National Transportation Safety Board

Washington, DC 20594

Safety Recommendation

Date: August 26, 2011

In reply refer to: M-11-6

Mr. Timothy J. Casey
President and Chief Executive Officer
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The National Transportation Safety Board (NTSB) is an independent Federal agency charged by Congress with investigating transportation accidents, determining their probable cause, and making recommendations to prevent similar accidents from occurring. We are providing the following information to urge your organization to take action on the safety recommendation in this letter. The NTSB is vitally interested in this recommendation because it is designed to prevent accidents and save lives.

This recommendation is derived from the NTSB's investigation of the July 7, 2010, collision of the tugboat/barge combination *Caribbean Sea*/*The Resource* with Ride The Ducks International amphibious passenger vehicle (APV) *DUKW 34*. The recommendation addresses the safety management program within K-Sea Transportation Partners L.P. (K-Sea Transportation), and is consistent with the evidence we found and the analysis we performed. As a result of this investigation, the NTSB has issued seven safety recommendations, one of which is addressed to K-Sea Transportation. Information supporting this recommendation is discussed below. The NTSB would appreciate a response from you within 90 days addressing the actions you have taken or intend to take to implement our recommendation.

Background

On Wednesday, July 7, 2010, the empty 250-foot-long sludge barge *The Resource*, being towed alongside the 78.9-foot-long tugboat *Caribbean Sea*, collided with the anchored 33-foot-long APV *DUKW 34* in the Delaware River at Philadelphia, Pennsylvania. *DUKW 34* carried 35 passengers and 2 crewmembers. On board the *Caribbean Sea* were five crewmembers. As a result of the collision, *DUKW 34* sank in about 55 feet of water. Two passengers were fatally injured, and 26 passengers suffered minor injuries. No one on the *Caribbean Sea* was injured.[1]

[1] For more information, see *Collision of Tugboat/Barge* Caribbean Sea/The Resource *with Amphibious Passenger Vehicle* DUKW 34, *Philadelphia, Pennsylvania, July 7, 2010*, Marine Accident Report NTSB/MAR-11/02 (Washington, DC: National Transportation Safety Board, 2011), which is available on our website at <http://www.ntsb.gov/doclib/reports/2011/MAR1102.pdf>.

The NTSB determined that the probable cause of this accident was the failure of the mate of the *Caribbean Sea* to maintain a proper lookout due to (1) his decision to operate the vessel from the lower wheelhouse, which was contrary to expectations and to prudent seamanship, and (2) distraction and inattentiveness as a result of his repeated personal use of his cell phone and company laptop computer while he was solely responsible for navigating the vessel. Contributing to the accident was the failure of Ride The Ducks International maintenance personnel to ensure that *DUKW 34*'s surge tank pressure cap was securely in place before allowing the vehicle to return to passenger service on the morning of the accident, and the failure of the *DUKW 34* master to take actions appropriate to the risk of anchoring his vessel in an active navigation channel.

Location of Mate While Navigating the *Caribbean Sea*

At the time of the accident, the *Caribbean Sea* was being navigated by the mate. The mate was an experienced mariner who had about 118 days of service on either the *Caribbean Sea* or the *Falcon* as those vessels made daily sludge barge runs between two wastewater facilities serving the city of Philadelphia. Both the *Caribbean Sea* and the *Falcon* were outfitted with an upper wheelhouse above the main wheelhouse that provided improved visibility. The *Caribbean Sea* master told investigators that before the accident trip he had spoken with the mate about using the upper wheelhouse during the northbound voyage. The master said that the mate had assured him that this was where he would be. In a postaccident interview with Coast Guard investigators, the mate said that he was operating from the upper wheelhouse when the accident occurred.

However, a number of individuals who had been on the bulkhead at Penn's Landing at the time of the accident provided the NTSB with photographs taken just before, during, and just after the collision. At least two of the still photographs provide fairly clear images of the upper wheelhouse of the *Caribbean Sea* just before and just as the barge struck the APV. In both photographs, the upper wheelhouse appears to be unoccupied.

The master said that the mate, after he had alerted the master to the collision, left the master's stateroom. The master said that he got dressed and went to the upper wheelhouse, where he found the mate. The master said that when he arrived, he found the throttle active for operation from the upper wheelhouse. He said he also found that both VHF radios and the radar were turned on. But there was sufficient time for the mate, after leaving the master's stateroom, to have gone to the upper wheelhouse and activated the valve to change the throttle control location from the lower to the upper wheelhouse before the master arrived. The NTSB therefore concluded that, contrary to the master's instructions and contrary to his own postaccident statements, the mate of the *Caribbean Sea* was not navigating the vessel from the upper wheelhouse at the time of the collision.

Lack of Attention to Duty by the *Caribbean Sea* Mate

Had an upper wheelhouse not been available, the mate could have navigated the tow combination safely from the lower wheelhouse. The lower wheelhouse was equipped with radars and radios that would have helped the mate monitor his surroundings and avoid hazards. Despite the presence of these navigation aids, however, with the limited visibility ahead because of the

high freeboard of the empty barge, the mate would have needed to assign the deckhand, with a radio, as an additional lookout on the bow area of the barge.

In this case, the mate moved from the upper wheelhouse to the lower one without posting an additional lookout to ensure adequate visibility in the direction of travel. Based on the results of the NTSB's visibility study, from the lower wheelhouse, the mate's view of *DUKW 34* would have begun to be at least partially obstructed when the APV was still about 5,400 feet, or about 21 barge-lengths, away. Once the barge approached within 3,500 feet, or about 14 barge-lengths, the mate would have had no view of the anchored APV. At a barge speed of 6 knots, the mate's view of the APV would have begun to be partially obstructed about 9 minutes before the collision and would have been totally obstructed about 6 minutes before. Thus, from about the time *DUKW 34* was firmly anchored (at 1433) until the collision, it was partially or completely out of the view of the mate in the lower wheelhouse. By contrast, had the mate been navigating from the upper wheelhouse, the anchored APV would have been at least partially visible until it was less than one barge-length away.

Evidence also indicates that the mate was not actively monitoring the radars and radios while in the lower wheelhouse. The *DUKW 34* master and other mariners clearly radioed warning calls to the tugboat and barge about a minute before the collision. Had the mate been monitoring the radios and radar, even from within the lower wheelhouse, he would have been alerted to the presence of the APV and may have been able to take action to avoid the collision. Based on the mate's own postaccident statements to the Coast Guard, however, he was not aware of the presence of the anchored APV until after the barge had struck it.

The NTSB attempted to determine why, on the day of the accident, a trained, experienced, and otherwise competent mariner failed to effectively carry out routine, but highly crucial, tasks central to his profession. No evidence indicates that the mate was fatigued, and his postaccident toxicological tests showed no signs of alcohol or illegal drugs.

Personal Use of Cell Phone and Laptop Computer by the *Caribbean Sea* Mate

The mate's cell phone records revealed a likely explanation for his poor judgment and inattentiveness to his duties on the day of the accident. Those records showed that the mate was engaged in voice communications with several family members beginning just 22 minutes after he assumed the watch and continuing up until the time of the accident.

The mate's cell phone records indicated that 18 outgoing or incoming calls were made or received while the mate was solely responsible for navigating the tugboat and barge. The mate spent at least one-third of his time making or taking calls when he should have been attending to the safe passage of his vessel. It is likely that the mate was using his cell phone at least during the time of the radio calls and possibly at the time of the collision itself. Moreover, he simultaneously conducted Internet searches on the company laptop computer, which further distracted him from his navigational responsibility. The NTSB therefore concluded that the mate of the *Caribbean Sea* failed to maintain an appropriate lookout, including monitoring the radios, while navigating the vessel because he was distracted by personal use of his cell phone and the company laptop computer in dealing with a serious family medical emergency.

The mate had been an employee of K-Sea Transportation since late December 2000. As early as March 22, 2002, the company had issued a memorandum to its personnel prohibiting mariners from using personal cell telephones while on watch. This policy was reinforced with a second memorandum issued to all personnel on February 10, 2004, and by a third memorandum issued on July 17, 2006. Additionally, the company's policy prohibiting personal use of cell phones while on watch was specifically discussed at a 2-day seminar that the mate attended in 2007 as part of his training. K-Sea Transportation also prohibited personal use of company-provided laptop computers while on watch. The NTSB concluded that the mate of the *Caribbean Sea* should have been aware of his employer's prohibition of personal use of cell phones and company-provided computers while on watch, but on the day of the accident, he did not follow the policy.

A K-Sea Transportation official told investigators that the mate had met with him briefly after the accident and told him about a serious medical emergency that affected the mate's young child. The NTSB confirmed that such an emergency had occurred less than an hour before the mate reported for duty at 1200 on the day of the accident.

All of the calls on the mate's cell phone were of relatively short duration and were to or from an immediate family member, which suggests that all of the calls were in regard to the medical emergency. The fact that the calls involved an emotionally troubling event that was likely evolving over a period of time increased the likelihood that the calls would distract the mate from his duties. Although such a distraction is understandable, personal concerns cannot be allowed to create risks for others. If the mariner is unable to fully carry out his responsibilities, for whatever reason, his duty is to turn over those responsibilities to someone else. Yet, no one else on board the *Caribbean Sea* was aware of the emergency that the mate was dealing with. The NTSB concluded that, had the mate of the *Caribbean Sea* informed the master or K-Sea Transportation management of the serious family medical emergency, he would likely have been granted relief from the watch.

Therefore, the National Transportation Safety Board makes the following safety recommendation to K-Sea Transportation Partners, L.P.:

> Review K-Sea Transportation's existing safety management program and develop improved means to ensure that your company's safety and emergency procedures are understood and adhered to by employees in safety-critical positions. (M-11-6)

The NTSB also issued four safety recommendations to the U.S. Coast Guard, one safety recommendation to Ride The Ducks International, LLC, and one safety recommendation to The American Waterways Operators.

In response to the recommendation in this letter, please refer to Safety Recommendation M-11-6. If you would like to submit your response electronically rather than in hard copy, you may send it to the following e-mail address: correspondence@ntsb.gov. If your response includes attachments that exceed 5 megabytes, please e-mail us asking for instructions on how to use our Tumbleweed secure mailbox. To avoid confusion, please use only one method of submission (that is, do not submit both an electronic copy and a hard copy of the same response letter).

Chairman HERSMAN, Vice Chairman HART, and Members SUMWALT, ROSEKIND, and WEENER concurred in this recommendation.

[Original Signed]

By: Deborah A.P. Hersman
Chairman