☐ _____

P3B. Yes or No. Do you have ear plugs or ear muffs to protect your hearing in high noise areas? ☐ _____

P3C. Yes or No. Do you have a dust mask or respirator for paint or high dust areas? ☐ _____

P4. Instruction in the use of standard hand tools (e.g., U.S. Navy hand-tool book or equivalent).

P4A. I was instructed or already know how to safely use the standard hand tools usually found on vessels this size.

- ? Yes or No. Screw Driver, hand (assorted). ☐ _____
- ? Yes or No. Pliers, Standard, Electrician, Locking or Needle nose ☐ _____
- ? Yes or No. Vise grips ☐ _____
- ? Yes or No. Hammer, Claw or Ball pein ☐ _____
- ? Yes or No. Tape Measure. ☐ _____
- ? Yes or No. Wrench, Adjustable (“Crescent”) ☐ _____
- ? Yes or No. Open and closed end wrench set (standard or metric) ☐ _____
- ? Yes or No. Socket wrench set and breaker bar (standard or metric) ☐ _____
- ? Yes or No. Pipe wrench (assorted sizes). ☐ _____
- ? Yes or No. Chain pipe wrench. ☐ _____
- ? Yes or No. Hacksaw, hand. ☐ _____
- ? Yes or No. Files, hand (Assorted) ☐ _____
- ? Yes or No. Chisel, set (cold chisel or wood chisel). ☐ _____
- ? Yes or No. Punch set ☐ _____
- ? Yes or No. Hex key set ☐ _____
- ? Yes or No. Tap and Die set. ☐ _____
- ? Yes or No. Pipe tap and die set ☐ _____
- ? Yes or No. Screw extractor ☐ _____
- ? Yes or No. Stud extractor ☐ _____
- ? Yes or No. Gauging tape with bob ☐ _____
- ? Yes or No. Inspection mirror. ☐ _____

P4B. I was instructed or already know how to use larger hand tools found on some boats this size.

- ? Yes or No. Crow bar and/or pry bar. ☐ _____
- ? Yes or No. Bolt cutters ☐ _____
- ? Yes or No. Come-along, cable operated ☐ _____
- ? Yes or No. Chain hoist ☐ _____
- ? Yes or No. Banding tool ☐ _____
- ? Yes or No. Vise ☐ _____

P5. Instruction and observation of the safe use of all authorized power tools.

P5A. Yes or No. I was instructed in safety of electrical power tools in the marine environment. ☐ _____

P5B. Yes or No. I was instructed in safety concerns of compressed air & air operated power tools. ☐ _____

P5C. I was instructed in the safe operation of these power tools used on boats this size.

- ? Yes or No. Electric sander (belt, orbital, or vibrator) ☐ _____
- ? Yes or No. Electric drill. ☐ _____
- ? Yes or No. Needle gun (to remove rust). ☐ _____
- ? Yes or No. Portable grinder or bench grinder. ☐ _____
- ? Yes or No. Power saw (reciprocating, jig, circular saw). ☐ _____
- ? Yes or No. Washdown gun. ☐ _____
- ? Yes or No. Portable sand blaster. ☐ _____
- ? Yes or No. Pressure washer (to 2,500 psi) safely. ☐ _____

P6. Proper storage, protection, replacement, and accounting for tools. (All required tools are furnished to the vessel).

P6A. Yes or No. I understand the company policy in regard to tool accountability. ☐ _____

P7. The use of measuring tools (gages, tapes, calipers, tables) and measuring techniques.

P7A. Yes or No. I was instructed in how to measure and record the fuel levels on this vessel. ☐ _____

P7B. Yes or No. I was instructed in how to measure and record the potable water on this vessel. ☐ _____

P7C. Yes or No. I understand how to use each measuring device on this vessel. ☐ _____

P8. Painting & Painting Safety (including instruction in reading Material Safety Data Sheets (MSDS) for paints, thinners, and all hazardous substances used on board (including diesel fuel)

P8A. Yes or No. I was instructed in the proper storage of paints, brushes, rags, and solvents. ☐ _____

P8B. Yes or No. I was instructed in the correct use of paints used on this boat. ☐ _____

P8C. Explain how to properly prepare surfaces for painting. ☐ _____

P8D. Explain the dangers of painting in enclosed spaces. ☐ _____

P8E. Explain why to use a lifeline and have another crewmember attend you when painting over the side. ☐ _____

P8F. Explain why you must ventilate all enclosed areas when painting. ☐ _____

P8G. Explain why you must use personal protective equipment (e.g., gloves, masks) when painting. ☐ _____

P8H. Explain & Demonstrate correctly painting and cleaning up using a brush. ☐ _____

- P8I. Explain & Demonstrate correctly painting and cleaning up with a paint roller. ☐ _____
- P8J. Yes or No. Have you been instructed in masking and using spray painting equipment. ☐ _____
- P8K. Yes or No. Have you been instructed in how to clean spray painting equipment? ☐ _____
- P8L. Yes or No. Have you been instructed how to read and understand MSDS? ☐ _____

P9. Access to the Engineroom and each Machinery Space.

- P9A. Yes or No. I examined each E/R and machinery space access opening on this boat. ☐ _____
- P9B. Yes or No. I understand how each hatch or door opens, closes, and seals. ☐ _____
- P9C. Yes or No. I opened & closed each verifying hinges, closing mechanism, & hold-backs work properly. ☐ _____
- P9D. Explain how you checked each opening's gasket material for proper condition and fit. ☐ _____
- P9E. Explain how the door, hatch, or scuttle protects the watertight integrity of the hull. ☐ _____
- P9F. Explain the dangers of obstructing passageways, stairs & ladders to and from the E/R. ☐ _____
- P9G. Explain your duty to close vents & openings to prevent passage of smoke & flames. ☐ _____
- P9H. Explain your duty to keep E/R ports, doors, hatches and scuttles closed to prevent flooding. ☐ _____
- P9I. Explain how to use a step ladder correctly. ☐ _____
- P9J. Explain why manhole covers must be bolted down and open manholes roped off. ☐ _____

P10. Using your senses of Sight, Smell, Hearing, and Touch in the E/R & machinery spaces.

- P10A. Explain what you should look for before entering any E/R or machinery space ☐ _____.
- P10B. Describe each smell you should recognize as you enter any E/R or machinery space. ☐ _____
- P10C. Explain what you should and should not touch in an E/R and why. ☐ _____
- P10D. Can you identify...
 ? Yes or No. Burning electrical insulation. ☐ _____
 ? Yes or No. Slipping belts. ☐ _____
 ? Yes or No. Leaking anti-freeze. ☐ _____
 ? Yes or No. Overheated engines. ☐ _____
 ? Yes or No. Overcharging batteries ☐ _____
 ? Yes or No. Fuel leaks ☐ _____

P11. Examine the "overhead" in the E/R for low head clearances.

- P11A. Yes or No. Is every hanging pipe, cable, tank, & structural steel marked to attract your attention? ☐ _____
- P11B. Yes or No. Is every hot pipe you could touch properly insulated to prevent burns? ☐ _____
- P11C. Yes or No. Is every hot exhaust manifold protected from leaking or spraying fuel to prevent fire? ☐ _____

P12. Examine all deck plates, hand rails, hand holds, guards, lighting.

- P12A. Yes or No. Is each deck plate secured in place to prevent its movement? ☐ _____
- P12B. Yes or No. Are there any unprotected gaps in the deck plates that you could fall through? ☐ _____
- P12C. Yes or No. Are there unprotected places without handrails or handholds if the vessel lurches? ☐ _____
- P12D. Yes or No. Is there any rotating machinery without suitable guards? ☐ _____
- P12E. Yes or No. Could an electric cord or hose be caught and pulled into rotating machinery in this E/R? ☐ _____
- P12F. Yes or No. Is the lighting adequate in all parts of the E/R and other machinery spaces? ☐ _____
- P12G. Yes or No. Is the emergency lighting (E) adequate to escape the E/R and each machinery space? ☐ _____
- P12H. Yes or No. Is there at least one battery operated flashlight provided each crewmember in the E/R? ☐ _____

P13. Demonstrate that you can identify each major item of equipment or machinery in the engineroom including propulsion engine(s), generator(s), pumps, and storage tanks. ☐ _____

P14. Identify all utility outlets in the E/R including hot and cold water, electricity, and compressed air. (Each electrical outlet should be labeled to show its voltage.) ☐ _____

P15. Identify all warning or cautionary lights (e.g., red; yellow; blue) or warning signals. ☐ _____

P16. Identify all communication stations in the E/R and other machinery spaces. ☐ _____
 P16A. Demonstrate that you can use each station to make a call under full ambient noise conditions. ☐ _____

P17. Only enter the E/R when wearing the proper protective gear, clothing, and shoes.

- P17A. Explain why you must always wear shoes in the E/R. ☐ _____
- P17B. Explain why to avoid synthetic fiber clothing in the E/R. ☐ _____
- P17C. Explain when and why you must wear shatter-proof safety glasses and goggles ☐ _____.
- P17D. Explain when and why you should wear gloves and differentiate between different types. ☐ _____
- P17E. Explain where, when, and the type of hearing protective gear you should wear. ☐ _____
- P17F. Explain when and where you must use respiratory protection (e.g., dust or paint masks) ☐ _____.

P18. Training Material.

- P18A. Yes or No. Did you read and study the main engine(s) operator's manual? ☐ _____
- P18B. Yes or No. Did you read and study the operator's manual for the generator(s)? ☐ _____
- P18C. Yes or No. Did you read and study company E/R safety policies? ☐ _____
- P18D. List the name or topic of every safety video you remember watching on E/R subjects. ☐ _____

P19. Use the dipstick before starting any main engine, generator, marine gear, or compressor.

- P19A. Explain which types of oil are available in your E/R and where they are stored. ☐ _____
- P19B. Explain how, before adding oil, you check to verify it is the correct oil. ☐ _____
- P19C. Explain if any dipsticks in your E/R have one side to use when engine is stopped and the other used with engine running (usually at idle speed) but at operating temperature? If so, identify which one(s). ☐ _____

P20. Expect that you will take oil samples and change oil only under proper supervision.

- P20A. Yes or No. Were you instructed in how to take, bottle, mark, store, or ship an oil sample? ☐ _____
- P20B. Yes or No. Does your employer send engine or fuel oil to a lab for analysis? ☐ _____

P21. Diesel engine operation

- P21A. Yes or No. Were you trained to operate the main propulsion engine(s) on this boat? ☐ _____
- P21B. Explain & Demonstrate making a "cold start" as outlined in the operator's manual? ☐ _____
- P21C. Explain & Demonstrate performing all pre-lube and pre-starting checks. ☐ _____
- P21D. Explain & Demonstrate engine operational checks as outlined in the operator's manual? ☐ _____
- P21E. Explain & Demonstrate the shut-down procedures outlined in the operator's manual? ☐ _____
- P21F. Explain the preventive maintenance procedures outlined in the operator's manual? ☐ _____

P22. Auxiliary machinery operation.

- P22A. Explain and Demonstrate P17 as required on the vessel's diesel generator(s). ☐ _____
- P22B. Identify the correct frequency in "cycles" (called "Hertz") generated on your vessel? ☐ _____
- P22C. Yes or No. Does your vessel have both A.C. (Alternating Current) and D.C. (Direct Current)? ☐ _____
- P22D. Identify all Direct Current (D.C.) systems on your boat including all batteries and chargers. ☐ _____
- P22E. Explain why generating the correct frequency is critical to the life of every piece of electrical equipment aboard the vessel. ☐ _____
- P22F. Which meter(s) shows the frequency you are generating and where is it located? ☐ _____
- P22G. At what RPM must your generator operate to furnish the correct cycles ("Hertz")? ☐ _____
- P22H. Yes or No. Does your generator(s) supply three-phase power to any equipment on the boat? ☐ _____
- P22I. Explain & demonstrate the starting position for all generator controls. ☐ _____
- P22J. Explain & demonstrate the generator and switchboard operation. ☐ _____
- P22K. Explain & demonstrate the frequency (Hertz) adjustment. ☐ _____

P23. Electrical safety.

- P23A. Yes or No. I received training and understand basic electrical safety in the marine environment. ☐ _____

P24. Electrical distribution.

- P24A. Locate each breaker panel in the E/R? ☐ _____
- P24B. Locate every breaker panel throughout the vessel? ☐ _____
- P24C. Yes or No. Verify that each circuit is properly labeled in each breaker panel? ☐ _____
- P24D. Yes or No. Locate all motor controllers on the vessel. ☐ _____
- P24E. Identify which equipment operates on three-phase power. ☐ _____
- P24F. Identify any A.C. equipment that operates on voltages greater than 120 volts. ☐ _____
- P24G. Identify any outlets of greater than 120 volts A.C. ☐ _____

P25. Tanks: Soundings, tank safety, tank capacity tables, and tankage blueprints.

- P25A. Yes or No. Do you have access to and have you studied tank blueprints for this vessel? ☐ _____
- P25B. Yes or No. Do you have access to tank capacity tables for this vessel? ☐ _____
- P25C. Yes or No. Did you check to see that each fuel tank vent screen is unbroken & in place? ☐ _____
- P25D. Yes or No. Does this vessel have fuel "day tanks" that must be topped off regularly? ☐ _____
- P25E. Identify each sewage tank, vent, or pump out line on the vessel? ☐ _____
- P25F. Identify each ballast tank, vent, fill or discharge line on the vessel. ☐ _____
- P25G. Identify each expansion tank on the vessel, describe its function, and how to use it correctly. ☐ _____
- P25H. Explain how to read the vessel's fuel capacity tables. ☐ _____
- P25I. Explain where and how you maintain and log a daily list of tank levels for each fuel tank? ☐ _____
- P25J. Explain the correct procedure for topping off the day tanks on this vessel. ☐ _____
- P25K. Identify each fuel tank vent on the vessel. ☐ _____
- P25L. Identify each fuel fill on the vessel. ☐ _____

P25M. Identify each potable water tank, tank vent or fill line on this vessel. ☐ _____

P26. Handling and disposal of used oil, used oil and fuel filters, oily bilge slops, garbage, and sewage.

P26A. Yes or No. Were you instructed how to properly dispose of used oil? ☐ _____

P26B. Yes or No. Were you instructed how to drain trash from fuel filter bowls and change fuel filters? ☐ _____

P26C. Yes or No. Were you instructed how to properly dispose of used oil filters? ☐ _____

P26D. Yes or No. Were you instructed how to properly dispose of oily bilge slops? ☐ _____

P26E. Yes or No. Were you instructed how to properly pump out the sewage system? ☐ _____

P26F. Yes or No. Were you instructed how to properly discard shipboard garbage & trash? ☐ _____

P26G. Yes or No. Were you instructed in the penalties for mishandling any of the above? ☐ _____

P26H. Yes or No. Were you instructed on which of these items must be logged? ☐ _____

P26I. Yes or No. Were you instructed it is your responsibility *Not* to carry out an unlawful disposal order? ☐ _____

P27. Refueling.

P27A. Yes or No. Have you ever refueled a diesel-powered vessel? ☐ _____

P27B. Yes or No. Were you instructed in the penalties for not reporting a fuel spill? ☐ _____

P27C. Yes or No. Have you been instructed in preparing Declaration of Inspection for a fuel transfer? ☐ _____

P27D. Explain all the steps to take to prepare for a fuel transfer. ☐ _____

P27E. Explain your duties in assisting in or taking on bunker fuel on your vessel. ☐ _____

P27F. Identify and describe the purpose of each fuel containment device or area on this boat ☐ _____

P27G. Are you approved by letter as PIC for fuel transfers on towing vessels (33 CFR 155.710(e)(2))? ☐ _____

P27H. Explain what you must do if there is an oil spill? ☐ _____

P28. Cleaning the Engineroom (E/R).

P28A. Describe the correct E/R cleaning materials to use (e.g., soaps, de-greasers, etc.) ☐ _____

P28B. Describe the appropriate cleaning tools for the E/R (e.g., spray, brushes, rags, mops, etc) ☐ _____

P28C. Explain why you should never spray water around electrical equipment including lighting ☐ _____

P28D. Explain why you should clean the E/R dockside and in the absence of vessel motion. ☐ _____

P29. Pumps and pumping.

P29A. Explain how to start each bilge pump on the vessel. ☐ _____

P29B. Demonstrate how to align any valves necessary to pump bilge water overboard. ☐ _____

P29C. Demonstrate where to monitor the overboard discharge outlet for each bilge pump. ☐ _____

P29D. Explain your responsibilities if you monitor the bilge pump pumping oily water overboard. ☐ _____

P29E. Yes or No. Have you verified unobstructed access to every bilge compartment on the vessel? ☐ _____

P29F. How often do you check and report E/R, rudder room, & machinery space bilge levels to the pilothouse? ☐ _____

P29G. Yes or No. Did you locate & operate the bilge piping system in each and every compartment? ☐ _____

P29H. Yes or No. Have you started each of the vessel's bilge pumps? ☐ _____

P29I. Yes or No. Can you determine if each bilge pump is dewatering the vessel? ☐ _____

P29J. Yes or No. Do you monitor each bilge pump while operating to prevent emitting pollutants? ☐ _____

P29K. Yes or No. Can you stop each bilge pump promptly as soon as the bilge is dry? ☐ _____

P29L. Yes or No. Do you check & keep each bilge compartment free of debris that could clog the pump? ☐ _____

P29M. Yes or No. Are you prepared to clean each clogged bilge strainer before the water rises? ☐ _____

P29N. Yes or No. Can you troubleshoot an inoperative bilge piping system if the pump works properly? ☐ _____

P29O. Yes or No. Can you start and stop the vessel's fire pump? ☐ _____

P29P. Yes or No. Can you operate any/all valves associated with bilge pumping? ☐ _____

P29Q. Yes or No. Can you take charge of starting the fire pumping system as directed in a fire drill? ☐ _____

P29R. Describe any interconnections between the bilge pump and the fire pump? ☐ _____

P29S. Yes or No. Have you operated any interconnections between the bilge and fire pump? ☐ _____

P29T. Yes or No. Can you connect & operate each auxiliary barge pump or fire pump on the vessel? ☐ _____

P29U. Yes or No. Is each auxiliary pump on the vessel fueled and ready to operate? ☐ _____

P29V. Yes or No. Is each connecting hose and strainer stowed with the auxiliary pump? ☐ _____

P30. Practical stability and temporary repairs.

P30A. Yes or No. Does your vessel have a stability letter or stability booklet? ☐ _____

P30B. Yes or No. Do you understand your vessel's stability instructions regarding passengers, ballast & cargo? ☐ _____

P30C. Yes or No. Were you instructed on any stability questions you might have had? ☐ _____

P30D. Yes or No. Do you have any tools or supplies with which to make emergency pipe repairs? ☐ _____

P30E. Yes or No. Identify tools or supplies you can use to repair thru-hull damage. ☐ _____

P31. Federal regulations governing the type of vessel you are working on.

P31A. Yes or No. Do you have access to the Code of Federal Regulations governing your vessel? ☐ _____

P32. Lock out-tag out procedures.

P32A. Yes or No. Were you instructed in lock out-tag out safety procedures? ☐ _____

P33. Use of Insulation, Lagging, and Shields.

P33A. Explain the purpose of exhaust insulation, lagging, and fire shields. ☐ _____.

P33B. Yes or No. Were you instructed in the hazards of asbestos used in insulation, floor & ceiling tile? ☐ _____

P33C. Yes or No. Does your vessel contain any asbestos? ☐ _____

P34. Gas, compressed or liquefied gas, and gas cylinder safety.

P34A. Yes or No. Have you been instructed in compressed or liquefied gas safety? ☐ _____

P34B. Yes or No. Have you been instructed in gas cylinder care, stowage, and safety? ☐ _____

P35. Maintaining a fire watch.

P35 A. Explain when a gas-free certificate is required. ☐ _____

P35B. Explain when a fire watch is required. ☐ _____

P35C. Explain what kind of a fire extinguisher you would select and cite different conditions. ☐ _____

P35D. Explain how long to remain at your fire watch post after hot work is complete or the fire is out. ☐ _____

P36. Good housekeeping.

P36A. Explain how to correctly store dirty and oily rags. ☐ _____

P36B. Explain the steps you take to properly stow and secure tools, parts, and engineroom supplies. ☐ _____

P36C. Explain why & how work, sleep and eating spaces must be neat, clean & free of fire & health hazards. ☐ _____

ENGINEER ASSESSMENT RECORD

The Engineer Assessment Record is a generic review of the knowledge and skills that a mariner acquires and develops while working in the engineroom and machinery spaces of any vessel. This written record can be modified as necessary to reflect a particular company's policies, equipment installed in its fleet or on a specific vessel.

Management is well aware of the replacement cost of each item of installed machinery as well as the cost of repairing damage caused by carelessness, stupidity, abuse, or neglect. They should share this type of information with their engineroom personnel to prevent these conditions from developing and encourage continuous training and improvement of skills. The engineer assessment record should be updated at regular intervals by supervisory personnel. Management also should encourage and reward timely reporting, accurate logging, and appropriate correction within their capability of all mechanical problems.

What makes a good engineer? A combination of manufacturer-approved operating procedures, company policy, an awareness of the value of preventive maintenance, and good common sense will dictate the correct answers to each question below. Management places a suitably trained "deckineer" or competent unlicensed engineer in charge of a valuable vessel power plant and machinery spaces and entrusts this equipment to his or her care. This power plant provides the power for propulsion essential to the vessel's safe navigation and utilities that serve crew, passengers, and industrial personnel on the vessel. A competent "deckineer" or unlicensed engineer should study, trained, and be properly supervised to know the correct answers that apply to the equipment in the vessel's engineroom. Management should encourage him or her to take pride in its proper maintenance and operation and complete this assessment record to the supervisor's satisfaction. **The supervisor should initial and date the appropriate blank spaces.** The record may be maintained as a permanent employee record reflecting the knowledge and degree of training attained.

PART 1: (Short Answer Questions.)

Instructions: Use a separate sheet and attach as necessary if used as a "Fill in the blanks" type test. Otherwise the supervisor should initial & date.)

1. What term refers to the property of a liquid that makes it resistant to flowing? ☐ _____
2. Which grade of lubricating oil is more viscous, SAE-10 or SAE-40 oil? ☐ _____
3. After how many hours is lubricating oil changed on all main engines and generator engines? ☐ _____
4. After how many hours are the lube oil filters changed on each main engines and generator? ☐ _____
5. What weight of oil must you use in each main engine and generator? ☐ _____
6. How many gallons of lubricating oil are required to completely change one main engine? ☐ _____
7. How many gallons of lubricating oil are required to completely change one generator? ☐ _____
8. What is the standard operating oil pressure (gauge) of your main engines at idle, half & full speed? ☐ _____
9. How often should you check the oil level in your main engines, generators, and marine gear ("clutch"). ☐ _____
10. What is the proper operating temperature range of your main engine and generator? ☐ _____
11. What is the standard operating drive oil pressure for your marine gear ("clutch")? ☐ _____

12. How often do you change the lube oil filter in your marine gear? € _____
13. How often do you check your lube oil screen for metal particles and clean it? € _____
14. How often should you bleed the air tanks on your boat? € _____
15. How often do you drain a fuel sediment trap? € _____
16. At how many revolutions is the governor on your main engines set? € _____
17. What type of oil does the vessel's steering system use? € _____
18. Where is the steering system's oil stored? € _____
19. How often does company policy require a visit to a "periodically unmanned engine room" while underway? € _____
20. At what frequency (Hz) does your generator operate? € _____
21. Under normal conditions, how often should you switch generators? € _____
22. How many volts does each lead-acid storage battery "cell" produce? € _____
23. Normally, how often should a generator be stopped to service its diesel engine? € _____
24. How often should you service or clean air filters on your diesel engines? € _____
25. How often should you check your batteries' water level? € _____
26. How often should you check your battery charger's rate of charge? € _____
27. When and how often should you check the stuffing boxes for leakage? € _____
28. When should you tighten or repack the stuffing box(es)? € _____
29. When and how often should the steering gear be serviced and the fittings greased? € _____
30. When and how often should you monitor oil temperature in diesel engines and marine gear? € _____
31. What is a "manifold"? € _____
32. Explain what a hot work permit is and when is it required? € _____

PART 2: Discussion type questions.

Be prepared to discuss in detail the answers to these questions with your supervisor.

1. What are the major differences between the diesel engine in this boat and an automobile engine? € _____
2. Explain the difference between a two and four-stroke diesel engine? € _____
3. What would you suspect to be the cause of an excessively high lube oil level in the main engine? Consider all possible causes. € _____
4. Explain why you should mark your initials & date on the top of each filter element you install. € _____
5. Explain why must you never dump oil into the bilge. € _____
6. What happens to your engine if you pour oil containing sand or grit from a dirty can or storage tank in it. € _____
7. Explain how your engine's operating temperature affects the engine's oil pressure. € _____
8. Describe what happens if you pour oil contaminated with water into your engine. € _____
9. Explain how you store spare lube oil on your boat each precaution you take to prevent its contamination. € _____
10. How much spare lube oil and hydraulic oil should you carry on board, and why? € _____
11. Explain why you should avoid changing brands of lube oil even if they are the same viscosity. € _____
12. How many water pump impellers, backing plates, cams, and seal kits do you keep aboard, and why? € _____
13. What action must you take when you use a spare part taken from your stock? € _____
14. Why must you wait aboard the vessel and be properly relieved for "crew change"? € _____
15. What a "keel cooling" system is, how it works, and how it differs from other heat exchange systems? € _____
16. In what ways is salt water harmful to a marine engine cooling system? € _____
17. What is an "anode," and why do you use it in an engine's cooling system? € _____
18. Why is a "water treatment" system (e.g., "Nalcool") used in the cooling system of a marine engine? € _____
19. Describe what happens to an engine that is allowed to overheat. € _____
20. List all of the possible causes of engine overheating. € _____
21. What can happen if you add cool water to an overheated engine. € _____
22. How long must you allow an overheated engine to cool before you can safely add water to it? € _____
23. How can you determine if a salt-water exhaust line cooling pump is operating properly? € _____
24. What immediate action steps must you take if a salt-water exhaust line cooling pump is not working properly? € _____
25. What might be wrong if you discover black oil in your marine gear? € _____
26. Why must you bleed water from each compressed air storage tank (i.e., "air receiver") regularly? € _____
27. Why should you test the safety valve on your "air receiver(s) & what procedure do you use?" € _____
28. Why should you drain your hot water heating tank on your boat? € _____
29. How do you test the safety valve on your hot water heating tank? € _____
30. Explain the procedure to protect water pipes and pumps in freezing weather. € _____
31. What type of sewage system does your boat have and what chemicals (if any) does it use? € _____
32. What materials must you never put into the vessel's sewage system (and who must clean them out)? € _____
33. Explain when, why, and how to drain your sewage sanitation system (i.e., "black water") tank? € _____
34. Explain which chemicals you must add to your sewage treatment holding tank(s). € _____
35. Explain how shower, galley, and washbasin waste water (i.e., "grey water") is disposed of. € _____
36. Explain how your engine control system (i.e., manual, air, or electric) operates. € _____
37. What can cause warped clutch plates in a marine gear and how can you prevent this problem? € _____

38. How can you detect warped plates? € _____
39. How can you detect clutch "creep" when an engine idles, and why is this important? € _____
40. Why must you record the "Cumulative Total Hours Run" or "Total Hours Run" on your daily engine logs? € _____
41. Explain why the number of hours an engine runs is so important in a good preventive maintenance program? € _____
42. How do you determine the direction of rotation of each propeller? € _____
43. What does a "shaft brake" do; does your boat have one; and where is it located? € _____
44. What are sacrificial anodes; where are they located; how do they work; and what purpose do they serve? € _____
45. How does your engine tell you it wants you to change its fuel filter? € _____
46. Explain how you know when to change fuel filters changed on your boat. € _____
47. Explain the purpose of a water trap in the fuel system; where is it be located, and how do you clean it? € _____
48. What might cause a diesel engine's fuel system to become "airbound"? € _____
49. What steps must you take if your engine's fuel system becomes "airbound"? € _____
50. When would you "tie down" a main shaft and for what reason? € _____
51. How often and by what means do you check the batteries on your boat? € _____
52. Explain the function of an hydrometer and how you use it. € _____
53. In which locations are you permitted to pump your bilges overboard? (Consult 33 CFR §151.59(d)(6)) € _____
54. What is the penalty for pumping oily substances into the navigable waters of the United States? € _____
55. Describe what happens to a diesel engine if an engineroom is not adequately ventilated. € _____
56. Describe how effective engineroom ventilation is accomplished on your vessel. € _____
57. Explain the steps you would take to restart a generator if the unit suddenly shut itself down. € _____
58. Describe the correct method of packing a stuffing box. € _____
59. Name the location of all the different batteries on your vessel. € _____
60. Explain why all battery boxes must have ventilated covers on them. € _____
61. Explain why storage batteries are secured in lead lined or fiberglass trays. € _____
62. Explain why fumes from charging storage batteries are dangerous. € _____
63. Explain why the liquid in a storage battery is dangerous. € _____
64. What immediate action must you take if you spill battery acid:
- ? In the bilge? € _____
 - ? On your clothing? € _____
 - ? On your body? € _____
 - ? In your eyes? € _____
65. Explain why battery terminals must be clean and clamps tight at all times. € _____
66. What is the only type of water approved for use in a lead-acid storage battery. € _____
67. Explain if you would you put a generator "on line" before or after adjusting its voltage and frequency? € _____
68. Explain the purpose of the "Manual-Automatic" regulator switch on the main electrical switchboard? € _____
69. Describe each precaution you must take when operating a belt-driven, clutch-operated bilge pump. € _____
70. Explain why you must not use vise grips on engine parts. € _____
71. Explain how to inspect the diesel engines on your boat for broken piston rings. € _____
72. Explain what excessive crankcase pressure indicates. € _____
73. Explain what can cause a crankcase explosion. € _____
74. Describe steps to determine why the engine oil level gradually (or rapidly) fell while you were underway. € _____
75. Describe any conditions that would exist if a turbocharger was not operating properly. € _____
76. What voltage is used to operate:
- ? The VHF radio? € _____
 - ? The SSB radio? € _____
 - ? The "running lights?" € _____
 - ? The starter on the generator? € _____
 - ? The starter on the main engine? € _____
 - ? All interior lights marked "E"? € _____
 - ? All other lights inside the boat? € _____
 - ? The vessel's Radar? € _____
 - ? The vessel's GPS? € _____
 - ? The vessels electronic charting system? € _____
 - ? The vessel's air-conditioning units(s)? € _____
77. Identify KW rating of your power plant and explain what that means. € _____
78. Explain the meaning of these terms: "Model Number," "Serial Number," "Frame," "U.L. Approved," "USCG Approved," "UNIT Number"? € _____
79. Explain how and when the emergency lighting system on the vessel operates. € _____
80. Explain step by step how to use the power fire pump and bilge pump(s) on your boat. € _____
81. Explain the function of an overspeed governor on a generator. € _____
82. Explain the purpose of a reduction gear. € _____
83. List all equipment on your vessel operated by hydraulics. € _____

PART 3: Demonstration.

Be prepared to show your Supervisor. . .

1. Demonstrate the proper switching of generators to include picking up & dropping a load & adjusting voltage. ☺ _____
2. Demonstrate and Explain the proper operation of your battery charger(s). ☺ _____
3. Open and spot check the markings on fuel and lube oil filters. ☺ _____
4. Demonstrate and Explain correctly filling the fresh water expansion tanks on all diesel equipment. ☺ _____
5. Demonstrate how you would clean your hot water heater. ☺ _____
6. Demonstrate draining and flushing your MSD and sanitation system. ☺ _____
7. Point out the following parts on your main engine:
 - a) Raw water pump (if equipped). ☺ _____
 - b) Fresh water pump. ☺ _____
 - c) Low pressure fuel pump and/or high pressure fuel pump. ☺ _____
 - d) Turbocharger. ☺ _____
 - e) Oil cooler assembly. ☺ _____
 - f) Heat exchanger. ☺ _____
 - g) Blower assembly. ☺ _____
 - h) Inner cooler. ☺ _____
 - i) Cooling system anodes. ☺ _____
 - j) Valve cover. ☺ _____
 - k) Air box drains. ☺ _____
 - l) Inspection plates. ☺ _____
 - m) Lube oil filter (all engines)(all filters). ☺ _____
 - n) Marine gear oil filter and strainer. ☺ _____
 - o) Fuel filter. ☺ _____
 - p) Heads. ☺ _____
 - q) Rocker arm. ☺ _____
 - r) Rack. ☺ _____
 - s) Governor. ☺ _____
 - t) Injector. ☺ _____
 - u) Shut down solenoid(s). ☺ _____
 - v) Emergency shutdown ("flappers"). ☺ _____
 - w) Constavolt. ☺ _____
8. Demonstrate how to change a raw water pump impeller, seal, and cam on a Jabsco pump (if equipped). ☺ _____
9. Demonstrate the correct cleaning of a raw water strainer. ☺ _____
10. Demonstrate how to correctly pack a stuffing box. Point out all stuffing boxes aboard the vessel. ☺ _____
11. Demonstrate how to pump all bilge compartments successfully! ☺ _____
12. Inspection of all daily engineroom logs and record books for a one month period. ☺ _____
13. Inspection of engineer tools for compliance with Company policy. ☺ _____
14. Present your equipment service manuals and vessel inspection regulations for inspection. ☺ _____
15. Point out the location and how to drain a water trap. ☺ _____
16. Demonstrate proper fueling procedures and sounding of the tanks and activate all fuel shut off valves. ☺ _____
17. Demonstrate a complete lube oil change. ☺ _____
18. Demonstrate potable water fill, salt water ballasting, and pumping liquid and dry cargo if applicable. ☺ _____
19. Fire drill demonstration including securing of machinery spaces and station bill. ☺ _____
20. Demonstrate emergency engine shutdown procedures. ☺ _____
13. Where do you keep your list of spare parts and their stock numbers so that you can reorder the correct parts? ☺ _____
14. Point out significant information you record in your engine logbook so that a relief engineer coming on the job can continue with the maintenance program on the engines where you left off? ☺ _____

Advanced Engine Department Ratings

Q. QMED, Oiler (OSV),

[This is a engineroom rating that the Coast Guard allows to serve on offshore supply vessels after a candidate is able to show 180 days of service in the engineroom of an offshore supply vessel and after taking one of several approved, proprietary courses offered by boat companies, public and private training institutions. Since these courses are proprietary in nature and were not made available for our review, we believe they involve knowledge, training and skills in the following broad subject areas based upon 46 CFR Table §12.15-9 that are applicable to diesel powered vessels. No comparable course is currently approved for towing vessels. Since small passenger vessels are less than 100 GRT and this is an endorsement to a Merchant Mariner Document (MMD) this rating is not used on these vessels. The numbering corresponds to the item numbers in 46 CFR Table §12.15-9 after removing references to steam which is not present on these vessels. **This rating applicable in only the offshore oil industry segment of the maritime industry, its training programs are proprietary in nature is beyond the**

scope of this project.]

Q1. Application, maintenance, and use of hand tools and measuring instruments.

Q2. Uses of Babbitt, copper, brass, steel, and other metals.

Q3. Methods of measuring pipe, pipe fittings, sheet metal, machine bolts and nuts, packing, etc.

Q4. Operation and maintenance of mechanical remote control equipment.

Q5. Precautions to be taken for the prevention of fire and the proper use of firefighting equipment.

Q6. Principles of mechanical refrigeration; functions, operation & maintenance of various machines & parts of the systems.

Q8. Safety precautions to be observed in the operation of various refrigerating systems, including storage of refrigerants, and the use of gas masks and firefighting equipment.

Q9. Combustion of fuels, proper temperature, pressures and atomization.

Q13. The function, operation, and maintenance of various engineroom auxiliaries.

Q14. Proper operation of the various types of lubricating systems.

Q15. Safety precautions to be observed in connection with the operation of engineroom auxiliaries, electrical machinery and switchboard equipment.

Q16. Function, operation, & maintenance of the bilge, ballast, fire, freshwater, sanitary & lubricating systems.

Q17. Proper care of spare machine parts and idle equipment.

Q18. Procedure in preparing ... a diesel engine for standby; also the procedure for securing (same).

Q29a. Pollution laws and regulations, procedures for discharge containment and cleanup, and methods of sludge and waster from cargo and fueling operations.

R. Oiler. [As per 46 CFR Table §12.15-9. Until the Coast Guard approves an oiler course for diesel-powered towing vessels of more than 100 GRT on coastwise and ocean routes, all candidates for "oiler" on a towing vessel presumably would take Coast Guard "QMED General" exam followed within a year by a separate "Oiler" exam and includes "steam" questions although steam is no longer commonly used on towing vessels. **This established rating is beyond the scope of this project.]**

S. Qualified Member of the Engine Department (OSV). This industry-specific rating is beyond the scope of this project and is not listed as an engineroom rating in 46 CFR §12.15-9 last updated on September 6, 1996.]

T Tankerman. [An unlicensed rating for service on tank barges and tank ships as described in 46 CFR Part 13. This established rating is NOT considered as a part of this project.]

U. Designated Duty Engineer. This established license is beyond the scope of this project.]