

In addition, as a condition of this permit, all discharges of ballast water must also comply with applicable U.S. Coast Guard regulations found in 33 CFR Part 151.

All discharges of ballast water may not contain oil, noxious liquid substances (NLSs), or hazardous substances in a manner prohibited by U.S. laws, including section 311 of the Clean Water Act.

2.2.3.1 Training

All owner/operators of vessels equipped with ballast water tanks must train the master, operator, person-in-charge, and crew members who actively take part in the management of the discharge or who may affect the discharge, on the application of ballast water and sediment management and treatment procedures. As part of Ballast Water Management Plans under 2.2.3.2, a stand-alone training plan, or other recordkeeping documentation, owner/operators must maintain a written training plan describing the training to be provided and a record of the date of training provided to each person trained. Persons required to be trained must be trained promptly upon installation of treatment technology and in the event of a significant change in ballast water treatment practices or technology.

2.2.3.2 Ballast Water Management Plans

All owner/operators of vessels equipped with ballast water tanks must maintain a ballast water management plan that has been developed specifically for the vessel that will ensure that those responsible for the plan's implementation understand and follow the vessel's ballast water management strategy. Owner/operators must make that plan available upon request to EPA or its authorized representative. Vessel owner/operators must assure that the master and crew members who actively take part in the management of the discharge or who may affect the discharge understand and follow the management strategy laid out in the plan.

At a minimum, all vessels must have a plan which outlines how they will meet the requirements of Part 2.2.3.3 of this permit. The plan must also include how vessels will comply with training requirements of 2.2.3.1 and meet all requirements in Parts 2.2.3.3 through 2.2.3.8, as applicable. EPA notes that a Ballast Water Management Plan is also required by the United States Coast Guard by 33 CFR Part 151. Provided owner/operators meet the requirements discussed above, EPA expects that vessels will need one ballast water management plan to meet both EPA and USCG requirements.

2.2.3.3 Mandatory Ballast Water Management Practices: Management measures required of all vessel owner/operators

Masters, owners, operators, or persons-in-charge of all vessels equipped with ballast water tanks that operate in waters of the U.S. must:

- Avoid the discharge or uptake of ballast water in areas / into waters subject to this permit within, or that may directly affect, marine sanctuaries, marine preserves, marine parks, or coral reefs or other waters listed in Appendix G waters.
- Minimize or avoid uptake of ballast water in the following areas and situations:

- Areas known to have infestations or populations of harmful organisms and pathogens (e.g., toxic algal blooms).
 - Areas near sewage outfalls.
 - Areas near dredging operations.
 - Areas where tidal flushing is known to be poor or times when a tidal stream is known to be turbid.
 - In darkness, when bottom-dwelling organisms may rise up in the water column.
 - Where propellers may stir up the sediment.
 - Areas with pods of whales, convergence zones, and boundaries of major currents
- Clean ballast tanks regularly to remove sediments in mid-ocean (when not otherwise prohibited by applicable law) or under controlled arrangements in port, or at drydock.
 - No discharge of sediments from cleaning of ballast tanks is authorized in waters subject to this permit.
 - Where feasible, utilize the high sea suction when the clearance is less than 5 meters (approximately 15 feet) to the lower edge of the seachest or the vessel is dockside to reduce sediment intake.
 - When feasible and safe, you must use your ballast water pumps instead of gravity draining to empty your ballast water tanks, unless you meet the treatment limits found in Part 2.2.3.5 of this permit.
 - Minimize the discharge of ballast water essential for vessel operations while in the waters subject to this permit.

Suggested control measures to minimize the discharge of ballast water include, but are not limited to, transferring ballast water between tanks within the vessel in lieu of ballast water discharge. Another option is to use public water supply water for ballast or, for vessels not subject to the numeric limits in Part 2.2.3.5 of this permit, use water from a potable water generator as ballast. EPA notes that vessels not subject to the numeric limits in Part 2.2.3.5 of this permit should endeavor to take all reasonable steps to minimize or eliminate the discharge of untreated ballast water.

2.2.3.4 Mandatory Ballast Water Management Practices for “Lakers”

“Lakers” must meet the following additional ballast water management requirements:

- Each owner/operator must perform annual inspections on their vessel to assess sediment accumulations. Removal of sediment, if necessary, must be carried out. Each vessel owner/operator must develop sediment removal policies as part of the Ballast Water Management Plan. Records of sediment removal and disposal (including facility name and location and all invoices) shall be kept onboard the vessel. EPA notes the discharge of sediments from cleaning of ballast tanks is not authorized in waters subject to this permit (see Part 2.2.3.3 of this permit).
- When practical and safe, vessels must minimize the ballast water taken up at dockside. This will typically mean limiting uptake to the amount of ballast water required to safely depart the dock and then complete ballasting in deeper water.

- The vessel sea chest screen is the first line of defense in keeping large living organisms out of the vessel ballast water tanks. Owner/operators of Laker vessels must perform annual inspections of their sea chest screens to assure that they are fully intact. The inspection must assure that there is no deterioration which has resulted in wider openings or holes in the screen. If the screen has deteriorated such that there are wider openings than the screen design, the vessel owner operator must repair or replace the screen. Any repairs must be of sufficient quality that they are expected to last at least one year.

If a Laker meets the permit limits found in Part 2.2.3.5 of this permit, the vessel owner/operator is not required to conduct the additional management measures found in Part 2.2.3.4, but must still comply with Part 2.2.3.3.

2.2.3.5 Ballast Water Numeric Discharge Limitations

Owners/operator must meet the following ballast water discharge limits (expressed as instantaneous maximum) consistent with the schedule found in Part 2.2.3.5.2, unless you are excluded from these requirements by Parts 2.2.3.5.3 or 2.2.3.8 of this permit:

1. For organisms greater than or equal to 50 micrometers in minimum dimension: discharge must include fewer than 10 living organisms per cubic meter of ballast water.
2. For organisms less than 50 micrometers and greater than or equal to 10 micrometers: discharge must include fewer than 10 living organisms per milliliter (mL) of ballast water.
3. Indicator microorganisms must not exceed:
 - (i) For Toxicogenic *Vibrio cholerae* (serotypes O1 and O139): a concentration of less than 1 colony forming unit (cfu) per 100 mL.
 - (ii) For *Escherichia coli*: a concentration of fewer than 250 cfu per 100 mL.
 - (iii) For intestinal enterococci: a concentration of fewer than 100 cfu per 100 mL.

These limits may be met by using one of the ballast water management measures in Parts 2.2.3.5.1.1, 2.2.3.5.1.2, 2.2.3.5.1.3, or 2.2.3.5.1.4.

Note: EPA will continue to explore new technologies with industry and states, and when warranted, will make this numeric limit more stringent in the future (see discussion in section 4.4.3.5.1 of the fact sheet). Additionally, EPA encourages and anticipates, as part of this process, that states will continue to work with industry to test and provide opportunities for new technologies.

2.2.3.5.1 Ballast Water Management Measures

In addition to the other requirements of this permit, owner/operators of vessels subject to the numeric discharge limits in Part 2.2.3.5 of this permit must meet those limits. Vessel owner/operators may use one of the four following ballast water management methods to meet the numeric discharge limits in Part 2.2.3.5:

2.2.3.5.1.1 Ballast Water Management using a Ballast Water Treatment System

Vessel owner/operators utilizing a ballast water treatment system (BWTS) must use a system which has been shown to be effective by testing conducted by an independent third party laboratory, test facility or test organization. A system that has been type approved by the U.S. Coast Guard under 46 CFR Part 162.060 or received “Alternative Management System” designation by the U.S. Coast Guard under 33 CFR 151.2026 will be deemed to meet this “shown to be effective” provision. Once the effluent limits in Part 2.2.3.5 become applicable to a vessel (see part 2.2.3.5.2 for applicability timeframes for specified categories of vessels), owners/operators of vessels utilizing a ballast water treatment system to meet the requirements of Part 2.2.3.5 of this permit must meet those limits as an instantaneous maximum.

Additionally, following installation of a BWTS, the master, owner, operator, agent, or person in charge of the vessel must maintain the BWTS in accordance with all manufacturer specifications. Furthermore, all treatment must be conducted in accordance with the BWTS manufacturer’s instructions. The BWTS must be used prior to any discharge of ballast water to waters of the U.S, either at uptake, in tank, or during discharge according to the treatment system manufacturer’s instructions. EPA notes that compliance with these provisions does not ensure compliance with applicable Coast Guard regulations found in 33 CFR Part 151.

2.2.3.5.1.1.1 Monitoring From Vessels Using Ballast Water Treatment Systems

The monitoring requirements in Part 2.2.3.5.1.1 apply to ballast water discharges from vessels employing ballast water treatment systems that are used to achieve the effluent limitations of Part 2.2.3.5. The monitoring is divided into three components. The first, in Part 2.2.3.5.1.1.2, is required of all vessels and generally requires monitoring equipment performance to assure the system is fully functional. Vessels conducting this monitoring also must adequately calibrate their equipment as required in Part 2.2.3.5.1.1.3. The second component, in Part 2.2.3.5.1.1.4 requires monitoring from all ballast water systems for selected biological indicators. The third component, in part 2.2.3.5.1.1.5 requires monitoring of the ballast water discharge itself for biocides and residuals to assure compliance with the effluent limitations established in part 2.2.3.5 of the permit, as applicable.

2.2.3.5.1.1.2 Ballast Water System Functionality Monitoring

Ballast water treatment systems use physical and/or chemical processes, or a combination thereof, to achieve reductions in living organisms. The use of physical/chemical indicators of treatment performance verifies that the ballast water treatment system is operating according to the manufacturers’ operating specifications. To assess the BWTS functionality, monitoring indicators of the BWTS functionality is required at least once per month for specific parameters that are applicable to your system. The required parameters to be monitored, with appropriate monitoring approaches are contained in Appendix J. For example, if your system uses a filter and chlorine dioxide, you must meet the requirements for systems using both filters and chlorine dioxide. If your system uses cavitation, UV, and hypochlorite generation, you must monitor conditions for all three treatment units. EPA expects that most ballast water treatment systems will make use of at least two physical and/or chemical processes.

Most ballast water treatment systems have control and self diagnostic equipment such as sensors that continuously measure treatment parameters to verify performance. The metrics to be monitored are based on common approaches used in ballast water treatment systems. As new approaches become commonly available, EPA will develop new monitoring parameters as appropriate.

2.2.3.5.1.1.3 Ballast Water monitoring equipment calibration

At a minimum, all applicable sensors and other equipment must be calibrated annually. Additionally, all applicable sensors and other control equipment must be calibrated no less frequently than recommended by the sensor or other equipment manufacturer, or by the ballast water treatment system manufacturer or when warranted based on device drift from a standard or calibrated setting. EPA expects many sensor types (e.g., pH probes, TRO sensors, turbidity sensors) will need to be calibrated on a more frequent basis. Calibration of the sensors and equipment can be conducted on-board the vessel or they can be removed and shipped to the manufacturer or other vendor for calibration. During the period when the sensors are not installed (or otherwise inoperable thus significantly compromising the performance of the ballast water treatment system), the vessel must not discharge ballast water.

2.2.3.5.1.1.4 Effluent Biological Organism Monitoring

Once a ballast water treatment system is required to be installed onboard a vessel (see part 2.2.3.5.2 for applicability and timeframe for installation of such vessels), any ballast water discharges from such vessels will be subject to the effluent limitations in Part 2.2.3.5 of this permit. To ascertain compliance with the effluent limitation in that section, EPA is establishing the following biological indicator compliance monitoring. These samples can be taken by collecting a small volume sample from the ballast water discharge (consistent with the sampling guidance found in EPA’s Generic Protocol for the Verification of Ballast Water Treatment Technology) and analyzing the sample for concentrations of certain biological indicator parameters. Analysis of concentrations of indicator organisms must include monitoring for the parameters in Table 2 below utilizing the methods in that table, or other EPA Part 136 methods as applicable.

Table 2: Indicator Organism Monitoring Parameters

Measurement	Instrument or Analysis	EPA Method	Standard Method	ASTM	ISO	Other
Total heterotrophic bacteria	Plate counts		SM 9215	ASTM D5465	ISO 6222:1999	
<i>E. coli</i>	Selective substrate	EPA Method 1103.1 and 1603	SM 9223B	ASTM D5392 – 93	ISO 9308-1:2000	Colilert®
Enterococci	Selective substrate	EPA Method 1106.1 and 1600	SM 9230C	ASTM D5259 – 92(2006)	ISO 7899-2:2000	Enterolert®

Biological indicator compliance monitoring sampling of ballast water effluent must be conducted 2 times during the first year the system is installed or used for vessels with devices for which

high quality data are available. For vessels with high quality data, if sampling results are below permit limits for two consecutive events, the vessel owner/operator may reduce monitoring to one time per year after the first year. However, if the vessel owner/operator exceeds a permit limit on any sampling event, they must return to monitoring two times per year until they have two additional results below permit limits. For vessels for which high quality data are not available, monitoring must be conducted 4 times per year. For all vessels, one of those samples may be conducted as part a vessel's annual or other survey, and during the first year, one of those sampling events may be conducted as part of the installation of the system to ensure it is functioning properly. Records of the sampling and testing results must be retained onboard for a period of 3 years in the vessel's recordkeeping documentation consistent with Part 4.2. Each sample must be tested independently and the individual results must be reported and not averaged. Monitoring must be conducted at least 14 days apart from different discharge events.

Devices for which high quality data are available means either:

- a) any ballast water treatment system type approved by the United States Coast Guard under 46 CFR Part 162.060 or granted alternate management system status by the US Coast Guard under 33 CFR 151.2026; or
- b) any ballast water treatment system:
 - (i) type approved by a foreign administration;
 - (ii) for which efficacy testing was conducted by an independent third party testing organization, either in accordance with the ETV protocol or in a manner consistent with the ETV protocol with respect to QA/QC procedures, the use of validated methods including appropriate volumes of representative samples, and full description and documentation of test procedures, results and analyses; and
 - (iii) all Active Substance or Biocide data (e.g., the full data package as submitted to the International Maritime Organization for approval) have all been made available to the US EPA.

2.2.3.5.1.1.5 Requirements and Effluent Limitations for BWTS that use Active Substances (e.g., biocides)

2.2.3.5.1.1.5.1 Authorization of Residual Biocides Associated with Ballast Water Treatment Systems

Many ballast water treatment systems produce or use biocides as an agent to reduce living organisms present in the ballast water tank. In order to be eligible for coverage under this permit, any ballast water treatment system must not use any biocide that is a "pesticide" within the meaning of the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C §136 *et seq.*) unless that biocide has been registered for use in ballast water treatment under such Act. The requirement in the preceding sentence does not apply if such biocide is generated solely by the use of a "device" on board the same vessel as the ballast water to be treated by the biocide, as the term "device" is defined in the Federal Insecticide, Fungicide, and Rodenticide Act. In addition, if the ballast water treatment system uses or generates biocides and you will discharge ballast

water treated with biocides into waters subject to this permit, you must meet one of the following conditions to be eligible for permit coverage.

The discharge of biocides or residuals may not exceed the following instantaneous maximum limits expressed as micrograms per liter (µg/l).

Table 3: Maximum Ballast Water Effluent Limits for Residual Biocides

Biocide or Residual	Limit (instantaneous maximum)
Chlorine Dioxide	200 µg/l
Chlorine (expressed as Total Residual Oxidizers (TRO as TRC))	100 µg/l
Ozone (expressed as Total Residual Oxidizers (TRO as TRC))	100 µg/l
Peracetic Acid	500 µg/l
Hydrogen Peroxide (for systems using Peracetic Acid)	1,000 µg/l

Any other biocides or derivatives may not exceed acute water quality criteria listed in EPA’s 2009 National Recommended Water Quality Criteria, and any subsequent revision, at the point of ballast water discharge. This document can be found at:

<http://water.epa.gov/scitech/swguidance/standards/criteria/current/upload/nrwqc-2009.pdf>.

Tables summarizing the subsequent revisions can be found at:

<http://water.epa.gov/scitech/swguidance/standards/criteria/current/>. Discharges of biocide residuals or derivatives must also meet monitoring requirements under Part 2.2.3.5.1.1.1, and reporting and recordkeeping requirements in Part 2.2.3.5.1.1.6.

If the biocide used or produced by your system and its derivatives is not listed in the previous table or found in EPA’s National Recommended Water Quality Criteria, you must notify EPA at least 120 days in advance of its use and provide any associated aquatic toxicity data for that biocide or its derivatives of which you are aware. EPA may impose additional limitations on a treatment system-specific basis, or require you to obtain coverage under an individual permit, if necessary. EPA may inform the vessel owner/operator of specific requirements. You may also seek coverage under an individual NPDES permit pursuant to Part 1.8.2 of this permit. You may not discharge the biocide at issue until you receive a response from EPA to your notification.

2.2.3.5.1.1.5.2 Residual Biocide and Derivative Monitoring

For vessels subject to Part 2.2.3.5.1.1.1, you must conduct monitoring of the vessel ballast water discharge for any residual biocides or derivatives used in the treatment process, in part to demonstrate compliance with the conditions in Part 2.2.3.5.1.1.5.1. For instance, if chlorine is the biocide used in the ballast water treatment, you must test for residual chlorine in the vessel ballast water discharge to see if it complies with the standards in Part 2.2.3.5.1.1.5.1.

In order to demonstrate that residual biocides or derivatives are in compliance with this permit, that substantial quantities of harmful byproducts are not produced, and provide EPA with needed information about system functionality, the vessel operator initially must take samples according to the following:

Table 4: Monitoring Schedule for Residual Biocides or Derivatives of the Residual Biocide

	Devices for which high quality type approval data are available	Devices for which high quality data are not available
Initial Monitoring	3 times in the first 10 discharge events (not to exceed a 180 day period)	5 times in the first 10 discharge events (not to exceed a 180 day period)
Maintenance monitoring	2 times per year	4 times per year

Devices for which high quality data are available means either:

- a) any ballast water treatment system type approved by the United States Coast Guard under 46 CFR Part 162.060 or granted alternate management system status by the US Coast Guard under 33 CFR 151.2026; or
- b) any ballast water treatment system:
 - (i) type approved by a foreign administration;
 - (ii) for which efficacy testing was conducted by an independent third party testing organization, either in accordance with the ETV protocol or in a manner consistent with the ETV protocol with respect to QA/QC procedures, the use of validated methods including appropriate volumes of representative samples, and full description and documentation of test procedures, results and analyses; and
 - (iii) all Active Substance or Biocide data (e.g., the full data package as submitted to the International Maritime Organization for approval) have all been made available to the US EPA.

Each sample must be tested independently and the individual results must be reported and not averaged. Samples must be tested as soon as possible after sampling, and may not be held longer than recommended for each tested constituent as given in 40 CFR Part 136. Sampling and testing shall be conducted using a sufficiently sensitive method according to 40 CFR Part 136 or may use an alternate method if allowed in Table 5 below.

Table 5: Residual Biocides and Biocide Derivative Monitoring Requirements

Biocide	Analyte	Analytical Methods	Minimum Sample Volume	Sample Holding Time	MDL	Effluent Limit or Action	Limit Type
Alkylamines	Alkylamines	EPA Method 8360B and 8270D	25 mL (8260B)	14 days (8260B)	Varies by compound (8260D); 10 µg/L (8270C)	Report	NA

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Chlorine or Chlorine dioxide	Chlorine dioxide	EPA Method 327.0-1; SM 4500 ClO ₂ E	16 mL (327.0-1)	4 hours (327.0-1); As soon as possible (SM)	Varies (327.0-1); 10 to 100 mg/L (SM)	200 µg/L	Instantaneous Maximum
	Total Residual Oxidizers (TRO) as Cl ₂	SM 4500-Cl G; ISO 7393/2	50 mL	15 minutes	10 µg/L, under ideal conditions	100 µg/L	Instantaneous Maximum
	Chlorite*	EPA Method 300.1	250 mL	14 days	Varies	Report	NA
	Chlorate*	EPA Method 300.1	250 mL	28 days	Varies	Report	NA
	Total trihalomethanes ^{a*}	EPA Method 8260	25 mL	14 days	Varies	Report	NA
	Haloacetic acids ^{b*}	EPA Method 552.2	40 mL	14 days	Varies by compound	Report	NA
Menadione	Menadione	NA				Report	NA
Ozone	Total Residual Oxidizers (TRO) as Cl ₂	SM 4500-Cl G; ISO 7393/2	50 mL	15 minutes	10 µg/L, under ideal conditions	100 µg/L	NA
	Bromate*	EPA Method 317 ; EPA Method 300.1; ASTM D 6581-00	250 mL	28 days (317; 300.1)	Varies (317; 300.1)	Report	NA
	Bromoform*	EPA Method 8260	25 mL	14 days	Varies	Report	NA
	Total trihalomethanes ^{a*}	EPA Method 8260	25 mL	14 days	Varies	Report	NA
	Haloacetic acids ^{b*}	EPA Method 552.2	40 mL	14 days	Varies by compound	Report	NA
Peracetic Acid	pH	SM 4500 H+	25 mL	As soon as possible		6.5 – 9 s.u.	Instantaneous Maximum
	Peracetic acid	Photometric analysis (Pinkernell, 1997; EMD Chemicals, 2011; CHEMetric s 2010)	25 mL	As soon as possible	500 µg/L	Report	NA

	Hydrogen peroxide/	Titimetric analysis (JIS K 1463:2007; EMD Chemicals, 2011; CHEMetric s 2010))	25 mL	As soon as possible	500 µg/L	Report	NA
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* Potential byproduct or derivative

- a. Total trihalomethanes is the sum of the concentrations of chloroform, bromodichloromethane, dibromochloromethane, and bromoform.
- b. Haloacetic acids is the sum of the concentrations of mono-, di-, and trichloroacetic acids and mono- and dibromoacetic acids.

ISO: International Organization for Standardization

SM: Standard Methods

MDL: Method detection limit

NA: Not applicable

2.2.3.5.1.1.6 Ballast Water Treatment System Recordkeeping and Reporting

Records of sampling and testing results required under Part 2.2.3.5.1.1 must be retained onboard for a period of three years in the vessel's recordkeeping documentation. Vessels must also submit the testing results to EPA as part of the vessel's annual report (Appendix H) on the VGP ballast water DMR.

Records of monitoring information shall include:

- The ballast water treatment system used, any type approval certificate, and records of whether the system meets the high quality data criteria as stated in part 2.2.3.5.1.1.4 (a) or (b);
- The individual(s) who performed the sampling, measurements, and/or inspections;
- The date(s) analyses and/or inspections were performed;
- Any sensor or other control equipment calibration and functional tests conducted during the inspection as applicable;
- The techniques or methods used for any sensor or other control equipment calibration and functional tests as applicable;
- The date and time of all monitoring results (monitoring in Parts 2.2.3.5.1.1.2, 2.2.3.5.1.1.4, and 2.2.3.5.1.1.5, as applicable);
- The analytical techniques or methods used as applicable, and
- The results of such analyses.

You must submit your monitoring data as part of your annual report. For systems already in use as of the effective date of this permit, initial sampling data must be submitted with the first annual report. For systems which are not already in use as of the effective date of this permit, initial sampling data must be submitted on the annual report following the calendar year of the system's first use. Data must be submitted on the Ballast Water Treatment System Report form attached to the annual report available in Appendix H of this permit or electronically submitted to EPA: the system is scheduled to be available at www.epa.gov/npdes/vessels/eNOI.

2.2.3.5.1.2 Onshore Treatment of Ballast Water

For those vessels whose design and construction safely allows for the transfer of ballast water to shore, if compatible onshore treatment for ballast water is available, the vessel owner/operator may use onshore treatment for any ballast water discharges to meet the requirements of 2.2.3.5. EPA notes that the lack of availability of adequate reception facilities is not an acceptable reason to discharge ballast water which does not meet the treatment requirements found in Part 2.2.3.5.1.1 into waters subject to this permit, and such discharges would therefore constitute a permit violation.

Any vessel owner/operator utilizing onshore treatment must ensure that all piping and supporting infrastructure up to the last manifold or valve immediately before the dock manifold connection of the receiving facility or similar appurtenance on a reception vessel are fully free from any leaks or other avenues whereby untreated ballast may be discharged into waters subject to this permit.

EPA notes that transferring ballast water to a treatment barge for eventual treatment and discharge could constitute “on-shore treatment” for purposes of Part 2.2.3.5.1.2. The discharge of treated ballast water (transferred from other vessels) from a treatment barge is not eligible for coverage under the VGP as this is a discharge from an industrial operation, not a discharge incidental to the normal operation of a vessel. Instead, these vessels must apply for individual NPDES permit coverage from the appropriate NPDES permitting authority, generally the State in which they are operating.

2.2.3.5.1.3 Use of Public Water Supply Water

Vessels may meet the requirements of Part 2.2.3.5 by using only water from a U.S. public water system or Canadian drinking water system (both referred to as “PWS” in this permit), as defined in a) 40 CFR 141.2 and subject to the requirements of 40 CFR parts 141 and 143 or b) Health Canada’s “Guidelines on Canadian Drinking Water Quality,” as ballast water. Vessels using water from a PWS as ballast must maintain a record of which PWS they received the water and a receipt, invoice, or other documentation from the PWS indicating that water came from that system.

To avoid contamination of the ballast water tank, vessels using PWS water in any given tank as ballast must have:

- Previously cleaned the ballast tank (including removing all residual sediments) and not subsequently introduced ambient water;
- Never introduced ambient water to the tank and supply lines

Vessels utilizing water from a PWS as ballast water must certify in their recordkeeping documentation that they have met all the requirements of this section, including maintaining certification by the master or NOI certifier that one of the above conditions are met regarding contamination. For vessels that use PWS water in some ballast water tanks, but ambient treated water as ballast in others, records must clearly indicate which tanks use PWS water as ballast

versus those that use ambient treated water (or both), and indicate what measures the vessel operator has implemented to avoid cross contamination between tanks.

In the event a vessel that normally uses PWS water as ballast is forced for purposes of vessel safety to take on untreated ballast water from a sea, estuary, lake or river source, such vessel may not return to using PWS water until the tanks and supply lines have been cleaned, including removal of all residual sediments.

2.2.3.5.1.4 No Discharge of Ballast Water

Vessels may meet the requirements of Part 2.2.3.5 of this permit by not discharging any ballast water into waters subject to this permit. EPA notes that any discharge of untreated ballast water, including for reasons of unscheduled voyages, loading of unexpected cargo, etc., do not qualify as an acceptable reason to discharge untreated ballast water into waters subject to this permit, and therefore constitute a permit violation. EPA notes that in the case of a shipboard emergency that endangers the safety of the vessel or its crew, ballast water may need to be pumped out quickly by bypassing the BWTS. In such cases, the provisions regarding the prohibition of bypassing treatment where unavoidable to prevent loss of life, personal injury or severe property damage may be applicable. See 40 CFR 122.41(m)(4)(A) and Part 1.13 of this permit.

2.2.3.5.2 *Schedule for when Ballast Water Treatment Becomes BAT (and Therefore Required)*

Table 6 describes when BWTS will become the Best Available Technology Economically Achievable (BAT). Vessels must meet the requirements in Part 2.2.3.5.1 according to the schedule below in Table 6.

Table 6: Ballast Water Treatment to BAT Schedule

	Vessel's Ballast Water Capacity	Date Constructed	Vessel's Compliance Date
New vessels		After December 1, 2013	On delivery
Existing vessels	Less than 1500 m ³	Before December 1, 2013	First scheduled drydocking after January 1, 2016
	1500-5000 m ³	Before December 1, 2013	First scheduled drydocking after January 1, 2014
	Greater than 5000 m ³	Before December 1, 2013	First scheduled drydocking after January 1, 2016

2.2.3.5.3 *Vessels Not Required to Meet Part 2.2.3.5 Treatment Standards*

The following vessel types are not required to meet Part 2.2.3.5 ballast water management measures (however, note that these vessels must meet all other requirements of Part 2.2.3 of the permit). Additionally, EPA encourages vessels in these categories to use additional management measures to reduce the number of living organisms in their ballast water discharges, including use of any of the measures found in Part 2.2.3.5, use of potable water generators, or other measures to reduce the volume of their ballast water discharges:

2.2.3.5.3.1 Vessels Engaged in Short-Distance Voyages

Vessels engaged in short distance voyages means vessels that:

- Operate or take on and discharge ballast water exclusively in one Coast Guard Captain of the Port (COTP) Zone, or
- Vessels which do not travel more than 10 nm and cross no physical barriers or obstructions (e.g., locks), whether or not they operate within one U.S. Coast Guard COTP zone.

2.2.3.5.3.2 Unmanned, Unpowered Barges

Unmanned, unpowered barges such as hopper barges are not required to meet the ballast water management measures of Part 2.2.3.5.

2.2.3.5.3.3 Vessels That Operate Exclusively on the Laurentian Great Lakes (Commonly Known as Lakers) Built Before January 1, 2009

Existing Lakers built before January 1, 2009 confined exclusively to the Laurentian Great Lakes (i.e., existing vessels that operates upstream of the waters of the St. Lawrence River west of a rhumb line drawn from Cap de Rosiers to West Point, Anticosti Island, and west of a line along 63 W. longitude from Anticosti Island to the north shore of the St. Lawrence River) are not required to meet the requirements of Part 2.2.3.5.

Lakers built on or after January 1, 2009 must meet the treatment limits found in Part 2.2.3.5 of the permit.

2.2.3.5.3.4 Inland and Seagoing Vessels less than 1600 Gross Registered Tons (3000 Gross Tons)

Inland and Seagoing Vessels less than 1600 Gross Registered Tons (3000 Gross Tons) are not required to meet the numeric treatment limits in Section 2.2.3.5. Seagoing Vessels are defined in 33 CFR 151.2005. EPA encourages inland and seagoing vessels in this size class to use alternate measures to reduce the number of living organisms in their ballast water discharges.

2.2.3.6 Interim requirements for vessels not meeting the ballast water management measures in Part 2.2.3.5

Vessel owner/operators not subject to the requirements of Part 2.2.3.5 of the permit must meet the exchange and flushing requirements of this part as applicable. Ballast water exchange may not be used in lieu of meeting the numeric effluent limits in Part 2.2.3.5 of the permit once a vessel is required to meet these limits. Conversely, vessel owner/operators meeting the numeric effluent limits in Part 2.2.3.5 before they are required to do so by the implementation schedule in Part 2.2.3.5.2 are not required to meet the exchange and flushing requirements of Part 2.2.3.6.

2.2.3.6.1 Requirements for Oceangoing Voyages While Carrying Ballast Water

Any vessel that carries ballast water that was taken on in areas less than 200 nautical miles from any shore that will subsequently operate beyond the Exclusive Economic Zone (EEZ) and more than 200 nm from any shore must carry out an exchange of ballast water for any tanks that will discharge ballast water into waters subject to this permit unless the vessel meets one of the exemptions in Part 2.2.3.6.6.

This exchange must be conducted in compliance with the following standards prior to discharging ballast water into waters subject to this permit:

- The exchange must occur in waters beyond the U.S. EEZ;
- The exchange must occur in an area more than 200 nautical miles from any shore; and
- The exchange must be commenced as early in the vessel voyage as possible, as long as the vessel is more than 200 nm from any shore.

2.2.3.6.2 Vessels Carrying Ballast Water Engaged in Pacific Nearshore Voyages

Unless the vessel meets one of the exemptions in Part 2.2.3.6.6, any vessel engaged in Pacific nearshore voyages that carries ballast water that was taken on in areas less than 50 nautical miles from any shore must carry out an exchange of ballast water in accordance with this Part before discharging from any tanks that carry ballast water into waters subject to this permit if the vessel travels through more than one COTP zone as listed in 33 CFR Part 3 or the vessel crosses international boundaries.

Vessels engaged in Pacific nearshore voyages are:

- Vessels engaged in the Pacific coastwise trade and vessels transiting between Pacific ports that travel between more than one Captain of the Port Zone, and
- All other vessels that sail from foreign, non-U.S Pacific, Atlantic (including the Caribbean Sea), or Gulf of Mexico ports, which do not sail further than 200 nm from any shore, and that discharge or will discharge ballast water into the territorial sea or inland waters of Alaska or off the west coast of the continental United States.

Ballast water exchange for vessels subject to this part must occur in waters more than 50 nautical miles from any shore (US or otherwise), and in waters more than 200 meters deep, prior to discharging ballast water into waters subject to this permit. Exchange should occur as far from the shore, major estuary and oceanic river plumes, subsurface physical features (e.g. seamounts), and known fishery habitats as practicable. Vessels engaged in voyages that take them further than 200 nm from any shore and who will remain outside 200 nm for a sufficient period to conduct exchange, are not allowed to exchange ballast water between 50 and 200 nm from shore to meet the requirements of Part 2.2.3.6.1 (unless the master determines that exchange farther than 200 nm from shore would interfere with essential vessel operations or safety of the vessel but the master determines that the vessel is able to safely exchange more than 50 nm from shore) and instead, must conduct exchange more than 200 nm from shore in accordance with Part

2.2.3.6.1 of this permit. Vessels engaged in Pacific Nearshore Voyages who are not outside 200 nm for a sufficient period to conduct exchange may conduct exchange outside 50 nm (even if they voyage beyond 200 nm) to meet the requirements of this part.

2.2.3.6.3 Vessels with any Ballast Water Tanks that are Empty or have Unpumpable Residual Water

For vessels that travel between more than one COTP Zone while undertaking voyages described in Part 2.2.3.6.1 and which either reported No Ballast on Board (NOBOB) in accordance with Coast Guard regulations or which have any ballast water tank that is empty or contains unpumpable residual water, you must follow the applicable requirements in Part 2.2.3.6.1 for those tanks with ballast water. EPA notes that when the term “empty” tank is used, the Agency is also referring to tanks that contain unpumpable residual water. For those tanks which are empty or contain unpumpable residual water, you must either seal the tank so that there is no discharge or uptake and subsequent discharge of ballast water within waters subject to this permit or conduct saltwater flushing of such tanks in an area 200 nm from any shore prior to the discharge or uptake and subsequent discharge of any ballast water to any waters subject to this permit, unless you meet one of the exemptions in Part 2.2.3.6.6. For the purposes of Part 2.2.3.6.3, saltwater flushing means the addition of mid-ocean water to empty ballast water tanks; the mixing of the added water with residual ballast water and sediment through the motion of the vessel; and the discharge of the mixed water until loss of suction, such that the resulting residual water remaining in the tank has either a salinity greater than or equal to 30 parts per thousand or a salinity concentration equal to the ambient salinity of the location where the uptake of the added water took place. In order to conduct saltwater flushing, the vessel should take on as much mid-ocean water into each tank as is safe (for the vessel and crew).

For all vessel owner/operators subject to this section that contain some empty ballast water tanks and some full ballast water tanks, if you elect to seal those empty tanks, you must not allow water that will be discharged into waters subject to this permit to commingle with waters from the empty tanks if you have not conducted saltwater flushing as specified above.

2.2.3.6.4 Vessels Engaged in Pacific Nearshore Voyages with Unpumpable Ballast Water and Residual Sediment (including NOBOBs)

Unless the vessel meets one of the exemptions in Part 2.2.3.6.6, any vessel engaged in Pacific Nearshore Voyages as defined in Part 2.2.3.6.2 which the owner/operator has reported as having No Ballast on Board in accordance with Coast Guard regulations, or which have any ballast water tank that is empty or contains unpumpable residual water, must follow the applicable requirements in Part 2.2.3.6.2 for those tanks with ballast water and Part 2.2.3.6.4.1 for those tanks which are empty or contain unpumpable residual water.

2.2.3.6.4.1 Nearshore Saltwater Flushing Requirements

For those tanks which are empty or contain unpumpable residual water, you must either seal the tank so that there is no discharge or uptake and subsequent discharge of ballast water within waters subject to this permit or conduct saltwater flushing of such tanks in an area 50 nm from any shore and in waters at least 200 meters deep prior to the discharge or uptake and subsequent

discharge of any ballast water to or from any waters subject to this permit. For purposes of Part 2.2.3.6.4, saltwater flushing means the addition of water from the “coastal exchange zone” to empty ballast water tanks; the mixing of the flush water with residual water and sediment through the motion of the vessel; and the discharge of the mixed water, such that the resulting residual water remaining in the tank has either a salinity greater than or equal to 30 parts per thousand or a salinity concentration equal to the ambient salinity of the location where the uptake of the added water took place. In order to conduct saltwater flushing, the vessel should take on as much coastal exchange zone water into each tank as is safe (for the vessel and crew).

Vessels engaged in voyages that take them further than 200 nm from any shore and who will remain outside 200 nm for a sufficient period to flush ballast water, are not allowed to exchange ballast water between 50 and 200 nm from shore to meet the requirements of Part 2.2.3.6.3 (unless the master determines that flushing farther than 200 nm from shore would interfere with essential vessel operations or safety of the vessel but the master determines that the vessel is able to safely flush more than 50 nm from shore) and instead, must conduct flushing more than 200 nm from shore in accordance with Part 2.2.3.6.3 of this permit. Vessels engaged in the coastwise trade who are not outside 200 nm for a sufficient period to conduct flushing may flush outside 50 nm (even if they voyage beyond 200 nm) to meet the requirements of this permit.

For all vessel owner/operators subject to this part that contain some empty ballast water tanks and some full ballast water tanks, if you elect to seal those empty tanks, you must not allow water from the full tanks to commingle with waters from the empty tanks if it will subsequently be discharged into waters subject to this permit.

2.2.3.6.5 Discharge Prohibitions

Vessels referenced in Parts 2.2.3.6.1, 2.2.3.6.2, 2.2.3.6.3, and 2.2.3.6.4 may not discharge unexchanged or untreated ballast water or sediment in waters subject to this permit referenced in Appendix G. These waters include all National Parks and National Marine Sanctuaries.

2.2.3.6.6 Exemptions

The operator or master of a vessel may elect not to exchange ballast water (or not conduct saltwater flushing if applicable) if the vessel meets one of the following conditions:

- The master of the vessel determines, and justifies in writing, and documents in the log or record book, that it is unsafe to do so, in accordance with the Coast Guard Regulations at 33 CFR Part 151. If this exemption is claimed, the vessel operator must record the date, location, and reason for the claim in its recordkeeping documentation. Furthermore, the vessel owner/operator must report this information to EPA as part of its annual report.
- The master uses an alternative, environmentally sound method of ballast water management that has been approved by the Commandant of the Coast Guard prior to the vessel's voyage in accordance with 33 C.F.R. Part 151.
- The master retains all ballast water on board the vessel for the duration of the vessel's voyage in waters subject to this permit.

- The vessel is not engaged in an international voyage and does not traverse more than one U.S. Coast Guard COTP Zone.

Additionally, except for vessels entering the Great Lakes or into Appendix G waters, a vessel is not required to deviate from its voyage, or delay the voyage to conduct ballast water exchange or saltwater flushing.

2.2.3.7 Vessels Entering the Great Lakes

In addition to complying with the requirements of this permit, all vessels that are equipped to carry ballast water and enter the Great Lakes must comply with 33 CFR Part 151, Subpart C. Vessels that operate outside the EEZ and more than 200 nm from any shore and then enter the Great Lakes via the Saint Lawrence Seaway System must also comply with 33 CFR Part 401.30. Vessels that are unable, due to weather, equipment failure, or other extraordinary condition, to effect a BWE before entering the EEZ prior to entering the Great Lakes, must employ another method of ballast water management listed in 33 CFR 151.1510 or otherwise comply with the provisions of 33 CFR 151.1515.

Additionally, vessels utilizing a ballast water treatment system (see Part 2.2.3.5.1.1 of the permit) must also conduct ballast water exchange or saltwater flushing (as applicable) in addition to treating their ballast water if they meet the following requirements:

- The vessel operates outside the EEZ and more than 200 nm from any shore and then enters the Great Lakes via the Saint Lawrence Seaway System, and
- The vessel has taken on ballast water that has a salinity of less than 18 parts per thousand from a coastal, estuarine, or freshwater ecosystem within the previous month (30 days).

If a vessel affected by these requirements has not taken on ballast water with a salinity of less than 18 parts per thousand in the previous month, the master of the vessel must certify to this effect in their ballast water recordkeeping requirements before entering the Great Lakes.

2.2.3.8 Vessels in the U.S. Coast Guard Shipboard Technology Evaluation Program (STEP)

Owner/operators of vessels are not required to meet the requirements of Parts 2.2.3.5 (except Parts 2.2.3.5.1.1.5 and 2.2.3.5.1.1.6) and 2.2.3.6 of this permit if either:

- The vessel is accepted by the U.S. Coast Guard into the Shipboard Technology Evaluation Program (STEP),
- The technology is operated in accordance with requirements of that program, and
- The acceptance has not been withdrawn.

Owner/operators of these vessels are required to meet the requirements of Parts 2.2.3.5.1.1.5 and 2.2.3.5.1.1.6 of this permit.

2.2.4 Anti-Fouling Hull Coatings/ Hull Coating Leachate

- All anti-fouling coatings subject to this permit must meet the requirements of the Clean Hull Act of 2010 (33 U.S.C. §§ 3801 *et seq.*).
- All anti-fouling hull coatings subject to registration under FIFRA (see 40 CFR §152.15) must be registered, sold or distributed, applied, maintained, and removed in a manner consistent with applicable requirements on the coatings' FIFRA label.
- For anti-fouling hull coatings not subject to FIFRA registration (i.e., not produced for sale and distribution in the United States), hull coatings must not contain any biocides or toxic materials banned for use in the United States (including those on EPA's List of Banned or Severely Restricted Pesticides). This requirement applies to all vessels subject to this permit, including those registered and painted outside the United States.

At the time of initial application or scheduled reapplication of anti-fouling coatings, you must give consideration, as appropriate for vessel class and vessel operations, to the use of hull coatings with the lowest effective biocide release rates, rapidly biodegradable components (once separated from the hull surface), or non-biocidal alternatives, such as silicone coatings.

Some ports and harbors are impaired by copper, a biocide used commonly in anti-foulant paints. These waters include Shelter Island Yacht Basin in San Diego, California, and waters in and around the ports of Los Angeles/Long Beach. A complete list of such waters may be found at www.epa.gov/npdes/vessels. When vessels spend considerable time in these waters (defined as spending more than 30 days per year), or use these waters as their home port (i.e., house boats, ferries or rescue vessels), vessel owners/operators shall consider using anti-fouling coatings that rely on a rapidly biodegradable biocide or another alternative rather than copper-based coatings. If after consideration of alternative biocides, vessel operators continue to use copper-based antifoulant paints, they must document in their recordkeeping documentation how this decision was reached.

The discharge of Tributyltin (TBT) from any source (whether used as a biocide or not) or any other organotin compound used as a biocide is prohibited by this permit. Therefore, vessel owners/operators covered by this permit have a zero discharge standard for TBT (whether or not used as a biocide) or any other organotin compound used as a biocide. You may not use an antifoulant coating containing TBT or any other organotin compound used as a biocide. If the vessel has previously been covered with a hull coating containing TBT (whether or not used as a biocide) or any other organotin compound used as a biocide, vessels must be effectively overcoated so that no TBT or other organotin leaches from the vessel hull or the TBT or other organotin coating must have been removed from the vessel's hull.

When used as a catalyst, an organotin compound other than TBT (e.g., dibutyltin) is not to be present above 2500 mg total tin per kilogram of dry paint. Furthermore, the coating shall not be designed to slough or otherwise peel from the vessel hull. Incidental amounts of coating discharged by abrasion during cleaning or after contact with other hard surfaces (e.g., moorings) are not prohibited.

2.2.5 Aqueous Film Forming Foam (AFFF)

Discharges of AFFF are authorized for emergency purposes when needed to ensure the safety and security of the vessel and crew.

For vessels that sail outside of the territorial sea more than once per month, maintenance and training discharges of fluorinated AFFF are not authorized within waters subject to this permit (i.e., any such discharges should be collected and stored for onshore disposal or scheduled when the vessel is outside such waters). Discharge volumes associated with regulatory certification and inspection must be minimized and a substitute foaming agent (i.e., non-fluorinated) must be used if possible within waters subject to this permit.

For vessels that do not leave the territorial sea more than once per month, if vessel maintenance and training discharges are required, AFFF must be collected and stored for onshore disposal unless the vessel uses a non-fluorinated or alternative foaming agent. Training should be conducted as far from shore as is practicable. Maintenance and training discharges are not allowed in port.

For all vessels, AFFF discharges may not occur in or within 1 nm of a water referenced in Appendix G unless they are discharged:

- For emergency purposes;
- By rescue vessels such as fireboats for firefighting purposes; or
- By vessels owned or under contract to do business exclusively in or within 1 nm of those protected areas by the United States government or state or local governments.

If emergency AFFF discharges occur in waters referenced in Appendix G, a written explanation must be kept in the ship's log or other vessel recordkeeping documentation consistent with Part 4.2 of this permit.

2.2.6 Boiler/Economizer Blowdown

You must minimize the discharge of boiler/economizer blowdown in port if chemicals or other additives are used to reduce impurities or prevent scale formation. For vessels greater than 400 gross tons which leave the territorial sea at least once per week, boiler/economizer blowdown may not be discharged in waters subject to this permit, unless:

- The vessel remains within waters subject to this permit for a longer period than the necessary duration between blowdown cycles;
- The vessel needs to conduct blowdown immediately before entering drydock; or
- For safety purposes.

For all vessels, boiler/economizer blowdown may not be discharged in waters referenced in Appendix G except for safety purposes. Furthermore, boiler/economizer blowdown should be discharged as far from shore as practicable.