

containers end to end but, until recently, it has not addressed the practice of vertical tandem lifts (VTLs). A VTL is the practice of a container gantry crane lifting two or more intermodal containers, one on top of the other, connected by a particular type of interbox connector known as a semi-automatic twistlock (SATL).

The issue of vertical tandem lifting was first raised to OSHA by Matson Terminals, Inc. In 1986, through a series of meetings and correspondence with OSHA (Exs. 40-1, 40-2, 40-3, 40-4, 40-5, 40-6, 40-6-1, 40-7), Matson asked to be permitted to lift two containers at a time, connected by SATLs, either empty or with one or both containers containing automobiles. At that time, OSHA regulations did not directly address or prohibit this practice. The container handling regulation § 1918.85(c) stated, "all hoisting of containers shall be by means which will safely do so without probable damage to the container, and using the lifting fittings provided." In November 1986, OSHA, in a letter to Matson (Ex. 40-8), allowed the company to lift containers, either empty or with one or both containers containing automobiles, in VTLs. The letter to Matson stated that:

The CSHO (Compliance Safety and Health Officer) must be mindful of the manufacturer's specifications and endorsement, the Matson engineering technical specifications, the ABS Test Report, as well as, maintained conditions of the corner posts, the twistlocks, the cones, the containers and the hoisting and/or lifting devices. (Ex. 40-8)

At a 1998 OSHA public meeting on VTLs, a Matson representative testified that, since 1986, they had performed over 47,000 VTLs without incident (Tr. p. 173 ("Tr." refers to the transcript of the 1998 public meeting discussed below)).

In 1993, OSHA received a letter from Sea-Land Service, Inc. requesting that OSHA interpret its existing longshoring standards to allow the lifting of two empty 40-foot ISO freight containers that were vertically coupled using SATLs (Ex. 1). OSHA's standards had not changed since OSHA's letter to Matson. In its response, OSHA allowed Sea-Land to handle two empty containers vertically connected, provided that eight requirements were met (Ex. 2). The requirements were developed by OSHA's Directorate of Compliance Programs (now called the Directorate of Enforcement), taking into account applicable OSHA standards and related industry practices associated with container cargo handling operations. These eight requirements are: inspecting containers for visible

defects; verifying that both containers are empty; assuring that containers are properly marked; assuring that all the SATLs operate (lock-unlock) in the same manner; assuring that the load does not exceed the capacity of the crane; assuring that the containers are lifted vertically; having available for inspection manufacturers' documents that verify the capacities of the SATLs and corner castings; and directing employees to stay clear of the lifting area.

In 1994, OSHA addressed VTLs briefly in a paragraph of the Preamble of the proposed revisions to the Marine Terminals and Longshoring Standards (59 FR 28602), stating: "In those situations where one container is used to lift another container, using twistlocks, then the upper container and twistlocks become, in effect, a lifting appliance and must be certified as such." OSHA received comments on this issue only from the International Longshore and Warehouse Union (Exs. 4, 5, and 6). Although these comments favored the proposed interpretation and requested the Agency to include it as a requirement in the regulatory text, they included no specific information regarding the hazards of VTLs of two containers using SATLs. Sea-Land submitted a detailed six-page comment (Ex. 7) addressing a number of the proposed changes to the Marine Terminals and Longshoring Standards, but did not address VTLs. OSHA received a late, post-hearing submission from the International Longshoremen's Association, however, that alerted the Agency to what might be a serious problem with this type of lift, citing several incidents at U.S. ports where failures had occurred (Ex. 8). OSHA did not rely on this last letter in issuing the final rule because it was not a timely submission to the record. However, the letter made OSHA aware of safety concerns that might need to be addressed through supplementary rulemaking. Because of a lack of information on the safety considerations, cost impacts, and productivity effects of VTLs, as well as on the capability of containers and SATLs to withstand such loadings, OSHA reserved judgment on the appropriate regulatory approach to this practice, pending further study (62 FR 40152).

Up to the publication of the final Longshoring and Marine Terminals Standards in 1997, OSHA viewed the lifting of one container by another container using SATLs as similar to a container spreader picking up a single container using the spreader's twistlocks. Although the terms "semi-

automatic twistlocks" and "twistlocks" appear similar, they refer to two very distinct items. SATLs were designed to connect and secure intermodal containers that are stowed on the deck of a vessel. They are generally made of a cast metal with a surface that has not been finely honed. By contrast, a twistlock is an integral part of a gantry crane's container spreader. It has a similar appearance to a SATL, but is made of forged metal with a machined surface. These twistlocks are locked and unlocked with hydraulic power, and used as part of the gantry crane to lift and move containers.

In lifting the bottom container in a VTL, the upper container serves the same role as a container spreader on a gantry crane, and the SATLs do the same job holding the bottom container as do the twistlocks on the container spreader.

A gantry crane's container spreaders are considered a "lifting appliance," according to the International Labor Organization (ILO) Convention 152 Dock Work, portions of which OSHA incorporated or adopted in the Longshoring Standards in 29 CFR part 1918. The ILO is a specialized, independent agency in the United Nations which has a unique tripartite structure of business, labor, and government representatives. Its mandate is to improve working conditions (including safety), create employment, and promote workplace human rights, globally. Under ILO Convention 152, a lifting appliance, including the twistlocks, must be proof-load tested and inspected before initial use and periodically retested and re-inspected. However, applying that same requirement to a VTL situation would be much more difficult to accomplish. It would require a specific container (the one being used to lift another container) and four specific SATLs to be tested and inspected as a unit and to remain as a unit for retesting and reinspection. Given the millions of intermodal containers and millions more SATLs used in the maritime cargo handling industry, matching a specific container and four SATLs for VTL use over any length of time is nearly impossible. In view of this impracticality, OSHA sought an interpretation from the ILO, which is discussed below.

On October 9, 1997, OSHA re-opened the VTL record with a **Federal Register** notice that also announced a public meeting that was held in Washington, DC, on January 27, 1998 (62 FR 52671). The transcript for this public meeting is docket exhibit number "22x." The transcript will be referred to in this Preamble as "Tr." followed by a page