



November 17, 2014

## NTSB, Compulsory Marine Pilots, Fatigue and Work/Rest Guidance

While pilots recognize that, due to the nature of piloting, there cannot be a one-size-fits-all approach to hours of work/rest guidelines,<sup>1</sup> the American Pilots' Association (APA) does receive requests from member pilot associations for recommendations by the National Transportation Safety Board (NTSB) with respect to such guidelines. Although the NTSB has issued Accident Reports in which it has criticized perceived shortcomings in compulsory pilot hours of work and rest guidelines, and despite requests from the APA, to date the Board has not provided clear recommendations on what it considers to be sufficient pilot work/rest guidelines.

Nevertheless, a review of the NTSB Marine Accident Report in connection with the Eagle Otome casualty, in which the Board identified fatigue as a contributing factor in the casualty,<sup>2</sup> provides some clues as to NTSB views on this subject. While not an “official policy” statement or formal recommendation, information gleaned from this NTSB Report sheds at least some light on what the Board thinks compulsory pilot hours of work/rest guidelines ought to look like.

In the Eagle Otome Report, NTSB discusses some basic aspects of fatigue mitigation (e.g., strive to get 8 hours of sleep per night) and also provides a basic framework for a fatigue mitigation program aimed at those working in the transportation sector. In addition, while conceding that the U.S. Coast Guard has expressly determined that the various domestic and international maritime hours of work/rest rules do *not* apply to a maritime pilot not assigned as part of a ship's crew, the Report nonetheless cites these rules with apparent approval as appropriate guidance for the piloting profession. Specifically, the NTSB cites 46 CFR § 15.111 (a) and (b), 46 USC § 8104(n), and the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, as amended (STCW), Part A, Chapter VIII, Section A-VIII/1.<sup>3</sup> See Enclosures (1) and (2) for the applicable excerpts from the NTSB Eagle Otome Report.

In addition to the discussion in the Eagle Otome Report of fatigue mitigation and hours of work/rest, NTSB officials, during telephone calls, have provided the APA with an indication of what the Board is looking for in compulsory pilot hours of work/rest guidelines. In particular, NTSB officials have advised APA that pilot hours of service guidelines should ensure that a pilot does not work more than 15 hours in a 24 hour period. According to these officials, that work-hour maximum would provide a pilot the opportunity to get at least 8 hours of rest by allowing an extra hour for travel, administration, etc. Finally, NTSB officials have advised APA that any work/rest guideline or schedule that would allow for more than 15 hours of work in any 24-hour period would be considered inadequate by the Board.

There are some minor inconsistencies between the various domestic and international guidance cited by the NTSB in the Eagle Otome Report, and some of this guidance is not in complete alignment with what NTSB officials have discussed with APA. Nevertheless, combining all of this information does produce a framework – ***based on information from the NTSB*** – for pilot and pilot oversight officials to consider when constructing hours of work/rest guidance. This NTSB information is consolidated in Enclosure (3).

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<sup>1</sup> As with most aspects of a professional pilotage operation, work/rest guidelines must appropriately conform to the timing, routes, and flow of traffic in a particular pilotage area.

<sup>2</sup> See NTSB Accident Report (NTSB/MAR-11/04) involving the Tankship Eagle Otome at: <http://www.ntsb.gov/doclib/reports/2011/MAR1104.pdf>. **Note:** Although recognizing that fatigue can certainly be a major issue in transportation safety, the APA has **substantial** disagreement with the NTSB's conclusion that fatigue played a major role in this particular marine casualty. See the APA comments on this Accident Report at: [http://www.americanpilots.org/docs/aparesponsetoNTSBM\\_11\\_22.pdf](http://www.americanpilots.org/docs/aparesponsetoNTSBM_11_22.pdf).

<sup>3</sup> APA has previously prepared, and distributed to member pilot associations for review and consideration, a summarized overview of these, and other existing federal and international maritime hours of work/rest guidance. See:

[http://cms3.revize.com/revize/americanpilots/docs/Fed\\_Intl\\_Mariner\\_Work\\_Rest\\_Rules\\_Summary\\_Jan2012.pdf](http://cms3.revize.com/revize/americanpilots/docs/Fed_Intl_Mariner_Work_Rest_Rules_Summary_Jan2012.pdf)

Expert from page 37 of NTSB Accident Report (NTSB/MAR-11/04):

### **1.13.2 Causes of Fatigue**

The fundamental causes of fatigue are related to the physiological effects of sleep loss, circadian disruption, extended hours of wakefulness, and sleep disorders. Although a variety of factors may have some moderating effects on fatigue, these four physiological fatigue factors are scientifically well-established as the primary underlying mechanisms. Typically, 8 hours of sleep per night will provide most people enough rest to avoid being fatigued the next day,<sup>73</sup> although some may need more sleep and some can sleep less without being fatigued. In general, the less sleep one obtains in any given regular sleep period, the more fatigued one will subsequently become. There are multiple reasons individuals may not obtain sufficient sleep. Insomnia, working long hours, or staying up late all lead to insufficient sleep and thus fatigue.

Expert from pages 40-41 of NTSB Accident Report (NTSB/MAR-11/04):

### 1.13.5 Mitigating and Preventing Fatigue in Transportation

Given the complexities of contemporary transportation systems, a systematic approach to fatigue mitigation and prevention is widely considered to be the most effective approach to manage the adverse effects of fatigue on the performance of transportation system operators. The fundamental parameters of such an approach include (1) proper scheduling and effective hours of service rules, (2) operator education, and (3) diagnosis and treatment of sleep disorders.

The Coast Guard rule governing rest and duty periods is found at 46 CFR 15.1111(a). The rule states:

Each person assigned duty as officer in charge of a navigational or engineering watch, or duty as a rating forming part of a navigational or engineering watch, on board any vessel that operates beyond the Boundary Line shall receive a minimum of 10 hours of rest in any 24-hour period.

Further, 46 CFR 15.1111(b) states:

The hours of rest required under paragraph (a) of this section may be divided into no more than two periods, of which one must be at least 6 hours in length.

Laws specified in 46 United States Code 8104 (n) pertain to tankships and crewmembers on tankers. The law states:

On a tanker, a licensed individual or seaman may not be permitted to work more than 15 hours in any 24-hour period or more than 36 hours in any 72-hour period, except in an emergency or a drill. In this subsection, "work" includes any administrative duties associated with the vessel whether performed on board the vessel or offshore.

As a signatory to the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) of the IMO, the United States, through the Coast Guard, agreed to adhere to and enforce STCW rules, rules that apply to foreign-flagged vessels operating in U.S. waters (such as the *Eagle Otome*), and to U.S.-flagged vessels operating beyond the boundary line on seagoing voyages. U.S.-flagged vessels that operate in U.S. waters are subject to Coast Guard rules and U.S. laws but not to STCW requirements.

The IMO recently revised its STCW work/rest requirements, and these revisions are scheduled to take effect in 2012. The new STCW rules (A-VIII/1) mandate that watchstanders, that is, officers in charge of a watch, or those with "a rating forming part of a watch" must have 10 hours of rest in any 24-hour period and 77 hours of rest in any 7-day period. Hours of rest may be divided into no more than two periods, one of which must be at least 6 hours long. As with Coast Guard rules, exceptions to these rules apply to emergencies or "other overriding operational conditions."

**Information from the NTSB regarding fatigue mitigation programs and work/rest guidance for compulsory maritime pilots**

According to information contained in NTSB Accident Reports, as well as insights provided by officials of the Board, an effective fatigue mitigation program for compulsory maritime pilots should include the following components:

- 1) Appropriate hours of work/rest guidelines, which should:
  - a. Strive to provide the opportunity for 8 hours of sleep per 24 hour period (although sleep science indicates that some pilots may benefit from more sleep and others can sleep less without being fatigued).
  - b. Provide for 9-10 hours of rest in any 24-hour period. This rest should be divided into no more than two periods, one of which should be at least 6 hours.
  - c. Provide for 77 hours of rest in any 7-day period
  - d. Allow exceptions from the work/rest guidelines for emergency situations or overriding operational conditions.
- 2) An education program that provides pilots with information about the risks associated with fatigue, the importance of adequate rest, and other strategies to prevent fatigue; and
- 3) Periodic physical examinations to diagnose and, if necessary, effectively treat any sleep disorder(s).