

Historically, pilots and masters jointly determined the proper tug assist for laden tank vessel movements. In 1992, the pilots developed a matrix depicting their usual practice for determining adequate escort tug(s) for particular tank vessel movements within the breakwater. Initial state regulations codified this matrix, and adopted other Harbor Safety Committee recommendations. Since the original tug escort regulations were adopted, numerous changes have been recommended by the LA/LB Harbor Safety Committee. This appendix summarizes the primary developments and amendments.

**A. SUMMARY OF 1995 COMMITTEE CHANGES**

The Committee discussed the issue of tug escorts outside the federal breakwater during the 1994-95 Plan review. Under the existing scheme, all tugs were meeting laden tankers just inside the breakwater entrances. Analysis of marine casualties for vessels operating in the LA/LB port area revealed that an average of 1 in 100 commercial vessels (1 per week) sustained some type of steering or propulsion failure during the inbound or outbound transit. The mechanical problem rate and the ever-decreasing amount of navigable water inside the breakwaters threaten safe transit of vessels through the “relatively” confined breakwater entrances. If a significant allision or collision causes a major oil or chemical release, the environmental and economic costs could be devastating.

The Tug Escort Subcommittee (TES) comprehensively assessed the risk associated with inbound laden tankers approaching and moving through LA/LB breakwater openings. The subcommittee found that the risk of steering failure or power loss justified implementing a tug escort scheme outside the breakwater. In order to develop an appropriate, practical and technically sound scheme, tug capabilities must match tank vessel size, speed and type of casualty. At the time, the San Francisco Glosten Study for Single Failures, (augmenting the less-relevant Dual Failure Study) was nearly complete, and TES felt the study would provide helpful technical insights. The Committee decided to review the Glosten Study results before finalizing a tug escort scheme outside the breakwater. In the interim, the Committees approved the following for the 1995 Harbor Safety Plan:

1. Retain the escort/assist matrix (with minor modifications) for inside the breakwater;
2. Set maximum approach speeds beginning at the outer limits of the pilot boarding: eight knots for vessels under 120,000 DWT and six knots for vessels over 120,000 DWT; and
3. Have at least one tug, or two tugs for tankers over 170,000 DWT, meet inbound tankers at approximately 1.25 miles outside the breakwater.

**B. SUMMARY OF 1996 HSC CHANGES**

The TES assessed the Glosten Single Failure Study and determined that it’s range of tank vessel speeds, current conditions and transit widths (openings) covered the conditions in the approaches to the LA/LB port complex. The TES agreed with Glosten that tank vessels must slow down as navigational restrictions increase, and braking force is the most important tug characteristic for

successfully dealing with a steering failure or power loss. Thus, the LA/LB scheme would require that tugs have adequate braking capability, and that they meet the inbound, speed-restricted tanker far enough out either to halt it before it grounds on the breakwater or to help steer it through an opening if it fails close to the breakwater.

After extensive technical analysis and debate, TES found that the Glosten Braking Force Table described in the “July 95 Single Failure Report,” which compares braking force with displacement tonnage at specific speeds, would serve LA/LB, especially since it was designed for more restrictive conditions, providing an additional safety margin. Displacement tons replaces DWT for escort purposes, as it better represents the tanker weight to be controlled (DWT are still the standard of care for assist purposes). An additional benefit is that the table is simple to understand, implement and enforce (see Chapter XII for the Default Table).

The Committee agreed with these findings and concluded that TES’ recommended tug escort services should be the Standard of Care for this port complex as of the signing of this 1996 Harbor Safety Plan, and should be submitted for state regulatory adoption. The Committee found that, since tugs are either escorting or assisting inside the breakwater, the Good Marine Practice captured in the already established tug assist matrix should become the Plan’s Standard of Care. (Chapter XII defines escort and assist.)

### **C. SUMMARY OF 1997 HSC CHANGES**

1. Committee Guideline and State Regulations Development: Following are the 1997 findings and recommendations for tug escorts in LA/LB.
2. 1997 Committee Changes and Recommendations: Glosten Associates produced a “July 95 Single Failure Report” for the San Francisco Bay Area. During its 1996 review, the Subcommittee determined that information contained in the Braking Force Table of that report also pertained to the LA/LB Harbors. The Subcommittee proposed significant amendments to its regulations based on this information.

While implementing the San Francisco Bay Area regulations (effective January 1, 1997) it was discovered that “slack water” braking force requirements were interpreted strictly on a “0-knot” current. Glosten Associates is now assessing whether San Francisco’s calculations apply to the LA/LB Default Matrix/Braking Force Table (which precedes Part F of this chapter). The Committee will submit for public comment any amendments recommended by Glosten’ study. Pending Glosten’s verification, the COTP has formally requested, and received voluntary industry compliance with, the proposed regulatory requirements.

The Committee also recommended amending the proposed regulations to exclude double-hull tankers, consistent with the San Francisco Bay Area tug escort regulations. The provision will exempt from tug escort requirements tankers with both fully redundant steering and propulsion systems, in additions to double hulls (as defined in 33 CFR 157.03).

To further conform with the San Francisco Bay Area Tug Escort Regulations, the Committee recommends that LA/LB tug escort regulations apply to tank vessels carrying as cargo a total volume of oil greater than or equal to 5,000 long tons. Finally, the Committee recommends converting mandatory “Assist Tug Standards of Care” (Appendix C.3) to voluntary practices and renaming this Section to “Good Marine Practices,” once the new regulations are codified. Applying both the new regulatory requirements and the Standards of Care may confuse mariners and may prove redundant once the regulations become law. Amendments to both the Plan and the current regulations (Appendices C.3 and C.5) will issue at that time.

#### **D. SUMMARY OF 1998 HSC CHANGES**

1. Committee Guideline and State Regulation Development: Following are the 1998 findings and recommendations for tug escorts in the LA/LB Harbor. The originally adopted regulations were located in Appendix C.4 of the HSP. In June of 2006 Appendix C.4 was removed from the Harbor Safety Plan to prevent possible confusion with the current regulations. The Appendix C.4 information is kept as historical record and is available by contacting the Marine Exchange of Southern California at [HSC@mxsocal.org](mailto:HSC@mxsocal.org) or calling 310-519-3134 for archival Harbor Safety Plan information
2. 1998 Committee Recommendations: Within the parameters provided by the TES, the Glosten Associates’ marine engineers were initially contracted to study the relevancy between braking force criteria for the San Francisco Bay Area and the LA/LB Harbor complex. TES pilot members, however, determined that turning, as well as stopping a disabled ship outside the breakwater was now the probable and preferable maneuver, given the increase in tractor tug availability within the harbor. As a result, Glosten Associates provided a force matrix addressing requirements for turning and stopping, using tractor and/or conventional tugs. The Committee recommended that proposed state regulations be amended to incorporate the tug-to-tanker force requirements specified in the matrix.

The Committee also recommended converting the mandatory “Assist Tug Standards of Care” to voluntary practices and renamed this section “Good Marine Practices, upon codification of the new regulations (9/19/98), to reduce user confusion and redundancy.

#### **E. SUMMARY OF 1999 HSC CHANGES**

Bollard Pull Testing locations were expanded to any port where all testing requirements could be met. This allowed for more flexibility and safety for testing larger tugs.

#### **F. SUMMARY OF 2000 HSC CHANGES**

The definition of “fully redundant” (to include redundant propulsion, steering and navigation systems) was amended to recognize industry changes in new tanker design. Both the San Francisco Bay Area and LA/LB tug escort regulations are now consistent in this definition and its requirements.

**G. SUMMARY OF 2001 HSC CHANGES**

1. Established specific standards for tug/tank barge transits, including tug/tank barge matching criteria, tethering, stationing and equipment requirements, to address the differences between tankers and tank barges in maneuverability, draft, and tug forces.
2. Amends location designations and tug stationing area due to channel dredging and federal regulation changes to the traffic separation scheme.
3. Also, added an additional category to the tug/tanker matching criteria table to accommodate larger tankers.

**H. SUMMARY OF 2002-2004 CHANGES**

After much debate the LA/LB Harbor Safety Committee in February 2002 submitted to the OSPR Administrator two proposals dealing with work hour and manning requirements for tug escort crews. One proposal was developed by labor organizations and the other by the tugboat operating companies. To gain understanding of the issue and capture information on tugboat manning and fatigue, the USCG COTP implemented a tug ride-a-long program in spring 2002. The results showed fatigue was no more or less an issue in LA/LB Harbor than in the rest of the industry, and the COTP found no identifiable over-riding safety concern. The issue continued under discussion through 2002 and into 2003 with the release of a nationwide joint USCG/American Waterways Operators report on manning and fatigue. Late in 2003, OSPR drafted proposed amendments to the regulations which addressed escort tug crew manning, work hours, and training requirements. These revisions were approved by the Committee in April 2004 and after public comment became effective on October 27, 2004.

**I. SUMMARY OF 2005-2006 CHANGES**

Late in 2004 it came to the attention of the LA/LB Harbor Safety Committee that several factors were making it increasingly impossible for tug operators to meet the requirements for triennial re-measuring of static bollard pull. After some discussion, in February 2005 the Committee wrote to the OSPR Administrator requesting a two-year waiver of the requirement while the issue was being studied. In June the Committee formed the Tug Utilization Group subcommittee and in the summer a statewide Escort Tug Action Team representing all California Harbor Safety Committees was created by OSPR. As a result of those groups' deliberations, an Escort Tug Inspection Program was developed as an alternative to the regulatory re-measuring of bollard pull. In December 2005 the Committee wrote to Administrator supporting that program. Draft proposed regulations were developed by OSPR and approved by the Committee in April 2006. The amended regulations became effective October 15, 2006 and OSPR subsequently developed the procedures for implementing the voluntary inspection program and the statewide escort tug database.

**J. SUMMARY OF 2012 CHANGES**

In October 2005, and following the submission of plans to develop a new crude oil facility on Los Angeles Pier 400, the LALB Harbor Safety Committee first considered extending the Tanker Force Selection Matrix to include tankers over 340,000 displacement tons. The Glosten Associates performed a preliminary study of emergency escort tug maneuvers using team towing (with multiple tractor tugs tethered aft) for OSPR. Subcommittee #1 reviewed the study in the spring of 2006. In 2009-2010, Subcommittee #3 proposed a process for developing and validating a new Tanker Force Selection Matrix covering tankers up to 420,000 displacement tons (metric) and allowing a team towing configuration. The Committee approved the proposal and submitted it to OSPR. Subsequently, OSPR contracted with the California Maritime Academy to use their simulation facility to validate the proposed matrix. The new California regulation for Tank Vessel Escort Program for the Los Angeles/Long Beach Harbor Sections 851.20 - 851.32 went into effect on 11 August 2012.

**K. SUMMARY OF 2017 CHANGES**

In December 2014, the LALB Harbor Safety Committee found that certain regulations might limit a tug/barge combined unit, commonly referred to as an Articulated Tug Barge (ATB), from fully utilizing its design characteristics when under tug escort in San Pedro Bay. The Committee recommended that ATB's should be treated as tankers for the purpose of applying the regulations contained in the Tank Vessel Escort Program for the Los Angeles/Long Beach Harbor, provided the ATB could meet minimum equipment standards and operating requirements. The Administrator directed the Committee to draft language for a regulatory change.

Following is a summary of the new regulatory language:

1. Added new subsection 851.26.1 to describe the minimum equipment standards and operating requirements that an ATB must meet to be treated as a tanker under the regulation.
2. Added new subsection 851.32 to codify and consolidate all the Marine Exchange administrative duties into one subsection. Those enumerated duties include the newly added duty of inventorying and publishing information submitted by ATB owner/operators regarding the safe working load of their ATB mechanical connection systems.
3. Added additional items to Section 851.24, Pre-Escort Conference, requiring discussion of the SWL of the bitts, chocks, and the tug-to-barge mechanical connection system.

The LALB Harbor Safety Committee submitted their recommendation for amending the California regulation for Tank Vessel Escort Program for the Los Angeles/Long Beach Harbor (Sections 851.20 - 851.33) to OSPR on March 10, 2016. That recommendation is now going through the rulemaking process and is not yet in force.