

number (that is, as “Tr. p. 33” rather than “Ex. 22x, p. 33”). At that public meeting, OSHA heard testimony from 25 witnesses, representing the U.S. Coast Guard, the ISO, national and international maritime safety associations, container and twistlock manufacturers, ship operators, stevedoring companies, and longshore unions.

Shortly after the public meeting, OSHA decided on a multi-faceted approach to resolve the questions raised during the January meeting:

a. Contract with the National Institute of Standards and Technology (NIST) to conduct engineering studies about the strength and durability of container corner castings and SATLs;

b. Meet with the International Cargo Handling and Coordination Association (ICHCA)¹ about international safety aspects of VTLs;

c. Meet with the ILO to clarify the ambiguity in existing interpretations of ILO Convention 152;

d. Monitor the ISO deliberations regarding VTLs; and

e. Form a workgroup within the Maritime Advisory Committee on Safety and Health (MACOSH) to address issues relating to VTLs and report back to MACOSH.

MACOSH was chartered by the Secretary of Labor to advise OSHA on matters relating to its occupational safety and health standards in the maritime industries. Committee members on MACOSH represent employers, employees, the States, the National Institute for Occupational Safety and Health (NIOSH), and other groups affected by maritime standards. During a MACOSH meeting held in Hampton, Virginia, on September 22 and 23, 1998, a VTL workgroup was formed consisting of the MACOSH longshore management and labor representatives, with participation by many other interested stakeholders. Over the next several years, the VTL workgroup discussed VTL issues at informal working group meetings and during MACOSH meetings.

On September 28, 1998, members of MACOSH's VTL workgroup met with ICHCA in Malmö, Sweden, to discuss the VTL issue. This was followed by a meeting with ILO in Geneva, Switzerland. The discussion with the ILO focused on the issue of determining whether the components of a VTL (the upper intermodal container and the SATLs) are either “a lifting appliance”

or “loose gear.” On October 21, 1998, an ILO official indicated to OSHA that the ILO considers SATLs used for lifting to be “loose gear” (Exs. 31 and 32). The significance of this decision is that loose gear, under ILO Convention 152, must be tested and inspected before initial use and re-inspected on an annual basis, as opposed to a “lifting appliance,” which must be retested at least once every five years. Retesting of a lifting appliance in a VTL would require that a specific container and four specific SATLs used for VTLs be proof load tested before initial use and every five years thereafter. As mentioned previously, this would be almost impossible to do.

During a MACOSH meeting held at the U.S. Merchant Marine Academy, Kings Point, New York, in July 1999, Dr. H.S. Lew of NIST presented a report on the strength of SATLs, latchlocks (a device similar in usage to a SATL, but of a different design), and container corner castings (Ex. 40–10). Dr. Lew's study indicated that the SATLs he tested were very substantial with load capacities ranging from 562 kiloNewtons (kN) (126,400 pounds per square foot (lb/ft²)) to 802 kN (180,300 lb/ft²), and that the container corner castings were more likely to deform and fail before the SATLs. However, he expressed reservations about a particular type of interbox connector, called a single-sided latchlock, because of its smaller bearing surface contact with the corner casting. The smaller surface area makes it more likely that, if the spring-loaded latch does not extend fully inside the container corner casting, it could slip through the hole in the corner casting when under load, such as when lifting another container. Even when the lock of a single-sided latchlock was fully extended, the NIST study determined that its surface area was insufficient for doing VTLs. In regard to the strength of SATLs, the conclusions of the NIST study were similar to a Swedish study (Ex. 11–6 H) that was conducted in 1997 by the Swedish National Testing and Research Institute.

On September 8, 2000, the USA delegation to ISO Technical Committee Number 104 Freight Containers (ISO/TC 104) held a meeting in Washington, DC, primarily to discuss the U.S. position on VTLs for the ISO biennial meeting to be held in October. After this meeting, OSHA sent a letter to the Chairman of ISO/TC 104 addressing concerns such as safety factors, the use of latchlocks, and the lack of operational procedures (Ex. 40–11).

At their biennial meeting in Cape Town, South Africa, in October 2000,

the ISO/TC 104 agreed that SATLs, which previously were only used for securing containers, could be used to lift containers. However, the ISO/TC 104 language did not address the question of how to use SATLs safely for such lifting, because ISO does not issue standards for operational procedures. In response to safety concerns in this area, ISO/TC 104 passed a resolution, requesting that ICHCA, a member of ISO/TC 104, develop operational guidelines for VTLs. ICHCA agreed to work on such guidelines.

In May 2002, ISO formally adopted language allowing SATLs that meet certain conditions to be used for lifting:

The vertical coupling of containers that are not specifically designed as in 6.2.4 [ISO 3874] for lifting purposes, using twistlocks or other loose gear, is acceptable if forces of not greater than 75 kN¹⁾ act vertically through each corner fitting, and the twistlocks or other loose gear used are certified²⁾ for lifting. The twistlocks or other loose gear shall be periodically examined (Ex. 40–9).

Footnote 1 states:

The value of 75 kN prescribes the minimum structural capability of the lock/corner fitting combination. The 75 kN value includes an arbitrary constant wind load of 26 kN (corresponding wind speed of 100 km/h), regardless of the size of the containers. As an example, the balance of the 75 kN value equates to two 1 AAA containers with a combined tare of 22 kN and a maximum payload of 27 kN. A practical upper limit of three vertically-coupled containers is also envisaged (Ex. 40–9).

Footnote 2 states:

The certification process envisaged is to use a safety factor of at least four based on the ultimate strength of the material (Ex. 40–9).

Essentially, this means that, based on the strength of the SATLs and the containers, the ISO standard would allow VTLs to consist of up to three containers with a total load weight of 20 tons.

In January 2001, an ICHCA VTL workgroup met in London to begin drafting operational guidelines for VTLs as agreed to at the Cape Town meeting. The ICHCA workgroup finalized their VTL guidelines in September 2002, and received final approval by ICHCA's Board of Directors in January 2003. OSHA has given careful consideration to the ICHCA guidelines in the drafting of this proposed rule. A copy of the guidelines is available in the docket (Ex. 41). The guidelines are available for purchase through ICHCA's Web site: <http://www.ichcainternational.co.uk/>.

A. International Aspects

As with all Federal agencies whose regulations influence international

¹ ICHCA is an independent, non-political international membership organization established in 1952, whose membership spans some 85 countries and comprises corporations, individuals, academic institutions and other organizations involved in, or concerned with, the international transport and cargo handling industry.