

## XIV. Tug Escort / Assist For Tank Vessels

In 1990, Senate Bill 2040 (the Oil Spill Prevention and Response Act) established that tug escorting was beneficial for tanker operations and directed expeditious development of escorting regulations for San Francisco Bay. The requirement is based on the legislative finding that there is a navigational safety advantage of tug escorts. Tug escorts can improve tanker safety in at least two ways. Tug escorts can serve as emergency maneuvering aids in the event of loss of steering or propulsion, and a tug escort may also assist as an independent aid in the navigation of a tanker.

The Final Report of the States/British Columbia Oil Spill Task Force (1990) concluded that the risk of an oil spill could be reduced by eight to 11 percent with the mandatory use of tug escorts. That report, endorsed by the State of California, suggested that the escorts be highly maneuverable, have speed complementary to the tanker with sufficient power to control tanker direction, and that the power and number of escort tugs should be proportionate to the deadweight tonnage of the tanker.

The Harbor Safety Committee (HSC) established a Tug Escort Subcommittee, which created Interim Guidelines for tug escorting in San Francisco Bay. The Interim Guidelines recommended: minimum requirements for tug escort equipment and crews; a formula for matching tugs to tankers; establishing a central Clearing House to measure bollard pull and monitor and document compliance with the regulations; setting tug escort zones in the Bay; and various operational considerations. OSPR caused emergency regulations to be established in the winter of 1992 based on the Interim Guidelines.

In the spring of 1993, the HSC adopted a revised set of Permanent Guidelines to supersede the emergency regulations. The Permanent Tug Escort Guidelines differed from the Interim Guidelines in a number of significant respects. The Permanent Guidelines altered the formula for matching tugs to vessels by changing the bollard pull formula from ahead static bollard pull equal (or greater) than the dead weight tonnage of a regulated vessel to the astern static bollard pull in the same ratio. Additionally, performance standards for stopping a tanker; equipment standards and inspection of tugs; positioning of regulated vessels; and training requirements for tug escort crews were established. During the State's administrative process, OSPR chose to reject the permanent guidelines on the basis of their lack of rationale and scientific basis for matching tugs to tankers.

The subcommittee began what grew into a two-year process of preparing a scientific study of how to match escort tugs to tankers, with the assistance of a consultant and by holding extensive public hearings on the results of the study. Based on state funding concerns and time limitations, industry volunteered to engage a consultant in conjunction with an industry-based Technical Advisory Group and the Tug Escort Subcommittee acting as a policy board. Glosten Associates was hired to prepare a professional study focusing on the specifics of tug escorting on San Francisco Bay. Additionally, the State funded a peer reviewer, Michael M. Baristas of the University of Michigan, to review the consultant's work and to mitigate concern regarding bias. Their reports were completed in the winter of 1994.

The Glosten Study had adopted a dual-failure standard (the simultaneous loss of both propulsion and steering) as the basis for measuring the force (tanker demands) required to recover from the tanker machinery failure and remain within the tactical area of performance. Further, the tactical area was based on the ninety-fifth percentile of success in stopping the tanker within the available reach and transfer. After review of the enabling scope of work and industry concerns regarding the likelihood of a dual failure and the attendant tanker demands, the dual standard was thought to be unreasonable. The subcommittee set up various working groups to review failure probability, waterway characteristics, and commercial and navigational safety implications of demand standards and requested that Glosten calculate demands based on single failures.

These efforts resulted in a second Glosten Study and reports on failure probability and waterway specific characteristics. The subcommittee reviewed these reports and adopted a single failure standard for the development of matching criteria.

The process involved close involvement and participation by the interested public and OSPR. On August 10, 1995, the full Harbor Safety Committee reviewed and adopted the Tug Escort Subcommittee's guidelines on a vote of twelve to one. The HSC promptly transmitted the new guidelines and recommendations to OSPR for implementation.

The Committee publicly reviewed the regulatory language proposed by OSPR. During the review of the regulations, several issues were identified as not being in compliance with the Committee's recommendations. The most critical issues were related to the intended use of checklists to review and develop a transit-specific plan versus OSPR's new requirements that plans be filed with OSPR thirty days in advance. OSPR subsequently agreed to modify its proposed language to comply with the intent of the Committee's guidelines, which the Committee adopted in January 1996.

OSPR held a public hearing on the proposed permanent tug escort regulations on March 19, 1996. Approximately 15 people testified at the hearing. Most supported the new regulations but a sizable group protested the use of a single-failure standard instead of a dual-failure standard. Many of those who commented also suggested minor modifications to the regulations, such as individualized, company-specific check lists and reducing pilot liability. Written comments were also received.

In addition to the public hearing process on regulations, OSPR is required by law to have regulations reviewed by the State Inter-Agency Oil Spill Prevention Committee, which reviewed and approved the regulations for implementation, and by the OSPR Technical Advisory Committee, which is purely advisory and has no approval or disapproval authority. The issue of dual- versus single-failure standard was again debated and it was concluded to continue with the single-failure standard.

The Tug Escort regulations became effective January 1, 1997. (See Appendices for current list of certified tug escorts, the current Clearing House Report on escorted vessel movements and for Amended Tug Escort Regulations.) There have been no significant issues in implementing the regulations.

It should be noted that the 1997 Tug Escort regulations require that:

The OSPR Administrator shall review the matching criteria and other program elements within two years of the effective date of this subchapter. The program review will include a survey of the tanker-related incidents in U.S. waters to determine the types of failures that have occurred, an assessment of tug technology and any advances made in design and power, and the tug escort organizations. At the conclusion of the review, the Administrator will determine whether it is necessary to modify the tug/tanker matching criteria or any other provision of the program requirements....

The OSPR review to determine whether any changes should be made to the tug/tanker matching formula met the January 1, 1999 deadline; however, the regulations did not require a report and none was prepared. Rather than conduct a review every two years, the HSC, on behalf of the Administrator, reviews incidents on an ongoing basis at its monthly meetings. If further evaluation is warranted, issues are referred to the appropriate Work Group for additional analysis. Any findings and recommendations are brought before the full Committee for discussion and vote.

Subsequently, in 2001-2002, the HSC Tug Escort Work Group initiated a “sunshine” review of the entire tug escort regulations for the San Francisco Bay Region. The Work Group met for a one-and-a-half year period. The meetings were well attended by representatives of tanker operators, tug operators, the San Francisco Bar Pilots, marine terminal operators, the U.S. Coast Guard, OSPR, State Lands Commission, the San Francisco Marine Exchange and a host of other local maritime professionals.

The cornerstone of the regulatory review was a thorough examination of the tug/tanker matching matrix. The Work Group met with Dr. David Gray, Naval Architect of Glosten Associates from the Seattle-based company that developed the original tug/tanker matching matrix. Dr. Gray reviewed the assumptions upon which the matching formula was based and the present mix of tankers that call in the Bay. After much deliberation, the Work Group concluded that the tug/tanker matrix remains valid and should not be modified (determination made at the January 15, 2002 Work Group meeting and reported to the HSC at its February 14, 2002 meeting).

**Training for Tug Escort Crews.** As a result of its study of the tug/tanker matching matrix, the Work Group determined that in order for tug escorts to be effective in an emergency, training of escort tug and ship crews under pilot direction should be addressed. The Work Group concluded that training exercises could not be mandated by regulation, as the training exercises must be individual to the tugs and vessels because of the wide variety of tankers, barges and tugs and variety of conditions on the Bay. The Work Group prepared guidelines entitled “Recommendations for Conducting Escort Training on San Francisco Bay,” which outlines procedures for tug and ship crews, as well as pilots, to participate in live training exercises under agreed-upon, non-emergency conditions. A draft of the Recommendations was circulated to various tug, tanker, and barge companies and to the S.F. Bar Pilots.

The guidelines were adopted by the full Committee on May 9, 2002 (see Appendices). The HSC Secretariat, through the Marine Exchange, then sent a letter to all affected parties in the maritime community, encouraging companies to adopt the Recommendations. The Tug Escort Work Group reports that tug escort emergency maneuvers are being conducted on a voluntary basis in accordance with the HSC’s Recommended Guidelines.

In September 2008, the Tug Escort Work Group was given a presentation of a Simulator Training Program for Tugs and Pilots that is being used in Puget Sound for tug captains, Puget Sound Pilots and B.C. Pilots. Over the years it has become evident that the opportunity for on-the-water exercises involving tankers and tugs has been extremely limited at best, with few individuals trained for actual events. However, with maritime

simulators becoming more sophisticated in their ability to replicate a variety of situations and with a California Maritime Academy (CMA) simulator operational within a few months, the Work Group decided to explore the opportunity for simulating local conditions on a cost-effective basis to the maritime community within the San Francisco Bay Area.

The Work Group concluded that in addition to promoting simulator training for tugs escorting tankers, simulator training is applicable to tugs assisting and docking container ships, bulk carriers and chemical ships – thus providing industry-wide benefits for safe navigation.

The Harbor Safety Committee encourages the maritime industry to provide simulator training for tug personnel with pilot participation for emergency tug operations, based on local conditions. The training will improve communication between pilots and tug masters, offer in-house training to tug industry personnel, and provide valuable “lessons learned” for emergency situations in a controlled environment.

**Escorts for Non-petroleum Tankers.** In 2003, the Harbor Safety Committee rescinded its prior recommendation to propose state legislation requiring tug escorts for vessels “carrying certain dangerous chemical cargoes in enough quantities to pose a risk” in San Francisco Bay, based on the following:

- It was extremely difficult to define dangerous cargoes and quantities that could be translated into legislation.
- Thorough analysis of this category of vessels in the Bay in calendar year 2001 did not reveal a pattern of problems or inadequate ship design.
- The Coast Guard has the authority through Port State Control to require tug escorts and to detain “problem ships” if necessary.

In 2004, State legislation (SB 1480) was proposed that would allow “[t]he OSPR Administrator, in consultation with the harbor safety committees, to adopt regulations governing tugboat escorts for other vessels carrying hazardous materials that are entering, leaving, or navigating in the harbors of the state.”

The Harbor Safety Committee opposed SB 1480 and companion legislation AB 2777 because:

1. The Tug Escort Work Group carefully reviewed the nine-year record of Coast Guard Casualty reports for Chemical Tankers, the seven-year record of Coast Guard Captain of the Port (COTP) orders to require Chemical Tankers to be tug escorted, and Chemical Tanker arrivals in the Bay for the year 2003. Of 23

reported casualties, only four were for loss of steering or power; four were for the same ship, and seven were tankers carrying oil. The other casualties were minor in nature because of the broad definition of a reportable Marine Casualty.

Similarly, of the COTP orders for seven Chemical Tankers, five vessels carried oil and the other two most likely carried oil. The major increase in the number of Chemical Tankers was due to the change in definition of tankers by Lloyds of London. Also noted was the fact that most chemical tankers are double-hulled ships subject to strict standards and close vetting review.

2. The definition of “hazardous materials” is too broadly written to be meaningful in pinpointing the most dangerous chemicals and quantities hazardous to the public and the environment. As written, the legislation would affect almost every ship in the Bay, from cargo ships to tankers, and would not enhance safety.
3. The Work Group was concerned that, because the definition of hazardous materials is so broadly written, permanent broad powers would be granted to the OSPR Administrator with no criteria or analysis upon which to base his/her decision.

The Harbor Safety Committee sent its recommendation to the OSPR Administrator. The legislation was vetoed by the Governor.