

ALERTNESS GUIDE...

Practical Applications (CEMS)

Guide Objective: Use discussion topics to identify practical applications to address crew alertness that are currently being used at various tugboat, towboat and barge companies.

Discussion:

Crew Endurance Management System (CEMS) Panel Discussion:

Five companies held a panel discussion at the 1/26/11 AWO Joint Safety Committee Meeting in New Orleans. The companies represented were AEP River Operations, Penn Maritime, Kirby Inland Marine, Canal Barge Company and Dunlap Towing. Note that this guide lists some of the ways these companies are addressing specific risk factors identified within their organizations. Keep in mind that a plan to address risk factors within your specific organization will need to be based on your operations, vessels, crewmembers and employees.

5 ESSENTIAL STEPS...

The following applications or comments from the panel have been divided into the 5 essential steps of the Crew Endurance Management System and not by the particular company. Each bulleted item represents an answer from one of the listed companies, in no significant order. These 5 essential steps are: 1) Education; 2) Environmental Improvements; 3) Light Management; 4) A CEMS Coach; 5) Schedule Changes. The statement in parenthesis is the USCG description of each of these steps and the italics is an explanation of the purpose of the step.

1. EDUCATION

(Everybody involved must be educated about crew endurance and the crew endurance management system.) *To obtain tools and knowledge to identify risk factors and how to eliminate, reduce or work safely with these risk factors.*

- All crewmembers get a 2 hour introduction on CEMS from their Port Captain
- CEMS is included in new hire orientation prior to going on the vessels
- Annual CEMS refresher
- CEMS education for shoreside employees...Port Captain, Crew Dispatcher, Sales and Traffic Dispatchers
- Habitability – 2005 / 2006 CEMS audit to ID key components on vessels
- Wellness program (can include environmental / operational improvements)
- Education on Northwestern Study regarding Anchor Sleep
- Regional CEMS program to meet the needs of marine companies in the Pacific Northwest
- Develop flexible alternate crew endurance including a joint Crew Endurance Plan
- 4 hour Captains' awareness training and workbook
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2. ENVIRONMENTAL IMPROVEMENTS / OPERATIONAL IMPROVEMENTS

(Improvements must be made to work and rest environments.) *To address the things/situations that can be changed, added or eliminated to improve quality of rest and sleep, reduce stress and improve overall quality of life. This step is broken down into Environmental (i.e. - physical changes) and Operational (i.e. - policies, procedures).*

- **Modify vessels – room darkening, flooring, sound, dimmers, exercise equipment, nutrition recommendations**
- **Ergonomic committee**
- **New boat construction – each house on springs**
- **Transportation services for crew change**
- **Central crew change hub**
- **Noise reduction with doors (ABS rules may apply for some companies)**
- **Courtesy policies**
- **Exercise equipment on all vessels**
- **Cookbooks**
- **Replaced/improved mattresses**
- **Air conditioning settings**
- **Shut down with customers' okay**
- **Traveling – nap before work**
- **Personal trainer-made exercise video for onboard vessels**
- **Bunk sizes – minimum 37” wide**
- **Renovations – separate A/C and ventilation systems**
- **Hospital grade mufflers**
- **Insulation**
- **New construction vessels “CEMS friendly”**
- **Vibrating equipment on mounts to absorb vibration**
- **Courtesy with some crewmembers assuming watch of crew they relieve at crew change**
- **Crew change policy with 12 hour rule; if crewmembers live further than 4 hours they travel on the watch when they would be working**
- **Take into consideration routes, scheduling, etc.**
- **Driving / crew travel**

3. LIGHT MANAGEMENT

(Everybody involved must understand light management.) *To address the ways to use different intensities of light to either stay alert or help go to sleep.*

- **Monochromatic green lights used**
- **1000 lux of white light in galley**
- **Light reduction in bunks**

4. CEMS COACH

(There should be at least one well-trained coach to provide support.) *To reinforce the reasons for practicing CEMS, keep information fresh, monitor changes and dispel misinformation for everyone.*

- **Over 500 CEMS coaches**
- **60 CEMS coaches / 3 CEMS experts**
- **All Steersmen go through CEMS coaches training**
- **Wheelmen CEMS coaches needed on each vessel**

5. SCHEDULE CHANGES

(Work, watch and rest schedules can be changed to improve endurance.) *Schedule changes, if considered, have to be the last step in the process. Alternate schedules, including adjusting the traditional “square 6” schedule, may be considered. This is a controversial step that isn’t required to improve endurance.*

- Allow for schedule changes, but not mandated
- Schedule 4 on / 8 off – 3 watch system. (coastal company)
- 12 hour rule followed

CHALLENGES...

- Universal buy-in
- Dinner bucket boats
- Educating all crewmembers
- Light management in wheelhouse
- Changing schedules
- Older maritime employees’ buy-in
- Buy-in, leadership, educating all crewmembers
- Shoreside and USCG visitors to vessels need to observe the CEMS program if it’s in place
- Evolving program – vessels tweak plans as needed

SUCSESSES...

- Healthier meals
- Naps (on short off-watch period and/or on-watch when practical and prudent)
- Positive attitudes
- Crew Endurance Plans in place for all live-on vessels
- Use criticism as an opportunity for improvement
- Open 2 way communication
- Better hydration – more bottled water being purchased for vessels and fewer soft drinks

GENERAL COMMENTS / QUESTIONS FROM THE MEETING ATTENDEES:

- How companies handle “No Smoking” policies –
 - No smoking vessels
 - Wheelhouse open to smoking
 - Designated smoking areas (usually deck locker)
 - No smoking in crew vans or rental cars for crew change
 - Smoking cessation programs
- Any measurements showing improvements from starting CEMS –
 - Buying more water and fewer soft drinks
 - Weight loss among crewmembers
 - Decrease in incident rates
 - Fewer license renewals are held up because of BMI
- Discussion of additional possible measurements for CEMS -
 - Track health care costs and look for significant decrease
 - Track turnover rate and look for a decrease

Summary:

Starting any new process is always a challenge. Change is hard and there are already so many rules, policies and regulations that must be implemented and enforced. Keep in mind that the above listed companies also have rules, policies and regulations as well as their own individual operational challenges to address in following CEMS guidelines. This guide identifies some of the ways wellness, fatigue and endurance issues have been addressed and implemented in these diverse companies; each is at a different level of commitment and implementation, but they all agree that the key is...GET STARTED!

Resources for the 5 essential steps of CEMS can be found in the following manuals:

Crew Endurance Management Practices -

A Guide For Maritime Operators

A Guide For Maritime Operations ADDENDUM

These manuals are available for downloading on the Crew Endurance Management System section of the USCG Human Element & Ship Design Division Web Site:

<http://www.uscg.mil/hq/cg5/cg5211/>