

Pilothouse Visibility QAT

Final Report

24 July 1998

In September 1997 the AWO/USCG Atlantic Region Quality Steering Committee (RQSC) assigned the task of reviewing towing vessel visibility concerns to a Quality Action Team (QAT). On January 8, 1998, the first meeting of the Quality Action Team assigned to address visibility standards for pilothouse personnel met. The group consisted of the following individuals:

Jeff Parker, Allied Towing Corp., Team Leader
Lt. Robert Scruggs, USCG Jacksonville, FL
Don Ivins, Express Marine
Bob Kaucic, Express Marine
Keith Grant, Ninth CG District
Ray Robbins, Bay Towing Corp.
Paul Horsball, Moran Towing Corp.
Eric Washburn, USCG Hampton Roads

The initial discussion involved the scope of the issue and included existing regulatory requirements, human factors, equipment and recommendations. A report was prepared because of this meeting and was presented to the Atlantic Region QSC at their February 5, 1998 meeting. A number of issues were presented to the QAT then which they have addressed via subsequent discussions with the QAT members. At the May 13, 1998 Atlantic Region QSC meeting an interim final report was presented. With minor changes, they accepted it for presentation to the national QSC. This report serves as a final work product.

THE ISSUE

The QAT was presented with the issue that towing vessels were potentially operating with barges in harbors without adequate ahead visibility. The assembled group did not agree that the problem of operating barge's, especially empty ones, without addressing the need to have visibility over them was an issue that was contributing substantially to casualties. However, the need for a vessel to see over a barge or have a competent lookout/conning officer on board, was felt to be important. We believe that some companies may operate tows alongside or in push gear while lacking adequate visibility or a qualified lookout/conning officer. Typically this problem is most likely to occur in New York harbor where boats without raised pilothouses routinely handle large, empty barges alongside. Also, tugs without raised pilothouses usually handle container barges in various ports on the East coast. Here, the tug tows the barge as far into the harbor as

weather and traffic conditions allow, and then picks up the barge alongside and if necessary transits the remainder of the voyage and then puts the barge to the dock. Generally, they assign a licensed officer to be on the barge with a hand held VHF radio, in a position where he can best see, in order to direct the movement of the barge.

The QAT members present described incidents they were aware of and they assigned the Coast Guard to research the MSIS database for casualty data. In the case of a tug moving a barge within a harbor where no visibility over it exists, anecdotal discussion included stories of tugs having to turn their tow in the channel occasionally to see if anything was coming, without an experienced lookout on the barge.

The MSIS database contained limited root cause information directly linking visibility issues with towing vessel casualties. Various investigation offices could not offer evidence that lack of visibility was a contributing factor in casualties they investigated.

As a matter of risk assessment, the QAT still felt the issue had merit and needed to be addressed as a potential safety hazard.

REGULATORY

No actual regulation exists which requires minimum visibility over a barge. Navigation bridge visibility on self propelled vessels over 1600 tons is regulated in 33 CFR 164.15. It addresses a requirement to have a blind zone no more than two ship lengths ahead from the conning position and certain horizontal blind sector restrictions. The Marine Safety Manual gives local OCMI's guidance regarding navigation visibility on pushed, inspected barges that can lead to operating restrictions if a problem with visibility exists.

HUMAN FACTORS

The QAT agreed that the solutions to visibility problems should include the qualifications and role of vessel personnel as well as equipment enhancements. The most common situation that creates a totally blind movement is handling a high freeboard barge alongside while docking or during limited transits without a raised pilothouse. Tugs pushing these barges ahead typically have elevated steering stations or upper pilothouses which afford varying degrees of visibility.

The most common solution to blind movements is placing a lookout on the barge to direct its movement. The qualifications of this person were considered to be of great importance to our group. Certainly the best person to direct the barges movement is a licensed officer. He has the experience and knowledge necessary to understand the forces at work, the geography of the port and the interface with other traffic in order to make the best operational decisions. This persons training and ability means the difference between a safe operation and an accident waiting to happen.

An issue that was raised regarding the licensed officer lookout was "who has the conn?". Is it the operator on the tug or the officer/pilot on the barge? It was clear to the group that it was the person on the barge. This precluded the use of deckhands as the conning officer but raised the issue of overlapping work hour situations. It was discussed that as long as these work hour extensions were limited in nature and the officers were able to get their rest either before or after the movements, that the safety of the operation overrode the minor time overlaps. We also concluded that the towing vessel operator was still in command of the tow and is ultimately

responsible for it's safe operation.

In order for an individual to serve as either a standard lookout or a conning officer, certain training and minimum qualifications should be met. A standard lookout must be trained in his/her duties and in basic navigation knowledge taking into account the following:

Duties - A lookout will:

1. Have no other duties;
2. Ensure that communications are maintained with the watch officer;
3. Immediately report as directed;
4. Remain alert and attentive at all times.

Training - All lookouts should be trained in the following:

1. Knowing where and when to watch;
2. Recognition of lights, day shapes, buoys, vessels and other hazards;
3. Reporting sightings and sounds quickly;
4. Basic meeting situations per the rules of the road;
5. Staying alert and attentive;
6. Remaining on their station.

A conning officer must, in addition to the above, be a licensed officer that understands the handling characteristics of the tow and has a working knowledge of the waterway.

EQUIPMENT

The QAT discussed that the best solution to restricted visibility was the actual ability of the operator on the bridge to see over the barge. Having a raised upper pilothouse with adequate height of eye, equipped with appropriate navigational equipment was the optimum operating method. Companies that are routinely required to transit ports in push or alongside mode are best served by having an elevated pilothouse/steering station. All companies need to be aware that navigating from an upper pilothouse requires that appropriate navigational equipment be available to the operator. The group also considered the issue that not all towing vessels with secondary steering stations have navigation equipment available. We felt that the below guidance provided by MSO New York regarding the application of the Navigation Safety Equipment for Towing Vessels rulemaking to tugs with elevated pilothouses or steering stations sufficiently addresses the issue.

1. Towing vessels with elevated pilot houses engaged in towing large barges in the coastal environment should be equipped with "repeater" navigation equipment to ensure that the operator can safely navigate the vessel, laden or light, with the appropriate height of eye over the barge when the vessels are in either the push or alongside mode.
2. Towing vessels with secondary steering stations, operating from one facility to another or engaged in shifting barges from one facility to another or engaged on voyages of limited duration, must ensure that the vessel operator can safely

navigate the barge and tow unit, laden or light, with the appropriate height of eye over the barge when the vessels are in either the push or alongside towing mode.

Hand held VHF radios are critical to ensuring proper communications when needing to carry a forward lookout/conning officer. Care should be taken to ensure that the radio is reliable and its construction is appropriate for the type of cargo being carried. (IE; intrinsically safe for use on gas barges).

Habitability of the lookout should be addressed by the operator also. The lookout/conning officer needs to be protected from the environment through enclosures or proper attire. A cold, wet lookout won't be paying very close attention to the waterway ahead.

The lookout should wear a life jacket/work vest whenever he may be required to venture near the barge's edge.

APPLICABILITY

The applicability of these recommendations was discussed and the QAT decided that they should apply to all towing vessels, regardless of type or location. Coastwise tugs with single barges, multiple barge tows on inland waters, or specialty tows such as dredge equipment, all have potential visibility issues associated with their operation. Although no single set of guidelines can address every situation, these criteria can be applied or modified to fit any operation type. For example, a towboat pushing an 800 foot multiple barge tow may be allowed a 1,600 foot blind zone which may be appropriate for open river operation, but when operating in a congested port with small boat traffic, may require a bow lookout.

COMMUNICATIONS

The QAT discussed various methods for disseminating the recommendations included in this report. The primary method would be distribution to AWO members via their newsletter and mailing system. The Coast Guard would include them in their MSO newsletters, area mailing lists and Coast Guard web sites. Also, port specific working groups could act as an additional industry distribution source.

COMPLIANCE

As these are voluntary guidelines not regulations, the QAT believe that getting the word out to affected companies would best serve our objectives. We felt that AWO should consider including our recommendations in the Responsible Carrier Program in the section relating to vessel specific operating procedures. Companies should be taking visibility into account whenever a tug/barge match up decision is made.

RECOMMENDATIONS

The QAT agreed on the following recommendations:

1. **Guidelines:** Based on the following operational situations;
 - Situation 1: The towing vessel has visibility over the barge/tow that creates a blind zone no greater than two barge/tow lengths; **No restrictions on operations.**
 - Situation 2: The towing vessel has visibility over the barge/tow, but it creates a blind zone greater than two barge/tow lengths; **A lookout should be posted on the barge with a VHF radio.**
 - Situation 3: The towing vessel has no visibility over the barge; **A licensed officer with a VHF radio should be posted forward on the barge to direct the operation of the tow.**

Nothing in these guidelines relieves the operator of his responsibility to provide a proper lookout under prevailing conditions.
2. **Operational Enhancements:** Vessels may modify their operation to provide for better visibility. For example, ballasting the barge, enlisting assist tugs forward or using a tail tug to allow for towing ahead in a port.
3. **Training:** Companies should establish training criteria for lookouts and officers to better equip them to serve in their designated capacities. This training should be broken down to cover:
 - a. Standard lookout - A member of the crew positioned during a normal situation requiring a lookout or placed on the bow when the tug has limited visibility.
 - b. Piloting lookout/conning officer - A licensed member of the crew placed forward when the tug has no visibility over the barge.
4. **Speed:** All vessels with visibility restrictions should operate at a safe speed taking into consideration the operators reaction time and the tows stopping distance.
5. **Communication:** These guidelines should be communicated through the AWO newsletter and mailings, USCG newsletters, mailings and USCG forums/industry days. Port specific industry committees should help distribute this also. Companies should include them during meetings with their pilothouse personnel and should establish operating procedures to reflect their individual company's operating parameters.
6. **Responsible Carrier Program:** AWO should consider including these visibility recommendations in the Responsible Carrier Program.

Although the QAT did not recognize visibility over the barge as a major problem for the group, they did identify that the lack of visibility could have serious consequence's in the operation of a tow. The simple, straightforward guidelines proposed will enhance towing safety.