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## GCMA Report #R-370-F (Series) Date: July 6, 2006

[Publication History: Formerly published as GCMA Report #R-362, Revision 2, February 10, 2006. Renumbered as #R-370-F on July 6, 2006.]

### CREW ENDURANCE MANAGEMENT SYSTEMS, (CEMS)

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### NTSB MAKES RECOMMENDATION M-99-1 TO U.S. COAST GUARD

As a result of its investigation into fatigue related casualties, the National Transportation Safety Board (NTSB) issued Recommendation M-99-1 to the Coast Guard on June 1, 1999 as follows: “Establish within 2 years scientifically based hours-of-service regulations that set limits on hours of service, provide predictable work and rest schedules, and consider circadian rhythms and human sleep and rest requirements.”

[GCMA Comment: We support NTSB Recommendation M-99-1. The Coast Guard missed its deadline.]

### THE NEED FOR SCIENTIFICALLY-BASED HOURS-OF-SERVICE REGULATIONS

Although NTSB “recommendations” are not commandments, the Coast Guard often (but not always) accords some degree of respect to NTSB recommendations. In this case, similar recommendations were also sent to other federal agencies within the Department of Transportation to “clean up their acts” as well. The Federal Motor Carrier Safety Administration prepared new regulations for truck drivers who promptly took the Department of Transportation to Court.

### SET LIMITS ON HOURS OF SERVICE

Licensed lower-level mariners serving on tugs, towboats, offshore supply vessels and small passenger vessels are limited to 12 hours of service within a consecutive 24-hour period by statute<sup>(1)</sup> and regulation<sup>(2)</sup> reinforced by a Coast Guard Policy Letter<sup>(3)</sup> that explains the statutes in greater detail. Furthermore, a deck officer can only take charge of a deck watch on a vessel when leaving or immediately after leaving port only if that officer has been off duty for at least 6 hours within the 12 hours immediately before the time of leaving.<sup>(4)</sup> These laws and regulations have been in place for years. [<sup>(1)</sup>46 USC 8104. <sup>(2)</sup>46 CFR 15.705; 15.710. <sup>(3)</sup>G-MOC #4-00, Change 1. <sup>(4)</sup>46 USC 8104(a).]

Unfortunately, no such laws limiting hours of service are in place for most unlicensed crewmembers. The Gulf Coast Mariners Association petitioned the Coast Guard for rulemaking to set work-hour limits on October 24, 2001.<sup>(1)</sup> Over a year later on December 2, 2002 Captain M.W. Brown (G-MSO) responded in part:

“Research conducted by Coast Guard Headquarters legal staff revealed that the Coast Guard lacks the requisite statutory authority to generate regulations addressing unlicensed mariners working aboard uninspected towing vessels. Based on this, the Coast Guard cannot initiate a rulemaking project.” [<sup>(1)</sup>Refer to Coast Guard Docket #USCG-2002-12579]

Only Congress can give the Coast Guard this authority. GCMA asked the Coast Guard to request this authority from Congress by a “Legislative Change Proposal” on behalf of hundreds of unlicensed lower-level mariners. To that request we were advised in part: “Please keep in mind that you may pursue such requests on your own...”

On February 14, 2003, GCMA noting Captain Brown’s reluctance to lift a finger to help our mariners, decided to follow his advice and petitioned 102 members of Congress by personal letters with GCMA Report #R-350 as an enclosure.

The report asked for Congressional help in:

- Setting Work-Hour Limits for Unlicensed Crewmembers. [Docket #USCG-2002-12579]
- Review and Set Safe Vessel Manning Standards.
- Define “On-Duty” Time. [Docket #USCG-2002-13594]
- Require Uniform Logbook Entries. [Docket #USCG-2002-12581 Editorial note: You can review these docket entries at the DOT website, <http://dms.dot.gov>]

## COAST GUARD RESPONSE TO NTSB

In response to NTSB Recommendation M-99-1, on October 8, 1999, VADM T.W. Josiah, the Coast Guard's Chief of Staff, cited the agency's ten years of domestic scientific research in the field of fatigue and its cooperation with the international community and cited several studies it published during the past 10 years. Of interest to lower-level mariners, VADM Josiah also pointed out an ongoing research project titled "Watchkeeping Alertness in Towing Operations" that later became the Crew Endurance Management System (CEMS).

In this letter, VADM Josiah sidestepped the issue by stating in part: "...while the complexities of the maritime transportation system preclude the Coast Guard from establishing scientifically based hours of service at this time, progress is being made on multiple levels, internationally as well as domestically, to rationally frame and address the fatigue issue on commercial vessels." In other words, the Coast Guard chose to avoid or at least postpone dealing with work-hour issues.

The NTSB, in a letter to GCMA dated January 26, 2001 stated: "It is the position of the Safety Board that for the Coast Guard to satisfactorily accomplish Safety Recommendation M-99-1, the agency should determine the physiological and performance impact of various watchstanding shifts, including the 6-hours-on, 6-hours-off schedule. Based on the planned research studies discussed in VADM Josiah's letter...M-99-1 has been classified "Open-Acceptable Response," pending the Coast Guard's establishing hours-of-service regulations using the scientific findings from its studies.

"Thank you for advising us of your association's position on mariner fatigue. Your interest in marine safety is appreciated."

## THE GCMA "YELLOW BOOK" – MAY 2000

In June 2000, the Gulf Coast Mariners Association collected 57 statements from lower-level mariners attesting to violations of the 12-hour rules that were rampant in the towing industry and the offshore oil industry. Our book was titled Mariners Speak Out on Violations of the 12-Hour Work Day. We gave the book wide circulation in domestic and international maritime circles and sent a significant number of copies to members of Congress.

When the Eighth Coast Guard District Commander, RADM Paul Pluta ignored our complaints, we presented them in detail to three Federal advisory committees:

- Towing Safety Advisory Committee (TSAC)
- Merchant Marine Personnel Advisory Committee (MERPAC)
- National Offshore Safety Advisory Committee (NOSAC).

Finally, after GCMA requested that these committees formally consider our complaints, the Coast Guard assigned the task to NOSAC.

It was clear from the outset that NOSAC intended to sidetrack the issue because the Offshore Marine Service Association, an industry trade association representing the oilfield supply vessel owners clearly wanted to defend their members' "bottom line" – at the clear expense of working mariners. After a NOSAC subcommittee dabbled with the project for 1½ years, NOSAC finally admitted that it lacked

the ability to investigate the matter and handed the issue back to the Coast Guard. The Coast Guard then dumped the issue for the most transparent reasons.<sup>(1)</sup> After several years of hard work, little of value was accomplished. Nevertheless, GCMA had no intention of giving up. [<sup>(1)</sup>Refer to GCMA Report #R-346, Work-Hour Abuse, Whistleblower Protection, and "Deadhead" Transportation.]

During this period, GCMA delegates attended various advisory committee meetings and were bombarded with previews of the forthcoming Crew Endurance Management System guide that the Coast Guard was preparing for the towing industry. The Coast Guard's focus shifted from the offshore oil industry to the towing industry. During this period, GCMA delegates were favorably impressed with the professional quality and extent of the "scientific" work that the Coast Guard's Research and Development Center presented. However, we were much less impressed with the way that the Coast Guard and industry appeared to plan to apply these "scientific principles" to our lower-level mariners throughout the towing industry.

## USCG CREW ENDURANCE REPORT RECEIVES COOL RECEPTION BY IMO – FEB 2003

The Coast Guard presented its work titled Crew Endurance Management Practices to the Standards of Training and Watchkeeping (STW) Sub-Committee of the Maritime Safety Committee of the International Maritime Organization in London in February 2003. The international community also appreciated the scientific efforts the Coast Guard's Research and Development Center delivered but overwhelmingly concurred that proper crew manning levels were a necessary prerequisite. Pertinent selections from the sub-committee's document<sup>(1)</sup> follow: [<sup>(1)</sup> STW 34/WP.6]

10.2 The United States... expressed the view that prior to developing mandatory requirements for training, there was a need to first establish guidelines to be implemented on a voluntary basis. The United States therefore proposed the development of a model course and outlined the basic topics for inclusion in such a course. The United States also drew attention to its Crew Alertness Campaign and its non-regulatory approach for managing factors affecting crew alertness in its guide Crew Endurance Management Practice...

**[GCMA Comment: We encourage our mariners to study all aspects of "Crew Alertness." What you learn could save your life and the lives of others.]**

**[GCMA Comment: The Coast Guard developed a Model Course for training purposes. However, this training does not address the widespread problem of work-hour abuse by many OSV and towing companies. The Coast Guard apparently chose to ignore enforcing existing work-hour statutes.]**

10.4 The Sub-Committee agreed that it was premature to develop mandatory education and training requirements and that training in fatigue management should be addressed through voluntary guidance rather than mandatory requirements. A number of delegations expressed their appreciation for the information provided by the United States on the Crew Endurance Program and acknowledged the

potential value of training as one part of a comprehensive approach to minimizing the problem of fatigue. Many delegations, however, stated that the more important methods for combating fatigue are responsible manning levels and work-hour restrictions under both international and national requirements.

**[GCMA Comment: Most American uninspected towing vessels are not issued safe manning documents because they are not subject to inspection until after new vessel inspection regulations are adopted. Existing manning regulations in 46 CFR Part 15 that apply to UTVs are hard to read and, above all, are inadequately enforced.]**

**[GCMA Comment: GCMA informed the International Maritime Organization as well as the International Transport Workers Federation (ITF) about the work-hour abuses our lower-level mariners face in both the towing and offshore oil industries.]**

**GCMA COMMENTS ON USCG FEB 2003  
CREW ENDURANCE STUDY**

The Coast Guard report titled Crew Endurance Management Practices was presented in London in February 2003. We received our copy from an international observer. Consequently, GCMA makes these specific points on the Coast Guard report.

1. The report, according to the Coast Guard presentation was based on "...vessels graciously made available to us by our partners and colleagues in the Inland Towing Industry." (p.xxi).

**[GCMA Comment: We identify this primarily as a management project. Mariners working for the inland towing companies cited in the report are "at will" employees and are free to express their opinions only at the peril of losing their jobs.]**

2. The report refers repeatedly to the vessel's "First Mate." This term incorrectly suggests that inland towing vessels in general have more than one mate/pilot although a pilot may also be listed. (p.8 +)

**[GCMA Comment: We seriously question just how much time the report's authors spent actually riding the vessels.]**

3. The Working Group correctly identified that the current watch schedule was not allowing crewmembers sufficient opportunity to obtain the 7-8 hours of daily uninterrupted sleep required to maintain endurance. (p.17)

**[GCMA Comment: The crux of the problem is that the existing 6&6 work schedule cannot possibly meet the basic criteria of allowing 7 to 8 hours of uninterrupted sleep.]**

4. "Coast Guard regulations determine the maximum number of work hours per 24-hour day."

**[GCMA Comment: This statement is true for licensed officers only – not unlicensed deck and engine personnel. In addition, the Coast Guard fails to accept the fact that these regulations are widely abused and that their**

**personnel have demonstrated very little interest in enforcing them. The Webbers Falls bridge accident that cost 14 lives was an example of serious work-hour abuse.]**

5. "Individual Choices" – Crewmembers were...staying up to make lengthy phone calls. (p.17)

An Australian study on fatigue (given to GCMA members participating in a NOSAC working group) states in part<sup>1</sup> "All groups reported a similar level of stress from missing home. This finding was supported by miscellaneous comments pointing out that stress levels at sea increased when family members were ill, particularly if telephone contact was difficult. These findings are consistent with findings in offshore industries that indicated that separation from family and home was the most significant factor contributing to occupational stress in offshore industries (Sutherland & Flin, 1989). [<sup>1</sup> Parker, A.W., Hubinger, L.M., Green, S. A Survey of the Health, Stress, and Fatigue of Australian Seamen, <http://www.amsa.gov.au/SP/Fastoh/index.htm>]

**[GCMA Comment: The report, by citing phone calls as matters of "individual choices," is insensitive to the fact that many mariners are family breadwinners and have family responsibilities too important to leave to chance. Such calls may be just as necessary and equally important to these mariners as work or sleep.]**

"Making shipboard phone use available, or providing shipboard internet and e-mail access, can easily boost morale as crewmembers realize the company's interest in their mental and emotional well being. It can also help crewmembers communicate more with their families, and can help reduce the amount of time spent waiting in line for a public phone at port." (p.61)

**[GCMA Comment. A number of lawsuits brought by injured mariners reinforce our mariners' belief that few employers show an overriding interest in assuring their mariners' mental and emotional well being unless it directly affects the company's "bottom line."]**

6. "Vessel environment" – The report does not mention smoking in confined accommodation spaces and its recirculation by the HVAC system as well as its deleterious effects upon health of all persons on the vessel. Coast Guard policies on their own vessels do not allow smoking in the accommodation spaces.

The "New Shipboard Policies" (p.22) should include a no-smoking policy. We suggest that this scientific aspect needs further study. (p.18).

**[GCMA Comment: Refer to GCMA Report #R-341, Smoking and Your Health Afloat. In GCMA Report #R-350 we asked Congress to look into this matter.]**

**[GCMA Comment: The Coast Guard has a history of trying to impose "engineering" solutions on human-factors problems. The industry needs to address the smoking issue rather than install electrostatic filters.]**

7. "If unable to obtain 7-8 hours of sleep per 24-hour period, crewmembers should have enough time off to obtain at least 6½ hours of uninterrupted sleep, as well as a nap of no less than two hours per 24-hour period." (p.19)

[GCMA Comment: A 6-on/6-off schedule does not allow the 7 to 8 hours of uninterrupted sleep the program sets as a baseline. If you add the “abuse” to work-hour regulations documented by GCMA, further use of the watch schedule is unacceptable. The Coast Guard should stop short-changing mariners to save its corporate “partners” the cost of crewing their vessels adequately! ]

8. “Work periods should be no longer than eight continuous hours, particularly when prolonged exposures to extreme temperature or humidity levels.” (p.20)

[GCMA Comment: The Responsible Carrier Program, after citing the 12-Hour Rule for licensed officers then states in part: “All other crewmembers on a towing vessel should be permitted to work no more than 15 hours in any 24-hour period or more than 42 hours in a 72-hour period, except in an emergency.” A 99 to 105 hour workweek is unconscionable!]

9. “Out-of-schedule meals will be allowed provided they do not interfere with the cook’s schedule.” (p.21) “Adapt the mess services to accommodate crewmember needs. This accommodation supports both safety and crew morale.” (p.45)

[GCMA Comment: It appears the authors of the USCG report were assigned to a vessel with a cook. Most towing vessels and OSVs do not have cooks. The realities of the time it takes to prepare a meal from scratch and to eat that meal as well as the quality of food preparation and diet were not adequately addressed for those boats that do not have a cook.]

“Modify the daily menu so that meals are balanced, offering plenty of fresh vegetables and fruits....etc, etc.

[GCMA Comment: The cook, that probably doesn’t exist, on most of these vessels, needs to be trained to plan nutritious meals as well as cook them.]

“Because the head cook is likely to be considered unbiased in being outside the chain of command...” (p.68).

[GCMA Comment: The report adds a second non-existent cook. The authors must have been very well fed on short visit aboard a towboat. Mention of the “chain of command” gives this report an unmistakable Coast Guard flair. Chains of command on most towboats are as short as are cooks!]

10. Proposed new watch policies: “On-watch napping will be used to supplement, not substitute for, normal off-watch sleep periods. On watch napping will be limited to approximately one-half hour per crewmember per night.” (pgs. 21, 22)

[GCMA Position: There should be two persons on watch whenever a vessel is underway.]

[GCMA Comment: Where is this “napping” in lieu of sleep supposed to take place?]

11. Physical changes (p.22-24) on vessels as explained at various advisory committee meetings.

[GCMA Position: The changes as explained make sense.]

12. Training the crew: “A USCG CEM team trained the crew of the example vessel in sleep and body-clock management, stress management, time management, and other crew-endurance practices during a day-and-a-half workshop. (p.25)

[GCMA Question: We suspect this preliminary report was based on training on a limited number of vessels. Since then, industry has trained many more mariners in the scientific principles underlying CEMS. GCMA encourages this training.]

[GCMA Comment: We note the length of training needed to train the crew. We encourage our mariners to take advantage of this training whenever if it is offered.]

13. “Caution! Crewmember buy-in is as critical to the success of a CEM program as is management buy-in. No buy-in, no success.”

[GCMA Comment: Although the program has much to offer, it will be hard to expect crewmember buy-in on vessels that are not adequately manned and where there is perceived work-hour abuse.]

14. “Crewmembers who used light management consistently slept 5 to 6 hours daily, showed hormone (melatonin) levels typical of a well-adapted body clock, and experienced minimal lapses in alertness during the work hours following a long off-period.” (p.27)

[GCMA Comment: Why is the 5 to 6 hours of sleep cited here a substitute for the baseline 7 to 8 hours normally required?]

15. “Water. There is no substitute.” (p.27)

[GCMA Comment: The authors do not appear to be aware that many vessels have a serious problem with the quality of their on-board potable water. Fortunately, Congress now requires the Coast Guard<sup>(1)</sup> to address this problem.] [Refer to GCMA Report #R-395 and Docket #USCG-2003-14325.]

16. “Maladaptation to shiftwork schedules and lack of energy-restoration sleep can result in persistent sleepiness, low energy, lack of motivation, and depression; in performance degradation during duty hours; and in increased safety risk. Other health effects such as increased incidence of cardiovascular disease, gastrointestinal disorders, and sleep disorders have been historically documented in populations subjected to shiftwork maladaptation. The combined effects of disrupted sleep and biological clock disorganization can lead to endurance degradation, jet-lag symptoms, irritability, depression, and, in extreme cases, psychosis. (pgs.44, 45)

[GCMA Comment: Mariners will be grateful for this information that confirms some of the problems associated with the lifestyle they face on many small vessels. Unfortunately, the mariners the report deals with cannot assimilate much of the technical language in this report.]

17. “MANAGEMENT NUGGET: Avoid allowing personnel to work more than 12 hours in a 24-hour period. Count these 24 hours from the time crewmembers wake up from their longest daily sleep period (not naps).” (p.45)

[GCMA Comment: This nugget is well directed at management – especially since the American Waterways Operators, reportedly representing 80% of the towing industry, finds nothing wrong with the 15-hour day. However, this incorrectly assumes that one of the vessel’s officers can or will keep track of where each crewmember is and how well or how long that crewmember sleeps. More germane to the issue would be counting the number of hours a mariner actually works in a 24-hour period. In this regard, a time clock or time sheet kept in the pilothouse would be a useful crew management tool to provide important data about how often sleep patterns are interrupted. Since there is little “overtime” pay in the industry, there is no incentive to keep such records. This, in turn, perpetuates work-hour abuse.]

“Encourage department chiefs to manage OT work ensuring that all crewmembers will have the opportunity to work OT without disrupting their rest periods.” (p.72)

[GCMA Comment: Department Chiefs? Overtime? What industry are we talking about?]

18. “Allow crewmembers in any watch ending in the morning hours to retire prior to sunrise, and to sleep at least seven to eight hours free of noise with absolutely no interruptions. Overtime should be scheduled to occur after wake-up time (e.g., from 1400-1800).” (p.46)

[GCMA Comment: Sounds like heaven rather than the real world. “Overtime” is rare on these vessels and, for licensed officers, is illegal if it requires working beyond 12-hours in any 24-hour period.]

19. “A second approach to reducing endurance degradation in the Midnight Watch is to allow one watch section to work most of the night by extending the watch duration to five or six hours...” (p.46)

[GCMA Comment: In the commonly used 6 & 6 watch schedule the watch is already six hours. The authors must have lost track of the vessels they were working with or confused it with an earlier “deep sea” report where normal watchstanding is on a 4-on, 8-off basis with paid overtime work.]

20. “If at all possible, crewmembers receiving motion sickness medication, or who are experiencing severe symptoms, should avoid shipboard work environments. It is strongly recommended that a medical officer closely supervise crewmembers using medications for motion sickness. Self-administration is strongly discouraged.” (p.58)

[GCMA Comment: Seasickness is not common on inland towing vessels on the western rivers.]

[GCMA Comment: Tugs, towboats and offshore supply vessels do not carry medical officers. The widespread

**incidence of seasickness is one reason why offshore vessels must be adequately manned.]**

[GCMA Comment: Self-administration is strongly discouraged.” Who do the authors think normally hands out medications on towing vessels that are not even required by regulation to carry a first aid kit?]

21. “Management style: (p.59)

- Authoritative Management style.
- Lack of participation by workers in decision making.
- Poor communication between management and employees.
- Ambiguity or conflicting requirements.

Lack of family-friendly policies.  
“These factors tend to induce physiological responses, such as elevated pulse rate and blood pressure, that use up energy even during rest periods.”

[GCMA Comment. Concur.]

22. “Without management support, individual crewmembers cannot effectively implement endurance management practices.” (p.68)

[GCMA Comment: Concur. It is reasonable to ask why the Coast Guard consistently ignored the abuses of existing laws and statutes in the preparation of this report? Do they believe those companies who profited by abusing the system will change their stripes? By publishing reports like this, the Coast Guard lost the trust and confidence of most lower-level mariners. The Coast Guard consistently fails to enforce compliance with companies that violate the 12-hour rule for licensed officers and ignores unlicensed lower-level merchant mariners.]

23. “Individual choices, for example watching TV during a sleep period, can affect stamina and alertness.” (p.71)

[GCMA Comment: Concur. The report mentions on-board recreation but leaves it up to the mariner to find the time for it. Comments like this would discourage mariners from watching TV because they could be criticized for doing so instead of sleeping. Mariners, already pushed for time, resent having every moment of their time filled with duties. Adequate time for recreation is essential.]

24. “Caution! Experience has demonstrated that it is not sufficient to simply change a watch schedule from a 6-6-6-6 regimen to an alternative regimen such as 7-7-5-5 or 5-7-7-5.” (p.76)

[GCMA Comment. Many mariners view the 7-7-5-5 alternative as an attempt on the part of the Coast Guard to show that employers could squeeze 7 hours of sleep out of a 24-hour day for sleep. In fact, when shift changes, showering and eating were considered, only 6½ hours at best are available to attempt to sleep.]

25. “MANAGEMENT NUGGET: Successful implementation of a CEM plan to improve endurance requires an aggressive education program designed to instruct company managers,

vessel captains, all levels of vessel management, and crew personnel on the science and practices of crew endurance management.” (p.77)

**[GCMA Comment: The thought of being “aggressively educated” may not appeal to unlicensed personnel. Adequately manning the vessel is more appealing as a first step to make work on the water more appealing and to end practices like “call watches” and constant call-outs for phony “emergencies” that are nothing more than poor planning. Having a third licensed officer on vessels in 24-hour service regardless of the length of the voyage must be considered on a priority basis.]**

### CONGRESS AUTHORIZED NEW HOURS-OF-SERVICE REGULATIONS – SEPTEMBER 2004

Congressional committees in the House and Senate closely monitored many of the events we reported (above), especially NTSB Recommendation M-99-1 and especially the towing vessel accident that destroyed the Interstate 40 bridge at Webbers Falls, Oklahoma, in late May 2002 taking the lives of 14 innocent victims and costing the Federal government in excess of \$30,000,000.

Although the NTSB report did not mention it, the Coast Guard investigator determined that the Master of the towing vessel ROBERT Y. LOVE violated the existing “12-hour rule.” This was hotly contested by members of the TSAC committee to no avail after the report after the Coast Guard report was retrieved from the computer.<sup>(1)</sup> [<sup>(1)</sup>Refer to p. 24, *Misle Activity #1635967, Misle Case #156409, Release date: Aug. 17, 2004. GCMA file #M-275.*]

Congress understood that the Coast Guard was in the process of studying “Crew Endurance” and had started a “Demonstration Project” with towing vessels owned and operated by AWO member companies. Consequently, in September 2004, Congress ordered the Coast Guard to submit a report on this “Demonstration Project.”

The following statement appears in the “Joint Explanatory Statement of the Committee of Conference”<sup>(1)</sup> (i.e., the joint committee from both Houses of Congress that worked out differences between the House and Senate bills). “The Conferees expect that the Secretary (of the Department of Homeland Security) will carefully evaluate the results of the Demonstration Project (i.e., CEMS) prior to determining the need to establish maximum hours of service regulations as permitted under subsection (a). Prior to promulgating any such regulations, the Conferees also expect that the Secretary will evaluate the costs and benefits of establishing maximum hours of service requirements on towing vessels. This review should include a review of Coast Guard casualty data to determine whether there is statistical evidence to support the need for new hours of service regulations.” [<sup>(1)</sup> *Ibid*, page 82.]

At the same time, Congress gave the Coast Guard the authority<sup>(1)</sup> to “...prescribe by regulation requirements for maximum hours of service (including recording and recordkeeping of that service) of individuals engaged on a towing vessel...” [<sup>(1)</sup> 46 U.S. Code §8904©]

### THE STATUS OF THE DEMONSTRATION PROJECT

At the time of this writing, the Coast Guard was evaluating the results of the “Demonstration Project.” The Coast Guard must then report the results of the project to Congress. The amended statute<sup>(1)</sup> states that: “The report shall include a description of the public and private sector resources needed to enable implementation of Crew Endurance Management Systems on all United States-flag towing vessels.”

There are two basic questions here: 1) How much will it cost the towing industry and the government? 2) How will it impact our mariners? We will have to await the report’s publication to answer the first question. As for the second question, we will present a document recently distributed by a major inland towing company to its mariners as a mandatory program. This document highlights many of the problems a mandatory system will face in the towing industry. The document lists all of the problems towing companies will face to implement such a program. However, nothing detracts from the value of the training the program offers or highlights the practical problems that must be overcome before a crew “buys into” such a program – not the least of which is the lack of stability caused by the high turnover of towing vessel personnel.

GCMA agrees with and reiterates this comment from the IMO Marine Safety Committee after viewing the Coast Guard proposal in 2003: “The Sub-Committee agreed that it was premature to develop mandatory education and training requirements and that training in fatigue management should be addressed through voluntary guidance rather than mandatory requirements. However, we can watch the implementation of one mandatory program already undertaken by a major inland towing company and see how the mariners react to the program.

### EXAMPLE OF A CORPORATE MANDATORY CREW ENDURANCE MANAGEMENT SYSTEM

[Source: We received this directive anonymously from a person we believe to be a mariner employed by American Commercial Barge Lines (ACBL).]

#### New Policy For Immediate Implementation and Posting ACBL Crew Endurance Management System

#### Introducing The ACBL Twelve Step Process for CEMS Program Implementation Onboard All Company River, Gulf and Live-On Fleet Vessels

The ACBL Transportation Services group is committed to full implementation of the United States Coast Guard’s Crew Endurance Management System (CEMS) and participation by all vessels as outlined in this document is mandatory.

Crew endurance refers to the ability to maintain performance within safety limits while enduring the job-related physiological, psychological, and environmental challenges present in the workplace. The Crew Endurance Management System was developed to manage the endurance-related risk factors that can reduce human performance and lead to competent error. This initial six-step process will allow us to establish a fleet wide common mental model and represents the core program standards that

will guide all company vessels down a final common path (six additional steps will be used at a later date resulting in 12 steps total) leading to full CEMS program implementation by 2006 year's end.

The procedural differences as outlined in this, the first of two (2) six step plans, are generally representative of changes to historical watchstanding methods, company policies and procedures. Most of these changes are cultural in nature relating to how watchstanders in all positions conduct themselves while in service aboard company vessels. Personal self-discipline within the scope of the CEMS plan guides crewmembers in all positions through risk based decision making processes instead of using the inflexible culturally based rules, policies and procedures inherited from traditional watchstanders of days gone by. Crewmembers in all positions must execute these changes in policy to safely increase productivity by improving our endurance through better risk based vessel voyage and watch planning, crew resource management, and all critical job task planning processes.

The CEMS program is one of the required human factor based safety management systems that must be in place for regulatory compliance as our industry prepares for the transition to USCG inspected vessel status. The time has come now to implement and execute the ACBL six-step plan based upon our CEMS knowledge obtained from the awareness and coaches' education program that have been conducted system wide for vessel employees. Remember the Crew Endurance Management System Goal is to reduce the risk of maritime casualties and personal injury accidents by addressing and reducing the occurrence of endurance-related, risk factors in the workplace and to improve the overall quality of life onboard the vessels.

The CEMS program at ACBL is just one of the key drivers in our corporation's relentless pursuit of operational excellence through flawless execution that will enable us to attain and sustain the market leadership position that we desire as a new and innovative marine transportation company and will be one of the key points on our compass guiding us forward into the future.

## **The Initial Six (6) Mandatory Key CEMS Policies for Immediate Implementation**

### **1 Common Courtesy Policy**

The opportunity for crewmembers to sleep uninterrupted while off watch as much as possible is an important factor in optimizing the crew's endurance. Crews in the past have always been aware of the possibility that normal work activities being conducted may in fact be disturbing to others trying to sleep. The intent of this **mandatory** policy is to bring an even greater level of awareness to the fact that other members of the crew are sleeping and to identify the risk factors that can be managed to improve the chances for off watch employees in all positions to have more opportunities to benefit from longer periods of uninterrupted sleep.

- The causal factors of all interruptions to sleep should be documented by all crewmembers and discussed at the regular vessel safety meetings. The onboard CEMS

coach or an awareness level (your vessel safety representative) designated employee should take the lead in this documentation process.

- Realistic onboard fixes will be developed by crewmembers and put into place to address all risks to sleep fragmentation identified through the risk assessment process
- Any causal factors of sleep fragmentation that cannot be addressed by the crew onboard will be forwarded to the CEMS program manager for action as appropriate.
- All normal vessel chores such as sooging, cleanup, tow work, etc. will be planned with the potential for fragmentation to off watch crewmembers' sleep as a risk factor that must be minimized in the planning process.
- On vessels, where the stateroom configuration allows the front watch to all sleep on the same side of the vessel, The back watch crew should then all sleep on the other side of the vessel. (This is to allow normal activities like sooging to be planned and conducted in a more courteous manner.)
- Rough handling of equipment should be avoided, This would include the boat, rigging, tools, mops, buckets, and any other equipment that produces noise.
- Wheelman will actively avoid rapid changes in throttle settings whenever practicable and not required for safety.
- Avoid making loud noises in the vicinity of the boat. Examples include yelling, slamming rigging and deck tools, unnecessary blowing of the boat's whistle, slamming doors or hatch covers in or near the vessel.
- Entertainment devices such as televisions, video games, and radios should be played at a moderate volume and only where the risk of sleep disruption to off-watch crewmembers is not present.
- All vessels will strictly adhere to and enforce the courtesy policy as outlined above at all times. Abuse of this policy will be handled as a disciplinary matter (violation of company policy) through the normal disciplinary process.

Every crewmember should be made aware that there are times when someone is going to have to make some noise. Sounding a warning, watch the bump, blowing the danger signal in the wheelhouse, all must be done without hesitation when safety or regulations are involved. In some situations, we have to work the vessel harder than we would like. Necessary repairs, boat maintenance, etc. may produce noises that we would rather do without, but in those cases we must endure. Working as a team, we can develop new ways of safely doing our jobs that take into account our crewmembers that are trying to catch some quality shut eye off-watch optimizing everyone's opportunity for improved endurance.

### **2 On Watch Rest Policy**

- All vessels will follow the mandatory On-Watch Rest Policy for deck crewmembers, and On-Watch Rest will be encouraged and allowed onboard all ACBL Vessels in compliance with the following list of standards
- An On-Watch Rest period is not guaranteed.
- No On-Watch rest period will be permitted until all normal watchstanding duties have been completed.
- On-Watch Rest will be approved by the wheelman standing the watch prior to the rest period being started.
- No On-Watch Rest period will be allowed during tow

building, locking operations and port occurrences.

- The normal period for On-Watch Rest will be from 2300 hours until one hour prior to scheduled watch change. Allowances for daylight on-watch rest may be made under special circumstances (exceptionally strenuous or lengthy duties) as needed to be determined by the wheelman standing watch under the prevailing circumstances.
- \* On-Watch Rest periods will not be allowed when only one deck crew member is on watch.
- On-Watch Rest is limited to 30 minutes per crew member per day.
- \* Only one crewmember may take their approved on watch rest period at a time.
- Wheelman and remaining deck crew must know where the resting crewmember is located in a vessel common area and the resting crewmember must not leave the area unless they notify the crewmembers standing the watch in case they are needed. You are still on watch.
- Wheelhouse officers can, at anytime, but only temporarily suspend the On-Watch Rest periods under a special circumstance to ensure the safety of the vessel.
- On-watch deck crew rest periods are used to supplement, not substitute for the watchstander's normal off watch main sleep period.
- Any abuse of this mandatory policy by employees will be a violation of company policy, and it will be handled as such through the normal disciplinary process.

### **3 Early Meals Policy**

- The early meal policy is **mandatory** and early meals on watch will be allowed and encouraged on all ACBL vessels in strict compliance with the guidelines that follow and when the prevailing operational circumstances allow.
- An early meal is not guaranteed.
- Meal times will be posted to avoid confusion, and they will be from one-half hour before until one-half hour after the scheduled watch change times.
- Early meals will not be allowed for on watch personnel during locking, tow building, port occurrence operations or when all regular watchstanding duties have not been completed.
- You may eat your meal anytime during posted meal times when early meals have been approved.
- Crewmembers coming on watch will have priority seating at meal times.
- Pilothouse or senior lead must approve on watch meals before meals are started. (This is to ensure all watch duties are completed so the crewmember eating early is less likely to be disturbed during their meal).

If you are still on watch, you must respond by returning to duty if having an early meal and you are needed.

- Wheelhouse officers on duty may at anytime temporarily suspend the early meals policy if special circumstances dictate this for the safety of the vessel.
- Any abuse of this policy will be treated as a disciplinary matter (violation of policy) through the normal ACBL disciplinary process.

### **4 Early Showers on Watch Policy**

- This policy is **mandatory** and all vessels will allow and

encourage Early Showers on watch in compliance with these specific guidelines.

- An Early Shower is not guaranteed.
- On-watch showering must not interfere with those coming on watch.
- Early showers will not be allowed during locking, tow building, or other port occurrence operations.
- Early Showers may only be approved after all normal watchstanding activities and work duties have been completed and must be approved by the wheelhouse or a senior lead (with knowledge of the wheelhouse) prior to start of the shower.
- Employees must take turns with only one On-Watch employee being allowed to shower at a time. Showers must be limited to 15 minutes.
- Crewmembers are not allowed to enter a stateroom for the purpose of an early shower if that could disrupt the sleep of another employee off watch.
- On a non-engineered vessel or any other vessel with only one deckhand on watch, early showers will not be allowed.
- Wheelhouse officers may suspend the early showers policy under a special circumstance **temporarily** to ensure the safety of the vessel at anytime.
- Abuse of this policy will be treated as a disciplinary matter (violation of company policy) and normal disciplinary practices will be followed.

### **5 Re-schedule Watch Change Time Policy.**

- This is a **mandatory** practice and policy change that will be followed onboard all ACBL vessels.
- Remain on your present watch schedule (example 6 & 6) and, if you serve on one of a few select company vessels that have already changed to an alternate watch cycle, (Example: 7-7-5-5), remain on that watch change cycle.
- The first element of CEMS based light management is to properly adjust the body's biological clock and light is the instrument used to make this adjustment.
- **If you have not already done so roll your watch change times back to allow wheelman and crewmembers in all other positions working the back or aft watch to be able to get in bed prior to seeing daylight in the morning.**
- Watch change times will need to be varied based upon your geographical area and the time of year to guarantee that the back watch is off and in bed before seeing sunlight.
- It is the responsibility of all crewmembers working the back watch to exercise personal discipline and get in bed as soon as possible and treat the morning off-watch as their principal long sleep period.
- **This example when implemented will put you in compliance on 6 & 6 watches.**

Forward Watch: Wake up call @ 0500 or as requested.  
0530 —1130 stand watch 6-hour shift.

Forward Watch: Wake up call @ 1700 or as requested.  
1730 –2330 stand watch 6-hour shift.

Aft Watch: Wake up call @ 1100 or as requested.  
1130 – 1730 stand watch 6-hour shift,

Aft Watch: Wake up call @ 2300 or as requested.  
2330 – 0530 stand watch 6-hour shift.



**Call Watch:** Wake up call at times as appropriate based upon the specific work skills needed for the voyage plan. The employee serving on the call watch shall be managed so as to **be fit for duty and adequately rested when called upon.** The call watch must have had at least one opportunity for a minimum of six hours of uninterrupted sleep after 12 hours on watch during the 24 hour day midnight to midnight (calendar day) with total duty time not to exceed 15 hours per calendar day except in a documented emergency. The focus of the call watch position when not needed is to get adequate rest so when called upon to use their needed specialty skills the call watchman can do so safely and effectively.

**Meal times** will be one-half hour before until one-half hour after the 0530, 1300 and 1730 watch change times.

- When you implement this change you may come in conflict with the 12-hour rule as a wheelman for one watch when you make the change. This is acceptable as a special circumstance necessary to implement a USCG approved safety management system program onboard our vessels.
- Any overtime required by hourly employees to implement this plan should be paid in the normal manner.

## **6 Continuous Feedback Policy**

- Survey your employees seven to ten days after fully implementing these six steps as to whether or not they are sleeping better and monthly thereafter. Document any factors that are causing disruptions and fragmentation to their sleep and report any that can not be managed onboard to the CEMS program manager, Kenneth Davidson, by e-mail or phone at 800-457-6377 Ext# 2528
- Utilize all crewmembers aboard who have had coaches or awareness training to help in the implementation and ongoing assessment of this program onboard the vessel you are serving.
- **Begin full implementation of these six steps to CEMS immediately upon receipt, realizing that it may take up to four days to complete based upon the operational prevailing circumstances of the vessel you are serving on.**
- Notify the program manager by e-mail when these six steps have been implemented onboard the vessel you are serving.
- If you have any questions concerning the proper implementation and execution of these six steps to CEMS please contact the program manager Kenneth Davidson or your Marine Superintendent for additional information.

Thank you all for your support in the drive for operational excellence. Ken Davidson, General Manager  
ACL Wellness, Vessel Safety and Training