recorded in the *Crude Oil Washing Operations and Equipment Manual* approved under §157.112:

- (a) The results of the inspections under $\S 157.140$.
- (b) The following characteristics used to pass the inspections under §157.140:
- (1) Pressure and flow of the crude oil pumped to the COW machines.
- (2) Revolutions, number of cycles, and length of cycles of each COW machine.
- (3) Pressure and flow of the stripping suction device.
- (4) Number and location of COW machines operating simultaneously in each cargo tank.
- (5) Volume of water used for water rinsing.
- (6) Trim conditions of the tank vessel.

PERSONNEL

§ 157.152 Person in charge of COW operations.

The owner, operator, and master of a tank vessel having a COW system under §157.10(e), §157.10(a)(2), or §157.10c(b)(2) shall ensure that the person designated as the person in charge of COW operations—

- (a) Knows the contents in the *Crude Oil Washing Operations and Equipment Manual* approved by the Coast Guard under §157.112 or by the government of the vessel's flag state:
- (b) On at least two occasions, has participated in crude oil washing of cargo tanks, one of those occasions occurring on:
- (1) The tank vessel on which the person assumes duties as the person in charge of COW operations; or
- (2) A tank vessel that is similar in tank design and which has COW equipment similar to that used on the tank vessel on which the person assumes duties as the person in charge of COW operations; and
- (c) Has one year or more of tank vessel duty that includes oil cargo discharge operations and:
- (1) Crude oil washing of cargo tanks; or
- (2) Has completed a training program in crude oil washing operations that is approved by the Coast Guard or the government of the vessel's flag state.

Note: Standards of a Coast Guard approved training program are to be developed.

[CGD 77-058b, 45 FR 43709, June 30, 1980, as amended by CGD 82-28, 50 FR 11628, Mar. 22, 1985]

§157.154 Assistant personnel.

The owner, operator, and master of a tank vessel having a COW system under \$157.10(e), \$157.10a(a)(2), or \$157.10c(b)(2) shall ensure that each member of the crew that has a designated responsibility during COW operations—

- (a) Has six months or more of tank vessel duty that includes oil cargo discharge operations;
- (b) Has been instructed in the COW operation of the tank vessel; and
- (c) Is familiar with the contents of the *Crude Oil Washing Operations and Equipment Manual* approved by the Coast Guard under §157.112 or by the government of the vessel's flag state.

[CGD 77-058b, 45 FR 43709, June 30, 1980, as amended by CGD 82-28, 50 FR 11628, Mar. 22, 1985]

COW OPERATIONS

§ 157.155 COW operations: General.

- (a) The master of a tank vessel having a COW system under \$157.10(e), \$157.10a(a)(2), or 157.10c(b)(2) shall ensure that—
- (1) Before crude oil washing a cargo tank, the level in each tank with crude oil that is used as a source for crude oil washing is lowered at least one meter;
- (2) A tank used as a slop tank is not used as a source for crude oil washing until:
- (i) Its contents are discharged ashore or to another tank; and
- (ii) The tank contains only crude oil;
- (3) During COW operations:
- (i) The valves under \$157.122(i)(1) are shut; or
- (ii) The blanks under 157.122(i)(2) are installed;
- (4) The rotation of each COW machine mounted to or close to the bottom of each cargo tank is verified by:
- (i) A visual inspection of a means located outside of the cargo tank that indicates movement of the machine during COW operations;
- (ii) An audio inspection during COW operations; or