

U.S. Department of
Homeland Security

United States
Coast Guard



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SECDELBAYINST 16601.1

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SECTOR DELAWARE BAY INSTRUCTION 16601.1

Subj: SECTOR DELAWARE BAY PORTS, WATERWAYS, AND COASTAL SECURITY
(PWCS) BOARDING TEAM FATIGUE STANDARDS INSTRUCTION

Ref: (a) US Coast Guard Boat Operations and Training Manual, COMDTINST M 16114.32A
(b) Crew Endurance Management, COMDINST 3500.2

1. PURPOSE: This instruction establishes fatigue standards and mandatory operational hours limits for Coast Guard Sector Delaware Bay Port Security (PWCS) boarding teams
2. ACTION: All Sector Delaware Bay personnel involved in supervising, scheduling, monitoring, and conducting PWCS activities shall become familiar with and comply with this instruction.
3. DIRECTIVES AFFECTED: None.
4. DISCUSSION: This instruction is intended to provide fatigue standards for CG Sector Delaware Bay PWCS boarding teams. Evidence exists to associate a high percentage of mishaps with prolonged operations and crew fatigue. Since fatigue adversely affects operational capability and safety, it is necessary to establish reasonable standards for utilization of boarding teams. In doing so, mandatory mission hour limits must be established. As no fatigue standards currently exist for PWCS boarding teams, this instruction relies heavily upon guidance found in ref (a) and (b).
5. FATIGUED PERSONNEL: Boarding team personnel are adversely affected by fatigue and may not realize when their physical or mental state is compromised. A fatigued team member is physically and mentally unprepared for the rigors of a mission or to safely manage an emergency. They make judgmental errors and exhibit decreased coordination, a narrowed attention span, and a lower standard of performance. In addition, they show a decreased concern for safety and a willingness to "cut corners".
6. MAXIMUM OPERATIONAL LIMITS: In order to fight crew fatigue, maximum operational limits shall be implemented and referenced when evaluating crew fatigue. Maximum operational limits are an accumulation of several evolutions (boarding, travel, training and physical activities) over a 24-hour period. In evaluating boarding team utilization, the cumulative effects of fatigue inducing factors (heavy weather, temperature, time of day, survival clothing, changes in sleep and work cycles etc.) shall be considered.
7. CREW REST AND UTILIZATION POLICIES: Policies regarding boarding team rest and utilization are discussed in the following paragraphs.
 - a. Hours of crew rest: Boarding team members should have a minimum of 8 hours of uninterrupted sleep before assuming alert duty and 8 continuous hours of crew rest in

every 24-hour duty period. Civilian employment during off-duty hours that interferes with or is not compatible with these crew rest requirements is prohibited.

- b. Rest recovery time: Upon reaching fatigue levels described in this instruction, the boarding team shall enter rest recovery status. Boarding team members who exceed operational limits or fail to achieve sufficient rest recovery time shall not engage in underway operations until they have had sufficient rest recovery time.
 - c. Fatigue Waivers: These standards may only be waived by the Sector Commander for urgent operations. The team leader should consult with team members to gauge team readiness, conduct a risk assessment, and request a waiver, if appropriate, via the SDO. This authority to grant fatigue waivers may be further delegated to Chief, Response Department.
8. TRAINING: As training and physical fitness are of paramount importance to boarding team members, members should not be reluctant to take part in these activities for fear of compromising availability. Members should continue to conduct physical fitness activities to advance endurance and readiness.
9. PROCEDURES: There are occasions, especially during periods of severe weather, where operations will require a long amount of time to complete. In such cases, the prolonged hours and heavy weather will have an accelerating effect on the onset of fatigue, as will the amount of time a member has been on duty or working prior to the mission. In evaluating boarding team utilization, team leaders should consider the cumulative effects of fatigue-inducing factors (heavy weather, temperature, boat motion, etc.) and human factors (motion sickness, survival clothing, changes in sleep and work cycles, work-duty times, etc).

a. Determining Operational Limits

i. Under ideal condition (seas under 4 ft, operation(s) taking place in between 0800 to 1800, and temperatures 60-80 degrees), maximum operational limits for boarding teams shall be 10 hours. However, **if lodging is provided in close proximity to the boarding location or a non-participatory duty driver is provided, the team may work for a max of 12 hours.**

ii. Less than ideal conditions:

1. Temperature: Any deviation from the ideal temperature range shall result in a decrease in maximum operational time as follows:

| Average Temperature | Temperature Factor |
|-------------------------------------------|--------------------|
| 91 degrees and above | - 2 hours |
| 80-90 degrees | - 1 hour |
| 60-80 degrees | 0 hour |
| 50-60 degrees or Mustang required | - 1 hour |
| 50 degrees and below or Dry Suit required | - 2 hours |

2. Seas: Any deviation from the ideal sea state shall result in a decrease in maximum operational time as follows:

| Sea State | Sea State Factor |
|-----------------------------------------------------------------------------------------------------------|------------------|
| Under 4 ft | 0 hour |
| 4-8 ft | - 1 hour |
| Above 8 ft or 30kts + winds <i>(High probability of cancellation or request for dockside boarding)</i> | - 2 hours |

3. Operation period (**Time in office**): Any deviation from the ideal operating period (0800-1800) shall result in a decrease in maximum operational time as follows:

| Operational Period | Operation Period Factor |
|--------------------|-------------------------|
| 0500-0759* | -1 hour |
| 0800-1759* | 0 hour |
| 2000-2259* | -1 hour |
| 2300-0459* | -2 hours |

*** If lodging is provided in close proximity to the boarding location or a non-participatory duty driver is provided, the team may work for a max of 12 hours**

* iii. Operational limit is determined by using the following equation:

$$10 \text{ hours} - (\text{Temp. Factor} + \text{Sea State Factor} + \text{Op. Period Factor}) = \text{Op. Limit}$$

Use 12 hours max, if lodging or non participatory duty driver will be provided.

b. Applying Operational Limits:

- i. Operational time shall begin at muster for first evolution and will continue until evolution is complete. Boarding teams are required to be at the Sector four (4) hours before the Breakwater boarding time.
- ii. Operational limit is a summation of the operational times from all evolutions performed by boarding team in a 24-hour period.
- iii. **To calculate Breakwater boarding time, add 4 hours to start of operational period (time in office).**

iii. Upon reaching daily operational limit, the boarding team is to be stood down and assume a rest recovery status.

1. The boarding team shall inform the PWCS Branch Chief of the situation and request a rest recovery stand down.

2. The PWCS Branch Chief will inform Sector Delaware Bay SDO.

a. The Sector Delaware Bay SDO will inform the Sector Commander, Response Department Head, and Enforcement Division Chief.

3. Rest recovery status requires no less than 8 continuous hours of crew rest (6 hours of uninterrupted sleep).

iv. Evolutions that begin within the boarding team's operational limit and end outside of their limit may be conducted after confirming the boarding team's readiness.

c. Exceeding Operation Time: If an operation period exceeds more than 10 hours, a non participatory duty driver will be provided by Sector Delaware Bay or adequate quarters will be provided for the boarding team.

d. Example: If a boarding team will be performing a 0100 boarding at Breakwater in 30° weather and 8ft seas, the operational limit would be 6 hours, i.e. (10 hrs -2 hrs (temp) -1 hr (sea) -1 hr (time) = 6 hrs). Given the above conditions, a 2100 time in the office, approx. 4 hrs of preparatory and travel time to Breakwater, and time to conduct the security boarding; the boarding team would require a waiver, local lodging, or a non participatory duty driver to conduct more than one security boarding because of the approx. 2 hrs of travel time required to return to the Sector.

10. BOARDING TEAM ASSESMENT: These standards are not intended to restrict the ability of the boarding team to assess its own fatigue level. If a boarding team is within its operational limits and determines that it is fatigued, the team shall follow instructions given in 8.b.iii.

11. CLOSING REMARKS: These standards are set in place to provide fatigue standards for CG Sector Delaware Bay boarding teams. Adherence to these standards is critical to ensuring the safety of our boarding teams.

12. ENVIRONMENTAL ASPECT AND IMPACT CONSIDERATIONS: Environmental considerations were examined in the development of this Instruction and have been determined to be not applicable.

13. FORMS/REPORTS: None.



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