

TABLE 2.—AFFECTED ESTABLISHMENTS AND EMPLOYEES

	NAICS 488310 Port & Harbor Oper- ations	NAICS 483111 Deep Sea Freight Transportation	NAICS 483113 Coastal & Great Lakes Freight Trans- portation	Total all affected sectors
Total Affected Establishments	8	41	17	66
100 to 499 employees	5	36	15	56
Employees	1,052	6,575	3,293	10,920
Revenues Per Establishment	\$77,808,832	\$155,591,006	\$39,740,515
Profits Per Establishment	\$5,446,618	\$10,891,370	\$2,781,836
> 500 Employees	3	5	2	10
Employees	3,231	3,388	1,400	8,019
Revenues Per Establishment	\$33,305,333	\$301,600,000	\$357,800,000
Profits Per Establishment	\$2,331,373	\$21,112,000	\$25,046,000

Source: Office of Regulatory Analysis.

Profit rates taken from *Robert Morris Associates*, 1998–1999 (RMA, 1998).

Employees, establishments, and revenues taken from Dunn & Bradstreet, 2002.

Technological Feasibility

The Occupational Safety and Health Act (OSH Act) mandates that OSHA, when promulgating standards for protecting workers, consider the feasibility of the new workplace rules. Court decisions have subsequently clarified “feasibility” in economic and technological terms.

Consistent with the legal framework established by the OSH Act, Executive Order 12866, and Court decisions, OSHA has assessed the technological feasibility of the proposed standard on vertical tandem lifting of containers. The proposed provisions are consistent with current industry practice and have been developed based on industry recommendations and international standards. Therefore, OSHA has preliminarily determined that the proposal is technologically feasible.

On ships, the process of lifting two secured containers that are coupled together vertically (a VTL) can only be done with containers on the deck level of the ship. For containers stored below deck, SATLs cannot be used to connect the containers. Ships use cell guides below deck instead of SATLs. On average, about one-third of the containers are stored above deck and the other two-thirds below deck. Only a few establishments now use VTLs to move containers. Most establishments do not use VTLs at all, and many probably will continue not to use them even after the

final standard is promulgated. However, VTLs will allow some companies to realize substantial cost savings.

Model Container Ship Profile

In order to model cost savings and costs for the VTL rule, OSHA developed a model for an average container ship loading or unloading operation with VTLs.

According to 1992 data (Longshoring & Marine Terminals FEA, 1997), vessels carrying containers docked 1,564 times at U.S. ports, with a combined total carrying capacity of 1.76 million Twenty-foot Equivalent Units (TEUs) at U.S. ports. One TEU is equivalent to a 20-foot container. This estimate of vessels includes all classes of vessels that carry containers either in liner service or in non-liner service. Vessels in liner service operate on fixed routes to advertised ports on published schedules (OSHA, 1997). The Agency estimates that only 10 percent of the 1,564 dockings of vessels at U.S. ports would use VTLs in the loading or unloading operations, or 156 jobs. This estimate of 156 VTL jobs was used in estimating the industry costs for this analysis. The Agency seeks comment on this assumption.

To develop parameters for the model container ship, the Agency divided the total carrying capacity of all vessels (1.76 million TEUs) by the total number of dockings of vessels carrying

containers at U.S. ports (1,564) in 1992, results in 1,125 TEUs per vessel. This estimate is based on the 1992 data.

Today, however, container ships are being built with carrying capacities of five to six thousand TEUs. Therefore, the Agency feels that it is more realistic to increase the model ship’s carrying capacity to 3,000 40-foot containers for estimating costs. The model is described further in the following sections.

OSHA thus estimated that the typical ship to use as a model for analytic purposes is a ship carrying 3,000 40-foot containers. A ship of this size would have about 2,000 containers below deck that are not able to be moved as VTLs. The remaining 1,000 containers would be stored above deck. Of these, roughly one-third are estimated to be moved via VTLs (333). The Agency assumes that the cycle time for a crane to lift a container from the dock, load it on the ship, and return to the dock to pick up another container is about 2 minutes for moving one container at a time. This includes time needed for the dockside longshoremen to apply or remove liftlocks to the bottom corner castings. For the unloading or loading of 333 containers stowed above deck via VTLs, the productivity gains are estimated by taking the estimated time that it would take moving the containers one at a time and subtracting the time it would take using VTLs. Table 3 presents the model container ship used in OSHA’s analysis.

TABLE 3.—MODEL CONTAINER SHIP

	Above deck	Below deck
Total Storage ¹	1000	2000.
Storage Using VTLs	333	0.
Total Liftlocks ²	4000	0.