§ 157.45 Valves in cargo or ballast piping system.

When a tank vessel is at sea and the tanks contain oil, valves and closing devices in the cargo or ballast piping system or in the transfer system must be kept closed except they may be opened for cargo or ballast transfer to trim the vessel.

§ 157.47 Information for master.

A master or person in charge of a new vessel shall operate the vessel in accordance with the information required in 46 CFR 31.10–30(d) that includes the following:

(a) Stability information.
(b) Damage stability information determined in accordance with the criteria contained in Appendix B of this part.
(c) Loading and distribution of cargo information determined in compliance with the damage stability criteria required in Appendix B of this part.

§ 157.49 Instruction manual.

The master of a tank vessel shall ensure that the instruction manual under §157.23 is available and used when the cargo or ballast systems are operated.

Subpart D—Crude Oil Washing (COW) System on Tank Vessels

Source: CGD 77–058b, 45 FR 43709, June 30, 1980, unless otherwise noted.

GENERAL


(a) Before each U.S. tank vessel having a COW system under §157.10(e), §157.10a(a)(2), or §157.10c(b)(2) is inspected under §157.140, the owner or operator of that vessel must submit to the Coast Guard plans that include—

1. A drawing or diagram of the COW pumping and piping system that meets 46 CFR 56.01–10(d);
2. The design of each COW machine;
3. The arrangement, location, and installation of the COW machines; and
4. Except as allowed in §157.104, the projected direct impingement pattern of crude oil from the nozzles of the COW machines on the surfaces of each tank, showing the surface areas not reached by direct impingement.

(b) Plans under paragraph (a) of this section must be submitted to the Officer in Charge, Marine Inspection, of the zone in which the COW system is installed or to the Commanding Officer, U.S. Coast Guard Marine Safety Center, 400 7th Street, SW., Washington, DC 20590–0001.

(Reporting and recordkeeping requirements approved by the Office of Management and Budget under control number 2115–0520)


§ 157.102 Plans for foreign tank vessels: Submission.

If the owner or operator of a foreign tank vessel having a COW system under §157.10(e), §157.10a(a)(2), or §157.10c(b)(2), desires the letter from the Coast Guard under §157.106 accepting the plans submitted under this paragraph, the owner or operator must submit to the Commandant (G–MOC), U.S. Coast Guard, Washington, DC 20593–0001, plans that include—

(a) A drawing or diagram of the COW pumping and piping system that meets 46 CFR 56.01–10(d);
(b) The design of each COW machine;
(c) The arrangement, location, and installation of the COW machines; and
(d) Except as allowed in §157.104, the projected direct impingement pattern of crude oil from the nozzles of the COW machines on the surfaces of each tank, showing the surface areas not reached by direct impingement.

(Reporting and recordkeeping requirements approved by the Office of Management and Budget under control number 2115–0520)


§ 157.104 Scale models.

If the pattern under §157.100(a)(4) or §157.102(d) cannot be shown on a plan, a scale model of each tank must be built.
§ 157.106 Letter of acceptance.

The Coast Guard informs the submitter by letter that the plans submitted under §157.100 or §157.102 are accepted if:

(a) The plans submitted show that the COW system meets this subpart; or

(b) The plans submitted and the scale model under §157.104 show that the COW system meets this subpart.


Before each U.S. tank vessel having a COW system under §157.10(e), §157.10a(a)(2), or §157.10c(b)(2) is inspected under §157.140, the owner or operator of that vessel must submit two copies of a manual that meets §157.138, to the Officer in Charge, Marine Inspection, of the zone in which the COW system is installed or to the appropriate Coast Guard field technical office listed in §157.100(b).

(Reporting and recordkeeping requirements approved by the Office of Management and Budget under control number 2115–0520)

(CGDS 82–28, 50 FR 11627 and 11630, Mar. 22, 1985)


If the owner or operator of a foreign tank vessel having a COW system under §157.10(e), §157.10a(a)(2), or §157.10c(b)(2) desires a Coast Guard approved Crude Oil Washing Operations and Equipment Manual under §157.112, the owner or operator must submit two copies of a manual that meets §157.138 to the Commandant (G–MOC), U.S. Coast Guard, Washington, DC 20593–1000.

(Reporting and recordkeeping requirements approved by the Office of Management and Budget under control number 2115–0520)


If the manuals submitted under §157.108 or §157.110 meet §157.138, the Coast Guard approves the manuals and forwards one of the approved manuals to the submitter.


If the manuals submitted under §157.108 or §157.110 are not approved, the Coast Guard forwards a letter to the submitter with the reasons why the manuals were not approved.


The owner, operator, and master of a U.S. tank vessel having a COW system under §157.10(e), §157.10a(a)(2), or §157.10c(b)(2) shall ensure that the vessel does not engage in a voyage unless the vessel has on board the following:

(a) The Crude Oil Washing Operations and Equipment Manual that—

(1) Is approved under §157.112; or

(2) Bears a certification by an authorized CS that the manual contains the information required under §157.138.

(b) Evidence of acceptance of the tank vessel’s COW system consisting of—

(1) A document from an authorized CS that certifies the vessel meets §157.10c(b)(2) and each amending letter approving changes in the design, equipment, or installation; or

(2) The letter of acceptance under §157.106 and each amending letter issued under §157.158(c).

(c) Evidence that the COW system passed the required inspections by—

(1) A document from an authorized CS that the vessel has passed the inspections under §157.140; or

(2) The letter of acceptance under §157.142 after passing the inspection under §157.140.

(Reporting and recordkeeping requirements approved by the Office of Management and Budget under control number 2115–0520)

(CGDS 82–28, 50 FR 11627 and 11630, Mar. 22, 1985)
§ 157.118 Required documents: Foreign tank vessels.

(a) The owner, operator, and master of a foreign tank vessel under § 157.10(e) or § 157.10a(a)(2) shall ensure that the vessel does not enter the navigable waters of the United States or transfer cargo at a port or place subject to the jurisdiction of the United States unless the vessel has on board—

(1) The Crude Oil Washing Operations and Equipment Manual that—
   (i) Is approved under § 157.112; or
   (ii) Meets the manual standards in Resolution 15 of the MARPOL Protocol and bears the approval of the government of the vessel’s flag state; and

(2) Either—
   (i) A document from the government of the vessel’s flag state that certifies that the vessel complies with Resolution 15 of the MARPOL Protocol; or
   (ii) The following letters issued by the Coast Guard:
      (A) The letter of acceptance issued under § 157.106.
      (B) The letter of acceptance issued under § 157.142.
      (C) Each amending letter issued under § 157.158(c).

(b) On January 1, 1986, or 15 years after the date it was delivered to the original owner or 15 years after the completion of a major conversion, whichever is later, the owner, operator, and master of a foreign vessel having a COW system under § 157.10c(b)(2) shall ensure that the vessel does not enter the navigable waters of the United States or transfer cargo at a port or place subject to the jurisdiction of the United States unless the vessel has on board—

(1) The Crude Oil Washing Operations and Equipment Manual that—
   (i) Is approved under § 157.112; or
   (ii) Bears a certification by an authorized CS or the government of the vessel’s flag state that the manual contains the information required under § 157.138;

(2) Evidence that the COW system passed the required inspections by—
   (i) A document from an authorized CS or the government of the vessel’s flag state certifying that the vessel passed the inspections under § 157.140; or
   (ii) The letter of acceptance under § 157.142 after passing the inspection under § 157.140; and

(3) Either—
   (i) A document from an authorized CS or the government of the vessel’s flag state certifying that the vessel complies with the design, equipment, and installation standards in §§ 157.122 through 157.136 and any amending letters approving changed COW system characteristics; or

§ 157.120 Waiver of required documents.

The Coast Guard waives the requirement for the letter under § 157.116(b), if a U.S. tank vessel engages in a voyage, or under § 157.118(b)(2)(ii), if a foreign tank vessel enters the navigable waters of the United States or transfers cargo at a port or place subject to the jurisdiction of the United States, for the purpose of being inspected under § 157.140.

§ 157.122 Piping, valves, and fittings.

(a) Except as allowed in paragraph (o) of this section, the piping, valves, and fittings of each COW system must:

(1) Meet 46 CFR Part 56; and

(2) Be of steel or an equivalent material accepted by the Commandant.

(b) The piping of each COW system must be permanently installed.

(c) The piping of each COW system must be separate from other piping systems on the vessel, except that the vessel’s cargo piping may be a part of the COW piping if the cargo piping meets this section.

(d) The piping of each COW system must have overpressure relief valves or other means accepted by the Commandant to prevent overpressure in the piping of the COW system, unless the maximum allowable working pressure of that system is greater than the shut-
§ 157.124 COW tank washing machines.

(a) COW machines must be permanently mounted in each cargo tank.

(b) The COW machines in each tank must have sufficient nozzles with the proper diameter, working pressure, movement, and timing to allow the tank vessel to pass the inspections under §157.140.

(c) Each COW machine and its supply piping must be supported to withstand vibration and pressure surges.

(d) There must be one portable drive unit available on board the vessel for every three COW machines that use portable drive units during COW operations required by §157.160 before each ballast voyage.

(e) Except as allowed in paragraph (f) of this section, each cargo tank must have COW machines located to wash all horizontal and vertical areas of the tank by direct impingement, jet deflection, or splashing to allow the tank vessel to pass the inspections under §157.140. The following areas in each tank must not be shielded from direct impingement by large primary structural members or any other structural member determined to be equivalent to a large primary structural member by the Commandant when reviewing the plans submitted under §157.100 or §157.102:

(1) 90 percent or more of the total horizontal area of the:
   (i) Tank bottom;
   (ii) Upper surfaces of large primary structural members; and
   (iii) Upper surfaces of any other structural member determined to be equivalent to a large primary structural member by the Commandant.

(2) 85 percent or more of the total vertical area of the tank sides and swash bulkheads.

(f) Each cargo tank on a vessel having a COW system under §157.10a(a)(2) or §157.10c(b)(2) with complicated internal structural members does not have to meet paragraph (e) of this section if the following areas of each cargo tank are washed by direct impingement and the tank vessel can pass the inspections under §157.140:

(1) 90 percent or more of the total horizontal area of the:
   (i) Tank bottom;
   (ii) Upper surfaces of large primary structural members; and
   (iii) Upper surfaces of any other structural member determined to be equivalent to a large primary structural member by the Commandant when reviewing the plans submitted under §157.100 or §157.102:

(2) 85 percent or more of the total vertical area of the tank sides and swash bulkheads.

(g) Each hydrant valve for water washing in the piping of a COW system must:

(1) Have adequate strength to meet 46 CFR Part 56 for the working pressure for which the system is designed; and

(2) Be capable of being blanked off.

(h) Each sensing instrument must have an isolating valve at its connection to the piping of the COW system, unless the opening to that connection is 0.055 inches (1.4 millimeters) or smaller.

(i) If the washing system for cargo tanks has a steam heater used when water washing, it must be located outside the engine room and must be capable of being isolated from the piping of the COW system by:

(1) At least two shut-off valves in the inlet piping and at least two shut-off valves in the outlet piping; or

(2) Blank flanges identifiable as being closed (e.g., spectacle flanges).

(j) If the COW system has a common piping system for oil washing and water washing, that piping system must be designed to drain the crude oil into a slop tank or a cargo tank.

(k) The piping of a COW system must be securely attached to the tank vessel’s structure with pipe anchors.

(l) When COW machines are used as pipe anchors, there must be other means available for anchoring the piping if these machines are removed.

(m) There must be a means to allow movement of the COW system piping as a result of thermal expansion and flexing of the tank vessel.

(n) The supply piping attached to each deck mounted COW machine and each COW machine that is audio inspected under §157.155(a)(4)(ii) must have a shut-off valve.

(o) On combination carriers, piping of the COW system installed between each COW machine located in a cargo tank hatch cover and an adjacent location just outside the hatch coaming, may be flexible hose with flanged connections that is acceptable by the Commandant.

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§ 157.128 Stripping system.
(a) Each tank vessel having a COW system under §157.10(e), §157.10a(a)(2), or §157.10c(b)(2) must have a stripping system that is designed to remove crude oil from—
(1) Each cargo tank at 1.25 times the rate at which all the COW machines that are designed to simultaneously wash the bottom of the tank, are operating; and
(2) The bottom of each tank to allow the tank vessel to pass the inspection under §157.140(a)(2).
(b) Each cargo tank must be designed to allow the level of crude oil in the tank to be determined by:
(1) Hand dipping at the aftermost portion of the tank and three other locations; or
(2) Any other means accepted by the Commandant.
(c) Each stripping system must have at least one of the following devices for stripping oil from each cargo tank:
(1) A positive displacement pump.
(2) A self-priming centrifugal pump.
(3) An eductor
(4) Any other device accepted by the Commandant.
(d) There must be a means in the stripping system piping between the device under paragraph (c) of this section and each cargo tank to isolate each tank from the device.
(e) If the stripping system has a positive displacement pump or a self-priming centrifugal pump, the stripping system must have the following:
(1) In the stripping system piping:
(ii) A pressure gauge at the inlet connection to the pump; and
(2) At least one of the following monitoring devices to indicate operation of the pump.
(i) Flow indicator.
§ 157.130 Stroke counter.
(ii) Revolution counter.

(f) If the stripping system has an eductor, the stripping system must have:
(1) A pressure gauge at each driving fluid intake and at each discharge; and
(2) A pressure/vacuum gauge at each suction intake.

(g) The equipment required under paragraphs (e) and (f) of this section must have indicating devices in the cargo control room or another location that is accepted by the Commandant.

§ 157.130 Crude oil washing with more than one grade of crude oil.
If a tank vessel having a COW system under §§157.10(e), 157.10(a)(2), or 157.10(c)(2) carries more than one grade of crude oil, the COW system must be capable of washing the cargo tanks with the grades of crude oil that the vessel carries.

Each tank vessel having a COW system under §157.10(a)(2) or §157.10(c)(2) without sufficient segregated ballast tanks or dedicated clean ballast tanks to allow the vessel to depart from any port in the United States without ballasting cargo tanks must have—
(a) A means to discharge hydrocarbon vapors from each cargo tank that is ballasted to a cargo tank that is discharging crude oil; or
(b) Any other means accepted by the Commandant that prevents hydrocarbon vapor emissions when the cargo tanks are ballasted in port.

§ 157.134 Cargo tank drainage.
Each cargo tank must be designed for longitudinal and transverse drainage of crude oil to allow the tank vessel to pass the inspections under §157.140.

§ 157.136 Two-way voice communications.
Each tank vessel having a COW system under §157.10(e), §157.10(a)(2), or §157.10(c)(2) must have a means that enables two-way voice communications between the main deck watch required under §157.168 and each cargo discharge control station.

(a) Each Crude Oil Washing Operations and Equipment Manual must include the following information:
(2) A line drawing of the tank vessel’s COW system showing the locations of pumps, piping, and COW machines.
(3) A description of the COW system.
(4) The procedure for the inspection of the COW system during COW operations.
(5) Design characteristic information of the COW system that includes the following:
(i) Pressure and flow of the crude oil pumped to the COW machines.
(II) Revolutions, number of cycles, and length of cycles of each COW machine.
(III) Pressure and flow of the stripping suction device.
(iv) Number and location of COW machines operating simultaneously in each cargo tank.
(6) The design oxygen content of the gas or mixture of gases that is supplied by the inert gas system to each cargo tank.
(7) The results of the inspections recorded when passing the inspections under §157.140.
(8) Characteristics of the COW system recorded during the COW operations when passing the inspections under §157.140 that includes the following:
(i) Pressure and flow of the crude oil pumped to the COW machines.
(ii) Revolutions, number of cycles, and length of cycles of each COW machine.
(iii) Pressure and flow of the stripping device.
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(iv) Number and location of COW machines operating simultaneously in each cargo tank.

(9) The oxygen content of the gas or mixture of gases that is supplied by the inert gas system to each cargo tank recorded during COW operations when passing the inspections under § 157.140.

(10) The volume of water used for water rinsing recorded during COW operations when passing the inspections under § 157.140.

(11) The trim conditions of the tank vessel recorded during COW operations when passing the inspections under § 157.140.

(12) The procedure for stripping cargo tanks of crude oil.

(13) The procedure for draining and stripping the pumps and piping of the COW system, cargo system, and stripping system after each crude oil cargo discharge.

(14) The procedure for crude oil washing cargo tanks that includes the following:

(i) The tanks to be crude oil washed to meet § 157.160.

(ii) The order in which those tanks are washed.

(iii) The single-stage or multi-stage method of washing each tank.

(iv) The number of COW machines that operate simultaneously in each tank.

(v) The duration of the crude oil wash and water rinse.

(vi) The volume of water to be used for water rinse in each tank.

(15) The procedures and equipment needed to prevent leakage of crude oil from the COW system.

(16) The procedures and equipment needed if leakage of crude oil from the COW system occurs.

(17) The procedures for testing and inspecting the COW system for leakage of crude oil before operating the system.

(18) The procedures and equipment needed to prevent leakage of crude oil from the steam heater under § 157.122(i) to the engine room.

(19) The number of crew members needed to conduct the following:

(i) The discharge of cargo.

(ii) The crude oil washing of cargo tanks.

(iii) The simultaneous operations in paragraphs (a)(19) (i) and (ii) of this section.

(20) A description of the duties of each crew member under paragraph (a)(19) of this section.

(21) The procedures for ballasting and deballasting cargo tanks.

(22) The step by step procedure for the inspection of the COW system by vessel personnel before COW operations begin that includes the procedure for inspecting and calibrating each instrument. (Operational Checklist)

(23) The intervals for on board inspection and maintenance of the COW equipment. Informational references to technical manuals supplied by the manufacturers may be included in this part of the manual.

(24) A list of crude oils that are not to be used in COW operations.


(b) In addition to meeting paragraph (a) of this section, each Crude Oil Washing Operations and Equipment Manual on a tank vessel having a COW system under § 157.10(a)(2) or § 157.10c(b)(2) must include the following:

(1) The procedure to meet § 157.166.

(2) The procedures to meet § 157.155(b).

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

INSPECTIONS

§ 157.140 Tank vessel inspections.

(a) Before issuing a letter under § 157.142, the Coast Guard makes an initial inspection of each U.S. tank vessel having a COW system under § 157.10(a), § 157.10(a)(2), or § 157.10c(b)(2) and each foreign tank vessel whose owner or operator submitted the plans under § 157.102 to determine whether or not, when entering a port, the cargo tanks that carry crude oil meet the following:

(1) After each tank is crude oil washed but not water rinsed, except the bottom of the tank may be flushed with water and stripped, each tank is essentially free of oil clingage or deposits of oil, or both to a degree acceptable to the Coast Guard inspector.
§ 157.142  Letter of acceptance: Inspections.

If the inspections under §157.140 are passed, the Coast Guard issues to the tank vessel a letter that states that the vessel complies with this subpart.

§ 157.144 Tank vessels of the same class: Inspections.

(a) If more than one tank vessel is constructed from the same plans, the owner or operator may submit a written request to the Commandant (G–MOC), U.S. Coast Guard, Washington, D.C. 20593–0001, for only one of those tank vessels to be inspected under §157.140.

(b) Only one tank vessel of the class is inspected under §157.140, if the Commandant accepts the request submitted under paragraph (a) of this section.

§ 157.146 Similar tank design: Inspections on U.S. tank vessels.

(a) If a U.S. tank vessel has tanks similar in dimensions and internal structure, the owner or operator may submit a written request to the Officer in Charge, Marine Inspection, of the zone in which the COW system is inspected, for only one of those tanks to be inspected under §157.140(a)(1).

(b) Only one tank of a group of tanks similar in dimensions and internal structure is inspected under §157.140(a)(1), if the Officer in Charge, Marine Inspection, accepts the request submitted under paragraph (a) of this section.

§ 157.147 Similar tank design: Inspections on foreign tank vessels.

(a) If a foreign tank vessel has tanks similar in dimensions and internal structure, the owner or operator may submit a written request to the Commandant (G–MOC), U.S. Coast Guard, Washington, D.C. 20593–0001, for only one of those tanks to be inspected under §157.140(a)(1).

(b) Only one tank of a group of tanks similar in dimensions and internal structure is inspected under §157.140(a)(1), if the Commandant accepts the request submitted under paragraph (a) of this section.


(a) Before the inspections under §157.140 are conducted by the Coast Guard, the owner or operator of a foreign tank vessel that is to be inspected must submit to the Coast Guard inspector evidence that the COW system has been installed in accordance with the plans accepted under §157.106.

(b) Before the inspections under §157.140 are conducted by the Coast Guard, the owner or operator of a tank vessel that is to be inspected must submit to the Coast Guard inspector evidence that the COW piping system has passed a test of 1 1/2 times the design working pressure.


After passing the inspections under §157.140, the owner, operator, and master shall ensure that the following are
§ 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.


§ 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.


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; and

(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
§ 157.156  COW operations: Meeting manual requirements.

Except as allowed in §157.158, the master of a foreign tank vessel having a COW system under §§157.10(e), 157.10a(a)(2), or 157.10c(b)(2) that has the Crude Oil Washing Operations and Equipment Manual approved under §157.112 and is operating in the navigable waters of the United States or transferring cargo at a port or place subject to the jurisdiction of the United States and the master of a U.S. tank vessel having a COW system under §157.10(e), §157.10a(a)(2), or §157.10c(b)(2) shall ensure that during each COW operation—

(a) The procedures listed in the Crude Oil Washing Operations and Equipment Manual are followed; and

(b) The characteristics recorded in the Crude Oil Washing Operations and Equipment Manual under §157.150(b) are met.


§ 157.158  COW operations: Changed characteristics.

The COW system may be operated with characteristics that do not meet those recorded under §157.150(b) only if:

(a) The tank vessel passes the inspections under §157.140 using the changed characteristics;

(b) The changed characteristics used to pass the inspections under §157.140 are recorded in the Crude Oil Washing Operations and Equipment Manual approved under §157.112; and

(c) The Coast Guard issues to the tank vessel an amending letter stating that the tank vessel complies with this subpart with these characteristics.
§ 157.160 Tanks: Ballasting and crude oil washing.

(a) The owner, operator, and master of a tank vessel under §157.10(e) shall ensure that:

(1) Ballast water is carried in a cargo tank only as allowed under §157.35;

(2) For sludge control, at least 25 percent of the cargo tanks are crude oil washed before each ballast voyage and that each cargo tank is crude oil washed at least once every fourth time crude oil is discharged from the tank, but no tank need be crude oil washed more than once during each 120 day period;

(3) Ballast water in a cargo tank that is crude oil washed but not water rinsed during or after the most recent discharge of crude oil from that tank is discharged in accordance with §157.37(a); and

(4) Cargo tanks are not crude oil washed during a ballast voyage.

(b) 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—

(1) Ballast water is carried only in a cargo tank that is crude oil washed during or after the most recent discharge of crude oil from that tank;

(2) Before each ballast voyage a sufficient number of cargo tanks have been crude oil washed during or after the most recent discharge of crude oil from those tanks to allow ballast water to be carried in cargo tanks:

(i) With a total capacity to meet the draft and trim requirements in §157.10a(d); and

(ii) For the vessel’s trading pattern and expected weather conditions;

(3) For sludge control, at least 25 percent of the cargo tanks not used for carrying ballast water under paragraph (b)(2)(i) of this section are crude oil washed before each ballast voyage, and that each cargo tank is crude oil washed at least once every fourth time crude oil is discharged from the tank, but no tank need be crude oil washed more than once during each 120 day period;

(4) Cargo tanks are not crude oil washed during a ballast voyage; and

(5) Ballast water in a cargo tank that is crude oil washed but not water rinsed during or after the most recent discharge of crude oil from that tank is discharged in accordance with §157.37(a).


§ 157.162 Crude oil washing during a voyage.

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 each cargo tank that is crude oil washed during a voyage other than a ballast voyage—

(a) Remains empty so that the tank may be inspected upon arrival at the next discharge port; and

(b) If it is to be used as a ballast tank when leaving the discharge port, is ballasted before the vessel departs from that discharge port so that the tank may be inspected under §157.140(a)(2).


§ 157.164 Use of inert gas system.

(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 the following:

(1) Before each cargo tank is crude oil washed, the oxygen content in the tank is measured at each of the following locations in the tank:

(i) One meter from the deck.

(ii) In the center of the ullage space.

(2) Before each cargo tank with partial bulkheads is crude oil washed, each area of that tank formed by each partial bulkhead is measured in accordance with paragraph (a)(1) of this section.

(3) Before each cargo tank is crude oil washed, the oxygen content in that tank is 8 percent or less by volume at the locations under paragraph (a)(1) of this section.

(4) During COW operations, the following are maintained in each cargo tank being crude oil washed:

(i) A gas or a mixture of gases with an oxygen content of 8 percent or less by volume.

(ii) A positive atmospheric pressure.

(5) During COW operations, a crew member monitors the instrumentation
§ 157.166 Hydrocarbon emissions.

If the tank vessel having a COW system under §157.10a(a)(2) or §157.10c(b)(2) transfers cargo at a port in the United States that is in an area designated in 40 CFR Part 50, issued under the Clean Air Act, as amended (42 U.S.C. 1857), the master of the vessel shall ensure that when cargo tanks are ballasted in that port the hydrocarbon vapors in each tank are contained by a means under §157.132.

Note: Questions relating to whether or not a particular port is located in an area designated in 40 CFR Part 50 should be directed to the Plans Analysis Section of the Environmental Protection Agency at (919) 541–5665.

§ 157.168 Crew member: Main deck watch.

During COW operations, the master shall ensure that at least one member of the crew with a designated responsibility for monitoring COW operations is on the main deck at all times.

§ 157.170 COW equipment: Removal.

(a) Whenever a deck mounted COW machine is removed from the tank, the master shall ensure that:

(1) The supply piping to that machine is blanked off; and

(2) The tank opening is sealed by a secured plate made of steel or an equivalent material accepted by the Commandant.

(b) If the equipment for the COW system is removed from a cargo tank for the carriage of cargoes other than crude oil and then reinstalled, the master shall ensure that, before COW operations are conducted, the system has no crude oil leakage.

§ 157.172 Limitations on grades of crude oil carried.

If a tank vessel having a COW system meeting §157.10a(a)(2) or §157.10c(b)(2) does not have segregated ballast tanks or dedicated clean ballast tanks that meet §157.10c(c)(2), the owner, operator, and master shall ensure that the vessel carries only the grades of crude oil that can be used for crude oil washing.

Subpart E—Dedicated Clean Ballast Tanks on Tank Vessels

SOURCE: CGD 77–058b, 45 FR 43714, June 30, 1980, unless otherwise noted.

GENERAL


(a) Before modifications are made to a U.S. vessel to meet §157.10a(b), §157.10a(c)(2), §157.10a(c)(2), §157.10c(b)(2), or §157.10c(c)(2), the owner or operator must submit to the Coast Guard plans or documents that include the following:

(1) The dedicated clean ballast tank arrangement.

(2) Documentation, calculations, or revised stability information to show that the vessel, with the addition of the dedicated clean ballast tanks, meets the stability standards for load line assignment in 46 CFR Part 42.

(3) Documentation, calculations, or a loading manual to show that the vessel, with the addition of the dedicated clean ballast tanks, meets the structural standards in 46 CFR Part 32.

(4) A drawing or diagram of the pumping and piping system for the dedicated clean ballast tanks.

(b) Plans under paragraph (a) of this section must be submitted to the Officer in Charge, Marine Inspection, of the zone in which the dedicated clean ballast tank system is installed or to