PART 159—MARINE SANITATION DEVICES

Subpart A—General

Subpart B—Certification Procedures

Subpart C—Design, Construction, and Testing

Subpart D—Recognition of Facilities

AUTHORITY: Sec. 312(b)(1), 86 Stat. 871 (33 U.S.C. 1322(b)(1)); 49 CFR 1.45(b) and 1.46(l) and (m).

SOURCE: CGD 73–83, 40 FR 4624, Jan. 30, 1975, unless otherwise noted.

Subpart A—General

§ 159.1 Purpose.

This part prescribes regulations governing the design and construction of marine sanitation devices and procedures for certifying that marine sanitation devices meet the regulations and the standards of the Environmental Protection Agency promulgated under section 312 of the Federal Water Pollution Control Act (33 U.S.C. 1322), to eliminate the discharge of untreated sewage from vessels into the waters of the United States, including the territorial seas. Subpart A of this part contains regulations governing the manufacture and operation of vessels equipped with marine sanitation devices.

§ 159.3 Definitions.

In this part:

Coast Guard means the Commandant or his authorized representative.

Discharge includes, but is not limited to, any spilling, leaking, pouring, pumping, emitting, emptying, or dumping.

Existing vessel includes any vessel, the construction of which was initiated before January 30, 1975.

Fecal coliform bacteria are those organisms associated with the intestine of warm-blooded animals that are commonly used to indicate the presence of fecal material and the potential presence of organisms capable of causing human disease.

Inspected vessel means any vessel that is required to be inspected under 46 CFR Ch. I.

Length means a straight line measurement of the overall length from the

foremost part of the vessel to the aftermost part of the vessel, measured parallel to the centerline. Bow sprits, bumpkins, rudders, outboard motor brackets, and similar fittings or attachments are not to be included in the measurement.

Manufacturer means any person engaged in manufacturing, assembling, or importing of marine sanitation devices or of vessels subject to the standards and regulations promulgated under section 312 of the Federal Water Pollution Control Act.

Marine sanitation device and *device* includes any equipment for installation on board a vessel which is designed to receive, retain, treat, or discharge sewage, and any process to treat such sewage.

New vessel includes any vessel, the construction of which is initiated on or after January 30, 1975.

Person means an individual, partnership, firm, corporation, or association, but does not include an individual on board a public vessel.

Public vessel means a vessel owned or bare-boat chartered and operated by the United States, by a State or political subdivision thereof, or by a foreign nation, except when such vessel is engaged in commerce.

Recognized facility means any laboratory or facility listed by the Coast Guard as a recognized facility under this part.

Sewage means human body wastes and the wastes from toilets and other receptacles intended to receive or retain body waste.

Territorial seas means the belt of the seas measured from the line of ordinary low water along that portion of the coast which is in direct contact with the open sea and the line marking the seaward limit of inland waters, and extending seaward a distance of 3 miles.

Type I marine sanitation device means a device that, under the test conditions described in §§159.123 and 159.125, produces an effluent having a fecal coliform bacteria count not greater than 1,000 per 100 milliliters and no visible floating solids.

Type II marine sanitation device means a device that, under the test conditions described in §§159.126 and 159.126a, produces an effluent having a fecal coliform bacteria count not greater than 200 per 100 milliliters and suspended solids not greater than 150 milligrams per liter.

Type III marine sanitation device means a device that is designed to prevent the overboard discharge of treated or untreated sewage or any waste derived from sewage.

Uninspected vessel means any vessel that is not required to be inspected under 46 CFR Chapter I.

United States includes the States, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, the Canal Zone, and the Trust Territory of the Pacific Islands.

Vessel includes every description of watercraft or other artificial contrivance used, or capable of being used, as a means of transportation on the waters of the United States.

[CGD 96–026, 61 FR 33668, June 28, 1996, as amended by CGD 95–028, 62 FR 51194, Sept. 30, 1997]

§ 159.4 Incorporation by reference.

(a) Certain material is incorporated by reference into this part with the approval of the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51. To enforce any edition other than that specified in paragraph (b) of this section, the Coast Guard must publish notice of change in the FEDERAL REGISTER; and the material must be available to the public. All approved material is available for inspection at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC, and at the Engineering Division, U.S. Coast Guard Marine Safety Center, 400 Seventh Street, SW., Washington, DC 20590, and is available from the sources indicated in paragraph (b) of this section.

(b) The material approved for incorporation by reference in this part, and the sections affected, are as follows:

American Society for Testing and Materials (ASTM)

100 Barr Harbor Drive, West Conshohocken, PA 19428–2959.

ASTM E 11–95, Standard Specification for Wire Cloth and Sieves for Testing Purposes—159.125

[USCG–1999–5151, 64 FR 67176, Dec. 1, 1999, as amended by USCG–2001–9286, 66 FR 33641, June 25, 2001]

§ 159.5 Requirements for vessel manufacturers.

No manufacturer may manufacture for sale, sell, offer for sale, or distribute for sale or resale any vessel equipped with installed toilet facilities unless it is equipped with:

(a) An operable Type II or III device that has a label on it under §159.16 or that is certified under §159.12 or §159.12a; or

(b) An operable Type I device that has a label on it under §159.16 or that is certified under §159.12, if the vessel is 19.7 meters (65 feet) or less in length.

[CGD 95–028, 62 FR 51194, Sept. 30, 1997]

§ 159.7 Requirements for vessel operators.

(a) No person may operate any vessel equipped with installed toilet facilities unless it is equipped with:

(1) An operable Type II or III device that has a label on it under §159.16 or that is certified under §159.12 or §159.12a; or

(2) An operable Type I device that has a label on it under §159.16 or that is certified under §159.12, if the vessel is 19.7 meters (65 feet) or less in length.

(b) When operating a vessel on a body of water where the discharge of treated or untreated sewage is prohibited by the Environmental Protection Agency under 40 CFR 140.3 or 140.4, the operator must secure each Type I or Type II device in a manner which prevents discharge of treated or untreated sewage. Acceptable methods of securing the device include—

(1) Closing the seacock and removing the handle;

(2) Padlocking the seacock in the closed position;

(3) Using a non-releasable wire-tie to hold the seacock in the closed position; or

(4) Locking the door to the space enclosing the toilets with a padlock or door handle key lock.

(c) When operating a vessel on a body of water where the discharge of untreated sewage is prohibited by the Environmental Protection Agency under 40 CFR 140.3, the operator must secure each Type III device in a manner which prevents discharge of sewage. Acceptable methods of securing the device include—

(1) Closing each valve leading to an overboard discharge and removing the handle;

(2) Padlocking each valve leading to an overboard discharge in the closed position; or

(3) Using a non-releasable wire-tie to hold each valve leading to an overboard discharge in the closed position.

[CGH 95–028, 62 FR 51194, Sept. 30, 1997]

Subpart B—Certification Procedures

§ 159.11 Purpose.

This subpart prescribes procedures for certification of marine sanitation devices and authorization for labels on certified devices.

§ 159.12 Regulations for certification of existing devices.

(a) The purpose of this section is to provide regulations for certification of existing devices until manufacturers can design and manufacture devices that comply with this part and recognized facilities are prepared to perform the testing required by this part.

(b) Any Type III device that was installed on an existing vessel before January 30, 1975, is considered certified.

(c) Any person may apply to the Commanding Officer, USCG Marine Safety Center, 400 Seventh Street, SW., Washington, DC 20590 for certification of a marine sanitation device manufactured before January 30, 1976. The Coast Guard will issue a letter certifying the device if the applicant shows that the device meets §159.53 by:

(1) Evidence that the device meets State standards at least equal to the standards in §159.53, or

(2) Test conducted under this part by a recognized laboratory, or

(3) Evidence that the device is substantially equivalent to a device certified under this section, or

(4) A Coast Guard field test if considered necessary by the Coast Guard.

(d) The Coast Guard will maintain and make available a list that identifies each device certified under this section.

(e) Devices certified under this section in compliance with §159.53 need not meet the other regulations in this part and may not be labeled under §159.16.

[CGD 73–83, 40 FR 4624, Jan. 30, 1975, as amended by CGD 75–213, 41 FR 15325, Apr. 12, 1976; CGD 82–063a, 48 FR 4776, Feb. 3, 1983; CGD 88–052, 53 FR 25122, July 1, 1988; CGD 96–026, 61 FR 33668, June 28, 1996; USCG–2001–9286, 66 FR 33641, June 25, 2001]

§159.12a Certification of certain Type III devices.

(a) The purpose of this section is to provide regulations for certification of certain Type III devices.

(b) Any Type III device is considered certified under this section if:

(1) It is used solely for the storage of sewage and flushwater at ambient air pressure and temperature; and

(2) It is in compliance with §159.53(c).

(c) Any device certified under this section need not comply with the other regulations in this part except as required in paragraphs (b)(2) and (d) of this section and may not be labeled under §159.16.

(d) Each device certified under this section which is installed aboard an inspected vessel must comply with §159.97.

[CGD 76–145, 42 FR 11, Jan. 3, 1977]

§159.14 Application for certification.

(a) Any manufacturer may apply to any recognized facility for certification of a marine sanitation device. The application for certification must indicate whether the device will be used aboard all vessels or only aboard uninspected vessels and to which standard in §159.53 the manufacturer requests the device to be tested.

(b) An application may be in any format but must be in writing and must be signed by an authorized representative of the manufacturer and include or be accompanied by:

(1) A complete description of the manufacturer's production quality control and inspection methods, record keeping systems pertaining to the manufacture of marine sanitation devices, and testing procedures;

(2) The design for the device, including drawings, specifications and other information that describes the materials, construction and operation of the device;

(3) The installation, operation, and maintenance instructions for the device; and

(4) The name and address of the applicant and the manufacturing facility.

(c) The manufacturer must furnish the recognized facility one device of each model for which certification is requested and samples of each material from which the device is constructed, that must be tested destructively under §159.117. The device furnished is for the testing required by this part except that, for devices that are not suited for unit testing, the manufacturer may submit the design so that the recognized facility may determine the components of the device and materials to be submitted for testing and the tests to be performed at a place other than the facility. The Coast Guard must review and accept all such determinations before testing is begun.

(d) At the time of submittal of an application to a recognized facility the manufacturer must notify the Coast Guard of the type and model of the device, the name of the recognized facility to which application is being made, and the name and address of the manufacturer, and submit a signed statement of the times when the manufacturer will permit designated officers and employees of the Coast Guard to have access to the manufacturer's facilities and all records required by this part.

[CGD 73–83, 40 FR 4624, Jan. 30, 1975, as amended by CGD 75–213, 41 FR 15325, Apr. 12, 1976]

§159.15 Certification.

(a) The recognized facility must evaluate the information that is submitted by the manufacturer in accordance with §159.14(b) (1), (2), and (3), evaluate the device for compliance with §§159.53 through 159.95, test the device in accordance with §159.101 and submit to the Commanding Officer,

USCG Marine Safety Center, 400 Seventh Street, SW., Washington, DC 20590 the following:

(1) The information that is required under §159.14(b);

(2) A report on compliance evaluation;

(3) A description of each test;

(4) Test results; and

(5) A statement, that is signed by the person in charge of testing, that the test results are accurate and complete.

(b) The Coast Guard certifies a test device, on the design of the device, if it determines, after consideration of the information that is required under paragraph (a) of this section, that the device meets the requirements in Subpart C of this part.

(c) The Coast Guard notifies the manufacturer and recognized facility of its determination under paragraph (b) of this section. If the device is certified, the Coast Guard includes a certification number for the device. If certification is denied, the Coast Guard notifies the manufacturer and recognized facility of the requirements of this part that are not met. The manufacturer may appeal a denial to the Commanding Officer, USCG Marine Safety Center, 400 Seventh Street, SW., Washington, DC 20590.

(d) If upon re-examination of the test device, the Coast Guard determines that the device does not in fact comply with the requirements of Subpart C of this part, it may terminate the certification.

[CGD 73–83, 40 FR 4624, Jan. 30, 1975, as amended by CGD 75–213, 41 FR 15326, Apr. 12, 1976; CGD 82–063a, 48 FR 4776, Feb. 3, 1983; CGD 88–052, 53 FR 25122, July 1, 1988; CGD 96–026, 61 FR 33668, June 28, 1996; USCG–2001–9286, 66 FR 33641, June 25, 2001]

§159.16 Authorization to label devices.

(a) When a test device is certified under §159.15(b), the Coast Guard will issue a letter that authorizes the manufacturer to label each device that he manufactures with the manufacturer's certification that the device is in all material respects substantially the same as a test device certified by the U.S. Coast Guard pursuant to section 312 of the Federal Water Pollution Control Act Amendments of 1972.

(b) Certification placed on a device by its manufacturer under this section is the certification required by section 312(h)(4) of the Federal Water Pollution Control Act Amendments of 1972, which makes it unlawful for a vessel that is subject to the standards and regulations promulgated under the Act to operate on the navigable waters of the United States, if such vessel is not equipped with an operable marine sanitation device certified pursuant to section 312 of the Act.

(c) Letters of authorization issued under this section are valid for 5 years, unless sooner suspended, withdrawn, or terminated and may be reissued upon written request of the manufacturer to whom the letter was issued.

(d) The Coast Guard, in accordance with the procedure in 46 CFR 2.75, may suspend, withdraw, or terminate any letter of authorization issued under this section if the Coast Guard finds that the manufacturer is engaged in the manufacture of devices labeled under this part that are not in all material respects substantially the same as a test device certified pursuant to this part.

§159.17 Changes to certified devices.

(a) The manufacturer of a device that is certified under this part shall notify the Commanding Officer, USCG Marine Safety Center, 400 Seventh Street, SW., Washington, DC 20590 in writing of any change in the design of the device.

(b) A manufacturer shall include with a notice under paragraph (a) of this section a description of the change, its advantages, and the recommendation of the recognized facility as to whether the device remains in all material respects substantially the same as the original test device.

(c) After notice under paragraph (a) of this section, the Coast Guard notifies the manufacturer and the recognized facility in writing of any tests that must be made for certification of the device or for any change in the letter of authorization. The manufacturer may appeal this determination to the Commandant (G–MSE), U.S. Coast Guard, Washington, D.C. 20593–0001.

[CGD 73–83, 40 FR 4624, Jan. 30, 1975, as amended by CGD 82–063a, 48 FR 4776, Feb. 3, 1983; CGD 88–052, 53 FR 25122, July 1, 1988; CGD 96–026, 61 FR 33668, June 28, 1996; USCG–2001–9286, 66 FR 33641, June 25, 2001]

§ 159.19 Testing equivalency.

(a) If a test required by this part may not be practicable or necessary, a manufacturer may apply to the Commanding Officer, USCG Marine Safety Center, 400 Seventh Street, SW., Washington, DC 20590 for deletion or approval of an alternative test as equivalent to the test requirements in this part. The application must include the manufacturer's justification for deletion or the alternative test and any alternative test data.

(b) The Coast Guard notifies the manufacturer of its determination under paragraph (a) of this section and that determination is final.

[CGD 73–83, 40 FR 4624, Jan. 30, 1975, as amended by CGD 82–063a, 48 FR 4776, Feb. 3, 1983; CGD 88–052, 53 FR 25122, July 1, 1988; CGD 96–026, 61 FR 33668, June 28, 1996; USCG–2001–9286, 66 FR 33641, June 25, 2001]

Subpart C—Design, Construction, and Testing

§ 159.51 Purpose and scope.

(a) This subpart prescribes regulations governing the design and construction of marine sanitation devices.

(b) Unless otherwise authorized by the Coast Guard each device for which certification under this part is requested must meet the requirements of this subpart.

§ 159.53 General requirements.

A device must:

(a) Under the test conditions described in §§ 159.123 and 159.125, produce an effluent having a fecal coliform bacteria count not greater than 1,000 per 100 milliliters and no visible floating solids (Type I),

(b) Under the test conditions described in §§ 159.126 and 159.126a, produce an effluent having a fecal coliform bacteria count not greater than 200 per 100 milliliters and suspended solids not greater than 150 milligrams per liter (Type II), or

(c) Be designed to prevent the overboard discharge of treated or untreated sewage or any waste derived from sewage (Type III).

[CGD 73–83, 40 FR 4624, Jan. 30, 1975, as amended by CGD 75–213, 41 FR 15325, Apr. 12, 1976]

§ 159.55 Identification.

(a) Each production device must be legibly marked in accordance with paragraph (b) of this section with the following information:

(1) The name of the manufacturer.

(2) The name and model number of the device.

(3) The month and year of completion of manufacture.

(4) Serial number.

(5) Whether the device is certified for use on an inspected or an uninspected vessel.

(6) Whether the device is Type I, II, or III.

(b) The information required by paragraph (a) of this section must appear on a nameplate attached to the device or in lettering on the device. The nameplate or lettering stamped on the device must be capable of withstanding without loss of legibility the combined effects of normal wear and tear and exposure to water, salt spray, direct sunlight, heat, cold, and any substance listed in § 159.117(b) and (c). The nameplate and lettering must be designed to resist efforts to remove them from the device or efforts to alter the information stamped on the nameplate or the device without leaving some obvious evidence of the attempted removal or alteration.

[CGD 73–83, 40 FR 4624, Jan. 30, 1975, as amended by CGD 75–213, 41 FR 15325, Apr. 12, 1976]

§ 159.57 Installation, operation, and maintenance instructions.

(a) The instructions supplied by the manufacturer must contain directions for each of the following:

(1) Installation of the device in a manner that will permit ready access to all parts of the device requiring routine service and that will provide any flue clearance necessary for fire safety.

(2) Safe operation and servicing of the device so that any discharge meets the applicable requirements of § 159.53.

(3) Cleaning, winter layup, and ash or sludge removal.

(4) Installation of a vent or flue pipe.

(5) The type and quantity of chemicals that are required to operate the device, including instructions on the proper handling, storage and use of these chemicals.

(6) Recommended methods of making required plumbing and electrical connections including fuel connections and supply circuit overcurrent protection.

(b) The instructions supplied by the manufacturer must include the following information:

(1) The name of the manufacturer.

(2) The name and model number of the device.

(3) Whether the device is certified for use on an inspected, or uninspected vessel.

(4) A complete parts list.

(5) A schematic diagram showing the relative location of each part.

(6) A wiring diagram.

(7) A description of the service that may be performed by the user without coming into contact with sewage or chemicals.

(8) Average and peak capacity of the device for the flow rate, volume, or number of persons that the device is capable of serving and the period of time the device is rated to operate at peak capacity.

(9) The power requirements, including voltage and current.

(10) The type and quantity of fuel required.

(11) The duration of the operating cycle for unitized incinerating devices.

(12) The maximum angles of pitch and roll at which the device operates in accordance with the applicable requirements of §159.53.

(13) Whether the device is designed to operate in salt, fresh, or brackish water.

(14) The maximum hydrostatic pressure at which a pressurized sewage retention tank meets the requirements of §159.111.

(15) The maximum operating level of liquid retention components.

(16) Whether the device is Type I, II, or III.

(17) A statement as follows:

NOTE: The EPA standards state that in freshwater lakes, freshwater reservoirs or other freshwater impoundments whose inlets or outlets are such as to prevent the ingress or egress by vessel traffic subject to this regulation, or in rivers not capable of navigation by interstate vessel traffic subject to this regulation, marine sanitation devices certified by the U.S. Coast Guard installed on all vessels shall be designed and operated to prevent the overboard discharge of sewage, treated or untreated, or of any waste derived from sewage. The EPA standards further state that this shall not be construed to prohibit the carriage of Coast Guard-certified flow-through treatment devices which have been secured so as to prevent such discharges. They also state that waters where a Coast Guard-certified marine sanitation device permitting discharge is allowed include coastal waters and estuaries, the Great Lakes and interconnected waterways, freshwater lakes and impoundments accessible through locks, and other flowing waters that are navigable interstate by vessels subject to this regulation (40 CFR 140.3).

[CGD 73–83, 40 FR 4624, Jan. 30, 1975, as amended by CGD 75–213, 41 FR 15325, Apr. 12, 1976]

§159.59 Placard.

Each device must have a placard suitable for posting on which is printed the operating instructions, safety precautions, and warnings pertinent to the device. The size of the letters printed on the placard must be one-eighth of an inch or larger.

§159.61 Vents.

Vents must be designed and constructed to minimize clogging by either the contents of the tank or climatic conditions such as snow or ice.

§159.63 Access to parts.

Each part of the device that is required by the manufacturer's instructions to be serviced routinely must be readily accessible in the installed position of the device recommended by the manufacturer.

§159.65 Chemical level indicator.

The device must be equipped with one of the following:

(a) A means of indicating the amount in the device of any chemical that is necessary for its effective operation.

(b) A means of indicating when chemicals must be added for the proper continued operation of the device.

§159.67 Electrical component ratings.

Electrical components must have current and voltage ratings equal to or greater than the maximum load they may carry.

§159.69 Motor ratings.

Motors must be rated to operate at 50 °C ambient temperature.

§ 159.71 Electrical controls and conductors.

Electrical controls and conductors must be installed in accordance with good marine practice. Wire must be copper and must be stranded. Electrical controls and conductors must be protected from exposure to chemicals and sewage.

§ 159.73 Conductors.

Current carrying conductors must be electrically insulated from non-current carrying metal parts.

§ 159.75 Overcurrent protection.

Overcurrent protection must be provided within the unit to protect subcomponents of the device if the manufacturer's recommended supply circuit overcurrent protection is not adequate for these subcomponents.

§ 159.79 Terminals.

Terminals must be solderless lugs with ring type or captive spade ends, must have provisions for being locked against movement from vibration, and must be marked for identification on the wiring diagram required in §159.57. Terminal blocks must be nonabsorbent and securely mounted. Terminal blocks must be provided with barrier insulation that prevents contact between adjacent terminals or metal surfaces.

§ 159.81 Baffles.

Baffles in sewage retention tanks, if any, must have openings to allow liquid and vapor to flow freely across the top and bottom of the tank.

§ 159.83 Level indicator.

Each sewage retention device must have a means of indicating when the device is more than ¾ full by volume.

§ 159.85 Sewage removal.

The device must be designed for efficient removal of nearly all of the liquid and solids in the sewage retention tank.

§ 159.87 Removal fittings.

If sewage removal fittings or adapters are provided with the device, they must be of either 1½″ or 4″ nominal pipe size.

§ 159.89 Power interruption: Type I and II devices.

A discharge device must be designed so that a momentary loss of power during operation of the device does not allow a discharge that does not meet the requirements in §159.53.

[CGD 73–83, 40 FR 4624, Jan. 30, 1975, as amended by CGD 75–213, 41 FR 15326, Apr. 12, 1976]

§ 159.93 Independent supporting.

The device must have provisions for supporting that are independent from connecting pipes.

§ 159.95 Safety.

(a) Each device must—

(1) Be free of design defects such as rough or sharp edges that may cause bodily injuries or that would allow toxic substances to escape to the interior of the vessel;

(2) Be vented or provided with a means to prevent an explosion or over pressurization as a result of an accumulation of gases; and

(3) Meet all other safety requirements of the regulations applicable to the type of vessel for which it is certified.

(b) A chemical that is specified or provided by the manufacturer for use in the operation of a device and is defined as a hazardous material in 46 CFR Part 146 must be certified by the procedures in 46 CFR Part 147.

(c) Current carrying components must be protected from accidental contact by personnel operating or routinely servicing the device. All current carrying components must as a minimum be of drip-proof construction or be enclosed within a drip-proof compartment.

§ 159.97 Safety: inspected vessels.

The Commanding Officer, USCG Marine Safety Center, approves the design and construction of devices to be certified for installation and operation on board inspected vessels on the basis of tests and reports of inspection under the applicable marine engineering requirements in Subchapter F of Title 46, Code of Federal Regulations, and under the applicable electrical engineering

requirements in Subchapter J of Title 46 Code of Federal Regulations.

[CGD 73–83, 40 FR 4624, Jan. 30, 1975, as amended by CGD 75–213, 41 FR 15326, Apr. 12, 1976; USCG–2001–9286, 66 FR 33641, June 25, 2001]

§ 159.101 Testing: general.

Unless otherwise authorized by the Coast Guard, a recognized facility must perform each test described in §§ 159.103 through 159.131. The same device must be used for each test and tested in the order in which the tests are described. There must be no cracking, softening, deterioration, displacement, breakage, leakage or damage of components or materials that affects the operation or safety of the device after each test described in §§ 159.103 through 159.117 and § 159.121, and the device must remain operable after the test described in § 159.119. The device must be set up in a manner simulating installation on a vessel in accordance with the manufacturer's instructions with respect to mounting, water supply, and discharge fittings.

[CGD 73–83, 40 FR 4624, Jan. 30, 1975, as amended by CGD 75–213, 41 FR 15326, Apr. 12, 1976]

§ 159.103 Vibration test.

The device, with liquid retention components, if any, filled with water to one-half of their volume, must be subjected to a sinusoidal vibration for a period of 12 hours, 4 hours in each of the x, y, and z planes, at the resonant frequency of the device (or at 55 cycles per second if there is no resonant frequency between 10 to 60 hertz) and with a peak amplitude of 0.019 to 0.021 inches.

§ 159.105 Shock test.

The device, with liquid retention components, if any, filled with water to half of their volume, must be subjected to 1,000 vertical shocks that are ten times the force of gravity (10g) and have a duration of 20–25 milliseconds measured at the base of the half-sine shock envelope.

§ 159.107 Rolling test.

(a) The device, with liquid retention components, if any, filled with water to half of their volume, must be subjected to 100 cycles with the axis of rotation 4 feet from the centerline of the device, no more than 6 inches below the plane of the bottom of the device, and parallel to any tank baffles. The device must then be rotated 90 degrees on its vertical axis and subjected to another 100 cycles. This testing must be repeated with the liquid retention components filled to the maximum operating level as specified by the manufacturer in § 159.57.

(b) Eighty percent of the rolling action must be approximately 15 degrees on either side of the vertical and at a cyclic rate of 3 to 4 seconds. Twenty percent motions must be approximately 30 degrees, or the maximum angle specified by the manufacturer under § 159.57, whichever is greater, on either side of the vertical at a cyclic rate of 6 to 8 seconds.

§ 159.109 Pressure test.

Any sewage retention tank that is designed to operate under pressure must be pressurized hydrostatically at a pressure head of 7 feet or to 150 percent of the maximum pressure specified by the manufacturer for operation of the tank, whichever is greater. The tank must hold the water at this pressure for 1 hour with no evidence of leaking.

§ 159.111 Pressure and vacuum pulse test.

Liquid retention components of the device with manufacturer specified venting installed must be subjected to 50 fillings of water at a pressure head of 7 feet or the maximum pressure specified by the manufacturer for operation of the device, whichever is greater, and then emptied with a 45 gallon per minute or larger positive displacement pump that remains in operation 30 seconds after emptying the tank at the end of each cycle.

§ 159.115 Temperature range test.

(a) The device must be held at a temperature of 60 °C or higher for a period of 16 hours.

(b) The device must be held at a temperature of −40 °C or less for a period of 16 hours following winterization in

accordance with manufacturers' instructions.

§ 159.117 Chemical resistance test.

(a) In each case where the recognized facility doubts the ability of a material to withstand exposure to the substances listed in paragraphs (b) and (c) of this section a sample of the material must be tested.

(b) A sample referred to in paragraph (a) of this section must be partially submerged in each of the following substances for 100 hours at an ambient temperature of 22 °C.

(1) Sewage.

(2) Any disinfectant that is required in the operation of the device.

(3) Any chemical compound in solid, liquid or gaseous form, used, emitted or produced in the operation of the device.

(4) Fresh or salt (3.5 percent Sodium Chloride) flush water.

(5) Toilet bowl cleaners.

(6) Engine Oil (SAE/30).

(7) Ethylene Glycol.

(8) Detergents (household and bilge cleaning type).

(c) A sample of the material must be doused 20 times, with a 1 hour drying period between dousings, in each of the following substances:

(1) Gasoline.

(2) Diesel fuel.

(3) Mineral spirits.

(4) Turpentine.

(5) Methyl alcohol.

§ 159.119 Operability test; temperature range.

The device must operate in an ambient temperature of 5 °C with inlet operating fluid temperature varying from 2 °C to 32 °C and in an ambient temperature of 50 °C with inlet operating fluid temperature varying from 2 °C to 32 °C.

§ 159.121 Sewage processing test.

(a) The device must process human sewage in the manner for which it is designed when tested in accordance with this section. There must be no sewage or sewage-treating chemicals remaining on surfaces or in crevices that could come in contact with a person using the device or servicing the device in accordance with the instructions supplied under § 159.57(b)(7).

(b) During the test the device must be operated and maintained in accordance with the manufacturer's instructions. Any initial start-up time specified by the manufacturer must be allowed before test periods begin. For 1 hour of each 8-hour test period, the device must be tilted to the maximum angles specified by the manufacturer under §§ 159.55 and 159.57.

(c) Except for devices described in paragraph (d) of this section, the devices must process and discharge or store human sewage over at least an 8-consecutive hour period on at least 10 days within a 20-day period. The device must receive human sewage consisting of fecal matter, urine, and toilet paper in a ratio of four urinations to one defecation with at least one defecation per person per day. Devices must be tested at their average rate of capacity as specified in § 159.57. In addition, during three periods of each day the system must process sewage at the peak capacity for the period of time it is rated at peak capacity.

(d) A device that processes and discharges continuously between individual use periods or a large device, as determined by the Coast Guard, must process and discharge sewage over at least 10-consecutive days at the average daily capacity specified by the manufacturer. During three periods of each day the system must process sewage at the peak capacity for the period of time it is rated at peak capacity. The sewage for this test must be fresh, domestic sewage to which primary sludge has been added, as necessary, to create a test sewage with a minimum of 500 miligrams of suspended solids per liter.

§ 159.123 Coliform test: Type I devices.

(a) The arithmetic mean of the fecal coliform bacteria in 38 of 40 samples of effluent discharged from a Type I device during the test described in § 159.121 must be less than 1000 per 100 milliliters when tested in accordance with 40 CFR Part 136.

(b) The 40 samples must be taken from the device as follows: During each of the 10-test days, one sample must be taken at the beginning, middle, and end of an 8-consecutive hour period

with one additional sample taken immediately following the peak capacity processing period.

[CGD 73–83, 40 FR 4624, Jan. 30, 1975, as amended by CGD 75–213, 41 FR 15326, Apr. 12, 1976]

§ 159.125 Visible floating solids: Type I devices.

During the sewage processing test (§159.121) 40 effluent samples of approximately 1 liter each shall be taken from a Type I device at the same time as samples taken in §159.123 and passed expeditiously through a U.S. Sieve No. 12 as specified in ASTM E 11 (incorporated by reference, see §159.4). The weight of the material retained on the screen after it has been dried to a constant weight in an oven at 103 °C. must be divided by the volume of the sample and expressed as milligrams per liter. This value must be 10 percent or less of the total suspended solids as determined in accordance with 40 CFR Part 136 or at least 38 of the 40 samples.

NOTE: 33 U.S.C. 1321(b)(3) prohibits discharge of harmful quantities of oil into or upon the navigable waters of the United States or adjoining shorelines or into or upon the waters of the contiguous zone. Under 40 CFR 110.3 and 110.4 such discharges of oil include discharges which:

(a) Violate applicable water quality standards, or

(b) Cause a film or sheen upon or discoloration of the surface of the water or adjoining shorelines or cause a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines. If a sample contains a quantity of oil determined to be harmful, the Coast Guard will not certify the device.

[CGD 73–83, 40 FR 4624, Jan. 30, 1975, as amended by CGD 75–213, 41 FR 15326, Apr. 12, 1976; USCG–1999–5151, 64 FR 67176, Dec. 1, 1999]

§ 159.126 Coliform test: Type II devices.

(a) The arithmetic mean of the fecal coliform bacteria in 38 of 40 samples of effluent from a Type II device during the test described in §159.121 must be 200 per 100 milliliters or less when tested in accordance with 40 CFR Part 136.

(b) The 40 samples must be taken from the device as follows: During each of the 10 test days, one sample must be taken at the beginning, middle and end of an 8-consecutive hour period with one additional sample taken immediately following the peak capacity processing period.

[CGD 75–213, 41 FR 15326, Apr. 12, 1976]

§ 159.126a Suspended solids test: Type II devices.

During the sewage processing test (§159.121) 40 effluent samples must be taken at the same time as samples are taken for §159.126 and they must be analyzed for total suspended solids in accordance with 40 CFR Part 136. The arithmetic mean of the total suspended solids in 38 of 40 of these samples must be less than or equal to 150 milligrams per liter.

[CGD 75–213, 41 FR 15326, Apr. 12, 1976]

§ 159.127 Safety coliform count: Recirculating devices.

Thirty-eight of forty samples of flush fluid from a recirculating device must have less than 240 fecal coliform bacteria per 100 milliliters. These samples must be collected in accordance with §159.123(b) and tested in accordance with 40 CFR Part 136.

[CGD 73–83, 40 FR 4624, Jan. 30, 1975, as amended by CGD 75–213, 41 FR 15326, Apr. 12, 1976]

§ 159.129 Safety: Ignition prevention test.

(a) Components of a device that are a potential ignition source in an explosive atmosphere must pass the test in paragraph (b) or (c) of this section or meet the requirements of paragraph (d) or have a specific warning in the instruction manual required by §159.57 that the device should not be installed in an explosive atmosphere.

(b) Components protected by vapor exclusion must be placed in a chamber filled with a rich mixture of gasoline or propane in air with the pressure being varied from 0 to 2 psig once an hour for 8 hours. Vapor readings must be taken in the void being protected and must indicate a leakage less than 20 percent of the lower explosive limit of the mixture in the chamber.

(c) Components providing ignition protection by means other than vapor exclusion must be fitted with an ignition source, such as a spark plug, and a

means of injecting an explosive mixture of gasoline or propane and air into the void that protects the component. Connections must be made so as to minimize any additional volume added to the protected void by the apparatus delivering the explosive mixture. The component must be placed in a chamber filled with an explosive mixture and there must be no ignition of the explosive mixture surrounding the component when the following tests are conducted:

(1) Using any overload protection that is part of the device, the potential ignition source must be operated for one half hour at 110 percent of its rated voltage, one half hour at 50 percent of its rated voltage and one half hour at 100 percent of its rated voltage with the motor or armature locked, if the potential ignition source is a motor or part of a motor's electrical circuit.

(2) With the explosive mixture in the protected void, the test installed ignition source must be activated 50 times.

(3) The tests paragraphs (c) (1) and (2) of this section must be repeated with any plugs removed.

(d) Components that are certified as being intrinsically safe in accordance with the Instrument Society of America (RP 12.2) or explosion proof in accordance with the Underwriters Laboratories STD 698 in Class I, Group D hazardous locations (46 CFR 111.80–5(a)) need not be subjected to this testing.

§ 159.131 Safety: Incinerating device.

An incinerating device must not incinerate unless the combustion chamber is closed, must purge the combustion chamber of combustible fuel vapors before and after incineration must secure automatically if the burner does not ignite, must not allow an accumulation of fuel, and must neither produce a temperature on surfaces adjacent to the incineration chamber higher than 67 °C nor produce a temperature on surfaces in normal body contact higher than 41 °C when operating in an ambient temperature of 25 °C. Unitized incineration devices must completely burn to a dry, inert ash, a simultaneous defecation and urination and must not discharge fly ash, malodors, or toxic substances.

Subpart D—Recognition of Facilities

§ 159.201 Recognition of facilities.

A recognized facility is an independent laboratory accepted by the Coast Guard under 46 CFR 159.010 to perform the tests and inspections required under this part. A list of accepted laboratories is available from the Commandant (G–MSE–3).

[CGD 95–028, 62 FR 51194, Sept. 30, 1997, as amended by USCG–1999–5832, 64 FR 34715, June 29, 1999]

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SUBCHAPTER O—POLLUTION

EDITORIAL NOTE: This listing is provided for informational purposes only. It is compiled and kept up-to-date by the Coast Guard, Department of Transportation.

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