ST. VINCENT AND THE GRENADINES

MARITIME ADMINISTRATION

CIRCULAR N° POL 017

US - 2013 Vessel General Permit (VGP)

TO:	**SHIPOWNERS, SHIPS' OPERATORS AND MANAGERS, MASTERS, SURVEYORS TO FLAG STATE ADMINISTRATION AND RECOGNIZED ORGANIZATIONS**
APPLICABLE TO:	ALL SHIPS
EFFECTIVE AS FROM:	DATE OF PRESENT CIRCULAR

21st November 2013

The U.S. Environmental Protection Agency (EPA) has issued the attached final 2013 Vessel General Permit (VGP) regulating discharges from commercial vessels, including ballast water, to protect the national waters from ship-borne pollutants and reduce invasive species in U.S. waters.

The U.S. Environmental Protection Agency (EPA) has also issued the following attached fact sheet which is related to the final 2013 VGP.

Shipowners/Ship Operators are requested to follow these requirements accordingly

U.S. Environmental Protection Agency
2013 Final Issuance of

National Pollutant Discharge Elimination System (NPDES) Vessel General Permit (VGP) for Discharges Incidental to the Normal Operation of Vessels
Fact Sheet

Agency: Environmental Protection Agency (EPA)
Action: Notice of NPDES General Permit

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1. GENERAL INFORMATION

1.1. DOES THIS ACTION APPLY TO ME?

This action is the reissuance of EPA's Vessel General Permit (VGP). The first iteration of the VGP expires on December 19, 2013. This second issuance of the VGP will replace that permit. This action applies to vessels operating in a capacity as a means of transportation, that have discharges incidental to their normal operations into waters subject to this permit, except recreational vessels as defined in Clean Water Act §502(25), P.L. 110-288. Unless otherwise excluded from coverage by Part 6 of the permit, waters subject to this permit means waters of the U.S. as defined in 40 CFR§122.2. That provision defines "waters of the U.S." as certain inland waters and the territorial sea, which extends three miles from the baseline (as used in this document, mile means nautical mile, i.e., 6076 feet).[1] Note that the Clean Water Act (CWA) does not require NPDES permits for vessels or other floating craft operating as a means of transportation beyond the territorial seas, i.e., in the contiguous zone or ocean as defined by the CWA §§ 502(9), (10). See CWA §502(12) and 40 CFR §122.2 (definition of "discharge of a pollutant"). This permit, therefore, does not apply to discharges in such waters.

Non-recreational vessels greater than 79 feet, which are not vessels of the armed forces, operating in a capacity as a means of transportation needing NPDES coverage for their incidental discharges will generally be subject to the VGP. Similarly situated vessels less than 79 feet may be covered under the VGP, or may instead opt for coverage under the Small Vessel General Permit (sVGP).

1.2. FURTHER INFORMATION

Supporting information and materials for this permit are included in Docket ID No. EPA-HQ-OW-2011-0141-available at: www.regulations.gov.

For further information on the VGP, please send an email to vgp@epa.gov or contact Ryan Albert at (202) 564-0763 or Juhi Saxena at (202) 564-0719.

2. BACKGROUND

2.1. THE CLEAN WATER ACT

Section 301(a) of the Clean Water Act (CWA) provides that "the discharge of any pollutant by any person shall be unlawful" unless the discharge is in compliance with certain other sections of the Act. 33 U.S.C. 1311(a). The CWA defines "discharge of a pollutant" as "(A) any addition of any pollutant to navigable waters from any point source, (B) any addition of any pollutant to the waters of the contiguous zone or the ocean from any point source other than a vessel or other floating craft." 33 U.S.C. 1362(12). A "point source" is a "discernible, confined and discrete conveyance" and includes a "vessel or other floating craft." 33 U.S.C. 1362(14).

[1] More specifically, CWA section 502(8) defines "territorial seas" as "the belt of the seas measured from the line of the 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 three miles."

The term "pollutant" includes, among other things, "garbage… chemical wastes…and industrial, municipal, and agricultural waste discharged into water." The Act's definition of "pollutant" specifically excludes "sewage from vessels or a discharge incidental to the normal operation of a vessel of the Armed Forces" within the meaning of CWA §312. 33 U.S.C. 1362(6).

One way a person may discharge a pollutant without violating the section 301 prohibition is by obtaining authorization to discharge (referred to herein as "coverage") under a section 402 National Pollutant Discharge Elimination System (NPDES) permit (33 U.S.C. § 1342). Under section 402(a), EPA may "issue a permit for the discharge of any pollutant, or combination of pollutants, notwithstanding section 1311(a)" upon certain conditions required by the Act.

2.2. Legal Challenges

In December 2003, a long-standing exclusion of discharges incidental to the normal operation of vessels from the NPDES program became the subject of a lawsuit in the U.S. District Court for the Northern District of California (*Northwest Envtl. Advocates et al. v. United States EPA*, 2005 U.S. Dist. LEXIS 5373 (N.D. Cal. 2005)). On March 30, 2005, the U.S. District Court for the Northern District of California determined that the exclusion exceeded the Agency's authority under the CWA, and, in September 2006 issued a final order providing that:

> The blanket exemption for discharges incidental to the normal operation of a vessel, contained in 40 CFR 122.3(a), shall be vacated as of September 30, 2008.

Northwest Envtl. Advocates et al. v. United States EPA, 2006 U.S. Dist. LEXIS 69476 (N.D. Cal. 2006).

EPA appealed the District Court's decision to the Ninth Circuit, and on July 23, 2008, the Court upheld the decision. *Northwest Envtl. Advocates v. EPA*, 537 F.3d 1006 (9th Cir. 2008).

This meant that, effective December 19, 2008, except for those vessels exempted from NPDES permitting by Congressional legislation, discharges incidental to the normal operation of vessels which were excluded from NPDES permitting by 40 CFR 122.3(a), were subject to CWA section 301's prohibition against discharging, unless covered under an NPDES permit. The CWA authorizes civil and criminal enforcement for violations of that prohibition and also allows for citizen suits against violators.

In response to the court decisions, EPA issued the VGP in December 2008.[2] In 2009, several environmental groups, industry groups, and the State of Michigan challenged EPA's issuance of the 2008 VGP. On March 8, 2011, EPA reached settlement with the environmental groups and the State of Michigan. These settlement agreements are available in the docket for today's permit or may be obtained at: http://www.epa.gov/npdes/pubs/settlement_agreement_mi_nrdc.pdf.

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[2] Due to a subsequent extension of the vacatur date by the district court, NPDES permits were not required for VGP vessels until February 6, 2009.

EPA and the vessel industry groups challenging EPA's issuance of the 2008 VGP did not reach settlement and the litigation therefore proceeded to briefing. Among other things, Lake Carriers argued that EPA violated the Administrative Procedure Act by not providing for notice and comment at the federal level of the 401 certification conditions included in Part 6 of the 2008 VGP. EPA's position was that notice and comment at the federal level is not required because, among other things, the CWA requires the Agency to include 401 certification conditions in the VGP without modification and CWA section 401 places the requirement to obtain public input on state CWA 401 certification conditions on the certifying state agencies, not EPA. On July 22, 2011, the Court denied the petition for review, concluding that "the petitioners have failed to establish that EPA can alter or reject state certification conditions, [and therefore] the additional agency procedures they demand would not have afforded them the relief they seek." *Lake Carriers' Ass'n v. EPA*, 652 F.3d 1 at 12 (D.C. Cir. 2011).

2.3. CONGRESSIONAL LEGISLATION

In late July 2008, Congress enacted two pieces of legislation to exempt discharges incidental to the normal operation of certain types of vessels from the need to obtain an NPDES permit.

The first of these, entitled the Clean Boating Act of 2008, amends the CWA to provide that discharges incidental to the normal operation of recreational vessels are not subject to NPDES permitting, and instead creates a new regulatory regime to be implemented by EPA and the U.S. Coast Guard under new 312(o) of the CWA. S. 2766, Pub. L. 110-188 (July 29, 2008). As defined in § 3 of that law, recreational vessels subject to its NPDES exclusion are any vessel that is manufactured or used primarily for pleasure or leased, rented, or chartered to a person for the pleasure of that person, but do not include a vessel that is subject to Coast Guard inspection and that is engaged in commercial use or carries paying passengers. As a result of this legislation, discharges incidental to the normal operation of recreational vessels are not subject to NPDES permitting. EPA is currently developing regulations as directed under the Clean Boating Act for recreational vessels. For more information on this action, please see: http://water.epa.gov/lawsregs/lawsguidance/cwa/vessel/CBA/about.cfm.

The second piece of legislation provides for a temporary moratorium on NPDES permitting for discharges subject to the 40 CFR 122.3(a) exclusion from (1) commercial fishing vessels (as defined in 46 U.S.C. § 2101 and regardless of size) and (2) those other non-recreational vessels less than 79 feet in length. S. 3298, Pub. L. 110-299 (July 31, 2008). The statute's NPDES permitting moratorium ran for a two-year period beginning on its July 31, 2008, enactment date, during which time EPA studied the relevant discharges and submitted a report to Congress. This moratorium was subsequently extended to December 18, 2013, by P.L. 111-215. On December 20, 2012, President Obama signed the Coast Guard and Maritime Transportation Act of 2012 , which extends the expiration date of the moratorium from December 18, 2013 to December 18, 2014. § 703 of Pub. L. 112-213. That moratorium does not include ballast water discharges. Therefore, commercial fishing vessels that are greater than 79 feet and do not have ballast water discharges will (barring further legislative action) not be required to seek coverage under the VGP until the moratorium expires on December 18, 2014. That moratorium also does not extend to other discharges, which on a case-by-case basis, EPA or the State, as appropriate, determines contribute to a violation of water quality standards or pose an unacceptable risk to human health or the environment.

EPA finalized the Report to Congress, entitled "Study of Discharges Incidental to Normal Operation of Commercial Fishing Vessels and Other Non-Recreational Vessels Less Than 79 Feet" in August 2010. That report is available at: http://cfpub.epa.gov/npdes/vessels/reportcongress.cfm and in the docket for today's permit.

2.4. General Permits

An NPDES permit authorizes the discharge of a specified amount of a pollutant or pollutants into receiving waters under certain conditions. The two basic types of NPDES permits are individual and general permits. Typically dischargers seeking coverage under a general permit are required to submit a notice of intent (NOI) to be covered by the permit. Section 3.7 of this fact sheet discusses the NOI requirements of the permit in more detail.

An individual permit is a permit specifically tailored for an individual discharger. Upon receiving the appropriate application(s), the permitting authority generally develops a draft permit for public comment for that particular discharger based on the information contained in the permit application (e.g., type of activity, nature of discharge, receiving water quality). Following consideration of public comments, a final permit may then be issued to the discharger for a specific time period (not to exceed 5 years), with a provision for reapplying for further permit coverage prior to the expiration date.

A general permit is also subject to public comment and is developed and issued by a permitting authority (in this case, EPA). A general permit covers multiple facilities within a specific category for a specific period of time (not to exceed 5 years), after which the permit expires. Like individual permits, general permits may be re-issued. Today's reissuance of the VGP includes a 5-year permit term. EPA had proposed a four year permit term, but after careful consideration of the comments on the proposed permit, EPA has finalized a five year permit term, consistent with most EPA issued NPDES permits.

Under 40 CFR 122.28, general permits may be written to cover categories of point sources having common elements, such as facilities that involve the same or substantially similar types of operations, that discharge the same types of wastes, or that are more appropriately regulated by a general permit. Given the vast number of vessels requiring NPDES permit coverage and the discharges common to these vessels, EPA believes that it makes administrative sense to issue the general permit, rather than issuing individual permits to each vessel. Courts have approved of the use of general permits. <u>See</u> e.g., *Natural Res. Def. Council v. Costle*, 568 F.2d 1369 (D.C. Cir. 1977); *EDC v. US EPA*, 344 F.3d 832, 853 (9th Cir. 2003). The general permit approach allows EPA to allocate resources in a more efficient manner and to provide more timely coverage, particularly in light of the time constraints imposed by the Court's vacatur. As with any permit, the CWA requires the general permit to contain technology-based effluent limits, as well as any more stringent limits when necessary to meet applicable state water quality standards. State water quality standards apply in the territorial seas, defined in section 502(8) of the CWA as extending three miles from the baseline. *Pacific Legal Foundation v. Costle*, 586 F.2d 650, 655-656 (9th Cir. 1978); *Natural Resources Defense Council, Inc. v. U.S.*

EPA, 863 F.2d 1420, 1435 (9th Cir. 1988). In addition, discharges to the territorial seas are required to meet requirements to comply with section 403(c) of the CWA Ocean Discharge Criteria (40 CFR Part 125 Subpart M). As discussed in section 3.10.2 of this fact sheet, the owner/operator of a vessel, after being covered by the permit, may request to be excluded from such coverage by applying for an individual permit. In addition, EPA may subsequently require a vessel to obtain an individual permit instead of receiving coverage under the general permit.

2.5. PUBLIC COMMENT ON EPA'S PROPOSED VGP

EPA released the draft 2013 VGP on November 30, 2011 and allowed for a 75-day comment period after publication in the Federal Register. The public comment period closed on February 21, 2012. EPA received over 5,500 public comments on the draft permit. Comments were received from a variety of stakeholders, including industry groups, environmental stakeholders, private citizens, U.S. State governments, and international governments. These comments were used to inform decision making in finalizing this permit and EPA's responses are reflected in the response-to-comment document available in EPA Docket ID No, EPA-HQ-OW-2011-0141 at www.regulations.gov along with supporting information and other related materials.

2.6. U.S. COAST GUARD BALLAST WATER RULEMAKING

At the time the draft VGP was made available for comment in December 2011 (76 FR 76716), the USCG had proposed, but not finalized, its ballast water discharge standard and type-approval rulemaking (74 FR 44632, August 28, 2009). Since publication of the 2011 draft VGP, the USCG finalized its ballast water discharge standard and type-approval rulemaking (77 FR 77 17254, March 23, 2012). The final rule contains a number of changes from the August 2009 proposal. Readers interested in the USCG rulemaking should refer to the USCG Federal Register notices identified above for details. For the reasons described later in this fact sheet, EPA adopted some of the same changes to the draft VGP as the USGC adopted in its final rule, in particular:

- Revision of the new vessel date for compliance with the VGP's numeric technology-based ballast water discharge standards. See section 4.4.3.5.5 of this Fact Sheet for details;

- Revision of the VGP vessel applicability provisions with respect to ballast water discharge standards. See section 4.4.3.5.6 of this Fact Sheet for details; and

- Clarification of monitoring requirements for ballast water treatment systems receiving a USCG "Type Approval" or "Alternative Management System" determination under the USCG final rule. See section 4.4.3.5.1 of this Fact Sheet for details.

Additional information on the U.S. Coast Guard Ballast Water Rulemaking can be found at: http://www.uscg.mil/hq/cg5/cg522/cg5224/bwm.asp.

2.7. ECONOMIC IMPACTS

As discussed in the Federal Register notice announcing today's final permit, EPA performed an economic assessment of this general permit, including an examination of the economic impact this permit may have on small entities. This economic analysis is included in the docket for this permit (US EPA, 2012a). Based on this assessment, EPA concludes that despite a minimal economic impact on all entities, including small businesses, this permit will not, if issued have a significant economic impact on a substantial number of small entities.

To estimate the effect of revised permit requirements on an industry as a whole, EPA's analysis takes into account previous conditions and determines how the industry would act in the future in the absence of revised Permit requirements. The baseline for this analysis is full industry compliance with existing federal and state regulations, including the recent USCG ballast water discharge standard rule (USCG, 2012) and the 2008 VGP in the case of vessels currently covered by the permit; and current industry practices or standards that exceed current regulations to the extent that they can be empirically observed. In addition, a number of laws and associated regulations (including the National Invasive Species Act; the Act to Prevent Pollution from Ships; the Comprehensive Environmental Response, Compensation, and Liability Act; the Organotin Anti-fouling Paint Control Act; and others) already cover certain discharges that would be subject to the new permitting regime. The overlap between revised permit requirements and existing regulations and practices is discussed at greater length in the sections of the report that address each revised requirement.

EPA estimated compliance costs to commercial vessels associated with each of the permit's practices and discharge categories identified and the paperwork burden costs. Incremental costs are understood to result from the inclusion of all commercial fishing vessels 79 feet or larger under the VGP,[3] and from revised, more stringent requirements for certain discharge categories and practices. Changes in compliance costs also result from streamlining selected requirements, which is expected to reduce compliance costs for owners of certain vessels. Overall, EPA finds that revisions in the VGP requirements could result in aggregate annual incremental costs for domestic vessels ranging between $7.2 and $23.0 million (in 2010$). This includes the paperwork burden costs and the sum of all practices for applicable discharge categories for all vessels estimated to be covered by the revised VGP. The average per vessel compliance costs range between $51 and $7, 004 per vessel. Tank ships have the highest average compliance costs; this is driven by potential incremental costs for oil tankers exclusively engaged in coastwise trade that may install and operate onboard ballast water treatment systems to meet the 2013 VGP requirements applicable to ballast water discharges. There is considerable uncertainty in the assumptions used for several practices and discharge categories and these estimates therefore provide illustrative ranges of the costs potentially associated with the 2013 permit rather than incremental costs incurred by any given vessel owner.

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[3] As noted above, the moratorium on coverage for commercial fishing vessels and vessels less than 79 feet expires on December 18. 2013. Commercial fishing vessels 79 feet or larger will be covered by this permit, and most non-recreational vessels less than 79 feet, including commercial fishing vessels, are expected to be covered by the Small Vessel General Permit.

To evaluate economic impacts of revised VGP requirements on the water transportation, fishing, and mining industries, EPA performed a firm-level analysis. The firm-level analysis examines the impact of any incremental cost per vessel to comply with the revised VGP requirements on model firms that represent the financial conditions of "typical" businesses in each of the examined industry sectors. More than ninety percent of the firms in the water transportation and fishing industries, and in the drilling oil and gas wells segment of the mining industry, are small, and EPA believes it is unlikely that firm-level impacts would be significant among large firms in this industry. Therefore, a firm-level analysis focuses on assessment of impacts on small businesses. To evaluate the potential impact of the VGP on small entities, EPA used a cost-to-revenue test to evaluate the potential severity of economic impact on vessels and facilities owned by small entities. The test calculates annualized pre-tax compliance cost as a percentage of total revenues and uses a threshold of 1 and 3 percent to identify facilities that would be significantly impacted as a result of this Permit.

The total number of entities expected to exceed a 1% cost ratio ranges from 76 under low cost assumptions to 340 under high cost assumptions. Of this universe, the total number of entities expected to exceed a 3% cost ratio ranges from 5 under low cost assumptions to 30 under high cost assumptions. This is based out of 5,480 total small firms. Accordingly, EPA concludes that the VGP will not have a significant economic impact on a substantial number of small entities or other businesses.

3. THE PERMIT

Today's permit is being issued pursuant to EPA's authority to issue permits under Clean Water Act section 402. Clean Water Act section 402 and its implementing regulations contain standards that govern EPA's imposition of NPDES permit conditions. <u>See</u> e.g., 40 CFR Part 122 ("EPA Administered Permit Programs: The National Pollutant Discharge Elimination System"). The provisions of today's permit are established under these authorities.

3.1. Geographic Scope of the Permit

This permit is applicable to discharges incidental to the normal operation of a vessel identified in Part 1.2 of the permit and Part 3.5 of this fact sheet into waters subject to the permit, which means "waters of the U.S." as defined in 40 CFR 122.2, except as otherwise excluded by Part 6 of the permit. This includes the territorial seas, defined in section 502(8) of the CWA, extending to three miles from the baseline. *Pacific Legal Foundation v. Costle*, 586 F.2d 650, 655-656 (9th Cir. 1978); *Natural Resources Defense Council, Inc. v. U.S. EPA*, 863 F.2d 1420, 1435 (9th Cir. 1988).

The general permit will cover vessel discharges into the waters of the U.S. in all states and territories, regardless of whether a state is authorized to implement other aspects of the NPDES permit program within its jurisdiction, except as otherwise excluded by Part 6 of the permit. While, pursuant to CWA section 402(c), EPA typically is required to suspend permit issuance in authorized states, EPA may issue NPDES permits in authorized states for discharges incidental to the normal operation of a vessel because 402(c)(1) of the Clean Water Act prohibits EPA from issuing permits in authorized states only for "those discharges subject to [the state's authorized] program." Discharges formerly excluded under 40 CFR 122.3 are not "subject to" authorized state programs. The vessel discharges covered by the permit are discharges that were formerly excluded from NPDES permitting programs under 40 CFR 122.3. (See discussion of the vacatur of this exclusion in section 2.2 of this fact sheet.) Therefore the discharges at issue are not considered a part of any currently authorized state NPDES program. See 40 CFR 123.1(i)(2) (where state programs have a greater scope of coverage than "required" under the federal program, that additional coverage is not part of the authorized program) and 40 CFR 123.1(g)(1) (authorized state programs are not required to prohibit point source discharges exempted under 40 CFR122.3).

3.2. Structure of the Permit (Part 1.1)[4]

This general permit addresses vessels operating in a capacity as a means of transportation that have discharges incidental to their normal operations into waters subject to this permit, except recreational vessels and vessels of the Armed Forces. Many characteristics of vessels and vessel discharges generally apply to all vessel classes. Hence, general requirements that apply to all eligible vessels are found in Parts 1 through 4 of the permit. Part 1 of the permit contains general conditions, authorized and ineligible discharges, and explains who must file a notice of intent to receive permit coverage. Part 2 of the permit discusses effluent limits applicable to vessels. Part 3 of the permit lists required corrective actions that permittees must take to remedy deficiencies and violations. Part 4 of the permit lists visual monitoring, self-inspection, and recordkeeping and reporting requirements. Due to specific concerns arising from certain types of vessels, in Part 5 of the permit, EPA has identified select categories of vessel types that have supplemental requirements. States, territories, and certain Tribes have the authority to require additional requirements under section 401 of the CWA. Part 6 of the permit includes these additional requirements (see also Part 12 of the Fact Sheet entitled "Other Legal Requirements").

The Appendices, listed in this permit as Parts 7 through 15, include definitions, the notice of intent form, the notice of termination form, and the annual report form.

3.3. What is the Vessel Universe Affected by This Permit?

Vessels operating in a capacity as a means of transportation are eligible for coverage under the VGP. The types of vessels covered under the VGP include commercial fishing vessels, cruise ships, ferries, barges, mobile offshore drilling units, oil tankers or petroleum tankers, bulk carriers, cargo ships, container ships, other cargo freighters, refrigerant ships, research vessels, emergency response vessels, including firefighting and police vessels, and any other vessels operating in a capacity as a means of transportation. Vessels of the Armed Forces of the United States are not eligible for coverage by this permit. While all non-recreational vessels, which are not vessels of the armed forces, may seek coverage under this permit, the permit requirements are generally targeted to vessels that are at least 79 feet in length. A separate, streamlined permit is available for vessels less than 79 feet (Small Vessel General Permit for Discharges Incidental to the Normal Operation of Vessels Less Than 79 Feet).

[4] Throughout this fact sheet, parenthetical citations in headings refer to parts of the proposed permit to serve as an aid to the reader.

EPA estimates that the domestic vessel population subject to the VGP is approximately 60,000 vessels. EPA used two existing databases (the Marine Information for Safety and Law Enforcement (MISLE) and Waterborne Transportation Lines of the United States (WTLUS) databases) to create a master database to estimate the population of domestically flagged vessels subject to the VGP. MISLE and WTLUS provided information on the number and type of domestic flag vessels subject to the Vessel General Permit. The combined database allows the Agency to obtain a comprehensive estimate of the vessel population and to minimize the number of missing data fields for any given vessel. Furthermore, EPA compared these estimates to the total number of NOIs submitted under the 2008 VGP to fact check the accuracy of these estimates. However, EPA could not use the NOI database alone to estimate the number of vessels covered by the permit as only vessels greater than 300 gross tons or with the capacity to carry more than 8 cubic meters of ballast water had to submit NOIs.

Using the Foreign Traffic Vessel Entrances and Clearances (FTVEC) database, EPA estimates approximately 12,400 foreign flagged vessels are subject to the VGP requirements. The FTVEC database provides information on foreign vessels entering or clearing U.S. Customs ports in calendar year 2008, the most recent year for which data are published (U.S. Army Corps of Engineers, 2010).

See EPA's economic analysis for the VGP for more information about the vessel universe affected (US EPA, 2011a).

3.4. Regulation of Constituents in the Discharges Under the Permit

In today's permit, EPA is establishing effluent limitations to control a variety of materials, which, for the purposes of this fact sheet, have been classified into 7 major groups: Aquatic Nuisance Species (ANS), nutrients, pathogens (including *E. coli* & fecal coliform), oil and grease, metals, most conventional pollutants (Biochemical Oxygen Demand, pH, Total Suspended Solids), and other toxic and non-conventional pollutants with toxic effects. EPA is establishing effluent limitations to control these materials, because, depending on the particular vessel, such materials are constituents in the industrial waste, chemical waste and/or garbage "pollutant" discharge resulting from the activities of these vessels. "Industrial waste," "chemical waste" and "garbage" are expressly included in the CWA's definition of "pollutant," which governs, among other things, which discharges are properly subject to CWA permitting. See CWA § 402(a) (allowing EPA to issue permits for a "discharge of any pollutant"); CWA § 502(12) (defining "discharge of a pollutant" to include "any addition of any pollutant to navigable waters from any point source"); and CWA § 502(6) (defining "pollutant" as "dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal and agricultural waste discharged into water" [emphasis added]). The discharge from vessels addressed in today's permit – a worthless or useless flow discharged during a vessel's normal operations – falls within those broad pollutant categories. See, e.g., Webster's II New Riverside University Dictionary (1988) (defining "waste" as "a worthless or useless by-product" or "something, such as steam, that escapes without being used"; "industrial" as "of, relating to, or derived from industry" and "industry as "the commercial production and sale of goods and services"; "chemical" as "of or relating to the action of chemicals"; and "garbage" as "worthless matter, trash").[5]

EPA understands that a lot of attention has been paid to whether, under various circumstances, ANS are properly considered "pollutants" under CWA §502(6). Today's permit controls ANS because such ANS are one constituent of concern in the waste stream that constitutes the "pollutant" subject to today's permit. See CWA § 402(a)(1)(A) and 301(b)(1) (requiring permits to include "effluent limitations") and CWA §502(11) (defining "effluent limitations" to include "restrictions established by . . . the Administrator on . . . chemical, physical, biological, and other constituents which are discharged from point sources . . ." [emphasis added]). Under these circumstances, there is no need to address the question of whether ANS in and of themselves may be considered "pollutants" under CWA section 502(6). In addition, EPA's conclusion that ANS are properly controlled in today's vessel permit does not speak as to how ANS are regulated by the CWA under any other circumstances.

Short summaries of each of the constituent types regulated in today's permit follow.

3.4.1 Aquatic Nuisance Species

Aquatic Nuisance Species (ANS), also known as invasive species, are a persistent problem in U.S. coastal and inland waters. ANS may be introduced through a variety of vectors, including ballast water and sediment from ballast tanks, chain lockers, anchor chains, and vessel hulls. These vectors have been associated with introductions of highly damaging species in the past. Though no reliable and comprehensive estimates of total ANS introductions nationwide exist, case studies of several major bodies of water across the country, as summarized in Table 1, provide a sense of the extent of the problem.

Table 1: Estimates of Invasive Species in Several Major Water Systems

Region	Estimated Rate of Invasion[1]	Estimated Total Invasions to Date
Great Lakes	No new invasions detected since 2006, prior to 2006, documented at once every 28 weeks[2]	182[2]
Mississippi River System	Unknown	100[3]
San Francisco Bay	Once every 14 weeks[4]	234[4]
Lower Columbia River Basin	Once every 22 weeks[5]	81[5]
Gulf of Mexico	Unknown	704[6]

[5] The Agency's view on what is considered "industrial waste," "chemical waste" or "garbage" as discussed in this fact sheet is limited to use of those terms in the definition of "pollutant" in the Clean Water Act and should not be considered in interpreting those or similar terms in any other statute or regulation.

Table 1: Estimates of Invasive Species in Several Major Water Systems

Region	Estimated Rate of Invasion[1]	Estimated Total Invasions to Date

[1] Ruiz and Reid (2007) suggest that these figures may not reliably represent the true rate of introduction, as they are based on discovery data, which may not always track with the underlying rate of introduction.
[2] Ricciardi 2006.
[3] USCG 2009.
[4] Cohen and Carlton 1998.
[5] Sytsma et al. 2004.
[6] Battelle 2000.

ANS pose several dangers to aquatic ecosystems, including outcompeting native species, threatening endangered species, damaging habitat, changing food webs, and altering the chemical and physical aquatic environment. Furthermore, ANS have been documented to damage recreational and commercial fisheries, infrastructure, and water based recreation and tourism.

One of the most well-known examples of ANS is the Zebra Mussel. Zebra Mussels are native to Eurasia, near the Black and Caspian Seas, and were first discovered in U.S. waters in 1988. Populations of Zebra Mussels were established in the Great Lakes and are now found throughout most of the Eastern United States and in some Western States. Zebra Mussels are filter feeders and can remove algae from the water column that other native species depend on as a food source and, therefore, Zebra Mussels outcompete native (and sometimes endangered) mollusks and other filter feeders. Zebra Mussels also damage public infrastructure and have been estimated to cause tens to hundreds of millions of dollars in losses per year to the Great Lakes alone.

Additional sources describing the presence and/or impacts of ANS and their potential invasion pathways include Barnes, 2002; Battelle, 2000; Bolch and de Salas, 2007; Brickman, 2006; Brickman and Smith, 2007; Carlton, 1985; Carlton, 1996; Carlton and Geller, 1993; Cohen and Carlton, 1998; Cohen et al., 1995; Dobbs et al., 2006; Doblin et al., 2007; Drake and Lodge, 2007; Drake et al., 2007; Johnson et al., 2001; Larson et al., 2003; Lee et al., 2010; Lockwood et al., 2005; Lovell and Stone, 2005; Lovell and Drake, 2009; NAS, 2011; Phelps, 1994; Ricciardi, 2006; Roman, 2006; Ruiz et al., 2000a; Ruiz et al., 2000b; Sakai et al., 2001; Smayda, 2007; USCG, 2009, US EPA, 2001a, and Van der Putten, 2002.

3.4.2 Nutrients

Nutrients, including nitrogen, phosphorus, and numerous micro-nutrients, are constituents of vessel discharges. Though traditionally associated with discharges from sewage treatment facilities and runoff from agricultural and urban stormwater sources, nutrients resulting from vessels are also thought to be discharged from deck runoff, vessel graywater, and vessel bilgewater, among other sources. Increased nutrient discharges from human sources are a major source of water quality degradation throughout the United States (USGS, 1999).

Nutrients are associated with a variety of negative environmental impacts, the most notable of which is eutrophication, which can lead to reduced levels of dissolved oxygen due to increased demand (sometimes to the extremes of hypoxia), reduced levels of light penetration and increased turbidity, and changes in the composition of aquatic flora and fauna, and helps to fuel harmful algal blooms (HABs), which can have significant adverse impacts on both aquatic life and human health (National Research Council, 2000, WHOI, 2007). The National Research Council (2000) found that:

- Nutrient over-enrichment of coastal ecosystems generally triggers ecological changes that decrease the biological diversity of bays and estuaries.
- While moderate nitrogen enrichment of some coastal waters may increase fish production, over-enrichment generally degrades the marine food web that supports commercially valuable fish.
- The marked increase in nutrient pollution of coastal waters has been accompanied by an increase in harmful algal blooms, and in at least some cases, pollution has triggered these blooms.
- High nutrient levels and the changes they cause in water quality and the makeup of the algal community are detrimental to the health of coral reefs and the diversity of animal life supported by seagrass and kelp communities.
- Nitrogen is the chief culprit in eutrophication and other impacts of nutrient over-enrichment in temperate coastal waters, while phosphorus is most problematic in eutrophication of freshwater lakes.
- Human conversion of atmospheric nitrogen into biologically useable forms, principally synthetic inorganic fertilizers, now matches the natural rate of biological nitrogen fixation from all the land surfaces of the earth.

Additional information discussing the sources or impacts of nutrients on aquatic ecosystems and/or their vessel based sources can be found in Copeland, 2008; Correll, 1987; Horne and Goldman, 1994; Mississippi River/Gulf of Mexico Watershed Nutrient Task Force, 2008; NAS, 1993; US EPA, 1999; US EPA, 2001b; US EPA 2005; US EPA, 2008; and US EPA, 2010a.

3.4.3 Pathogens

Pathogens are another important constituent of discharges from vessels, particularly in graywater and potentially from ballast water discharges. Though fecal coliform is considered a conventional pollutant, it is discussed here since it shares characteristics with many other pathogens potentially discharged from vessels.

EPA's study of graywater discharges from cruise ships found that levels of pathogen indicator bacteria exceeded enterococci standards for marine water bathing and fecal coliform standards for harvesting shellfish 66% and over 80% of the time, respectively (US EPA 2008). Specific pathogens of concern found in sewage include *Salmonella* spp., *E. coli*, enteroviruses, hepatitis and pathogenic protists (National Research Council 1993), but there are multiple sources for such pathogens. Elevated levels of these pathogens have increasingly resulted in beach closures in recent years, primarily from on-shore sources such as urban stormwater runoff and sewage overflows, which in turn has reduced the recreational value of impacted beaches. Additional pathogens have been associated with ballast water discharges, including *E. coli*, *enterococci*, *Vibrio cholerae*, *Clostridium perfingens*, *Salmonella* spp. *Cryptosporidium* spp., and *Giardia* spp., as well as a variety of viruses (Knight et al. 1999; Reynolds et al. 1999; Zo et al. 1999). Johengen et al. (2005) show the potential for pathogens to be transported in ballast water tanks, even when they are not filled. The study found that virus-like particle (VLP) concentrations in sampled ballast tanks ranged from 107 to 109 per ml in residual unpumpable ballast water and from 107 to 1011 per ml in sediment porewater. Bacteria concentrations under the same conditions were 105 to 109 per ml and 104 to 108 per ml, respectively.

Though it is difficult to determine the contribution of vessel discharges to infections by these organisms it is likely that they are not a primary source. Epidemiologists have attempted to quantify the proportion of total infections that are waterborne. For example, waterborne infection may account for as many as 60% of Giardia infections and 75% of pathogenic *E. coli* infections (National Research Council 1993). Graywater discharges may be a significant source of pathogenic microorganisms within some regulated waters, and reducing graywater discharges may provide some human health benefits.

Additional information discussing pathogens, their sources, and their impacts include Dobbs et al., 2006; Knight et al., 1999; NAS, 1993; US EPA, 1999; US EPA, 2008; and US EPA 2010a.

3.4.4 Oil and Grease

Oil and grease are another known component of vessel discharges with potentially harmful impacts to humans and to aquatic life. Vessels discharge oil in every day operation, including lubricating oils, hydraulic oils, and vegetable or organic oils. A significant portion of the lubricants lost from a vessel directly enter the marine environment. Oils are highly toxic and carcinogenic, and can also taint organisms that are consumed by humans, which is a potential source of adverse health impacts. In recent years, significant research efforts have gone into the development of environmentally acceptable lubricants which would reduce environmental impact on the marine environment. Oil and grease measured by Method 1664A constitutes a conventional pollutant. Oil and grease that is commingled with other toxic pollutants may be controlled as a toxic pollutant under this permit.

Additional papers and reports discussing the impact of oil discharges, vessel based sources of these pollutants, and/or environmentally acceptable alternatives to traditional lubricants include Aluyor et al., 2009; Betton, 2009; Decola, 2000; GESAMP, 1993; GESAMP, 2007; Lucase and MacGregor, 2006; Rützler and Sterrer, 1970; Shaw et al, 1985; Suchanek, 1993; US EPA, 1999; US EPA 2010a; and Wiese and Ryan, 2003.

3.4.5 Metals

Metals are a diverse group of pollutants, many of which are toxic to aquatic life and humans. Vessel discharges can contain a variety of metal constituents which can come from a variety of on-board sources. For example, EPA's study of cruise ship graywater found a total of 13 different metals in at least 10% of samples, with copper, nickel and zinc detected in 100% of samples (US EPA, 2008). Bilgewater has also been shown to contain numerous metals, the exact constituents of which vary dependent upon on-board activities on the vessel and the materials used in the construction of the vessel. Other metals, such as copper, are known to leach from vessel hulls and can cause exceedances of water quality standards. For example, Srinivasan and Swain (2007) found significant leaching of copper from the hulls of sailboats, powerboats, and cruise ships.

While some metals, including copper, nickel and zinc, are known to be essential to organism function, many others, including thallium and arsenic, are non-essential and/or are known to have only adverse impacts. Even essential metals can do serious damage to organism function in sufficiently elevated concentrations. Adverse impacts can include impaired organ function, impaired reproduction and birth defects, and, at extreme concentrations, acute mortality. For example, Katranitsasa et al. (2003) noted that the copper released from copper anti-fouling paints are toxic to non-targeted aquatic organisms. Additionally, through a process known as bioaccumulation, metals may not be fully eliminated from blood and tissues by natural processes, and may accumulate in predator organisms further up the food chain, including commercially harvested fish species (US EPA, 2007e).

Additional sources discussing the impacts of metals on the aquatic environment and/or their vessel-based sources include Axiak et al., 1995; Trocine and Trefry, 1996; US EPA, 1999; and US EPA, 2010a.

3.4.6 Toxic and Non-Conventional Pollutants with Toxic Effects

The term "toxic and non-conventional pollutants with toxic effects," as it applies to constituents of vessel discharges, encompasses a variety of chemical compounds known to have a broad array of adverse impacts on aquatic species and human health. For example, EPA's study of cruise ship graywater found a total of 17 different volatile and semi-volatile organic compounds in at least 10% of samples, for which the most significant rates and levels of detection were phthalates, phenol, and tetrachloroethylene. Other notable toxics detected in incidental discharges from vessels include free residual chlorine and chlorides and perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA) found in some firefighting foam (AFFF).

These compounds can cause a variety of adverse impacts on ecosystems and living marine resources, including fisheries. Phthalates are known to interfere with reproductive health, liver and kidney function in both animals and humans (Sekizawa et al., 2003; DiGangi et al., 2002). Chlorine, though toxic to humans at high concentrations, is of much greater concern to aquatic species, which can experience respiratory problems, hemorrhaging, and acute mortality even at relatively low concentrations (US EPA, 2008). PFOS and PFOA, potentially found in AFFF discharges, are persistent, bioaccumulative, toxic and carcinogenic chemical compounds. The health impacts of PFOA and its telomeres are not entirely understood, particularly in aquatic environments, but EPA's Science Advisory Board has concluded that PFOA "is likely to be carcinogenic in humans" (SAB, 2006).

3.4.7 Other Non-Conventional and Conventional Pollutants (Except Fecal Coliform)

The category "other non-conventional and conventional pollutants" as applied to vessel discharges also consists of multiple pollutants with disparate impacts. Discharges of graywater, bilgewater, seawater cooling overboard, and other vessel waste streams or effluent can include pollutants that affect pH, add heat, and/or increase turbidity or discharge suspended sediment.

Some vessel discharges are more acidic or basic than the receiving waters, which can have a localized effect on pH (ADEC, 2007). Though no research has been done linking vessel pollution specifically to pH impacts on aquatic ecosystems, extensive literature on the impacts of pH changes in the contexts of aquaculture and acid rain does exist. For nearly all fish populations, pH more acidic than 5 or more basic than 10 will cause rapid mortality. In addition, many individual species are sensitive to more moderate changes in pH (Wurts and Durborrow, 1992).

Some vessel discharges may also affect temperature locally (Battelle, 2007). Thermal impacts of vessel discharges are generally much smaller than those from better known sources such as dams, power plant cooling water, and runoff. However, even small temperature changes can impact some sensitive organisms' growth, reproduction, and even survival, which implies that some vessel discharges may have localized adverse impacts on aquatic organisms (Abbaspour et al., 2005; Cairns, 1972; Govorushko, 2007).

Some vessel discharges, such as those from ballast water and bilgewater, can contain suspended sediments and have elevated turbidity. Loadings of sediment from vessel discharges are likely much smaller than from other sources such as construction, urban stormwater, and agriculture. The most significant sources of sediment from vessel discharges likely come from areas in the vessel where water is held, sediment settles out of solution and accumulates over time, and then is later periodically resuspended before discharging.

Designated uses such as navigation, drinking water, recreation, and agriculture are impaired by excess suspended sediments (US EPA, 2003). When sediments diminish water quality to support aquatic life, other human uses of the same waterbodies such as recreational or commercial fishing may also be diminished. Furthermore, there is evidence that aquatic life uses are one of the most sensitive endpoints to alterations in sediment loading. Direct effects on invertebrates and fish are complex, ranging from behavioral to physiological to toxicological. Suspended sediments have been documented to have a negative effect on the survival of fish, freshwater mussels, and other benthic organisms. In a frequently cited review paper prepared by Newcombe and Jensen (1996), sublethal effects (e.g. increased respiration rate) were observed in eggs and larvae of salmonids and nonsalmonids, as well as in adult estuarine and freshwater nonsalmonids, when exposed to Total Suspended Solids concentrations as low as 55 mg/L for one hour. Mussels compensate for increased levels of suspended sediment by increasing filtration rates, increasing the proportion of filtered material that is rejected, and increasing the selection efficiency for organic matter. Excess sediment smothers benthic organisms and the surface layer of the benthos can be heavily impacted and altered. Increased turbidity associated with suspended sediments can reduce primary productivity of algae as well as growth and reproduction of submerged vegetation (Jha, 2003). In addition, once in the system, resuspension and deposition can "recycle" sediments so that they exert water column and benthic effects repeatedly over time and in multiple locations.

3.5. Coverage Under the Permit

3.5.1 Eligibility (Part 1.2)

Vessels Not Eligible for Coverage

Recreational vessels and vessels of the United States Armed Forces are not eligible for coverage under this permit. Non-recreational vessels less than 79 feet in length, which are not vessels of the armed forces, may obtain coverage under this permit, or they may obtain coverage under EPA's small Vessel General Permit (sVGP). This flexibility may be useful for vessel owner/operators who manage vessels that are both larger and smaller than 79 feet, and would prefer to manage their fleet using the same permit. If auxiliary vessels or craft, such as lifeboats or rescue boats on-board larger vessels require permit coverage, they are eligible for coverage under this permit and are covered by submission of the Notice of Intent for the larger vessels.

Vessel Discharges Eligible for Coverage

The discharges eligible for coverage under the permit are those discharges incidental to the normal operation of a vessel covered by the exclusion in 40 CFR 122.3(a) prior to vacatur of that exclusion. Discharges incidental to normal operation include deck runoff, bilgewater, and ballast water. Some potential discharges are not incidental to the normal operation of a vessel. For example, intentionally adding used motor oil to the bilge tank will result in a discharge that is not incidental to the normal operation of a vessel. Furthermore, any discharge that results from a failure to properly maintain the vessel and equipment, even if the discharge is of a type that is otherwise covered by the permit, is not eligible for permit coverage. Discharges that are neither covered by this permit nor the sVGP, and are not exempt from section 402 of the Clean Water Act, must be covered under a separate individual or general permit.

The discharges that were selected for coverage under the permit have been identified by EPA, in consultation with other Federal agencies, as discharges incidental to the normal operation of a vessel. EPA has relied on the most accurate and up-to-date information available. Sources used include those in the bibliography of this fact sheet and in the docket for this permit.

The following list identifies and describes each effluent stream eligible for coverage under the permit.

3.5.1.1 Deck Washdown and Runoff and Above Water Line Hull Cleaning

Deck washdown and runoff occurs from all vessels as a result of precipitation or deck cleaning. Above water line hull cleaning discharges occur when areas of the hull or other exterior portions of the vessel undergo regular cleaning. The constituents can include detergent, soap, and residues from any on-deck or above water line hull cleaning activity. Constituents and volumes of deck runoff vary widely and are highly dependent on a vessel's purpose, service, and practices. Deck runoff and above water line hull cleaning discharges eligible for coverage under the permit include those from all deck and bulkhead areas, associated equipment, and areas of the hull and exterior of the vessel above the water line.

3.5.1.2 Bilgewater

Bilgewater consists of water and other residue that accumulates in a compartment of the vessel's hull. The source of bilgewater is typically drainage from interior machinery, engine rooms, and from deck drainage. Constituents of bilgewater include seawater, oil, grease, volatile and semi-volatile organic compounds, inorganic salts, and metals.

3.5.1.3 Ballast Water

Ballast water is water taken on-board into ballast water tanks, and assists with vessel draft, buoyancy, and stability. Ballast water tanks are typically found only on commercial vessels. Discharge volumes and rates vary by vessel type, ballast tank capacity, and type of deballasting equipment. Typical cruise ships have a ballast capacity of 1,000 cubic meters (approximately 264,000 gallons) of water and can discharge at 250-300 cubic meters per hour. Cargo ships carry anywhere from 2,900 cubic meters (approximately 766,000 gallons) to 93,000 cubic meters (approximately 24,568,000 gallons) of water. Ballast water may contain rust inhibitors, flocculent compounds, epoxy coating materials, zinc or aluminum (from anodes), iron, nickel, copper, bronze, silver, and other material or sediment from inside the tank, pipes, or other machinery. Ballast water may also contain marine organisms that originate where the water is collected. When transported to non-native waters, these organisms may upset the environment or food web as "invasive species."

3.5.1.4 Anti-Fouling Leachate from Anti-Fouling Hull Coatings

Vessel hulls are often coated with antifouling compounds to prevent or inhibit the attachment and growth of aquatic life. Coatings are formulated for different conditions and purposes and many contain biocides. Those that contain biocides prevent the attachment of aquatic organisms to the hull by continuously leaching substances that are toxic to aquatic life into the surrounding water. While a variety of different ingredients may be used in these compounds, the most commonly used is copper. Copper can inhibit photosynthesis in plants and interfere with enzyme function in both plants and animals in concentrations as low as 4 μg/l. Additional releases of these substances are caused by hull cleaning activities, particularly if hulls are cleaned within the first 90 days following application.

A second metal-based biocide is organotin based, typically tributyltin (TBT), which was historically applied to vessel hulls. Due to its acute toxicity, there will be a zero discharge standard for TBT or any other organotin compound under this permit (EPA notes that the discharge of TBT is also prohibited by other domestic statutes and an international treaty, see additional discussion in section 4.4.4 for additional discussion). TBT and other organotins cause deformities in aquatic life, including deformities that disrupt or prevent reproduction. Numerous studies and several peer reviewed publications (Bentivegna & Piatkowski, 1998; Haynes & Loong, 2002; Negri et al., 2004; Negri & Heyward, 2001; Ruiz et al., 1995; V. Axiak et al., 1995) examine the environmental impacts of anti-foulant paint leachate containing TBT. TBT and other organotins are also stable and persistent, resisting natural degradation in water bodies.

3.5.1.5 Aqueous Film Forming Foam (AFFF)

AFFF is a synthetic firefighting agent consisting of fluorosurfactants and/or fluoroproteins. It serves as an effective firefighting agent by forming an oxygen-excluding barrier over an area. In order to produce AFFF, a concentrated solution of the foam forming agent is injected into the water stream of a fire hose. Vessels equipped with AFFF equipment must periodically (annually or semi-annually) test the equipment for maintenance, certification, or training purposes resulting in discharge overboard or onto the deck.

3.5.1.6 Boiler/Economizer Blowdown

Boiler blowdown occurs on vessels with steam propulsion or a steam generator to control anti-corrosion and anti-scaling treatment concentrations and to remove sludge from boiler systems. The blowdown involves releasing a volume of 1% – 10% of water from the boiler system, usually below the waterline.

3.5.1.7 Cathodic Protection

Vessels use cathodic protection systems to prevent steel hull or metal structure corrosion. The two types of cathodic protection are sacrificial anodes and impressed current cathodic protection (ICCP). Using the first method, anodes of zinc or aluminum are “sacrificed” to the corrosive forces of the seawater, which creates a flow of electrons to the cathode, thereby preventing the cathode from corroding. These sacrificial metals are then released to the aquatic environment. Using ICCP, a DC electrical current is passed through the hull such that the electrochemical potential of the hull is sufficiently high enough to prevent corrosion.

3.5.1.8 Chain Locker Effluent

Chain locker effluent is water that collects in the below-deck storage area during anchor retrieval. A sump collects the liquids and materials that enter the chain locker and discharges it overboard or into the bilge. Chain locker effluent can contain marine organisms and residue such as rust, paint chips, grease, and zinc. When transported to non-native waters, these organisms may upset the environment or food web as “invasive species.”

3.5.1.9 Controllable Pitch Propeller and Thruster Hydraulic Fluid and other Oil to Sea Interfaces including Lubrication discharges from Paddle Wheel Propulsion, Stern Tubes, Thruster Bearings, Stabilizers, Rudder Bearings, Azimuth Thrusters, Propulsion Pod Lubrication, and Wire Rope and Mechanical Equipment Subject to Immersion

Oil-to-sea interfaces include any mechanical or other equipment where seals or surfaces may release small quantities of oil into the sea. Examples include controllable pitch propellers (CPPs). CPPs are variably-pitched propeller blades used to change the speed or direction of a vessel and are used in addition to the main propulsion system. Hydraulic oil can leak from the CPP if the protective seals are worn or defective and large amounts may be discharged into surrounding waters during maintenance and repair. Another example includes rudder bearings, which allow a vessel’s rudder to turn freely and can be either grease-, oil-, or water-lubricated. An additional example is the stern tube. The stern tube is the casing or hole through the hull of the vessel through which the propeller shaft connects the engine of the vessel to the propeller.

The propeller shaft and its supporting bearings require lubrication oil. Discharges can occur due to the design of the interface or if the protective seals or bearings are not maintained and develop leaks or if they are damaged. Yet another example would be wire ropes and cables that have lubricated surfaces which contact the sea.

The impact of lubricant discharges (not accidental spills) to the marine ecosystem is substantial. The majority of ocean-going ships operate with oil-lubricated stern tubes and use lubricating oils in a large number of applications in on-deck and underwater (submerged) machinery. The issue of oil leakage from stern tubes, once considered a part of normal "operational consumption" of oil, has become an issue of wide concern and is now being treated as oil pollution. Stern tube leakage is a significant source of lubricant oil inputs to the marine environment. A 2001 study commissioned by the European Commission DG Joint Research Centre (Pavlakis et al., 2001) concluded that routine unauthorized operational discharges of oil from ships into the Mediterranean Sea created more pollution than accidental spills.

An analysis of data on oil consumption sourced from a lubricant supplier indicated a range of average daily stern tube lubricant consumption rates for different vessels (Etkin, 2010). The average rate across vessel types was 2.6 liters per day, but ranged from less than 1 liter per day to 20 liters per day. In addition to spills and stern tube leakage, there are "operational inputs" of lubricant oils that occur due to continuous low-level discharges and leakages that occur during normal vessel operations in port. The sources of operational discharges include deck machinery and in-water (submerged) machinery. There are a number of systems situated below the waterline which must be lubricated, such as the stern tube bearing, thruster gearboxes, and horizontal stabilizers. All of these have pressurized lubricating oil mechanisms that maintain a pressure higher than the surrounding sea. This ensures that no significant amount of seawater can enter the oil system, where it would compromise the unit's reliability. Any leakage of lubricant oil which does take place will be into the surrounding waters.

Etkin (2010) estimated the marine inputs of lubricant oils within the 4,708 ports and harbors of the world through stern tube leakage and operational discharges from marine shipping. Her results indicate that commercial vessels make over 1.7 million vessel port visits each year, and leak 4.6 to 28.6 million liters of lubricating oil from stern tubes. In addition, 32.3 million liters of oil enters marine waters from other operational discharges and leaks. In total, operational discharges (including stern tube leakage) add between 36.9 million liters and 61 million liters of lubricating oil into marine port waters annually.

3.5.1.10 Distillation and Reverse Osmosis Brine

Discharges of brine can occur from on-board plants that distill seawater or utilize reverse osmosis (RO) to generate fresh water. Distillation effluent may be at elevated temperatures and may contain anti-scaling treatment, acidic cleaning compounds, or metals. RO effluent is concentrated brine.

3.5.1.11 Elevator Pit Effluent

Large vessels with multiple decks are equipped with elevators to facilitate the transportation of maintenance equipment, people, and cargo between decks. A pit at the bottom of the elevator shaft collects liquids and debris from elevator operations, and may include oil and hydraulic fluid. Pits can be emptied by gravity draining, discharged using the firemain, transferred to bilge, or containerized for onshore disposal.

3.5.1.12 Firemain Systems

Firemain systems draw in water through the sea chest to supply water for fire hose stations, sprinkler systems, or AFFF distribution stations. Firemain stations can be pressurized or non-pressurized and are often used for secondary purposes onboard vessels (e.g., deck and equipment washdowns, machinery cooling water, ballast tank filling). However, when used for secondary purposes that result in other incidental discharges listed in the permit, that discharge is regulated by the relevant effluent limitation associated with that activity (e.g., rinsing off the anchor chain).

3.5.1.13 Freshwater Layup

Seawater cooling systems condense low pressure steam from propulsion plant or generator turbines on some vessels. When a vessel is pierside or in port for more than a few days, the main steam plant is shut down and the condensers do not circulate. This can cause an accumulation of biological growth within the system; consequently, a freshwater layup is carried-out by replacing the seawater in the system with potable or surrounding freshwater (e.g., lake water). The freshwater remains stagnant for two hours before being blown overboard using pressurized air. After this, the condensers are considered flushed and are then refilled for the actual layup. After 21 days this fillwater is discharged and replaced and this is done on a 30-day cycle thereafter. Freshwater layup discharges residual saltwater, freshwater, tap water, and metals leached from the pipes or machinery into the environment.

3.5.1.14 Gas Turbine Water Wash

Gas turbines are used for propulsion and electricity generation. Occasionally, they must be cleaned to remove by-products that can accumulate and affect their operation. These by-products include salts, lubricants, and combustion residuals. The wastewater from the cleaning process may include cleaning compounds as well.

3.5.1.15 Graywater

Graywater is water from showers, baths, sinks, and laundry facilities. Graywater can contain high levels of pathogens, nutrients, soaps and detergents, and organics. Untreated graywater is much more likely to cause environmental impact when it is generated in large volumes (e.g., from cruise ships). Some vessels have the capacity to collect and store graywater for later treatment and discharge. Those that do not have graywater holding capacity continuously discharge it to receiving waters.

It is important to note that there is a small category of graywater discharges that are not subject to the CWA's NPDES permitting requirement and thus are not covered by today's permit. As discussed in section 3.5.2.2 below, discharges of sewage from vessels are not subject to the CWA's NPDES permitting requirements, and are thus are not addressed by the VGP. 33 U.S.C. 1322(a)(6); 33 U.S.C. 1362(6). Instead, these discharges are regulated under a separate regulatory scheme: section 312 of the Clean Water Act. Under Clean Water Act section 312, the definition of "sewage" includes graywater discharges from "commercial vessels" (as defined at 33 U.S.C. 1322(a)(10)) on the Great Lakes. Thus, graywater discharges from such vessels are regulated under section 312 of the Clean Water Act, not this permit. 33 U.S.C. 1322(a)(6).

3.5.1.16 Motor Gasoline and Compensating Discharge

Motor gasoline is transported on vessels to operate vehicles and other machinery. As the fuel is used, ambient water is added to the fuel tanks to replace the weight. This ambient water is discharged when the vessel refills the tanks with gasoline or when performing maintenance and can contain residual oils. Most vessels are designed not to have motor gasoline and compensating discharge.

3.5.1.17 Non-Oily Machinery Wastewater

Non-oily machinery wastewater systems are intended to keep wastewater from machinery that contains no oil separate from wastewater that has oil content. Vessels can have numerous sources of non-oily machinery wastewater, including distilling plants start-up discharge, chilled water condensate drains, fresh and saltwater pump drains, potable water tank overflows, and leaks from propulsion shaft seals.

3.5.1.18 Refrigeration and Air Condensate Discharge

Condensation from cold refrigeration or evaporator coils of air conditioning systems drips from the coils and collects in drip troughs which typically channel to a drainage system. Condensate discharge may contain detergents, seawater, food residue, and trace metals.

3.5.1.19 Seawater Cooling Overboard Discharge (Including Non-Contact Engine Cooling Water, Hydraulic System Cooling Water, Refrigeration Cooling Water)

Seawater cooling systems use ambient water to absorb the heat from heat exchangers, propulsion systems, and mechanical auxiliary systems. The water is typically circulated through an enclosed system that does not come in direct contact with machinery, but still may contain sediment from water intake, traces of hydraulic or lubricating oils, and trace metals leached or eroded from the pipes within the system. Additionally, because it is used for cooling, the effluent will have an increased temperature.

3.5.1.20 Seawater Piping Biofouling Prevention

Vessels that utilize seawater cooling systems introduce anti-fouling compounds (e.g., sodium hypochlorite) in their interior piping and component surfaces to inhibit the growth of fouling organisms. These anti-fouling compounds are then typically discharged overboard.

3.5.1.21 Boat Engine Wet Exhaust

Large vessels covered by the permit often have several small boats on-board. Small boat engines use ambient water that is injected into the exhaust for cooling and noise reduction purposes. This wet engine exhaust can contain numerous pollutants when discharged.

3.5.1.22 Sonar Dome Discharge

Water is used to maintain the shape and pressure of domes that house sonar detection, navigation, and ranging equipment. Discharges occur when the water must be drained for maintenance or repair or from the exterior of the sonar dome.

3.5.1.23 Underwater Ship Husbandry and Hull Fouling Discharges

Underwater ship husbandry is grooming, maintenance, and repair activities of hulls or hull appendages completed while the vessel is located in the water, including hull cleaning (such as removal of fouling organisms), hull repair, fiberglass repair, welding, sonar dome repair, non-destructive testing, masker belt repairs, and painting operations. Underwater ship husbandry discharges are considered incidental to the normal operation of a vessel when ships are maintained in proper operating order and the cleaning is done on a reasonable schedule. For drydock and other large cleaning activities, once every few years may be considered a reasonable schedule.

3.5.1.24 Welldeck Discharges

The welldeck is a floodable platform used for launching or loading small satellite vessels, vehicles, and cargo. Welldeck discharges may include water from precipitation, welldeck and storage area washdowns, equipment and engine washdowns, and leaks and spills from stored machinery.

3.5.1.25 Graywater Mixed with Sewage from Vessels

Depending on how the vessel is designed, graywater and sewage may be combined into one effluent stream. Discharges of graywater that contain sewage are eligible for coverage under this permit (except for commercial vessels in the Great Lakes as discussed above) and must meet the discharge limitation requirements under Part 2, as well as any requirements applicable to sewage discharges (i.e., 33 U.S.C. §§ 1322(a)-(m) and the implementing regulations at 40 CFR Part 140 and 33 CFR Part 159), although these are not contained in this permit.

3.5.1.26 Exhaust Gas Scrubber Washwater Discharge

Exhaust gas scrubber washwater discharge (EGS washwater discharge) occurs as a result of operating or cleaning the exhaust gas cleaning systems (e.g. scrubbers) for marine diesel engines. After the washing solution is returned from the scrubber, the washwater can be either treated and discharged overboard, or alternatively, it can be piped to a clean bilge water tank or other suitable holding tanks. While many of the captured contaminants (sludge) are transferred to the vessel's sludge tank, the constituents of EGS washwater discharge can include residues of nitrogen oxides (NO_x), sulfur oxides (SO_x) and particulate matter (PM) emissions captured by the scrubbers. EGS washwater discharge can also contain traces of oil, polycyclic aromatic hydrocarbons (PAHs), heavy metals and nitrogen. Depending on the geographic location of the EGS washwater discharge, the pH level and turbidity of the receiving water may be altered.

3.5.1.27 Fish Hold Effluent

Fish hold effluent is composed of seawater, ice-melt, or ice slurry collected inside fish hold tanks. Fish hold effluent contains pollutants which result from seafood catch and other on-board vessel sources. These pollutants can include biological wastes, metals, nutrients, and wastewater resulting from fish hold cleaning activities. For vessels with refrigerated seawater tanks, fish are typically extracted using a vacuum system that removes both the fish and refrigerated seawater simultaneously. Any excess refrigerated seawater that is not required to assist in fish extraction is typically pumped overboard. Vessels that use chipped or slurry ice generally remove the seafood and then discharge the spent ice overboard. Tanks used to keep lobster and crab catch alive pump surrounding water into the tank constantly to maintain the highest water quality possible. The flow rate through these systems results in a nearly continuous discharge of fish hold effluent.

Fish holds are also often cleaned or disinfected by vessel crews between catches. To rinse the tank, vessel crews use either municipal water from the pier or dock or they pump water from the surrounding ambient water. Cleaning may simply involve rinsing the tanks with this water or a thorough scrub down with the addition of detergents or disinfectants to maximize the removal of organic material. As a result, the effluent from fish hold cleaning contains a combination of residual fish hold water and ambient or municipal water and often contains soaps or detergents. For more information discussing fish hold effluent, including information regarding specific constituents contained within that discharge, please see EPA's 2010 vessels report to Congress available at www.epa.gov/npdes/vessels (US EPA, 2010a) and in the docket for today's permit.

3.5.2 Discharge Types Specifically Not Authorized By This Permit

EPA has identified several discharge types that would not be authorized by this permit because, among other things, the discharge is not within the scope of the current 40 CFR 122.3(a) exclusion or not within the scope of EPA's NPDES permitting authority.

3.5.2.1 Discharges Not Subject to Former NPDES Permit Exclusion Including Vessels Being Operated in a Capacity Other than as a Means of Transportation

Any discharge that was not subject to the former regulatory exclusion as of December 18, 2008, would not be authorized under the current permit. The date of December 18, 2008 is the day before the date of the vacatur of the regulatory exclusion.

The regulatory exclusion did not apply when the vessel is operating in a capacity other than as a means of transportation, and therefore, discharges from such vessels continue to be ineligible for coverage under this permit. Vessels that are not being operated in the capacity of a means of transportation include vessels being used as energy or mining facilities, storage facilities, seafood processing facilities, or vessels that are secured to a storage facility or a seafood processing facility, or when secured to the bed of the ocean, contiguous zone, or water of the United States for the purpose of mineral or oil exploration or development. Similarly, vessels, when in drydock, also do not operate in a capacity as a means of transportation. Vessels that operate in a capacity other than as a means of transportation generally have not been excluded from NPDES permitting under 40 CFR Part 122.3(a).

"Floating" craft that are permanently moored to their piers, such as "floating" casinos, hotels, restaurants, bars, etc. are not covered by the current vessel exclusion and thus would not be covered by the vessel permit. These structures are outside the scope of the 40 CFR Part 122.3(a) exclusion because they operate "in a capacity other than as a means of transportation." They are best characterized as casinos, hotels, restaurants, bars, etc. that happen to be located on water instead of land, much like, for example, the water-based storage facilities mentioned in 122.3(a) as being outside the scope of the exclusion.

With respect to vessels under construction, when the vessel is engaged in sea trials which result in operational discharges, because testing is a critical part of vessel operation, such discharges would be incidental to the normal operation of a vessel, and thus eligible for coverage under this VGP. However, any discharges resulting from construction activities are not covered by the VGP as they are incidental to vessel construction, not vessel operation. With respect to vessels engaged in dredging operations, the resulting discharges of dredged or fill material generated by their dredging activity is covered by a CWA § 404 permit or MPRSA ocean dumping permit, and such discharges are excluded from CWA § 402 permitting. The incidental discharges (e.g., graywater, bilgewater) coming from the dredging vessels themselves are eligible for coverage under this permit (because they move as they dredge and thus are still operating as a means of transportation).

3.5.2.2 Sewage from Vessels

The definition of "pollutant" in the Clean Water Act 502(6)(A) specifically excludes "'sewage from vessels' within the meaning of [Section 312 of the Clean Water Act]." These discharges are instead regulated under section 312 of the CWA.

3.5.2.3 Used or Spent Oil

The discharge of used or spent oil no longer being used for its intended purpose is not eligible for coverage under the permit. Also prohibited is the discharge of used or spent oil by adding it to a discharge stream that is otherwise eligible for coverage under the permit.

Discharges of small amounts of oil incidental to the normal operation of a vessel are permissible provided appropriate effluent limits are met, including that oil is not discharged in quantities that may be harmful, pursuant to 40 CFR Part 110.3. See the discussion of limitations for specific waste streams in Part 4 of this fact sheet below.

3.5.2.4 Rubbish, Trash, Garbage or Other Materials Discharged Overboard

Rubbish, trash, garbage or other materials discharged overboard are not eligible for coverage under the permit because such materials are not subject to the 40 CFR 122.3(a) exclusion. As stated in VGP Part 1.2.3.4, "garbage" includes bulk dry cargo residues, as defined by USCG regulations (33 CFR Part 151, Subpart A (see 73 Fed. Reg. 56492 (September 29, 2008)) and agricultural cargo residues (e.g., residue from agricultural cargo carried in bulk, such as corn, wheat, rice, soybeans, and grains (see H. Rept. 107-777 at pg 90 (November 13, 2002)), Thus discharges of such residues are outside the scope of this permit.

3.5.2.5 Photo Processing Waste

Photo processing waste includes a wide variety of compounds, such as ammonia, sulfuric acid, and silver. It is not eligible for coverage under the permit; it is generated in small quantities and can be held for proper disposal onshore.

3.5.2.6 Effluent from Dry Cleaning Operations

Tetrachloroethylene, also known as perchloroethylene, or PERC, is a highly toxic substance primarily used by the dry cleaning industry. When humans are exposed to tetrachloroethylene it can cause dizziness, headache, nausea, nervous system problems, unconsciousness, and death. It is a probable human carcinogen. Tetrachloroethylene is toxic at low levels and can contaminate soil and water. Tetrachloroethylene discharges associated with dry-cleaning activities on vessels are not eligible for coverage under the permit because they are not incidental to the normal operation of a vessel.

3.5.2.7 Discharges of Medical Waste and Related Materials

The discharge of medical waste as defined in 33 U.S.C. 1362(20), spent or unused pharmaceuticals, formaldehyde or other biohazards no longer being used for their intended purposes are not eligible for coverage under this permit. EPA considers these discharges as not being subject to the NPDES permit exclusion. For purposes of this permit, the liquid produced by dialysis treatment of humans is not deemed to be "medical waste," and, like other human body waste (i.e., sewage), is exempt from NPDES permitting under 33 U.S.C. 1362(6). Like other sewage, this liquid is regulated, however, under VGP Part 2.2.25 if added to a blackwater system combined with a graywater system and is otherwise subject to the requirements of 33 U.S.C 1322 and its implementing regulations. The direct overboard discharge of such liquid without treatment is not authorized by the VGP.

3.5.2.8 Discharges of Noxious Liquid Substance (NLS) Residues

The permit does not authorize the discharges of noxious liquid substance (NLS) residues subject to 33 CFR Part 151, Subpart A, or 46 CFR 153.1102. Under 46 CFR 153.1102, discharges of NLS residues are either prohibited or, if allowable, may only take place at sea at least 12 nautical miles from the nearest shore. In light of this, the permit does not authorize such discharges within waters subject to the permit (i.e., inland waters and the waters of the 3 mile territorial sea). The relevant Coast Guard definition of the term "noxious liquid substance" (see 46 CFR 153.2) is set out in the definition section of the permit.

3.5.2.9 Tetrachloroethylene (Perchloroethylene) and Trichloroethylene (TCE) Degreasers or Other Products Containing Tetrachloroethylene and Trichloroethylene

Any degreasers containing tetrachloroethylene or trichloroethylene (TCE) are not authorized for discharge into waters subject to this permit. Both tetrachloroethylene and trichloroethylene are considered probably carcinogenic to humans and both are priority pollutants. In developing the 2008 VGP, EPA compared the cost of tetrachloroethylene or TCE degreasers to products not containing tetrachloroethylene or TCE and determined that other viable products are available and use of those products is economically practicable and achievable (ABT, 2008). Alternatives to trichloroethylene degreasing products include alkaline aqueous solutions and semi-aqueous solutions.

3.5.2.10 Discharges Currently or Previously Covered by Another NPDES Permit

Any vessel discharge that is currently or has previously been covered by either an individual NPDES permit or another general NPDES permit is not eligible for coverage under the permit, without written permission from EPA. The vessel general permit is not intended to supplant or replace any current or previous NPDES permit.

3.6. PERMIT COMPLIANCE (PART 1.4)

Part 1.4 of the permit is intended to inform the permittee of the potential consequences of failure to comply with the conditions of the permit. Part 1.4 explains that any failure to comply with the conditions of the permit constitutes a violation of the Clean Water Act. Also applicable to all permittees is the standard NPDES permit condition for the "duty to comply" (see 40 CFR 122.41(a)). Where requirements and schedules for taking corrective actions are included, the time intervals are not grace periods, but are schedules considered reasonable for making repairs and improvements. For provisions specifying a time period to remedy noncompliance, the initial failure, such as a violation of a numeric or non-numeric effluent limit, constitutes a violation of the VGP and the Clean Water Act (unless specifically otherwise stipulated), and subsequent failure to remedy such deficiencies within the specified time periods constitutes an independent, additional violation of the permit and the CWA.

EPA notes that the U.S. Coast Guard and U.S. EPA signed a Memorandum of Understanding (MOU) to better coordinate efforts to implement and enforce VGP requirements for vessels. Under the MOU, the two agencies will share information, expertise, and provide technical assistance on implementing and enforcing the VGP, which will help reduce government redundancy and enable each agency to accomplish its missions more effectively. Additionally, the USCG will assist with verifying compliance of the VGP for domestic and foreign vessels. To view a copy of the MOU, please visit http://epa.gov/compliance/resources/agreements/cwa/mou-coastguard-vesselpermitrequirements.pdf.

A copy of the February 11, 2011 Coast Guard policy letter entitled "Guidelines for Coast Guard Evaluations of Compliance with U.S. Environmental Protection Agency's (EPA) Vessel General Permit (VGP) for Discharges Incidental to the Normal Operation of Vessels" can be found in the docket for today's permit.

3.7. AUTHORIZATION UNDER THE PERMIT (PART 1.5)

3.7.1 No Requirement to Submit a Notice of Intent (NOI) for Certain Vessels

Under 40 CFR § 122.28 (b)(2)(v), some dischargers may, at the discretion of the Director, "be authorized to discharge under a general permit without submitting a notice of intent where the Director finds that a notice of intent requirement would be inappropriate." In making such a determination, the Director must consider: the type of discharge; the expected nature of the discharge; the potential for toxic and conventional pollutants in the discharges; the expected volume of the discharges; other means of identifying discharges covered by the permit; and the estimated number of discharges to be covered by the permit. Based on consideration of these regulatory factors, EPA is exercising its discretion and not requiring operators of certain vessels to submit NOIs: namely, those that are smaller than 300 gross tons, and do not have the capacity to carry more than 8 cubic meters (2113 gallons) of ballast water. The reasons for this approach are explained below:

EPA estimates that there are approximately 72,000 vessels that may be covered by the permit. To require all these vessels to submit an NOI would be a large administrative burden. In general, the use of NOIs for most point sources provides permitting authorities with useful information to assist in oversight and enforcement of permittees, such as the specific location of the facility and its discharge. However, because vessels are mobile point sources that do not operate from a fixed location and may discharge to multiple receiving waters, the usefulness of requiring the entire universe of point sources covered by this general permit to submit NOIs is questionable.

In order to determine which vessels would appropriately be required to submit NOIs, EPA looked at the universe of vessels that would be covered by this permit and found a logical break between larger and smaller vessels, based on the types of discharges from these vessels, the variety of discharges containing conventional and toxic pollutants, and the volume and nature of those discharges. The volume of the discharges incidental to the normal operation of the vessel is expected to vary proportionately to the size of the vessel. Larger vessels will each individually have a greater volume of discharge and are more likely to have greater volume of discharges of concern (i.e., graywater and anti-foulant leachate). The expected volume of discharges for large vessels is significant for each individual vessel. For instance, a container ship can discharge thousands of cubic meters (millions of gallons) of ballast water; pounds of anti-foulant leachate, and significant quantities of bilgewater. Cruise ships have the potential to discharge large volumes of graywater due to the sizeable on-board ship populations, in addition to other discharges typical of such large vessels (for example, ballast water, bilge water, etc.). Therefore, larger vessels are far more likely to discharge larger quantities of toxic and conventional pollutants than smaller vessels due to a number of factors including the range of constituents in the discharge. EPA expects that smaller commercial vessels will have a smaller range of discharge types than larger commercial vessels. Some of the typical discharges eligible for coverage under the permit are nearly ubiquitous for most vessels, including deck runoff, bilge water, and leachate from anti-foulant hull coatings. However, larger commercial vessels have a greater range of discharges which will be of greater volume. Thus, the limited range of discharge types from smaller vessels and the reduced likelihood for the introduction of significant quantities of toxic and conventional pollutants make requiring an NOI for these vessels to be of little value at this time. In addition, EPA has access to other sources of data available for identifying discharges from vessels covered by the permit, including state registration information, MARAD vessel calls, U.S. Coast Guard registration and customs records, and data from the National Ballast Water Information Clearinghouse (NBIC). From these sources, EPA can obtain information from which we can deduce the nature of ship and boat discharges from these smaller vessels.

Based on the analysis outlined above, EPA has determined that it would be inappropriate to require smaller commercial vessels to provide information about their discharges through submission of an NOI. The cutoff for submission of an NOI of 300 or more gross tons is consistent with U.S. Coast Guard requirements, including those for environmental pollution control (33 CFR 155.320), Automatic Identification System (AIS) carriage requirements (33 CFR 164.46), port security requirements, fuel oil and bulk lubricating oil discharge containment requirements (33 CFR 155.320), and requirements for radar observers and chief engineers (33 CFR 15.820 and 33 CFR 15.820).

The criterion of vessels equipped to hold or discharge more than 8 cubic meters of ballast water was established for two reasons. First, as of this time, there is not a method by which EPA can predict invasions from any vessel source. However, the greater the number of viable organisms released into the receiving water, the greater the propagule pressure, which increases the risk for a successful invasion by an aquatic nuisance species. The volume of water discharged likely correlates to the number of organisms discharged; hence, lower volumes of water should contain fewer potential organisms which can successfully establish themselves. A vessel that carries and discharges 2,500 cubic meters of ballast water poses a greater risk to receiving waters than the vessel that carries 5 cubic meters. Therefore, the greater the volume of ballast water discharge, the greater the likelihood of creating enough propagule pressure to result in an enhanced risk of the spread of aquatic nuisance species. Secondly, the 8 cubic meter threshold is generally consistent with provisions in the recent International Convention for the Control and Management of Ships' Ballast Water and Sediments (2004) providing for "equivalent compliance" for certain vessels in lieu of compliance with all provisions of the treaty. Hence, this is a recognized standard among mariners.

Based on the analysis outlined above, EPA has determined that smaller vessels eligible for coverage under the VGP need not submit an NOI. However, these owner/operators must still complete the VGP Permit Authorization and Record of Inspection (PARI) form (discussed below) and maintain that form on board at all times. EPA is including the PARI form because we believe it is an efficient way for the owner/operator to certify that they have read and agreed to comply with the terms of the permit, and demonstrate basic understanding of the permit's terms and conditions. In addition, the form will provide EPA (or its authorized representative) with a standardized foundation for conducting inspections. Based upon EPA's experience in implementing the 2008 VGP, EPA found that many smaller vessel owner/operators were confused about their obligations under the VGP because they were not required to submit the NOI form. Some of these vessel owner/operators erroneously believed that they were not subject to the VGP terms and conditions, and furthermore thought that they did not need to obtain alternative NPDES permit coverage. Hence, the purpose of this form is to reduce confusion within the industry and to confirm that these vessel owner/operators have read the terms of the VGP and understand their obligation to comply.

3.7.2 How to Obtain Authorization (Part 1.5.1)

To obtain authorization under the permit, operators must meet the Part 1.2 eligibility requirements and, if required by Part 1.5.1.1 of the permit, submit a complete and accurate NOI according to the requirements in Appendix E (Part 10 in the Permit), no later than the permit effective date.

Part 1.5.1.1 describes which operators of a vessel are required to submit an NOI, and Table 1 sets out the timeframes within which an NOI must be submitted. An operator is required to submit an NOI for its vessel if the vessel meets either of the following two criteria:

- The vessel is greater than or equal to 300 gross tons, or
- The vessel has the capacity to hold or discharge more than 8 cubic meters (2113 gallons) of ballast water.

3.7.2.1 Owner/Operators Required to Submit NOIs (Part 1.5.1.1)

Owner/operators required to submit an NOI for their vessel must submit an NOI in accordance with Table 1 of the permit. When completing the NOI form, the owner/operator is asked to select which discharge types the vessel is likely to produce. All discharges covered by the permit will be covered for the vessel, even if the owner/operator does not select all discharges. The form will allow EPA to better understand which vessel types typically produce which discharges, but will not limit permit coverage for the vessel owner/operator as long as the vessel is in compliance with the permit requirements. Table 1 specifies applicable deadlines for different categories of operators to submit NOIs. All NOIs will be made available for public review through posting on the internet. EPA may request that the owner/operator seek coverage under Part 1.8 of the permit (Alternative Permits) if appropriate.

When the ownership or operation of a vessel that is already covered under this permit is transferred, the new owner/operator must submit to EPA an NOI for the vessel by the date of transfer. The new NOI then becomes effective on the date the transfer takes place, or on the date EPA receives the NOI, whichever is later.

For new vessels delivered to the owner/operator after December 19, 2013, the deadline for submission of an electronic NOI is no later than 7 days before the vessel will discharge into waters subject to this permit. The discharge authorization date for these vessels is 7 days after the complete electronic NOI is received by EPA.

For existing vessels delivered to the owner/operator after December 19, 2013, that were not previously covered under this permit, the deadline for submission of an electronic NOI is no later than 7 days before the vessel will discharge into waters subject to this permit. Except as noted in the following paragraph, the discharge authorization date for these vessels is 7 days after the complete electronic NOI is received by EPA and 30 days after a complete paper NOI is received and processed by EPA. NOI processing means that a complete electronic NOI has been submitted and successfully certified by the permittee, or in the case of a Paper NOI, that EPA has received your NOI and input the information into its electronic system. Submitting paper NOIs may result in processing delays dependent upon volume received. Permittees will be able to know when their electronic and paper NOIs are processed by looking at EPA's online NOI search tool accessible from EPA's NPDES Vessels homepage at: http://www.epa.gov/npdes/vessels. In addition, NOIs submitted for transfer of ownership and/or operation of a vessel whose discharge is previously authorized under the permit are authorized immediately upon commencement of transfer provided a complete and accurate NOI is submitted and processed prior to that transfer.

Prior to EPA authorizing coverage, based on a review of an NOI or other information, EPA may delay the discharge authorization date for further review, or may deny coverage under the permit and require submission of an application for an individual NPDES permit, as detailed in Part 1.8 of the permit. In these instances, EPA will notify the NOI submitter in writing of the delay or the request for submission of an individual NPDES permit application. If EPA requires an individual permit for an existing vessel previously covered by this general permit, EPA will allow the permittee a reasonable amount of time to obtain individual permit coverage before their general permit coverage terminates.

Part 1.5 and 4.2 4 of the permit requires that all vessel owner/operators must keep records of their NOIs or PARIs on board their vessels. As with other records kept for purposes of the VGP, electronic records meeting the requirements under Part 4.2.1 of the permit meet this requirement.

Based on a review of the NOI or other information, EPA may delay the authorization of the owner/operator's discharge or may deny coverage under the permit and require submission of an application for an individual NPDES permit, as detailed in Part 3.10.1. EPA will notify the owner/operator in writing of any such delay or the request for submission of an individual NPDES permit application. For existing vessels covered under this general permit at the time it is issued, EPA will allow a reasonable time period to obtain alternate permit coverage before coverage under this permit is terminated.

3.7.2.2 Owner/Operators Not Required to Submit NOIs (Part 1.5.1.2)

An operator of a vessel is not required to submit an NOI pursuant to Part 1.5.1.2 of the permit if the vessel is less than 300 tons and does not have the capacity to hold or discharge more than 8 cubic meters of ballast water.

As a requirement of this permit, vessel owner/operators that are not required to submit NOIs must complete the VGP PARI Form contained in Appendix K of the permit. The PARI form must be signed and maintained on board the vessel for the entire permit term. EPA emphasizes that these owner/operators would still be subject to all applicable requirements contained within the permit even if they fail to complete and retain the form.

A certification statement is included in the VGP PARI that is required under this permit. This form and certification must be printed, signed and kept on the vessel while under permit coverage.

When implementing the 2008 VGP, EPA found that not requiring smaller vessels to submit an NOI created confusion for some smaller vessel owner/operators about their obligations under the 2008 VGP. The PARI form requires that a vessel owner operator state he or she has read the terms of the VGP and agrees to comply with the terms of the permit. Furthermore, the PARI serves as a record for any inspector that the smaller vessel owner/operator has read, and agreed to abide by the terms of the VGP. EPA specifically seeks comments on the inclusion of this new requirement.

If an owner/operator not required to submit an NOI wishes EPA to consider alternative permit requirements for the vessel, he or she must apply to EPA for a substitute permit applicable to his or her vessel as required by Part 1.8 of the permit within 90 days (Alternative Permits).

3.7.3 Continuation of the Permit (Part 1.5.2)

If the permit is not reissued or replaced prior to its expiration date, existing dischargers will continue to be covered under an administrative continuance, in accordance with section 558(c) of the APA and 40 CFR 122.6. The current permit will remain in effect for discharges that were covered prior to expiration until EPA acts on a permit renewal. If coverage is provided to a permittee prior to the expiration date of the permit, the permittee would automatically be covered by the permit until the earliest of: (1) the authorization for coverage under a reissuance or replacement of the permit, following timely and appropriate submittal of a complete NOI, if required; (2) submittal of a Notice of Termination; (3) issuance of a new general permit that covers your vessel discharges or vessel type and provides you coverage without requiring you to submit an NOI to obtain coverage; (4) issuance or denial of an individual permit for the permittee's discharges; or (5) formal permit decision by EPA not to reissue the general permit, at which time EPA will identify a reasonable time period for covered dischargers to seek coverage under an alternative general permit or an individual permit.

EPA has followed this approach in order to extend coverage for these permittees under a permit vehicle until re-issuance of the permit or coverage under some other permit. For more information, see 40 CFR 122.6. EPA does not have the authority to provide coverage to "new" vessels seeking coverage under an expired permit (i.e., vessels that were not covered under the permit prior to expiration).

3.8. TERMINATING COVERAGE (PART 1.6)

3.8.1 Submitting a Notice of Termination (NOT) (Part 1.6.1.1)

Part 1.6.1 of the permit encourages those permittees that are required to submit NOIs to use the eNOI system to file NOTs. If a permittee who is required to submit an NOI wishes to terminate coverage under the permit, he/she must submit a NOT in accordance with Appendix F. The permittee's authorization to discharge under the permit terminates at 11:59 pm on the day that a complete NOT is processed and posted on EPA's website (www.epa.gov/npdes/vessels/eNOI). However, the NOT is invalid and the permittee must continue to comply with the permit if none of the conditions identified in Part 1.6.1.2 are met. The permittee has a continuing responsibility for the discharges from its vessel until the NOT is submitted and processed by EPA. See below for a more detailed discussion of Part 1.6.2.

3.8.2 When to Submit a Notice of Termination (Part 1.6.1.2 and Part 1.6.2)

3.8.2.1 Terminating Coverage for Vessels Required to Submit an NOI

If a permittee was required to submit an NOI, and subsequently meets one of the conditions identified in Part 1.6.1.2, he/she must submit an NOT, preferably to the eNOI system. An NOT is required to be submitted within 30 days after one or more of the following conditions has been met: (1) a new owner or operator has assumed responsibility for the vessel; (2) operation of the vessel has permanently ceased in waters subject to this permit and there are no longer vessel discharges; or (3) permit coverage has been obtained under an individual or alternative general permit for all discharges requiring NPDES permit coverage, unless the permittee is directed by EPA to obtain this coverage. EPA uses the term 'permanently ceased' in this context to mean that the vessel owner/operator does not intend to resume operations in waters subject to this permit during the permit term. A vessel owner is not required to submit an NOT every time the vessel leaves waters subject to this permit if the vessel may return to waters subject to this permit during the permit term. This allows a vessel to maintain coverage under the permit, as long as the permit's terms and conditions continue to be met when the vessel is operating in waters subject to this permit.

The permittee's authorization to discharge under the permit terminates at 11:59 pm on the day that a complete NOT is posted on EPA's website (www.epa.gov/npdes/vessels/enoi). The permittee has a continuing obligation to comply with all permit conditions until a compliant NOT is submitted to and processed by EPA and posted on EPA's website.

3.8.2.2 Terminating Coverage for Vessels Not Required to Submit an NOI

If a vessel owner/operator is not required to submit an NOI, the vessel's permit coverage is automatically terminated if: (1) a new owner or operator has assumed responsibility for the vessel; (2) operation of the vessel has permanently ceased in waters subject to this permit and there are no longer vessel discharges; or (3) permit coverage has been obtained under an individual or alternative general permit for all discharges requiring NPDES permit coverage.

3.9. CERTIFICATION (PART 1.7)

Today's permit contains a requirement that any person signing the NOI, NOT, the VGP PARI Form, and any reports (including any monitoring data) submitted to EPA, in accordance with the permit must include the certification statement available in Part 1.7. This certification statement includes an additional sentence that, prior to the VGP issued in December 2008, had not been included in previous EPA issued NPDES general permits. The sentence reads: "I have no personal knowledge that the information submitted is other than true, accurate, and complete." EPA believes this additional certification language is necessitated by the decision in *U.S. v. Robison*, 505 F.3d 1208 (11th Cir. 2007). In *Robison*, the Court of Appeals struck down the defendant's conviction for a false statement on the grounds that the certification language did not require him to have personal knowledge regarding the truth or falsity of the information submitted to EPA. Rather, the court reasoned that EPA's certification required the defendant to certify, in part, that he made an inquiry of the persons who prepared and submitted the information and based on that inquiry, the information was accurate to the best of his knowledge. The court further reasoned that there is no requirement in the certification that the person attest to his personal knowledge regarding the information submitted. The government had argued at trial that the defendant had personal knowledge that the facility had committed violations. As a result, EPA feels it is necessary to include language which clarifies that the signatory is certifying that he or she has no personal knowledge that the information submitted is other than true, accurate, and complete.

3.10. ALTERNATIVE PERMITS (PART 1.8)

3.10.1 EPA Requiring Coverage Under an Alternative Permit (Part 1.8.1)

Pursuant to 40 CFR 122.28(b)(3), EPA may require a discharger to apply for and obtain an individual permit instead of obtaining coverage under the general permit. These regulations also provide that any interested party may petition EPA to take such an action. The issuance of an individual permit will be in accordance with 40 CFR Part 124 and provide for public comment and appeal of any final permit decision. The circumstances in which such an action would be taken are set forth at 40 CFR 122.28(b)(3).

3.10.2 Permittee Requesting Coverage Under an Alternative Permit (Part 1.8.2)

After issuance of the permit, the permittee may request to be excluded from such coverage by applying for an individual permit. In such a case, the permittee must submit an individual permit application, no later than 90 days after the date of publication of final permit in the Federal Register, in accordance with 40 CFR 122.28(b)(3)(iii), along with a statement of reasons supporting the request, to the applicable EPA Regional Office listed in Part 7 of this permit. The request may be granted by issuance of an individual permit or authorization of coverage under an alternative general permit if the reasons are adequate to support the request. Under this scenario, if an individual permit is issued, or authorization to discharge under an alternative NPDES permit is granted, your authorization to discharge under this permit is automatically terminated under 40 CFR 122.28(b)(3)(iv) on the effective date of the individual permit or the date of authorization of coverage under the alternative general permit.

3.11. PERMIT REOPENER CLAUSE (PART 1.9)

This permit contains a reopener clause allowing the permit to be re-opened and modified during the term of the permit, consistent with the Federal regulations at 40 CFR sections 122.62, 122.63, 122.64, and 124.5. Among other things, under 40 CFR 122.62 permit modification may be necessary if new information, not available at the time of permit issuance, is received that would have justified the application of different permit conditions at the time of issuance. While EPA believes that the VGP's technology-based ballast water implementation schedule is appropriate, given the large number of vessels subject to the ballast water numeric effluent limits, it is possible that a situation may arise in which treatment technology for a certain vessel, or specified group of vessels, may not be available within the timeframe specified in part 2.2.3.5.2, Table 6 of the VGP, such that this information (not available at the time of permit issuance) would have justified the imposition of a different implementation date had it been known at the time of permit issuance. As a result, it may be appropriate on a case-by-case basis to adjust the implementation schedule to reflect BAT, as it applies to a vessel or group of vessels.

EPA recognizes that the U.S. Coast Guard may grant an extension to the implementation schedule contained in its final rule regulating ballast water discharges "in those cases where the master, owner, operator, agent, or person in charge of a vessel subject to this subpart can document that despite all efforts to meet the ballast water discharge standard requirements in 151.2030 of this subpart, compliance is not possible." 33 CFR 151.2036. Coast Guard's regulations require that such extension requests be submitted no later than 12 months before the scheduled implementation date listed in 151.2035(b). EPA believes that this time frame will be sufficient for EPA to evaluate and implement, as appropriate, any request for an alternate implementation date through a permit modification, including the required public notice and comment. EPA and the Coast Guard will work together to ensure the agencies are as consistent as possible under their respective authorities in making their determination to grant or deny a request for a change to an implementation date. To enhance that consistency, one of the stated factors EPA will consider is whether the Coast Guard has received a written extension request pursuant to 33 CFR 151.2036 and any supporting technical information in that request. An additional factor that EPA will consider, where appropriate, in its evaluation of any such request is the availability of a ballast water treatment system type-approved by the Coast Guard for the vessel class of the vessel for which an extension is requested. EPA advises that where the U.S. Coast Guard has granted or denied an extension request pursuant to 33 CFR 151.2036, that information will be considered by EPA, but is not binding on EPA.

EPA notes that in addition to a permit modification to the VGP, an alternate mechanism for extending the implementation date applicable to a particular vessel is to issue an individual permit in accordance with Part 1.8 of the VGP. As provided in long-standing EPA enforcement policy, the "compliance history" of the regulated entity is to be taken into account when determining the appropriate response to a violation of an NPDES permit; accordingly, the Agency may consider any good faith efforts by vessels operators to meet applicable compliance deadlines under the VGP in any Agency response to noncompliance.

The permit reopener clause may also be an appropriate vehicle to address other types of new information that would justify revised permit conditions. Such information could also allow EPA to determine whether reinitation of formal consultation could be required as provided in 50 CFR §402.16. Specifically with respect to ballast water discharges, new information that will be considered in determining whether to modify this permit includes but is not limited to data or information from permittees, the general public, states, academia, scientific or technical articles or studies, and results of monitoring conducted under this permit indicating that:

- Treatment technology has improved such that these improved technologies would have justified the application of significantly more stringent effluent limitations or other permit conditions had they been known at the time of permit issuance;
- Treatment technologies known of at the time of permit issuance perform significantly better than understood at the time of permit issuance such that this improved performance would have justified the application of significantly more stringent effluent limitations or other permit conditions had this been understood at the time of permit issuance;
- Scientific understanding of pollutant effects or of invasion biology has evolved such that this new information would have justified the application of significantly more stringent effluent limitations or other permit conditions had this been understood at the time of permit issuance; or
- The cumulative effects of any discharge authorized by the VGP on the environment are unacceptable.

In considering whether to reopen the permit to address such new information, EPA will consider several factors, including the remaining time before the expiration date of the 2013 VGP, and the practicability of implementing new requirements before the end of the statutorily-mandated five-year term of the VGP in 2018.

3.12. OCEAN DISCHARGE CRITERIA

The Ocean Discharge Criteria (40 CFR Part 125, Subpart M) establish regulations for issuance of NPDES permits for discharges into the territorial seas, the contiguous zone and the ocean as these terms are defined in the CWA. The permit includes coverage of vessels operating as a means of transportation when within the territorial seas. EPA's issuance of the permit thus is subject to evaluation under the Ocean Discharge Criteria regulation with respect to discharges incidental to the normal operation of such vessels into the territorial seas. For purposes of this evaluation, the 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 three miles (33 U.S.C. 1362(8)).

Under 40 CFR 125.123(a), if EPA, on the basis of available information determines prior to permit issuance that the discharges authorized will not cause unreasonable degradation of the marine environment, then EPA may issue an NPDES permit, which may include any conditions specified under 124.123(d) as necessary to assure that the discharge will not cause unreasonable degradation. The regulations at 40 CFR 125.121(e) define unreasonable degradation of the marine environment as meaning:

1. Significant adverse changes in ecosystem diversity, productivity and stability of the biological community within the area of discharge and surrounding biological communities,
2. Threat to human health through direct exposure to pollutants or through consumption of exposed aquatic organisms, or
3. Loss of aesthetic, recreational, scientific or economic values which is unreasonable in relation to the benefit derived from the discharge.

The Ocean Discharge Criteria require that EPA consider a number of factors in determining the degree of degradation to the marine environment. These factors include the amount and nature of the pollutants, the potential transport of the pollutants, the character and uses of the receiving water and its biological communities, the existence of special aquatic sites (including parks, refuges, etc.), any applicable requirements of an approved Coastal Zone Management plan, and potential impacts on water quality, ecological health and human health and any other factors the Administrator deems appropriate. 40 CFR 125.122(a). In addition, the Ocean Discharge Criteria establish a presumption that discharges in compliance with state water quality standards will not cause unreasonable degradation with respect to the pollutants subject to those standards. 40 CFR 125.122(b). After consideration of the Ocean Discharge Criteria, EPA has determined that the discharges authorized by the NPDES permit into the territorial seas in accordance with permit requirements will not cause unreasonable degradation of the receiving waters.

The discharges authorized by the permit are limited to those discharges incidental to the normal operation the vessel, and except for ballast water and graywater from cruise ships, typically will be of limited volumes. In addition, because vessels in the territorial seas are likely to be underway as part of their voyage, any discharges incidental to their normal operation would typically be well-mixed upon discharge before they are subject to further dispersal and transport beyond the area of the vessel's operation.

In the case of ballast water, the permit contains interim conditions (Part 2.2.3 of the permit) related to exchange of ballast water and saltwater flushing of empty ballast tanks beyond the outer limits of the territorial seas to reduce the risk of introduction of invasive species resulting from vessel discharges to waters of the United States within the territorial seas. EPA believes that these controls will prevent unreasonable degradation of the marine environment. In addition, the permit establishes numeric concentration-based limits for living organisms in ballast water and a schedule for meeting such limits, which will provide further protection for the marine environment. With respect to graywater from cruise ships, the permit also includes (Parts 5.1 and 5.2 of the permit) additional conditions to reduce the impacts of graywater discharges to acceptable levels. EPA believes that these provisions are necessary to prevent unreasonable degradation of the marine environment.

In developing the permit, the Agency has taken into consideration that discharges incidental to the normal operation of vessels that are subject to the permit have the potential to be contaminated with oil or other potentially persistent or bioaccumulative pollutants. The permit therefore contains a number of best management practices intended to avoid or reduce the potential for such contamination (e.g., section 2.1). In addition, the permit requires (section 2.1.5) compliance with all federal environmental laws that establish controls on oily or hazardous discharges, including among others, CWA section 311 (33 U.S.C. 1321), the Act to Prevent Pollution from Ships (33 U.S.C. 190-1915), the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. 136 et seq.), and the Oil Pollution Control Act, 33 U.S.C. 2701-2761. EPA believes that these controls are necessary to prevent unreasonable degradation of the marine environment.

The Agency also has taken into account the biological communities and receiving waters that would be exposed to the discharges incidental to the normal operation of vessels that will be authorized by the permit. This consideration has necessarily been complicated by the fact that vessels have the potential to traverse vast distances in the territorial sea while discharging. The Agency has taken an approach of identifying potentially sensitive areas in which vessels may operate and providing for additional controls when discharges occur in such areas. In addition to requiring compliance with marine sanctuaries provisions of the National Marine Sanctuaries Act (16 U.S.C. 1431 *et seq.*) and implementing regulations found at 15 CFR Part 922 and 50 CFR Part 404 (Part 2.1.5), the permit includes other conditions to impose additional controls and requirements on covered discharges in sensitive receiving waters (Part 2.3 of the permit). EPA has also determined that issuance of this permit will not adversely affect essential fish habitat (see 12.3 of this Fact Sheet).

Finally, this permit applies to discharges to the outer limit of the three mile territorial sea. State water quality standards also apply within these waters and the permit thus contains effluent limitations as necessary to meet those applicable water quality standards (Parts 2.3 and 6 of the

Permit). EPA has requested states' certifications under section 401 of the Clean Water Act, and requested concurrence on EPA's consistency determination for this permit from state coastal management agencies, in accordance with section 307(c) of the Coastal Zone Management Act (CZMA). Additional conditions are incorporated into Part 6 of the permit, pursuant to CWA section 401, CZMA section 307(c), and implementing regulations. Under 40 CFR 125.122(b), EPA presumes that discharges in compliance with state water quality standards will not cause unreasonable degradation of the marine environment with respect to specific pollutants or conditions specified in such standards.

In light of the foregoing, EPA has determined that issuance of the permit will not cause:

1. Significant adverse changes in ecosystem diversity, productivity and stability of the biological community within the area of discharge and surrounding biological communities,

2. Threat to human health through direct exposure to pollutants or through consumption of exposed aquatic organisms, or

3. Loss of aesthetic, recreational, scientific or economic values which is unreasonable in relation to the benefit derived from the discharge.

Accordingly, in accordance with 40 CFR 125.123(a), the Agency has determined that issuance of the permit with the controls complies with the Ocean Discharge Criteria guidelines established under CWA section 403(c).

3.13. OTHER CONDITIONS (PARTS 1.11, 1.12, AND 1.13)

This permit contains savings clauses which state that nothing in the permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation under authority preserved by section 510 of the Clean Water Act or applicable requirements or prohibitions under other provisions of Federal law or regulations. In addition, Federal regulations require that the standard permit conditions provided at 40 CFR 122.41 be applied to all NPDES permits. As provided by the introductory text of 40 CFR 122.41 and the regulation at 40 CFR 122.43(c), all of the standard permit conditions published in federal regulations at 40 CFR 122.41 (2008) are incorporated into the permit by reference. The permit requires permittees to comply with all applicable standard conditions. These regulations may be viewed at: http://ecfr.gpoaccess.gov/cgi/t/text/textidx?c=ecfr&sid=ddda7b420b62b6e4a956b3f5cf50db8b&rgn=div5&view=text&node=40:22.0.1.1.12&idno=40 and will be included in the docket for this permit.

3.14. ELECTRONIC REPORTING REQUIREMENT

Pursuant to Part 1.14 of the permit, vessels covered the 2013 VGP must report all results to EPA electronically, unless they meet one of the requirements for and are granted a waiver as specified in Part 1.14 of the VGP. These reasons are if:

- EPA has not yet developed electronic tools to allow such electronic submission of VGP reporting information, and has not yet implemented such electronic reporting;
- The owner/operator's headquarters is physically located in a geographic area (i.e., zip code or census tract) that is identified as under-served for broadband Internet access in the most recent report from the Federal Communications Commission and the vessel never travels to any areas with adequate broadband Internet access; or
- The vessel owner/operator has issues regarding available computer access or computer capability.

Electronic reporting improves efficiency for both vessel owner/operators and EPA. EPA believes that the vast majority of vessel owner/operators are able to submit NOIs and reporting results electronically and most prefer electronic communication versus submitting hard copy documents. For example, in the 2008 VGP, where electronic submittal of NOIs was encouraged, vessel owner/operators submitted electronic NOIs for approximately 99% of covered vessels.

As mentioned above, in those rare cases where vessel owner/operators are unable to report electronically, EPA has included a provision to allow for hard copy submittal of information on a case by case basis, assuming the vessel owner/operator meets certain minimum requirements.

EPA plans to make any ballast water monitoring data available in electronic form available to the public in electronic form. EPA believes that such an approach increases the transparency of permit compliance without unduly increasing the burden on the regulated community or EPA. The data will likely be made available in the format of a searchable interface available via EPA's webpage at www.epa.gov/npdes/vessels. For an example of how EPA makes VGP related data available to the public, please see EPA's NOI search feature, also available at www.epa.gov/npdes/vessels.

3.15. ADDITIONAL NOTES

As discussed more fully later in this fact sheet, the permit incorporates by reference (as BAT/BPT) several provisions of federal law, class society and flag state requirements. EPA has clarified in the permit "notes" section that the permit is intended to refer to those provisions as they were in effect on the date of issuance of the final VGP. Hence, the permit's provisions that require compliance with statutes and regulations other than the Clean Water Act refer to those authorities as codified as of the date of the Federal Register notice that will announce the availability of this final permit. References to class society or flag state requirements are also as of that date. All of the provisions in this section were included in the 2008 VGP and have been moved to Part 1.15 of the VGP for editorial reasons.

4. EFFLUENT LIMITATIONS

4.1. BACKGROUND

The Clean Water Act (CWA) requires that all point source discharges must meet technology-based effluent limitations representing the applicable levels of technology-based control. Water quality-based effluent limitations (WQBELs) are required as necessary where the technology-based limitations are not sufficient to meet applicable water quality standards (WQS). See *P.U.D. No. 1 of Jefferson County et al. v. Washington Dept. of Ecology*, 511 U.S. 700, 704 (1994). Water quality-based requirements will be discussed in greater depth in section 4.3. Both technology-based and water quality-based effluent limitations are implemented through NPDES permits containing such limitations issued to point sources. CWA sections 301(a) and (b).

4.1.1 The Clean Water Act Requires EPA to Develop Effluent Limitations that Represent the Following:

4.1.1.1 Best Practicable Control Technology Currently Available (BPT)

The CWA requires BPT effluent limitations for conventional, toxic, and non-conventional pollutants. Section 304(a)(4) designates the following as conventional pollutants: biochemical oxygen demand (BOD_5), total suspended solids, fecal coliform, pH, and any additional pollutants defined by the Administrator as conventional. The Administrator designated oil and grease as an additional conventional pollutant on July 30, 1979. 40 CFR 401.16. EPA has identified 65 pollutants and classes of pollutants as toxic pollutants, of which 126 specific substances have been designated priority toxic pollutants. 40 CFR 401.15 and 40 CFR Part 423 Appendix A. All other pollutants are considered to be non-conventional.

In specifying BPT, under CWA section 301(b)(1)(A), 304(b)(1)(B), and 40 CFR 125.3(d)(1), EPA looks at a number of factors. EPA first considers the total cost of applying the control technology in relation to the effluent reduction benefits. The Agency also considers the age of the equipment and facilities, the processes employed, and any required process changes, engineering aspects of the control technologies, non-water quality environmental impacts (including energy requirements), and such other factors as the EPA Administrator deems appropriate. Traditionally, EPA establishes BPT effluent limitations based on the average of the best performance of facilities within the industry of various ages, sizes, processes, or other common characteristics. Where existing performance is uniformly inadequate, BPT may reflect higher levels of control than currently in place in an industrial category if the Agency determines that the technology can be practically applied.

4.1.1.2 Best Conventional Pollutant Control Technology (BCT)

The 1977 amendments to the CWA required EPA to identify effluent reduction levels for conventional pollutants associated with BCT for discharges from existing industrial point sources. CWA section 301(b)(2)(E); 304(b)(4)(B); 40 CFR 125.3(d)(2). In addition to considering the other factors specified in section 304(b)(4)(B) to establish BCT limitations, EPA also considers a two part "cost-reasonableness" test. EPA explained its methodology for the development of BCT limitations in 1986. 51 FR 24974 (July 9, 1986).

4.1.1.3 Best Available Technology Economically Achievable (BAT)

For toxic pollutants and non-conventional pollutants, EPA promulgates effluent limitations based on BAT. CWA section 301(b)(2)(A); 304(b)(2)(B); 40 CFR 125.3(d)(3). In establishing BAT, the technology must be technologically “available” and “economically achievable.” The factors considered in assessing BAT include the cost of achieving BAT effluent reductions, the age of equipment and facilities involved, the process employed, potential process changes, non-water quality environmental impacts, including energy requirements, and other such factors as the EPA Administrator deems appropriate. The Agency retains considerable discretion in assigning the weight accorded to these factors. BAT limitations may be based on effluent reductions attainable through changes in a facility's processes and operations. Where existing performance is uniformly inadequate, BAT may reflect a higher level of performance than is currently being achieved within a particular subcategory based on technology transferred from a different subcategory or category. BAT may be based upon process changes or internal controls, even when these technologies are not common industry practice.

This permit contains effluent limits that correspond to required levels of technology-based control (BPT, BCT, BAT) for various discharges under the CWA. Some effluent limits have been established by examining other existing laws and requirements. Where these laws already exist, it was deemed feasible for the operators to implement these practices as effluent limits in this permit. Because these are demonstrated practices, EPA has found that they are technologically available and economically practicable (BPT) or achievable (BAT). In some cases, such as with discharges of oils, including oily mixtures, graywater discharges from cruise ships (under certain circumstances), and for ballast water discharges, numeric effluent limits have been established.

4.1.2 Numeric Limitations Are Infeasible

Because of the nature of vessel discharges, it is not practicable to derive numeric effluent limits to achieve these levels of control for many of the discharge types until greater information is available. Constituents in properly controlled discharges may vary widely based upon vessel type, size, and activities occurring on board the vessel. In such situations, the CWA authorizes EPA to include non-numeric effluent limits in NPDES permits.[6] 40 CFR 122.44(k)(3). The VGP includes such non-numeric effluent limits developed for discharges for which developing numeric effluent limits are infeasible to calculate at this time. Many of these non-numeric effluent limits require permittees to engage in specific behaviors or best management practices (BMPs).

For example, vessel owner/operators must apply a broom clean standard (or similar management measure) to remove all debris before conducting deck washdowns. Additionally, to reduce the impact of oils leaking into the marine environment from oil to sea interfaces, many vessels must use environmentally acceptable lubricants. Additionally, several BMPs require vessels to “minimize” pollutant discharges. For purposes of this permit and consistent with the

[6] Refer to more detailed discussion below under “EPA’s Authority To Include Non-Numeric Technology-Based Effluent Limits In NPDES Permits,” “EPA’s Decision To Include Non-Numeric Technology-Based Effluent Limits In This Permit” and 40 CFR 122.44(k)(3).

technology-based requirements of the CWA, EPA is clarifying that the term "minimize" means to reduce and/or eliminate to the extent achievable using control measures (including best management practices) that are technologically available and economically practicable and achievable in light of best marine practice.

This permit defines the term "minimize" in order to provide a reasonable approach by which EPA, permittees, and the public can determine/evaluate appropriate control measures for vessels to control specific discharges. EPA believes that for some vessel discharges, minimization of pollutants in those discharges can be achieved without using highly engineered, complex treatment systems. For other vessel discharges, highly engineered, complex, treatments systems that are reliable and approved for use on vessels are not currently available. The specific limits included in Part 2 of the permit emphasize effective pollution prevention controls, such as requiring phosphorus free soap, storing chemicals in protected areas of the vessel, and minimizing production of graywater in port. In other cases, they require more complex behavioral practices such as saltwater flushing or ballast water exchange as interim ballast water management requirements. In yet other cases, more advanced treatment may be necessary.

4.2. TECHNOLOGY-BASED EFFLUENT LIMITS

EPA has determined that the technology-based numeric and non-numeric effluent limits in this permit, taken as a whole, constitute the first level of control (BPT for all pollutants) and the second level of control (BAT for toxic and non-conventional pollutants and/or BCT for conventional pollutants) for discharges from vessels. For all of the discharges in this permit, the technology-based limits are based on best professional judgment, as authorized under CWA section 402(a)(1) and 40 CFR 125.3.

4.2.1 Types of Technology-Based Effluent Limits

As stated above, the CWA establishes two levels of technology-based controls. The first level of control, "best practicable control technology currently available," or "BPT" applies to all pollutants. CWA section 304(b)(1)(B); 33 U.S.C. 1314(b)(1)(B). BPT represents the initial stage of pollutant discharge reduction, designed to bring all sources in an industrial category up to the level of the average of the best source in that category. See *EPA v. National Crushed Stone Association*, 449 U.S. 64, 75-76 (1980). In the second level of control, all point sources are required to meet effluent limitations based on "best conventional pollutant control technology," or "BCT" CWA section 304(b)(4)(B); 33 U.S.C. 1314(b)(4)(B) or "best available technology economically achievable," or "BAT" CWA section 301(b)(2)(A); 33 U.S.C. 1311(b)(2)(A), depending on the types of pollutants discharged. BCT applies to conventional pollutants, listed at 40 CFR 401.16 (biological oxygen demand (BOD_5), pH, fecal coliform, total suspended solids (TSS), and oil and grease). BAT applies to toxic and non-conventional pollutants. Technology-based limits are to be applied throughout an industry sector without regard to receiving water quality. *Appalachian Power Co. v. EPA*, 671 F.2d 801 (4th Cir. 1982).

4.2.2 Inclusion of Non-Numeric Technology-Based Limits in NPDES Permits

NPDES permits are required to contain technology-based limitations. CWA sections 301(b)(1)(A)(BPT); 301(b)(2)(A)(BAT), 301(b)(2)(E) (BCT); 40 CFR 122.44(a)(1).

Technology-based limits in the permit represent the BPT (for conventional, toxic, and non-conventional pollutants), BCT (for conventional pollutants), and BAT (for toxic and non-conventional pollutants) level of control for the applicable pollutants. Where EPA has not promulgated effluent limitations guidelines and standards (ELGs) for an industry, or if an operator is discharging a pollutant not covered by the effluent guideline, permit limitations may be based on the best professional judgment (BPJ, sometimes also referred to as best engineering judgment) of the permit writer. 33 U.S.C. 1342(a)(1); 40 CFR 125.3. <u>See</u> *Student Public Interest Group v. Fritzsche, Dodge & Olcott*, 759 F.2d 1131, 1134 (3d Cir. 1985); *American Petroleum Inst. v. EPA*, 787 F.2d 965, 971 (5th Cir. 1986). For this general permit, all of the technology-based limits are based on BPJ decision-making because no ELGs apply.

Many of the BPJ limits in the permit are in the form of non-numeric control measures, commonly referred to as best management practices (BMPs). BMPs are considered "effluent limitations" within the meaning of the CWA. <u>See</u> *Citizens Coal Council v. EPA*, 447 F.3d 879, 895-96 (6th Cir. 2006); *Waterkeeper Alliance, Inc. v. EPA*, 399 F.3d 486, 502 (2d Cir. 2005) (holding that site-specific BMPs at issue constitute effluent limitations within the meaning of the CWA); *Natural Res. Def. Council, Inc. v. EPA*, 673 F.2d 400, 403 (D.C. Cir.1982) ("section 502(11) defines 'effluent limitation' as '*any* restriction' on the amounts of pollutants discharged, not just a numerical restriction."). Through the Agency's NPDES permit regulations, EPA interpreted the CWA to allow BMPs to take the place of numeric effluent limitations under certain circumstances. 40 CFR §122.44(k), entitled "Establishing limitations, standards, and other permit conditions (applicable to State NPDES programs ...)," provides that permits may include BMPs to control or abate the discharge of pollutants when: (1) "[a]uthorized under section 304(e) of the CWA for the control of toxic pollutants and hazardous substances from ancillary industrial activities"; (2) "[a]uthorized under section 402(p) of the CWA for the control of stormwater discharges"; (3) "[n]umeric effluent limitations are infeasible"; or (4) "[t]he practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA." 40 CFR 122.44(k).

Various courts have held that the CWA does not require the EPA to set numeric limits where such limits are infeasible. <u>See</u>, e.g., *Natural Resources Defense Council v. Costle*, 568 F.3d at 1380 ("when numerical effluent limitations are infeasible, EPA may issue permits with conditions designed to reduce the level of effluent discharges to acceptable levels"); *Citizens Coal Council v. EPA*, 447 F.3d 879, 895-96 (6th Cir. 2006). The Sixth Circuit cited to *Waterkeeper Alliance, Inc. v. EPA*, 399 F.3d 486, 502 (2d Cir. 2005), stating "site-specific BMPs are effluent limitations under the CWA" (agreeing with EPA that the CWA does not require numeric effluent limits "where such limits are infeasible" because "a baseline pollutant loading cannot be calculated.").

4.2.3 EPA's Decision to Include Non-Numeric Technology-Based Effluent Limits in This Permit and Rationale for Why the Limits Represent the Appropriate (BPT, BCT or BAT) Level of Control[7]

<u>Non-numeric Limits</u>

[7] EPA's rationales for inclusion of numeric limits appear in the discharge-by-discharge discussions as applicable

With some exceptions, numeric effluent limitations are not feasible to calculate for vessel discharges in this permit iteration. Those exceptions include graywater and pool and spa discharges from cruise ships; oily discharges, including oily mixtures; some bilgewater discharges; and ballast water discharges. EPA may develop numeric effluent limits for certain additional discharge types for the next permit iteration, if applicable. Vessels vary widely by type and/or class, size, and activity and can discharge a wide variety of waste streams, whose volume and composition will vary dependent upon seas, cargo carried, and age of the vessel. Additionally, vessel operators cannot install equipment onboard their vessels until that equipment has been approved by the Coast Guard and, in some cases, their class societies. Hence, EPA cannot require use of equipment or technologies that would conflict with the requirements of these organizations without fully understanding the implications of such requirements.

These factors create a situation where, at this time, it is generally not feasible for EPA to calculate numeric effluent limitations to effectively regulate vessel discharges, with the exceptions noted above (graywater and pool and spa water discharges from cruise ships; some oil discharges, including oily mixtures for vessels; some bilgewater discharges; and ballast water discharges). EPA is able to calculate numeric effluent limits for these groups because extensive research has been conducted and effective pollution control technologies are widely or will be widely commercially available. Therefore, in light of these considerations, EPA has determined that it is not feasible for the Agency to calculate numeric, technology-based limits for many of the discharges covered under this permit, and, based on the authority of 40 CFR 122.44(k)(3), has chosen to adopt non-numeric effluent limits.

Rationale for Finding that the Limits in this Permit Represent the BPT, BCT or BAT Level of Control

The BAT/BCT/BPT non-numeric effluent limits in this permit are expressed as:

- Specific pollution prevention practices for minimizing or eliminating the pollutants or constituent of concern in the discharge.
- Specific behavioral practices for minimizing or eliminating the pollutants or constituent of concern in the discharge.
- Narrative requirements to minimize pollutants or constituents of concern in discharges or the discharges themselves.[8]
- Limiting or eliminating discharges at certain times for discharge types that can be limited or eliminated for short periods due to technology available on board the vessel and the vessel design (i.e., if the vessel can hold the discharge type for limited periods or reduce production of the effluent).

In the context of this general permit, EPA has determined these non-numeric effluent limits represent the best practicable technology (BPT) for all pollutants, the best conventional

[8] These types of effluent limits allow owner/operators to use control measures appropriate for their vessels to meet those limits.

pollutant control technology for conventional pollutants (BCT) and the best available technology economically achievable (BAT) for toxic and non-conventional pollutants. EPA has determined that the combination of pollution prevention approaches and structural management practices described above are the most environmentally sound way to control the discharge of pollutants from vessels.

Requirements are Technologically Available

EPA has found that the requirements of this permit represent the appropriate level of control representing BPT, BCT, and BAT. For example, many class societies require that vessels have coamings or drip pans underneath machinery as a way to keep oil from entering the bilge, being discharged to surrounding waters, or creating hazardous conditions on the vessel deck. The majority of vessels already have these available measures in place to eliminate the discharge of oil from their vessels, and many frequently clean oil from the drip pans if present. Hence, EPA believes this requirement represents BPT and this permit requires that all vessels follow this common sense approach if feasible. As an example of an effluent limit that meets BPT and BAT standards, EPA is requiring existing vessel operators to comply with additional ballast water management requirements such as mandatory saltwater flushing for vessels with empty ballast water tanks (see section 4.4.3.6 of this fact sheet for additional discussion) before they must meet the VGP's numeric ballast water effluent limits. These requirements are available, in part, because of the Saint Lawrence Seaway Corporation's mandatory requirements for vessels entering through the Seaway (33 CFR Part 401.30), and many U.S.-bound vessels with empty ballast tanks already perform saltwater flushing. Furthermore, because not all of these vessels will have reliable treatment technology for removing residual living organisms installed on their vessels for the full permit term (because immediately requiring installation onboard all vessels is economically unachievable), saltwater flushing represents BAT since it is the best approach currently available for these vessels under this standard.

EPA has found that it is technologically possible to prohibit discharges in certain waters, and therefore such a limit is technologically available. However, it is not possible to prohibit these discharge categories under all circumstances. EPA decided which discharge types to prohibit in certain waters based on the environmental impacts of discharges and technical information as to whether vessels have the capacity to hold certain discharge types. These sources of information included technical experts and publications cited in this fact sheet including US EPA 1999; Alaska Department of Environmental Conservation (ADEC) and Science Advisory Panel, 2002; Lamb, 2004; and EPA, 2008.

As an example, some vessels such as cruise ships have the ability to hold graywater for a period from hours to days. Likewise, many large vessels can retain treated bilgewater on board in the bilge for prolonged periods; however, it must periodically be discharged or emptied. Yet another example is the discharge of AFFF for maintenance purposes. Vessel owner/operators may elect where they conduct the maintenance, thereby controlling where they will discharge. Since vessels are mobile and can move from water to water, EPA has determined that vessels have the technology to limit their discharges in select waters. Therefore, under the authority to consider "other factors the Administrator deems appropriate," EPA has determined that the requirement to limit discharges to specific waters is technologically available. However, as mentioned, EPA finds that it is not technologically available to limit all discharge types in certain waters. For instance, in the case of deck runoff, vessel operators have little control as to when water may runoff from the deck into surrounding waters without potentially creating major safety concerns. Hence, EPA is not prohibiting the discharge of certain discharge types into waters of greater concern where methods to do so are not technologically available.

Requirements Meet the BPT and BAT Economic Tests Set Forth in the CWA

There are different economic considerations under BPT, BCT and BAT. EPA finds that the limits in this permit meet the BPT and BAT economic tests. Because the types of controls under consideration minimize toxic, nonconventional, and conventional pollutants, conventional pollutants are controlled by the same practices that control toxic and nonconventional pollutants. Hence, EPA is evaluating effluent limits using a BPT and a BAT standard, but since conventional pollutants will also be adequately controlled by these same effluent limits for which EPA applied the BPT and BAT tests, EPA has determined that it is not necessary to conduct BCT economic tests.

Under BPT, EPA has determined that the requirements of this permit are economically practicable. To make this determination, EPA has considered the reasonableness of the relationship between the costs of application of technology and the effluent reduction benefit derived. CWA section 301(b)(1)(B); 40 CFR 125.3(d)(1). EPA expects the permit requirements to reduce the risk of invasive species spread, to minimize production of effluent in high quality waters, to reduce nutrient loading, and to minimize the risk of other constituents entering vessel waste streams.

EPA has determined that the requirements of this permit are economically achievable. In determining "economic achievability" under BAT, EPA has considered whether the costs of the controls can reasonably be borne by the industry. EPA typically evaluates "closures," whereby the costs of requirements are evaluated to see whether they would cause a facility to go out of business. EPA has assessed the costs of the requirements in this permit and finds that this permit will result in no "closures" in that the costs of the permit are small compared to all operating costs. EPA has assessed the costs of the requirements and finds that except in rare cases, the cost of implementing this permit is estimated to be below 1% of the total operating costs of almost all entities for any given year. The total domestic flagged vessel universe that would be affected by this permit includes approximately 58,600 vessels. Additionally, EPA estimates that approximately 12,400 foreign flagged vessels will be covered by the VGP. Including the ballast water and other discharge requirements, the economic impact analysis indicates that the best management practices in this permit would cost between $7.2 million and $23.0 million annually, relative to the 2008 VGP and current practice. EPA applied a cost-to-revenue test which calculates annualized pre-tax compliance cost as a percentage of total revenues and used a threshold of 1 and 3 % to identify entities that would be significantly impacted as a result of this Permit. See EPA's Economic Analysis (US EPA, 2011a) prepared for this permit for further discussion. Based on this analysis, EPA concludes that the BAT limits in this permit are unlikely to result in a substantial economic impact on businesses of any size, and, in particular, small businesses. Hence, EPA interprets this analysis to indicate that the BAT limits are economically achievable. The economic analysis is available on EPA's webpage at www.epa.gov/npdes/vessels and in the docket for this permit.

Additionally, the discharge location limitation is economically practical and achievable, since discharging in one location versus another will add no or little additional cost. The only potential costs are an increase in fuel consumption from carrying additional volumes of effluent rather than discharging the effluent immediately when generated. EPA expects these incremental costs associated with this permit to be small relative to total operating costs. EPA's information in the record does indicate, however, that it is possible and economically practicable and achievable to minimize graywater and some additional discharges in waters federally protected wholly or in part for conservation purposes. Therefore, under EPA's authority to consider "other factors the Administrator deems appropriate," it is reasonable to focus the limitations on certain discharge types that would have the most environmental significance. In addition, this restriction is alternatively and independently based on EPA's authority under CWA section 403(c).

<u>Requirements have Acceptable Non-Water Quality Environmental Impacts</u>

In addition, EPA has considered the non-water quality environmental impacts, including energy impacts, of the controls required under this permit and finds that they are acceptable. EPA anticipates that the requirements of this permit may result in marginal increase in fuel usage for vessels that must treat graywater to standards in Part 5 of the permit, or must limit the discharge location of certain waste streams and transport them into a different receiving water or hold them for discharge onshore. Additionally, owner/operators of vessels may generate more sludge or other waste that may need to be disposed of properly onshore. EPA expects that most permit requirements will result in few non-water quality impacts because, in many cases, the permit is reflective of practices currently being implemented by owner/operators.

<u>Data Sources</u>

As described more fully throughout this fact sheet, EPA finds that today's final permit contains technology-based controls that represent the BPT, BCT or BAT levels of control.

In developing these non-numeric effluent limits, EPA considered data from numerous peer reviewed publications, literature produced by the federal government, other technical reports and publications, public comments, and comments from experts working in the field (e.g., Albert et al., 2010, CSLC, 2010; Dobroski et al., 2009; Dobroski et al., 2011; Endresen et al., 2004; Environmental Law Institute, 2004; Gracki et al., 2002; Gray et al., 2007; Gregg & Hallegraeff, 2007; Lamb, 2004; Lee et al., 2010; Lloyds Register, 2010; Locke et al., 1993; McCollin et al., 2007; NAS, 2011; Orange County Coastkeeper, 2007; Quilez-Badia et al., 2008; Raikow et al., 2007; Schiff et al., 2004; Tamburri et al., 2002; US EPA, 1999, 2001a, b, 2008a, 2010a, 2011). The data sources from which EPA derived information for decision-making purposes are included in the docket for the final permit and/or referenced in this fact sheet. These data sources discuss, among other things, vessel discharge types, BMPs available for these discharge types, and the effectiveness of given BMPs or behavioral practices.

4.3. TECHNOLOGY-BASED EFFLUENT LIMITS AND RELATED REQUIREMENTS IN THE PERMIT

4.3.1 General Effluent Limits (Part 2.1)

The general effluent limits are designed to apply to all covered vessels for all covered discharge types present on a particular vessel. These effluent limits are generally preventative in nature and are designed to minimize the discharge of pollutants from a vessel. Owner/operators are ultimately responsible for ensuring that all required effluent limits are implemented.

As discussed above, these technology-based effluent limits apply to all covered vessels and were developed using BPJ. These general technology-based effluent limits were established based on available and relevant information, including available technical data, existing statutes and regulations, statistical industry information, and research studies cited in the references section of this permit.

4.3.1.1 Material Storage (Part 2.1.1)

Any materials, whether cargo or for use onboard the vessel, that may be exposed to precipitation, surface water spray, or wind can potentially be discharged on their own or become part of other waste streams. Materials that may not be considered toxic in small concentrations could pose an environmental threat if significant amounts are washed overboard, particularly in shallow or impaired waters.

Therefore, the permit requires that all vessel operators practice good environmental stewardship by minimizing any exposure of cargo or onboard materials that may result in releases of contaminants to the environment. This can be accomplished by containerizing or tarping materials, and generally limiting any exposure of these materials to wind, rain, or spray. In addition, if water draining from the storage area comes into contact with any oily materials, except for naturally occurring fish oils from fishing gear stored on deck, the permit requires measures to prevent the oil from being discharged in harmful quantities (pursuant to Parts 2.1.1 and 2.1.4 of the Permit).

EPA believes that while specific numeric limitations on toxic substances are not feasible for this potential source of pollutants, sound marine practices should be sufficient to reduce most accidental or incidental discharges of cargo or stored materials. EPA also believes that emphasis on training and educating vessel crew on the use and environmental benefits of these practices should be standard practice.

4.3.1.2 Toxic and Hazardous Materials (Part 2.1.2)

The presence or use of toxic and hazardous materials may be necessary for the operation of vessels. As part of the permit's requirements, these materials must be properly contained to avoid contamination of the discharges covered by this permit. EPA has recommended human health and marine aquatic life criteria for a few toxic pollutants, but requiring numeric effluent limitations and corresponding sampling and analysis of discharges for all potentially harmful contaminants is not a reasonable option for this permit since discharges would be accidental in nature and the preventive requirements are just as effective as numeric limits at controlling such discharges. These provisions should effectively prevent the discharge of these toxic and hazardous materials from storage, spills, and containment. EPA believes that preventing the release of these substances to the environment is the appropriate environmental protection strategy. Vessel owner/operators are required to ensure that toxic and hazardous substances are treated in a manner that prevents releases due to precipitation or surface water spray. Just as EPA requires of land-based industries, vessels must store, label, and secure toxic and hazardous materials in suitable, sealed containers.

4.3.1.3 Fuel Spills/Overflows (Part 2.1.3)

Even small amounts of spilled fuel can contaminate large areas of water, making it uninhabitable for plants and animals. Most small spills can be prevented by taking basic precautions when filling fuel tanks. The permit requires vessel operators to implement these precautions that will prevent or, in the case of a spill, contain any fuel that is released to surface waters (e.g. use of booms). The discharge of any fuel spill or overflow may result in a discharge that may be harmful as defined by 40 CFR Part 110, which includes those discharges that cause a visible sheen. In addition, any larger scale fuel spill or overflow is not incidental to the normal operation of a vessel and therefore, not authorized by this permit. Through proper fueling operations and training on spill treatment, vessel operators may reduce impacts caused by human error or improper equipment use. EPA recognizes that fueling operations for large vessels are very different from fueling operations on small boats, and often large vessels will carry onboard several smaller vessels used as lifeboats, tenders, or rescue boats. Therefore, there are additional requirements for fueling of auxiliary vessels such as lifeboats, tenders, or rescue boats that are deployed from "host" vessels subject to the permit. These requirements include examining the surrounding area for the presence of a visible sheen during fueling, taking immediate and appropriate corrective actions if a sheen is observed as a result of the permittee's fueling operations, and using an oil absorbent material or other appropriate device while fueling to catch drips from vent overflow and fuel intake. Also, vessel owner/operators must regularly inspect the fuel and hydraulic systems for any damages or leaks, for instance during fueling, when performing routine maintenance on the auxiliary vessel, and/or during deployments for testing. These simple steps can prevent fuel spills and overflows that would lead to a discharge and minimize the impact of any fuel spills or overflows that do occur. These requirements have been adapted from EPA's previously proposed Recreational Vessel General Permit.

4.3.1.4 Discharges of Oil, Including Oily Mixtures (Part 2.1.4)

Discharges of oil, including oily mixtures, can significantly impact aquatic and terrestrial organisms and their ecosystems. When oil, including oily mixtures, is discharged in small quantities, aquatic ecosystems have limited ability to assimilate, oxidize, degrade, and destroy many of the hydrocarbons present in oil. However, when discharged in significant quantities from a single vessel, or in moderate quantities from numerous vessels, oil releases have been documented to create severe environmental impacts.

The permit requires that any oil, including oily mixtures, other than those exempted in 40 CFR 110.5, may not be discharged in quantities that may be harmful. These requirements are consistent with section 311 of the CWA and reinforce the requirement that discharges from the internal portions of vessels may not result in discharges of oil in quantities likely to impact aquatic ecosystems. The visible sheen test was chosen as an approach to determine whether oil is being discharged in quantities that may be harmful, because the visible sheet test is easy to use and is consistent with existing CWA requirements.

4.3.1.5 Compliance with Other Statutes and Regulations Applicable to Vessel Discharges (Part 2.1.5)

These effluent limits contain the requirement to comply with other applicable statutes and regulations dealing with vessel discharges. Reliance on other statutes and regulations to develop the permit requirements is a reasonable exercise of BPJ because these statutes and regulations have gone through an extensive process of evaluation and analysis by federal agencies that have considerable expertise in vessel management. Furthermore, many of the BMPs considered by EPA were covered by these other authorities. These statutes and regulations are currently being implemented and therefore are technologically and economically practicable (BPT) and achievable (BAT) in light of best marine practice. Rather than reiterate the provisions of these statutes and regulations in their entirety for the permit's general effluent limits, EPA has determined, based on BPJ, that incorporation of these statutes and regulations by reference is reasonable.

Some of the statutes and regulations that were examined to inform the Agency's BPJ decision and which are incorporated by reference into the provisions of the permit follow. These summaries are not meant to be legally comprehensive reiterations; rather, they are short summaries designed to inform owner/operators of the existence of these authorities. The actual statutes and regulations implementing these authorities are the legally binding conditions for the permit.

<u>MARPOL, APPS, and Implementing Regulations</u>

The International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) is an international treaty that regulates certain discharges from vessels. Annexes to MARPOL regulate different types of vessel pollution; the United States is a Party to Annexes I, II, III, V, and VI. MARPOL is primarily implemented in the U.S. by the Act to Prevent Pollution from Ships (APPS), 33 U.S.C.1901 et seq. The U.S. Coast Guard is the lead agency for APPS implementation and has issued implementing regulations primarily found at 33 CFR Part 151. Those requirements already apply to many of the vessels covered by the permit.

APPS regulates the discharge of oil and oily mixtures, noxious liquid substances, and garbage, including food wastes and plastic.

With respect to oil and oily mixtures, Coast Guard regulations at 33 CFR 151.10 prohibit "any discharge of oil or oily mixtures into the sea from a ship" except when certain conditions are met, including a discharge oil content of less than 15 parts per million (ppm) and that the ship has in operation oily-water separating equipment, an oil content monitor, a bilge alarm, or a combination thereof. These requirements have been in place for a significant length of time, and the equipment necessary to meet these standards is widely available and already in use on ships subject to these regulations.

Substances regulated as "noxious liquid substances" (NLS) under APPS are divided into 4 categories based on their potential to harm marine resources and human health. <u>See</u> 33 CFR

151.47 and 151.49; 46 CFR Part 153, Table 1. Under 46 CFR 153.1128, discharges of NLS residues at sea may only take place at least 12 nautical miles from the nearest land. In light of this, the permit does not authorize such discharges within waters subject to the permit (i.e., inland waters and the waters of the 3 mile territorial sea).

Annex III to MARPOL addresses harmful substances in packaged form and is implemented in the U.S. by the Hazardous Materials Transportation Authorization Act of 1994, as amended (49 U.S.C. 5901 et seq.) and regulations appearing at 46 CFR Part 148 and 49 CFR Part 176. That regulatory scheme establishes labeling, packaging, and stowage requirements for such materials so as to help avoid their accidental loss or spillage during transport. 40 CFR 122.44(p) provides that when an NPDES permit is issued to a vessel operating as a means of transportation, the permit is to require compliance with any applicable Coast Guard regulations that establish specifications for safe transportation, handling, carriage, and storage of pollutants. The permit incorporates this requirement in Parts 1.13 and 2.1.5.

<u>Oil Pollution Act</u> (33 U.S.C. 2701 *et seq.)*

Additional requirements also affect vessel discharges, in particular, the Oil Pollution Act of 1990 and the associated U.S. Coast Guard implementing regulations at 33 CFR Parts 155 and 157. These regulations establish and reinforce the APPS 15 ppm discharge standard for oil and oily mixtures for oceangoing ships and require most vessels to have an oily water separator. Oceangoing vessels less than 400 gross tons must either have an approved oily water separator or retain oily water mixtures on board for disposal to an approved reception facility onshore. Oceangoing vessels more than 400 gross tons, except vessels that carry ballast water in their fuel oil tanks, must be fitted with "approved 15 parts per million (ppm) oily-water separating equipment for the processing of oily mixtures from bilges or fuel oil tank ballast." 33 CFR 155.360. The maximum oily discharge standard is included as a binding requirement in this permit because it is the most appropriate standard for oil and oily discharges and maintains current national and international standards. 33 CFR Part 155 was also referenced for oil containment and cleanup equipment and procedures. This section provides information on both equipment and procedures that are required for preventing and reacting to oil spills and discharges.

<u>Clean Water Act Section 311</u> (33 U.S.C. 1321)

Clean Water Act Section 311, Oil and Hazardous Substances Liability Act, states that it is the United States' policy that there should be no discharges of oil or hazardous substances into waters of the U.S., adjoining shorelines, and certain specified areas, except where permitted under Federal regulations (e.g., the NPDES program). As such, the Act prohibits the discharge of oil or hazardous substances into these areas in such quantities as may be harmful. Further, the Act states that the President shall, by regulation, determine those quantities of oil and any hazardous substances that may be harmful if discharged.

EPA has defined oil quantities that "may be harmful" as those that violate applicable water quality standards or "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 adjoin shorelines." 40 CFR 110.3. Sheen is clarified to mean an iridescent appearance on the surface of the water. 40 CFR 110.1.

In the permit, oil, including oily mixtures, may not be discharged in quantities that may be harmful. This goal has proven to be achievable using available treatment technologies such as oil-water separators or oil absorbent materials. For other discharges that can potentially be contaminated by oils but may not easily be collected and treated, the Agency requires the operator to observe the surface of the receiving water to determine whether a sheen is visible. This would indicate that oils are present at concentrations that may be harmful and discharge must cease.

<u>The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)</u> (7 U.S.C. 136 *et seq.*).

FIFRA regulates the distribution, sale, and use of pesticides. One of the primary components of FIFRA requires the registration and labeling of all pesticides sold or distributed in the U.S. ensuring that if pesticides are used in accordance with the specifications on the label, they will not cause unreasonable adverse effects on humans or the environment. It is a requirement of the permit that any registered pesticide must be used in accordance with its FIFRA label. This is included as a binding permit requirement because FIFRA label requirements are established after review of the label and underlying science, and approval of the label, approved by the EPA Office of Chemical Safety and Pollution Prevention, and ensure that the pesticide, when used according to the label, can be used so that it will not cause unreasonable adverse effects on humans or the environment.

<u>National Marine Sanctuaries Act</u> (16 U.S.C. section 1431 *et seq.* and implementing regulations found at 15 CFR Part 922 and 50 CFR Part 404 (NMSA))

NMSA authorizes the designation and management of National Marine Sanctuaries to protect marine resources with conservation, education, historical, scientific, and other special qualities. Additional restrictions and requirements may be imposed on vessel owner/operators who boat in and around National Marine Sanctuaries. For more information, please see the NOAA National Marine Sanctuaries Program website at http://sanctuaries.noaa.gov/welcome.html.

4.3.1.6 General Training

The 2008 VGP outlined training requirements for owner/operators of specific vessel types, as identified in Part 5 of that permit. In order to clarify that broad instruction should be conducted to ensure that crews are adequately trained to implement all the terms of the VGP and operate all pollution prevention equipment on board, EPA has added general training as a new requirement of the 2013 VGP, pursuant to CWA section 402(a)(2), and 40 CFR 122.43(a) and other implementing regulations. For some vessels with existing Integrated Safety Management (ISM) plans, this may mean simply assuring those plans are consistent with the terms of the VGP, and that crews are aware of any other VGP requirements and how they must meet them. Others may require that the vessel chief engineer or Master read the permit and inform crew of their responsibilities. The general training requirement stipulates that all key personnel understand how to use key pollution prevention equipment; for example, if applicable, a master, chief engineer, and/or any key staff must understand how to properly operate and maintain an onboard ballast water treatment system as applicable. In addition, all owner/operators of vessels must ensure appropriate vessel personnel be trained in the procedures for responding to fuel spills and overflows, including notification of appropriate vessel personnel, emergency response agencies, and regulatory agencies. For vessels with less developed management systems, training may be more extensive, and could require environmental managers or others instructing crews on how to implement the permit and assure that terms of the permit are met. This permit does not require that vessel owner/operators provide any formal training, such as one of the many privately developed VGP training courses. However, for some vessel owner/operators, use of such courses might be an efficient and cost effective manner to provide training which will assist in ensuring that the terms of the permit are adequately implemented onboard their vessels.

Vessel owner/operators must outline their training plans in their recordkeeping documentation to show they have made good faith efforts to assure their crews can adequately maintain and use pollution prevention equipment and otherwise meet the terms of this permit.

4.4. Effluent Limits and Related Requirements for Specific Discharge Categories (Part 2.2)

4.4.1 Deck Washdown and Runoff Including Above Water Line Hull Cleaning (Part 2.2.1)

Constituents of deck runoff and above water line hull cleaning may include oil, grease, cleaner or detergent residue, paint chips, paint droplets, and general debris (e.g., paper, wire). Discharge rates for deck runoff vary from vessel to vessel and depend on weather, deck machinery, deck operations, and frequency of deck washdowns. It is infeasible to set specific numeric effluent limits for discharges of deck runoff due to variation in vessel size and associated deck surface area, types of equipment operated on the deck, and limitations on space for treatment equipment. Instead, the permit requires that vessel operators minimize discharges from deck runoff and implement BMPs to reduce their potential impact.

BMPs for controlling deck runoff and above water line hull cleaning are associated with (a) containing potential contaminants to keep them from entering the waste stream, (b) properly maintaining the deck and bulkhead areas to prevent excess corrosion, leaks, and metal discharges, and (c) using environmentally safe products for cleaning deck areas. Because it would be extremely difficult if not impossible to safely hold or treat all deck runoff for all vessel designs at all times, EPA is not requiring deck runoff to be collected and treated before discharge from all vessels. Requiring vessel owner/operators to collect deck runoff could either require major vessel modification of the ship's structure and machinery or could compromise the safety and stability of the vessel. Many vessels are designed to quickly discharge deck runoff as an operational necessity.

EPA is requiring that deck runoff be collected during certain times such as during or after fueling operations, when spills occur, or when required by a vessel's class society.[9] EPA is also requiring that vessel operators minimize contamination of deck runoff discharges by debris,

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[9] A vessel's class society establishes technical standards related to the design, construction, and survey of a vessel.

garbage, and chemical spills (e.g., grease, fuel, hydraulic fluid, caustics, detergents). EPA is also requiring that the vessel owner/operator maintain the topside surface of the deck in a manner consistent with good marine practice that prevents excess discharge of metals and oils from eroding metals and deteriorating pipes, coamings, and other topside infrastructure. When machinery is located on deck, the use of drip pans when feasible will collect spilled oil and allow the vessel owner/operator to prevent its discharge. When required by their class societies (e.g., tank barges), vessels must be fitted with and use perimeter spill rails and scuppers to collect the runoff for treatment. In addition, if washing down the deck will result in a discharge, the washdown must be conducted with minimally-toxic, phosphate-free, and biodegradable cleaners and detergents, as those terms are defined in Part 7 of the permit. EPA expects that minimally-toxic cleaners and detergents will contain little to no nonylphenols. The purpose of this requirement is to minimize the discharge of caustic and potentially toxic detergents and solvents into waters subject to this permit. Phosphorus is one of the drivers of eutrophication or hypereutrophication, which is one of the major causes of impairment to waters of the United States. Toxic materials interfere with aquatic organisms and can contribute to chronic or acute effects, including death. Additionally, EPA is requiring that permittees must minimize residual paint droplets from entering waters subject to this permit whenever they are conducting maintenance painting. EPA is also requiring that discharges of deck runoff are consistent with all other relevant laws. EPA believes that adhering to these requirements will reduce the discharge of these potentially environmentally harmful substances. Finally, EPA has clarified in the 2013 VGP that before deck washdowns may occur, vessel owner/operators must broom clean exposed decks or use comparable management measures to remove all existing debris, and that vessel owner/operators may use the “equivalent” of broom cleaning as vessel owner/operators may use other methods to reduce debris on their decks. Though fundamentally similar to the requirements in the 2008 VGP, these requirements clarify that vessel owner/operators are expected to use obvious management measures to prevent the introduction of garbage or other debris into any waste stream.

4.4.2 Bilgewater (Part 2.2.2)

Bilgewater is an accumulation of water from various sources across the entire vessel. Constituents include oil, grease, volatile and semi-volatile organic compounds, inorganic salts, and metals. Volumes vary with the size of the vessel, and discharges typically occur several times per week. Cruise ship volumes have been estimated at 25,000 gallons per week for a 3,000 passenger/crew vessel (US EPA, 2008a).

Conditions in the 2008 VGP applicable to oily bilge water discharges from vessels are based on Annex I of the International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978 (MARPOL 73/78). Under Annex I to MARPOL, all ships over 400 gross tons (GT) are required to have equipment installed onboard that limits the discharge of oil into the oceans to 15 ppm when a ship is en route. All vessels over 400 GT are also required to have an oil content monitor (OCM), including a bilge alarm, integrated into the piping system to detect whether the treated bilge water that is being discharged from the bilge separator meets the discharge requirements. Some countries have bilge discharge requirements that are stricter than the international 15 ppm standard. For example, the Canadian Regulations for the Prevention of Pollution from Ships and for Dangerous Chemicals requires 5 ppm bilge alarms for Canadian-flagged vessels which discharge treated bilgewater on the Great Lakes.

Bilge separators, oil content meters and bilge alarms are certified by the Coast Guard to meet 46 CFR 162 (MARPOL Annex I implementing regulations). Type approval is based on testing of manufacturer-supplied oil pollution control equipment by an independent laboratory, in accordance with test conditions prescribed by the Coast Guard (33 CFR 155 and 157 and 46 CFR 162). In order to be consistent with International Maritime Organization (IMO) resolution MEPC.108(49), the measurement of oil (petroleum products or hydrocarbon, HC) in bilge separator effluent can be analyzed using ISO method 9377-2:2000[10] or equivalent. Alternatively, vessel owner/operators may use EPA method 1664.

Additional treatment stages (unit operations) are often added to bilge separators to better clean ("polish") bilge water to comply with current and potential future discharge standards (Sun et al., 2009; Caplan et al., 2000). In addition to providing greater overall reduction in bilge oil concentrations, the addition of treatment stages makes bilge separators more reliable by providing some redundancy to withstand problems or failure of individual stages. Including one or more polishing steps is an added cost to the operation of a ship; however, onboard bilge separation is typically more economical than holding all oily bilge water for transfer and subsequent treatment on shore (Ghidossi et al., 2009).

Bilgewater treatment technologies are also capable of removing other pollutants from bilge water. For example, Tomaszewska et al. (2005) found that ultrafiltration was effective in removing turbidity and suspended solids, organic carbon, and several trace metals (Al, Fe and Zn) from bilge water, in addition to oil.

As discussed more fully below, the 2013 VGP maintains most of the best management practices and numeric limits contained in the 2008 VGP.

4.4.2.1 Bilgewater Requirements

Vessel operators are required to minimize bilgewater generation by practicing proper maintenance of vessels and equipment. Routine cleaning and maintenance activities associated with vessel equipment and structures are considered to be normal operation of a vessel. However, EPA notes that the addition of substances not associated with the normal operation of a vessel to the bilgewater is not allowed.

EPA believes this reduction in the volume of waste will reduce the need for vessels to discharge treated bilgewater to waters of the U.S. EPA also recognizes that onshore disposal is not always a feasible alternative for larger vessels. As part of the permit, bilgewater discharges must adhere to all requirements under 40 CFR Parts 110, 116, and 117 and 33 CFR Part 151.10. These limitations are achievable with use of oily-water separators or use of a segregated bilge system. Large vessels generally must have onboard oily-water separation capabilities or hold their bilge for onshore disposal. Smaller vessels must also demonstrate that the discharge of bilgewater is sufficiently clean by conducting a visual sheen observation prior to and at the time of discharge. EPA has utilized the visual sheen test as a reliable indicator as to whether oil, including oily mixtures, is not being discharged in quantities that may be harmful.

[10] This analytical method is "Water quality -- Determination of hydrocarbon oil index -- Part 2: Method using solvent extraction and gas chromatography."

All vessels greater than 400 gross tons which discharge bilgewater into waters subject to this permit must be equipped with an oil discharge monitoring system that monitors the discharge of oily bilge water into waters subject to this permit. These vessels must also be equipped with an overboard discharge control unit that automatically initiates the sequence to stop the overboard discharge of the effluent in alarm conditions and prevents the discharge throughout the period the alarm condition prevails. The overboard discharge control unit must be designed to receive automatic signals of oil content of the effluent, measured as ppm, from the oil content meter.

Each oil content meter and each control section of an oil discharge monitoring system must be subjected to a functional test that includes the operations listed in 33 CFR § 157.12f and is conducted as outlined in 46 CFR § subpart 162.050 on a suitable test bench prior to delivery. The detailed program for a functional test of such equipment must be developed by the manufacturer, taking into account the features and functions of the specific design of equipment and the types of oils that will be monitored. A completed workshop certificate, including the delivery functional test protocol, must be received with each unit delivered. A copy of the certificate must be carried aboard the vessel at all times.

Routine maintenance of the monitoring system and troubleshooting procedures must be clearly defined in the oil discharge monitoring system's Operating and Maintenance Manual kept onboard the vessel. All maintenance activities related to the bilge water monitoring system and overboard discharge control unit must be recorded and the information must remain on board for inspection purposes. In addition, vessel staff training must include familiarization with the operation and maintenance of the bilgewater overboard discharge control and oil discharge monitoring equipment.

If the vessel operator does not treat bilgewater with an oily-water separator, or it cannot be assured that the bilgewater will not cause a sheen on the surface of the receiving water, the bilgewater must be held onboard for onshore disposal. Vessel operators may not use dispersants, detergents, emulsifiers, chemicals, or any other substances to remove the appearance of a visible sheen. This requirement does not prohibit the use of these materials in machinery spaces for the purposes of maintaining or cleaning equipment.

The permit has additional BMPs for bilgewater that focus on where vessels may or may not discharge bilgewater. For instance, vessels that regularly leave waters subject to the permit (at least once per month), and are more than 400 gross tons, may not discharge treated or untreated bilgewater while stationary. In addition, vessels that regularly leave waters subject to the permit may not discharge treated bilgewater within 1 nm of shore if it is technologically feasible to hold it. In this context, technological feasibility includes consideration of operational constraints. It is EPA's understanding that many existing large vessels do not generate significant quantities of bilgewater and should have sufficient holding capacity.

In those cases where a vessel does not have the capacity to hold bilgewater generated in waters subject to this permit or where bilgewater is causing a general safety or stability concern or could enter a hold and contaminate cargo, or otherwise interfere with essential operations of the vessel, EPA would not consider holding the bilgewater to be technologically feasible. In these cases, even though the discharge is permitted (but must be recorded and reported), EPA believes that the permit will still limit the cumulative discharges of all vessels in an area collectively. The cumulative impact of numerous vessels releasing bilgewater in nearshore, estuarine environments or in waters with limited circulation can be of concern. Hence, this provision is included to limit the discharge of pollutants in areas where vessels are more likely to be concentrated, where the cumulative impact of discharges is likely to be higher, and in ecosystems that are already stressed and unlikely to have additional assimilative capacity. Vessels can then discharge the bilgewater, provided it meets all applicable laws, in waters that are likely to have greater assimilative capacity or where vessel traffic is not as concentrated, or the vessel can hold the bilgewater for proper onshore disposal. Other provisions limiting the location or manner in which bilgewater is discharged are based on a similar rationale.

4.4.2.2 EPA's Exploration as to Whether to Include More Stringent Bilgewater Management Requirements for New Build Vessels and Whether to Provide Existing Vessels with Additional Bilgewater Management Options

When the Agency published the draft 2013 VGP for comment, EPA specifically sought comment on whether to include a more stringent bilgewater management regime for new vessels and whether to provide existing vessels with additional bilgewater management options in the final 2013 VGP. EPA had researched the state of bilgewater treatment systems (US EPA, 2011b) and believed that a targeted reduction in the bilgewater effluent limit to 5 ppm oil and grease in U.S. waters might have been appropriate, as technology meeting such a limit appeared to be available for all vessels and economically achievable for at least new build vessels. However, EPA is not finalizing this option in today's permit due to concerns that have been raised regarding implementation that call into question whether these systems are, in practice, "available" and actually function onboard ships as their type approval data indicate they otherwise should.

EPA received a variety of comments on whether to include a 5 ppm limit, and those comments generally made three major assertions:

1) Before imposing requirements in the US, EPA should work with the international community at IMO to explore whether to have more stringent limits for new build vessels,

2) EPA should seek additional information as to whether systems do, in fact, continue to perform as indicated in their type approval data when actually on board ships, and

3) Type approved systems capable of meeting a 5 ppm limit are available.

Although EPA is not today adopting the 5 ppm option, as suggested in public comment, EPA plans to work with our international partners at the IMO to explore whether systems and alarms that do actually perform at 5 ppm are available in the marketplace. Working at IMO to obtain broad international acceptance of a 5 ppm limit would increase the economic achievability by providing a more widespread international market for such systems and broad international acceptance of, and type-approval testing to, the 5 ppm standard.

4.4.2.2.3 Annual Bilgewater Monitoring for New Build Vessels

When EPA published the draft permit for comment, EPA also sought comment on approaches for the monitoring of bilgewater discharges that would improve our understanding of that discharge and determine compliance with numeric limits. Based on the comments received on that proposal, EPA has finalized a modified, reduced monitoring regime from that in the draft VGP for new build vessels (built on or after December 19, 2013). EPA believes gathering this information is necessary to help inform the Agency about how systems actually perform onboard vessels and to help better characterize which vessels are actually discharging in waters subject to this permit. These data will help inform future regulatory decision making in addition to assisting the Agency in better understanding how vessels are meeting the 2013 VGP's existing permit terms.

In the proposed 2013 VGP, EPA sought comment on a monitoring regime that would require 5 sampling events for initial analytical monitoring and maintenance monitoring once per year for new build vessels greater than 400 gross tons planning to discharge bilgewater in waters subject to this permit. These draft requirements were being considered to assure that oily water separator systems were, in fact, regularly achieving their 5 ppm limit, the limit on which the Agency sought comment but decided not to impose in today's final permit (see discussion in Section 4.4.2.2). Although the Agency did not adopt the more stringent limit, EPA continues to believe that annual bilgewater monitoring information from new vessels as discussed in the draft VGP fact sheet would provide valuable information to the Agency in determining future requirements for bilgewater discharges. As described in the 2011 technical development document on oily water separators (US EPA, 2011b) and earlier in this fact sheet, though EPA believes many oily water separators are able to achieve their design limit (15 ppm or 5 ppm depending on the system) in the type approval setting, EPA is also aware that performance during operation can be variable. In some cases, systems may actually perform better than their manufacturers claim. In others, field conditions such as improper maintenance or other operational challenges in the marine environment can result in underperformance. Hence, EPA has finalized this revised monitoring regime in the 2013 final VGP to help the Agency and shipping industry stakeholders better understand how oily water seperator systems are actually performing. In the interest of encouraging the use of the most advanced and effective technologies, EPA has also included a reduced frequency monitoring incentive for those vessels who demonstrate their oil and grease discharge is below 5 ppm on at least two consecutive sampling events.

Analytical Monitoring

Annually, new build vessels greater than 400 gross tons which discharge bilgewater into waters subject to this permit must collect a sample of the bilgewater effluent for analysis of oil by Method ISO 9377-2 (2000) Water Quality–Determination of hydrocarbon oil index–Part 2: Method Using Solvent Extraction and Gas Chromatography (incorporation by reference, see 46 CFR § 162.050–4) or EPA Method 1664 to demonstrate treatment equipment maintenance and compliance with this permit. At the time of sample collection, the reading on the oil content meter will be recorded so the oil concentration measured by the laboratory can be compared to the oil content meter. The monitoring may be conducted during the vessel's renewal survey or during the course of normal operations, at the discretion of the vessel owner/operator.

In addition, an annual test of the oil discharge monitoring system alarm functions and the electronic-valve switching function must also be performed onboard the vessel to verify they will activate when the oil concentration measured by the oil content meter is greater than regulatory limits

A vessel owner operator may cease conducting analytical monitoring if the following conditions are met:

- A vessel which has an oil discharge monitoring system that has been type approved by any flag administration to a 5 ppm standard or has an alarm and overboard discharge control unit which prevents the discharge of any bilgewater with an oil content of greater than 5 ppm oil and grease;
- The analytical monitoring results are below 5 ppm oil and grease for two consecutive years of permit coverage; and
- The vessel only discharges bilgewater when the oil content monitor reads below 5 ppm oil and grease.

If a vessel has not met the above conditions, that vessel owner/operator must conduct annual analytical bilgewater monitoring for each year of permit coverage.

Records of the sampling and testing results must be retained onboard for a period of 3 years in the vessel's recordkeeping documentation. Records of monitoring information shall include:

- The date, exact place, and time of sampling or measurements, and any meter recalibration;
- The individual(s) who performed the sampling or measurements, and any meter recalibration;
- The date(s) analyses and any meter recalibration were performed;
- The individual(s) who performed the analyses and any meter recalibration;
- The techniques or methods used for sample analyses and any meter recalibration; and
- The results of such analyses and any meter recalibration.

Monitoring Reporting

The vessel owner/operator must submit data showing that the bilgewater standards are achieved by their oil discharge monitoring system to EPA's e-reporting system, unless they meet one of the exceptions to electronic reporting found in Part 1.14 of this permit. Monitoring data must be submitted at least once per calendar year no later than February 28 of the year after the data are collected. Data may be submitted as part of the vessel's annual report

4.4.2.2.4 Why EPA included Annual Monitoring for New Build Vessels

As discussed above, EPA sought comment on whether vessels greater than 400 gross tons electing to discharge bilgewater in waters subject to this permit should complete additional monitoring requirements to periodically assure the accuracy of their oil content monitor. Vessels must be equipped with an oil discharge monitoring system that monitors the discharge of oily bilge water into waters subject to this permit. Vessels must also be equipped with an overboard discharge control unit that automatically initiates the sequence to stop the overboard discharge of the effluent in alarm condition and prevents the discharge throughout the period the alarm condition prevails. The control unit must be designed to receive automatic signals of oil content of the effluent, measured as ppm, from the oil content meter. EPA incorporated the modified monitoring requirements to gain a better understanding of the state of bilgewater treatment onboard vessels. The monitoring methods rely on both analytical methods and the vessels existing oil content meters and monitoring conditions based upon readily available and generally accepted methods. Additionally, by allowing vessel owner/operators to cease monitoring if they have results below 5 ppm for two consecutive years, the Agency is providing an incentive to those vessel owner operators which invest in advanced technology and maintain it appropriately. EPA has estimated the additional cost associated with analytical monitoring in the economic analysis accompanying this permit, and found that the costs of monitoring are economically achievable for new build vessels electing to discharge bilgewater within waters subject to permit. Please see US EPA (2011a) for additional discussion regarding the costs of these permit conditions.

4.4.3 Ballast Water (Part 2.2.3)

Technology-Based Effluent Limitations

In today's permit, EPA has finalized new, more stringent numeric technology-based effluent limitations to replace the non-numeric limitations in the 2008 VGP for ballast water. These changes will achieve significant reductions in the number of living organisms discharged via ballast water into waters subject to this permit. EPA has set the numeric effluent limit for ballast water as numbers of living organisms per cubic meter discharged (i.e., as a maximum acceptable concentration) because reducing the concentration of living organisms will reduce inoculum densities of potential invasive species discharged in a vessel's ballast water. As part of today's permit, EPA has also established discharge limitations for certain biocides and residuals (expressed as an instantaneous maximum).

EPA's SAB (2011) recommended that EPA not solely rely on numeric standards for ballast water discharges, in particular that:

> "…EPA adopt a risk-based approach to minimize the impacts of invasive species in vessel ballast water discharge rather than relying solely on numeric standards for discharges from shipboard BWMS. The Panel found that insufficient attention has been given to integrated sets of practices and technologies that could be used to systematically advance ballast water management. These practices include managing ballast uptake to reduce the presence of invasive species, reducing invasion risk through operational adjustments and changes in ship design to reduce or eliminate the need for ballast water,

development of voyage-based risk and/or hazard assessments, and treatment of ballast water in onshore reception facilities." (EPA SAB, 2011)

Consistent with this recommendation, EPA has included some of the management practices referenced above in the permit and continues to explore other integrated approaches to managing ballast water risk reduction.

Vessel owner/operators subject to the concentration-based numeric treatment limit may meet their obligations in one of four ways: discharge treated ballast water meeting the applicable numeric limits in Part 2.2.3.5 of the VGP; transfer of the ship's ballast water to a third party (which may be onshore or on another vessel such as a treatment barge); use of treated municipal/potable water as ballast water; or by not discharging ballast water. In addition, vessels enrolled in, and meeting the requirements of the US Coast Guard's Shipboard Technology Evaluation Program (STEP), are deemed to be compliant with the permit requirements for ballast water treatment.

Ballast water typically consists of ambient water taken onboard to maintain vessel draft, trim, stability, and stresses, regardless of how it is carried. Large commercial vessels (e.g., container ships, bulk carriers, other cargo vessels, tankers, and passenger vessels) normally have ballast tanks dedicated to this purpose and some vessels may also put ballast water in empty cargo holds. The discharge rate and constituent concentrations of ballast water will vary by vessel type, ballast tank capacity, quality of and constituents contained in the ambient source waters, efficacy of any treatment applied to the discharge of ballast water, type of deballasting equipment, and other factors. Volumes of ballast water discharged are significant and can range from several hundred to many thousands of cubic meters of water. For instance, large passenger vessels (cruise ships) have a representative ballast capacity of about 3,000 cubic meters (about 790,000 gallons) while ultra-large crude carriers (ULCCs) have a representative ballast capacity of about 95,000 cubic meters (about 25 million gallons) (ABS, 2010). Some vessels, such as small water ferries, may have as little as 5 cubic meters (about 1321 gallons) of ballast water.

Ballast water discharge has been cited as one of the primary sources (or vectors) for the spread of aquatic invasive species, also known as aquatic nuisance species (ANS) (Carlton, 1985; Carlton and Geller, 1993; Gollasch et al., 2002; Kasyan, 2010). These species can enter new aquatic environments when the vessel operator discharges from ballast water tanks. These organisms may also be released when vessel operators load ballast water into ballast tanks with existing residual water or sediment, mixing the new ballast water with the residual water and sediment, which may contain viable living organisms and organisms in resting stages, then later discharge this mixed effluent. When species in ballast tanks are transported between waterbodies and discharged, they have the potential for establishing new, non-indigenous populations that can cause severe economic and ecological impacts. The permit includes technology-based numeric limitations and other provisions to limit the concentrations of potentially viable organisms that are released into potentially receptive aquatic habitats.

ANS cause substantial environmental and economic harm to the United States. Well known examples of ANS or pathogens that have been introduced to U.S. waters include Chinese mitten crab, European green crab, hydrilla, European loosestrife, Eurasian water milfoil, round goby, melaluca, salt cedar, Viral Hemorrhagic Septicemia (VHS), and zebra mussels. For additional information on the impacts of ANS introduced via ballast water discharges, refer to some of the numerous studies and reports that have been completed and are available in the docket for today's permit (Bolch & Salas, 2007; Dobbs et al., 2006; Doblin et al., 2007; Drake & Lodge, 2007; Drake et al., 2007; Endresen et al., 2004; Knight et al., 1999; M.G.G. et al., 2003; NAS, 2011; Reynolds et al., 1999; Roman, 2006; Ruiz et al., 2000a; Ruiz et al., 2000b; Smayda, 2007; US EPA, 2001; Zo et al., 1999). For additional information on the impact of aquatic nuisance species, refer to section 3.4.1 of this fact sheet and the economic analysis available in the docket for today's permit.

4.4.3.1 Training

As a requirement of this permit, the master, operator, person-in-charge, and crew members who actively take part in the management of ballast water must have a general understanding of ballast water systems on board vessels. Crew must be able to effectively implement all appropriate requirements laid out in a vessel's ballast water management plan. For vessels which have a ballast water treatment system onboard, crew engaged in the active management of ballast water must understand how to operate and maintain ballast water equipment. Additionally, if the vessel crew will engage in sampling of any ballast water discharge streams, those crew must understand how to engage in proper sample collection, handling, and packaging. Thus, EPA is requiring that owner/operators maintain a written training plan, which describes the training provided to the vessel crew, as well as a record of the date on which that training was provided to each member of the crew. This can be in the form of a stand-alone training plan, can be incorporated into the vessel's ballast water management plan, or other recordkeeping documentation as appropriate (provided the vessel's crew can quickly point to this language for their use and purposes of inspection). The permit does not prescribe the appropriate level of detail of the written training plan; this should be determined by the permittee. In general, it need only be detailed enough to document that appropriate training is taking place.

EPA included these requirements pursuant to 40 CFR 122.44(k), which requires EPA to impose best management practices when "reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA." See also CWA section 402(a)(2) and 40 CFR 122.43(a). The Agency believes that ballast water management is complex, and inadequately trained crew may not appropriately implement the ballast water requirements found in this permit, thereby increasing the risk that the effluent limits and standards of the permit will not be achieved.

4.4.3.2 Ballast Water Management Plans

All vessels equipped with ballast water tanks must have a ballast water management plan. US Coast Guard regulations also establish mandatory ballast water reporting and recordkeeping requirements (33 CFR 151.2041 and 151.2043), and also require vessels to have a ballast water management plan that is specific for that vessel and assigns responsibility to the master or appropriate official to understand and execute the ballast water management strategy for that vessel (33 CFR 151.2035(a)(7)).

Like the 2008 VGP, this iteration of the VGP also requires that all vessel owner/operators maintain ballast water management plans as a requirement related to effluent limits. As part of these plans, vessel owner/operators must document how they will meet the ballast water requirements contained in the VGP.

EPA notes that the requirement to do such a plan is being imposed as "conditions to assure compliance" with effluent limitations under CWA§ 402(a)(2) and 40 CFR 122.43(a), and as practices "reasonably necessary to achieve effluent limitations and standards or to carry out the intents and purposes of the CWA," per 40 CFR 122.44(k).

4.4.3.3 Mandatory Ballast Water Management Practices: Management Measures Required of all Vessel Owner/Operators

As in the 2008 VGP, EPA has included, pursuant to 122.44(k), best management practices (BMPs) applicable to all vessels equipped with ballast water tanks that enter or operate within waters subject to this permit as technology-based effluent limits. EPA's Science Advisory Board (2011) found that "insufficient attention has been given to integrated sets of practices and technologies that could be used to systematically advance ballast water management." Hence, consistent with the recommendations of that panel, EPA has retained the current BMPs and developed additional management measures, both found in Part 2.2.3.3 of the VGP, which are designed to reduce the number of living organisms taken up in, and later discharged in, ballast water or to ensure that such discharges do not occur in known sensitive areas. Many of these measures are consistent with existing requirements found in the 2008 VGP and US Coast Guard regulations (found at 33 CFR 151, Subparts C and D), and therefore, are widely followed practices by the regulated community. The remainder are practices that EPA believes will be reasonably easy to implement. EPA thus finds these practices to be available and economically achievable. Additionally, EPA notes that the discharge of ballast water in critical habitat should be avoided when feasible, consistent with the advice offered to EPA by NMFS and FWS during EPA's consultation with those two federal resource agencies. The list of critical habitat can be found at: http://criticalhabitat.fws.gov/crithab/; and http://www.nmfs.noaa.gov/pr/species/criticalhabitat.htm.

Examples of these BMPs include avoiding or minimizing ballast water uptake in areas recognized as having a high potential to contain harmful organisms, only discharging the minimum amounts of ballast water necessary in coastal and internal waters, and regularly cleaning ballast water tanks to remove sediment. When achievable, vessel operators should not take up ballast water in any waters with a known outbreak of harmful organisms and/or invasive species such as Pfisteria blooms (or other harmful algal blooms) and viral hemorrhagic septicemia (VHS) and instead use internal ballasting. In these areas, it may be achievable for vessel owner/operators to avoid the uptake of water. When the uptake of ballast water is required in these waters, the vessel owner/operator must take on ballast in those waters that have the lowest known risk factors for these harmful organisms. Additionally, when feasible, vessel owner/operators must deballast using their pumps rather than gravity draining their tanks unless they meet the limits found in Part 2.2.3.5 of the permit. This is because pumps cause increased mortality among living organisms, particularly zooplankton and other larger organisms, that might otherwise be discharged (due to among other things, cavitation, entrainment, and/or impingement.

Like the 2008 VGP, today's permit does not authorize the discharge of sediments from the cleaning of ballast tanks. Hence, the discharge of sediment removed from tanks by cleaning operations into waters subject to this permit, including the discharge of sediments suspended as a result of ballast tank cleaning, are prohibited from being discharged into waters covered by this permit and must be disposed of in accordance with any applicable local, State, and Federal regulations. Regarding sediment disposal, vessel owner/operators may need to make arrangements for proper onshore disposal or arrangements to discharge sediment outside waters subject to this permit unless prohibited by statute or applicable law). Sediment could be removed when vessels are in port or while vessels are in drydock. Furthermore, because EPA did not authorize the discharge of sediments in the 2008 VGP, the Agency assumes that all vessel owner/operators are currently complying with these permit requirements. Based upon data submitted on vessel NOIs for the 2008 VGP, the vast majority of vessels discharge sediment from the cleaning of ballast tanks to either onshore facilities or when they are out of waters subject to this permit. See Table 2 below.

Table 2: Ballast Water Sediment Disposal Methods by Vessel Types/Categories Based on NOI Data for the 2008 VGP (Data Current as of December 2010: Values are in Percent of Vessels for which a Response was Provided)

Methods	Barges	Oil and Gas Tankers	Comm. Fishing	Large Ferries	Large Cruise Ship	Med. Cruise Ship	Research	Emerg.	Other
Onshore at shipyards via third party	78	37	81	50	72	49	55	84	70
Onshore/Landfill	0.2	4	0	2	0	0	2	4	0
Onshore and Offshore	0	19	0	0	10	13	7	4	7
Offshore/overboard	0.8	37	6	6	18	19	8	5	16
Not applicable/ No Ballast	21	3	13	42	0	19	28	3	7
Total # Respondents	**6,950**	**2,521**	**123**	**62**	**97**	**16**	**74**	**56**	**8,529**

EPA has not authorized the discharge of sediment from cleaning of ballast tanks for two primary reasons. First, sediment poses a risk for the further distribution of aquatic nuisance or invasive species. Organisms can survive in ballast sediment for prolonged periods in resting stages. Secondly, and of equal importance in the Great Lakes, sediment is a traditional pollutant which can be linked to violations of water quality standards. Sediment discharged in any significant quantities will increase turbidity, decrease the size of the photic zone, and result in increased benthic embeddedness. Though the sediment collected on the bottom of ballast tanks likely settled from waters drawn into the ballast tank, the characteristics of that sediment can be substantially altered from when it was taken onboard the vessel due to other constituents of ballast water and chemical changes in the ballast water tank. Furthermore, the sediment is not always from the same location or waters where the ballast water was taken onboard the vessel as the tanks are not completely emptied when ballast water is discharged. Therefore, EPA determined not to authorize the discharge of sediment from cleaning of ballast tanks anywhere in waters subject to this permit including the Great Lakes. EPA believes it is feasible to remove accumulated sediments from ballast tanks without flushing them into waters subject to this permit, and has received not information suggesting that this requirement has posed a problem in complying with the 2008 VGP.

4.4.3.4 Mandatory Ballast Water Management Practices for "Lakers"

In the 2011 Draft VGP, EPA had proposed that due to their special characteristics (see section 4.4.3.5.6.3 of Fact Sheet for the 2011 draft VGP), existing bulk carriers confined exclusively to the Great Lakes upstream of the Welland Canal ("Confined Lakers") would not be required to meet the effluent (and related) limits in section 2.2.3.5 of the VGP during the term of the VGP. During the comment period on the draft VGP, the some commenters provided information demonstrating that vessels confined to the Great Lakes, but which operate beyond the Welland Canal, share such characteristics (e.g., high ballast water flow rates, short term voyages, uncoated ballast tanks, challenges of finding ballast water treatment systems suitable for freshwater, plus have even more confined space for fitting equipment), and thus should be treated the same as was proposed for "Confined Lakers." In light of these comments, EPA has revised the final VGP to eliminate the confined vs. unconfined Laker distinction by adopting a definition of "Laker" to encompass existing bulk carriers that operate exclusively on the Laurentian Great Lakes, regardless of whether their operation is or is not beyond the Welland Canal.

As a result, "Lakers" meeting the final VGP definition, would not be required to meet the effluent (and related) limits in section 2.2.3.5 of the VGP, as their special characteristics render treatment technologies or other strategies to meet the limits currently unavailable and economically unachievable. However, because they share similar characteristics, all such "Lakers" would be subject to the three ballast water management measures that the draft VGP had proposed to apply only to "confined Lakers." EPA has established three ballast water management measures specific to existing bulk carrier vessels (commonly known as Lakers) built before January 1, 2009. These include developing sediment management measures, minimizing the amount of ballast taken in nearshore environments, and requiring inspection of sea chest screens and repair as necessary. EPA has found these requirements to be available and economically achievable, as they represent simple to implement and common sense approaches to managing ballast water discharges for these vessels to minimize the spread of ANS.

The first management measure requires the vessel owner/operator to annually assess sediment accumulations and document their sediment-related activities (to assure they are managing sediment effectively and to assure compliance with permit conditions). The second measure, adopted from voluntary Laker BMP approaches to mitigate the transfer of invasive species, requires that Lakers minimize the amount of water they take on in nearshore environments (for an example of voluntary Laker BMPs, see Great Lakes Maritime Industry Voluntary Ballast Water Management Plan for the Control of VHS, available in the docket for today's permit). The third measure requires that Lakers ensure that their sea chest screen(s) are adequately maintained. These screens will keep out the largest living organisms, such as fish, from ballast tanks (and bacteria and viruses associated with those larger organisms), which may reduce the risk of transferring ANS. Lakers confined exclusively to the Great Lakes upstream of the Welland Canal are laid up or put in drydock every winter; hence, they have the time and opportunity to inspect and repair sea chest screens, and replace as necessary. EPA believes that adequately maintaining sea chest screens is a simple and economically available technology-based requirement to reduce the threat of ANS dispersal within the Great Lakes.

For the reasons described in section 4.4.3.5 of this fact sheet, if existing Lakers are retrofitted to meet the treatment requirements in Part 2.2.3.5 of the VGP, these vessels are not required to meet the other requirements of Part 2.2.3.4 of the VGP. However, existing Lakers with ballast water treatment systems would still be required to meet the BMPs for ballast water management found in Part 2.2.3.3 of the VGP that are applicable to all vessels.

4.4.3.5 Ballast Water Treatment Measures

In developing today's numeric effluent limits, EPA considered data from numerous peer reviewed publications, literature produced by the federal government, other technical reports and publications, public comments, and comments from experts working in the field (see EPA SAB, 2011; ABS, 2010; Albert et al., 2010; CSLC, 2010; Dobroski et al., 2011; GLBWC, 2010; Lloyd's List, 2010; WDNR, 2010). The data sources from which EPA derived information for decision-making purposes are included in the docket for the permit and/or referenced in this fact sheet. These data sources discuss ballast water discharges, technologies available for the treatment of these discharges, and the effectiveness of the technologies. EPA considered these data in selecting the best practicable technology (BPT) and best available technology economically achievable (BAT) for today's permit. The permit includes numeric limits for ballast water discharges and provides vessel owner/operators options for determining how they will meet those limits. Not all vessels will use onboard treatment systems to comply with discharge requirements. Estimates developed by King et al. (2010) suggest that less than half of the vessels with ballast water discharge are likely to install onboard ballast water treatment systems. Some vessels are more likely to use an alternative ballast water management approach, including not discharging ballast water while in waters subject to this permit, using onshore facilities, or using potable water as ballast.

4.4.3.5.1 Ballast Water Management Using a Ballast Water Treatment System

Based on EPA's review of available data, EPA has established technology-based numeric effluent limits for the discharge of living organisms equivalent to the U.S. Coast Guard discharge standard (USCG, 2012, 33 CFR 151.1511 and 151.2030), which is equivalent to the standard set forth in Regulation D-2 of the International Ballast Water Convention (IMO, 2008) (henceforth referred to as the International Maritime Organization (IMO) standard). [11] EPA has established the VGP permit limits because several treatment technologies have been shown to be safe, reliable and effective at reducing viable living organisms in ballast water discharges to meet these limits. Furthermore, it has been demonstrated that several of these technologies are commercially available for shipboard installation and their use is economically achievable. Several studies and publications are available that discuss current treatment technologies, their efficacy and performance, and whether they are commercially available for shipboard installation (see EPA SAB, 2011; ABS., 2010; Albert et al., 2010; CSLC, 2010; Dobroski et al., 2011;

[11] Note that three size groupings addressed in section 2.2.3.5 effluent limits are (or include): (1) macrofauna/zooplankton, (2) phytoplankton, and (3) indicator microbes.

GLBWC, 2010; Lloyd's List, 2010; WDNR 2010). Establishment of a ballast water discharge limit at the U.S. Coast Guard /IMO discharge standard will result in a substantial reduction in the concentration of living organisms in the vast majority of ballast water discharges, compared to discharges of ballast water managed by mid-ocean exchange or discharges of unexchanged ballast water. In addition, EPA believes that no existing ballast water treatment systems are widely available for inland or seagoing vessels smaller than 1600 gross registered tons. Hence, inland or seagoing vessels smaller than 1600 gross registered tons are not required to meet the numeric ballast water effluent limitation. However, these vessels must meet all other ballast water requirements found in Part 2.2.3 of the VGP as applicable.

The CWA is a critical tool in forcing the development and installation of environmentally beneficial technologies. The statute demands application of best available technology economically achievable, which will result in "reasonable" progress toward the goal of eliminating the discharge of all pollutants, CWA section 301(b)(2)(A). Hence, EPA has established the ballast water discharge limit at the Coast Guard Phase I discharge standard/IMO standard with a rolling implementation schedule, similar to that established by the USCG proposal and IMO. Furthermore, EPA notes that as technologies improve and better data on the efficacy of systems become available, the Agency fully expects to make the BAT limit more stringent in the future, in line with the capabilities of treatment systems and the capability of testing protocols to establish that systems can achieve these limits. EPA also notes that not all vessels that are required to meet such numeric effluent limitations will need to do so as of the effective date of the permit, and will instead be required to meet other non-numeric BAT requirements established for their ballast water discharges upon the permit's effective date. EPA has found that sufficient numbers of treatment systems meeting today's limits will not be available for all vessels by the issuance date of this permit. Furthermore, requiring all vessels to install treatment systems immediately upon the effective date of the permit would not be economically achievable, and therefore does not represent BAT. See discussion below.

<u>Finding that the Ballast Water Limits in this Permit Represent the BPT and BAT Level of Control</u>

Ballast water discharge is a known vector for the spread of invasive species. The risk of establishment of ANS is assumed to decrease with decreasing propagule supply, although the exact quantitative relationship between propagule supply and invasion risk is unknown for any species, and in fact likely varies for any species over time and location. This assumption regarding risk is supported by a wide body of empirical, theoretical, and experimental evidence showing that invasion success increases with an increase in propagule supply, either by a higher concentration of organisms in an inoculation and/or by an increase in the frequency of inoculations (e.g., Simberloff, 1989, 2009; Ruiz et al., 2000a; Kolar and Lodge, 2001, Ruiz and Carlton, 2003; Lockwood et al., 2005; Johnston et al., 2008). Significantly reducing propagule pressure will reduce the probability of invasions, when controlling for all other variables (NAS, 2011). The ballast water discharge standard in today's permit will reduce discharges of living organisms, thereby reducing risk of the spread of aquatic nuisance species.

The living organism discharge standard for ballast water is expressed as concentrations of organisms per unit volume by organism size class. The numeric limitations in today's permit represent the most stringent standards that ballast water management [treatment] systems currently safely, effectively, credibly, and reliably meet (US EPA SAB, 2011).

In the context of this general permit, EPA has determined that the ballast water discharge standard represents the best practicable technology (BPT) for all pollutants, the best conventional technology (BCT) for conventional pollutants, and the best available technology economically achievable (BAT) for toxic and non-conventional pollutants. In making this determination, EPA evaluated effluent limits using a BPT and a BAT standard, but since conventional pollutants will also be adequately controlled by these same effluent limits for which EPA applied the BPT and BAT tests, EPA determined that it was not necessary to conduct BCT economic tests.

Ballast Water Treatment is Technologically Available

EPA developed the BPT/BAT numeric discharge limitations for ballast water based on an assessment of the demonstrated performance of current ballast water treatment technologies. Based upon available data, EPA's Science Advisory Board (2011) determined that five ballast water treatment system types (listed below) have been demonstrated to meet the IMO D-2 discharge standard, when tested under the IMO G8 guidelines for approval of ballast water treatment systems (MEPC, 2008), and will likely meet USCG Phase 1 standards (if tested under EPA's more detailed Environmental Technology Verification (ETV) Protocol).

These five types of ballast water treatment technologies include:

- Deoxygenation + cavitation;
- Filtration + chlorine dioxide;
- Filtration + UV;
- Filtration + UV + TiO_2; and
- Filtration + electro-chlorination.

Deoxygenation is a physical-chemical process that kills organisms by creating severe hypoxia (through lowered pressure via venturi or vacuum or lowered partial pressure via sparging with inert gasses). Cavitation is a physical process that kills organisms by the high pressure, shear forces, and shock waves generated by the collapse of micro-vapor bubbles induced into the ballast water. Filtration accomplishes a variety of physical separation processes, including screening to remove sediment and larger organisms resistant to disinfection, reduction of organic matter to reduce oxidant demand, and reduction of turbidity to increase transmittance of UV radiation (EPA SAB, 2011). Chlorine dioxide and electro-chlorination disinfect ballast water using the chemical disinfectants chlorine dioxide and hypochlorite. In the latter, hypochlorite is generated by electrolytic processes using sea water as the source of ions. UV is a physical-chemical process that disinfects ballast water using photochemical reactions generated by ultraviolet light radiation. In the UV + TiO2 physical-chemical process, UV light also activates the surface of the titanium catalytic semiconductor, disinfecting ballast water using both photochemical and photocatalytic reactions.

In conducting its study, EPA's SAB (2011) used the following criteria to determine that the five ballast water treatment technologies were available and demonstrated to meet the standard in today's permit:

- The technical literature supported the fundamental use of the technology (*e.g.*, is it well documented that using the approach will safely and effectively remove, kill, or inactivate aquatic organisms).
- Laboratory testing was conducted with "reasonable and appropriate methods" (*i.e.*, methods commonly used in aquatic studies or alternative methods that appear rigorous and equivalent to a standard, common approach).
- Land-based testing was conducted with appropriate sample numbers and sizes; sample collection and handling were appropriate and documented; analytical facilities were adequate; IMO or ETV (v. 5.1) challenge conditions were met; appropriate toxicological studies were conducted and demonstrated environmental safety; a QA/QC policy was in place and followed; and ultimately, land-based testing produced credible results.
- Shipboard testing was conducted with the same considerations as land-based testing (described above) and produced credible results.
- If an active substance was included, the technology had credible toxicity and chemistry data and had received IMO Basic approval or Final Approval (which requires Basic Approval).[12]
- The technology had a type approval certificate from a flag administration.[13]
- The technology was in operational use (i.e., not used only during shipboard type approval testing) on one or more active vessels. (US EPA SAB, 2011)

EPA notes that other types of ballast water treatment systems may also meet these standards. However, the SAB panel determined that adequate data about these systems were not available for use by the panel to evaluate those systems. Based upon the data available, no current ballast water treatment technologies were considered likely to meet standards more stringent than IMO D-2/Phase 1 (US EPA SAB, 2011).

As of the 64th meeting of the Marine Environment Protection Committee (MEPC) at IMO, 28 systems had been type approved by their flag administrations. MEPC 64/23 at ¶ 2.12. Based upon information generated by those system vendors and data regarding system

[12]Under Regulation D-3(2) of the IMO Ballast Water Management Convention, ballast water treatment systems that make use of "active substances" (biocides or other potentially harmful substances) are subject to approval by the IMO's Marine Environment Protection Committee (MEPC) with respect to active substance-related health, environmental, and safety issues. This review and approval is conducted under the G9 Procedure for approval of Ballast water management systems that make use of active substances " developed by MEPC, available at http://www.regulations.gov/search/Regs/home.html#documentDetail?R=09000064807e890e.

[13] EPA notes that in addition to measuring environmental efficacy (e.g., how well do systems prevent the discharge of living organisms), type approval involves evaluating the system's design and construction for operation on ships, the manufacturing standards, and safety aspects.

performance generally taken by third parties, those flag administrations believe that these systems can consistently meet the IMO D-2 discharge standard when installed and used on ships under normal operating conditions. Examples of data available to evaluate the efficacy of ballast water treatment systems include Cangelosi, 2010a; Cangelosi 2010b; Gollasch, 2011; Tamburri and Ruiz, 2005; ten Hellers et al.,2009; USCG, 2008; Veldhuis et al., 2008; Veldhuis et al., 2009a; Veldhuis et al., 2009b; Wright, 2009.

Based on EPA's review of available data public comment, the Agency agrees with the SAB's evaluation that ballast water treatment systems are available which meet the limits in today's VGP, and that at least five types of treatment technologies are available to meet those limits. Combining EPA's review with that of the SAB and other evaluations of available technology (see US EPA SAB, 2011; GLBWC, 2010; Albert et al., 2010; CSLC, 2010; Dobroski et al., 2011; Lloyd's List, 2010; WDNR, 2010) and the fact that numerous BWTS have been type approved by their flag administrations, EPA believes that effective technologies which meet today's technology based standards are or will be available for most types of vessels.

Ballast Water Treatment Requirements in the 2013 VGP are Economically Practicable and Economically Achievable

The US Coast Guard estimated the cost of requiring ballast water treatment systems for its March 2012 final rulemaking. The Coast Guard's Regulatory Analysis, available in the docket for today's permit, estimates the average capital cost of ballast water treatment systems that will be installed to meet their Phase I/ IMO D-2 standards. As determined by the USCG in their analysis of the March 2012 rulemaking, an estimated 1,459 domestic flagged vessels are expected to install BWTS through 2018 at costs that range from $258,000 for chemical application in offshore supply vessels to more than $2.5 million to retrofit Very Large Crude Carriers (VLCCs) with ozone generating systems. USCG estimated the total annual cost for the rule at $90 million (at 3 percent discount rate, in 2007 dollars).Capital costs primarily vary with pumping capacity and technologies utilized, but are also slightly influenced by differences between the vessel categories.

For purposes of evaluating and determining BAT, EPA has found that requiring installation of ballast water treatment will impose no incremental cost to the regulated community over meeting the US Coast Guard standards. The US Coast Guard rulemaking requires ballast water treatment systems be installed on the same schedule as today's final permit.

EPA believes that installation of ballast water treatment systems is economically practicable and achievable even if costs are fully attributable to this permit alone. This determination considers the full installation and operation cost (as summarized in the discussion of the USCG's cost estimates above and the economic analysis document that accompanies this permit) of ballast water treatment systems on applicable vessels. It also considers revenue for the vessels. For example, as reported in section 3.4.2 of EPA's economic analysis document, average daily charter rates for vessels ranged from $17,000 to $37,500 per day in 2006 (USCG, 2008) and averaged $15,179 per day per voyage in 2010.

EPA further notes that numerous publications and forums have been devoted to the imminence of the IMO standards, the availability of ballast water treatment systems, and the selection of those systems by vessel owner/operators (e.g., see ABS 2010; Lloyds 2010; Lloyds 2011; USCG 2009). Hence, EPA believes that vessel owner/operators have been planning for the installation and use of ballast water treatment systems, or making other arrangements for ballast water management as appropriate, and they have factored these costs into their long-term operating plans.

EPA has determined that a more rapid implementation schedule than that in the U.S. Coast Guard final standard is not economically achievable at this time. As discussed in section 4.4.3.5.5 of this fact sheet, EPA has determined that it is not possible for all vessels equipped with ballast water tanks to install ballast water treatment systems by December 19, 2013 (for more information, see additional discussion in section 4.4.3.5.5). If EPA were to require treatment with ballast water treatment systems for all vessels on December 19, 2013, those vessels which would be unable to install systems due to these limitations would be unable to legally discharge ballast water, and therefore legally operate, in U.S. waters as of that date. Those vessel owner/operators without ballast water treatment systems would face the unenviable choice of ceasing operation in US waters or knowingly violating the CWA, which could carry significant civil and criminal penalties. In addition to significant costs for these vessel owner/operators, trade to and from US ports would suffer, resulting in widespread and significant disruptions in trade and economic activity.

EPA expects that production capacity will be available for the numbers of new vessels coming into service every year and new build vessels are in the shipyard or drydock for a substantial portion of their construction which will allow them to install ballast water treatment systems before coming into service. Furthermore, vessel owner/operators of new build vessels have been aware of impending ballast water treatment requirements for these vessels since the signing of the IMO ballast water convention. For these new build vessels, BAT will be the numeric effluent limitations associated with using a treatment device to meet IMO limits. However, as discussed above, it is not economically achievable for all vessels, including most existing vessels, to have ballast water treatment systems installed by December 19, 2013. Hence, BAT as of the effective date of this permit is use of a treatment system for new vessels built on or after December 1, 2013 and use of other narrative best management practices for existing vessels. By the end of the permit term, EPA expects a substantial portion of vessels operating in US waters, including most existing vessels, to be utilizing ballast water treatment systems, as it is not cost prohibitive to install ballast water treatment systems when a vessel is in drydock or out of service, and phasing the installation of systems over time will allow the shipping industry to spread costs over several years. The basis for the implementation schedule is discussed more fully in section 4.4.3.5.5 below.

Ballast Water Treatment Technologies have Acceptable Non-water Quality Environmental Impacts

In addition, EPA has considered the non-water quality environmental impacts, including energy impacts, of the ballast water discharge limitations required under this permit and finds that they are acceptable. Energy impacts result from energy requirements to operate the ballast water treatment equipment such as pumps, filters, UV lamps, chemical generators, and gas spargers. EPA anticipates that the ballast water requirements of this permit may also result in an increase in fuel usage; however, EPA expects an offsetting decrease in fuel usage for those vessels which no longer have to conduct ballast water exchange (and must conduct it under the 2008 VGP). Additionally, owner/operators of vessels may generate certain air emissions, such as greenhouse gases from incremental fuel consumption; however, EPA does not anticipate that ballast water treatment would result in solid waste impacts. The Agency concludes that the effluent reduction benefits for ballast water treatment far exceed the potential adverse effects from the increase in energy and fuel consumption and air emissions.

EPA's Consideration of Conclusions Found in the California State Lands Commission Ballast Water Treatment Report

EPA understands that some stakeholders may view the California State Lands Commission report titled "2010 Assessment of the Efficacy, Availability, and Environmental Impacts of Ballast Water Treatment Systems for use in California Waters" (CSLC, 2010; Dobroski et al., 2011) as providing justification for inclusion of treatment standard concentrations which are lower than those technology-based effluent limits included in the VGP (e.g., justification for setting the limits as 100 or 1000 times more stringent than IMO). As an interim standard (applicable until 2020), California has utilized a "no detectable living organism" approach for the largest size classes of organisms, with numeric standards for smaller size classes.

EPA believes that these California State Lands Commission (CSLC) reports, and their earlier versions, have served a role in consolidating summary data regarding the efficacy of ballast water treatment systems and drawing conclusions from those data where feasible. However, though some may view the CSLC report as justifying a more stringent standard than IMO, the methodology employed by the State of California is inconsistent with CWA requirements that must be applied by EPA in evaluating whether technologies are available to meet a given discharge limit. The CSLC report "examines treatment system performance data to determine whether or not systems have demonstrated the potential to comply with California's standards" (CSLC, 2010, 42). EPA understands that the CSLC defines a Ballast Water Treatment System as having the potential to comply with their performance standards if the system has at least one test (potentially of many) from either a land-based or shipboard test for which the measurement indicated compliance with the California standard. CSLC found that 8 systems have the potential to meet their standards under these evaluation criteria. California further notes that "three of eight systems show the potential to meet California standards under their additional more rigorous evaluation criteria. These three passed more than 50% of the time over multiple tests (3 or more) at either land or shipboard scale" (CSLC, 2010, 75-76). EPA notes that no systems had "no detects" in all sample tests. Hence, CSLC is very careful to note that several systems they evaluated have the "potential to meet" their discharge limits (for some discharge events) but that use of systems highlighted in the report in no way guarantees compliance with the "no detectable living organism" standard in California waters.

In its analysis of the data presented in the CSLC report, EPA concludes that those data are not adequate to determine whether any of the treatment systems can meet a significantly more stringent limit than those for this permit term. EPA believes that the data California reviewed for their evaluation of ballast water treatment systems were generally from tests to determine whether systems could meet the IMO limits, and do not have significant precision or resolution to detect efficacy significantly beyond those limits. As noted by the SAB, "current methods (and associated detection limits) prevent testing of BWTS to any standard more stringent than D-2 and make it impracticable for verifying a standard 100 or 1000 times more stringent." Hence, EPA does not believe that the report can be used to support the assertion that technologies are available to meet a limit 100 or 1000 times more stringent than IMO. In fact, until better shipboard testing methods are developed, there is no way to efficiently detect organisms present in low concentrations (e.g., at or below the IMO standard) from a shipboard discharge. This means that, in practice, the "no detectable living organism standard" required by California is no more stringent than the IMO standard at this time. This conclusion is supported by a recent NAS report, which states that the zero-detectable organism standard "is functionally defined by the ability to characterize concentrations of organisms at low densities" and that the exact California discharge standard "is largely undefined and contingent on sampling protocols" (NAS, 118).

4.4.3.5.1.1 Monitoring from Vessels Using a Ballast Water Treatment System

Pursuant to CWA section 308 and 402(a)(2), 40 § CFR 122.43(a), 40 § CFR 122.44(i), 40 CFR 122.45(e), 40 § CFR 122.48, and other applicable implementing regulations, the following requirements have been included in the permit, as discussed below.[14] The monitoring requirements in Part 2.2.3.5.1.1 of the permit apply to ballast water discharges from vessels employing ballast water treatment systems. Effluent samples for biological indicators (i.e., *E. coli* and enterococci), residual biocides and biocide derivatives must be collected during an actual ballast water discharge.

The monitoring is divided into three components. The first component, in Part 2.2.3.5.1.1.2, requires functionality monitoring to assure the system is operating as designed. 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

[14] As described above, EPA developed today's ballast water monitoring requirements in accordance with, among other provisions, 40 CFR 122.44(i)(1)(i) & (ii) and 122.45(e). "Where applicable," sections 122.44(i)(1)(i) & (ii) require conditions imposing monitoring "to assure compliance with permit limitations" for "[t]he mass (or other measurement specified in the permit) for each pollutant limited in the permit" and "the volume of effluent discharged from each outfall." EPA notes that, for the reasons described above, with the exception of indicator organisms, living organism monitoring of vessel ballast water discharges, by mass or any other measure, is not required in this permit due to practical constraints on the ability to collect and analyzed the volumes of ballast water necessary to directly detect and quantify such organisms at the levels of concern. Such requirements, therefore, are not "applicable" to this situation and are not included in today's permit. As for 122.44(i)(1)(ii)'s requirement for monitoring of volume of effluent discharged, there are no limits on the volume of effluent in the permit and thus no monitoring is needed to assure compliance with permit limitations. Note that vessel owner/operators are nonetheless required to record the volumes of ballast water that they discharge in Part 4.3 of the permit. As for section 122.45(e), EPA did not consider the listed factors because they were not appropriate to the ballast water context; it would not be appropriate to limit the frequency of ballast water discharges due to their important functions regarding safety and stability of the ship and, as described more fully above, ballast water discharges are not conducive to limitations based on total mass or rates of discharge.

assure compliance with the effluent limitations established in part 2.2.3.5 of the permit, as applicable.

Studies have concluded that the reduced discharge of viable organisms capable of establishing a viable population of the organism in US waters invasive reduces the risk of invasions (NAS, 2011). Monitoring data on the efficacy of ballast water treatment technologies will help EPA and others understand whether the number of living organisms in discharges has been reduced. In addition, monitoring is needed to better understand whether new invasive species are introduced from ballast water and other ship-based sources. This monitoring information is needed to evaluate the long-term effectiveness of requirements for treatment of ballast water and other measures to reduce introduction of invasive species. To address these important data needs, EPA is working with the Federal Aquatic Nuisance Species Task Force to develop a national strategy to improve understanding of invasion dynamics.

The following sections provide an in-depth discussion of each component and the basis for the requirements:

4.4.3.5.1.1.1 Ballast Water System Functionality Monitoring

Measures of treatment performance for ballast water systems can include a variety of techniques. Today's permit relies on existing sampling methods to ensure that a ballast water treatment system is functioning as designed (and as such, is assumed to be effectively killing living organisms). Unfortunately, there are significant limitations which prevent the widespread direct detection and quantification of the two largest size classes of organisms regulated by today's VGP (see EPA, 2010; US EPA SAB, 2011; King and Tamburri, 2010; Lee et al., 2010; Miller 2011). This means that it is not practical or economical for all vessel owner/operators to directly evaluate whether a ballast water discharge from a given vessel is meeting the numeric limitations contained in Part 2.2.3.5 with currently available, validated methods. Hence, the monitoring requirements in the "ballast water system functionality monitoring" focus on physical/chemical indicators of treatment performance.

Physical/chemical indicators of treatment performance verify that the ballast water treatment system is operating according to the manufacturers' requirements. Most ballast water treatment systems have control and self diagnostic equipment such as sensors that continuously measure treatment parameters to verify performance. Sensors commonly incorporated into the most frequently installed systems include flow meters, pH sensors, dissolved oxygen sensors, OPR and amperometric (TRO) sensors, and on-line chlorine analyzers. All of these meters and sensors are widely available as they have broad application in the water and wastewater treatment industry and are available off-the-shelf from many major equipment suppliers. Other ballast water treatment systems are provided with testing meters or kits, such as portable chlorine and dissolved ozone monitors, to verify adequate levels of treatment chemicals are being maintained within the ballast tanks. Vessel operators monitor and record this data and make adjustments, maintenance, or repairs to the ballast water treatment system to ensure the equipment is functioning properly. For publicly available information which discusses the treatment processes used by various ballast water treatment systems, please see, e.g., ABS, 2010; Albert et al., 2010; and Lloyds, 2010.

Ballast water treatment systems are designed and manufactured with various sensors and other control equipment to automatically monitor and adjust system operating conditions to ensure proper operation and to alert vessel personnel when intervention, maintenance, or repair is required. Sensors and other control equipment, interfaced with monitoring equipment to record operating parameters, also help vessel operators determine data trends, while allowing EPA to verify that a system is operating as designed. The vendor's Operating and Maintenance Manual explains the applicable sensors and other control equipment for the ballast water treatment system and should specify requirements for maintaining those systems. They may also specify what constitutes a range of stable operating conditions for the system. Many ballast water treatment system manufacturers require that the BWTS monitoring and recordkeeping be operated continuously to assure the system is functioning as designed. EPA requires vessel owner/operators to operate the system according to such specifications. Appendix J in the permit contains all the treatment processes and required monitoring parameters that EPA believes are currently widely used in existing ballast water treatment systems. EPA expects that most ballast water treatment systems will incorporate multiple treatment processes (e.g., filtration plus electrochlorination). Based on ballast water treatment system status reported in Albert et al. (2010), the vast majority of systems use between two and four treatment processes. EPA expects that vessel owner/operators will only monitor for a subset of parameters contained in Appendix J in the permit that are for processes incorporated into the design of their ballast water treatment system.

When alarms are initiated or when sensors indicate the ballast water treatment system is not functioning properly, the vessel must not discharge ballast water. Ballast water discharge can resume only after correcting the problems with the system and reestablishing stable operating conditions.

Routine maintenance of the ballast water treatment system and troubleshooting procedures are typically clearly defined in the system's Operating and Maintenance Manual kept onboard the vessel. All maintenance activities related to the ballast water monitoring system and overboard discharge control unit must be recorded, and the information must remain on board the vessel for three years for inspection purposes. In addition, vessel staff training must include familiarization with the operation and maintenance of the ballast water overboard discharge control and monitoring equipment (see Part 2.2.3.1 of the permit). All ballast water treatment systems must be inspected on a monthly basis to determine both short-term and long-term maintenance needs as specified in the vendor's Operating and Maintenance Manual.

4.4.3.5.1.1.2 Ballast Water Monitoring Equipment Calibration

All applicable sensors and other control equipment must be calibrated as recommended by sensor and equipment manufacturers, or by ballast water treatment system manufacturers or when warranted based on device drift from a standard or calibrated setting. At a minimum, all applicable sensors and equipment must be calibrated annually, however EPA fully expects many sensor types (e.g., pH probes, TRO sensors, DO probes) will need to be calibrated on a more frequent basis. The vessel owner/operator must do so if specified by the probe or ballast water treatment system manufacturer. Calibration of the sensors and equipment can be conducted on-board the vessel or they can be removed and shipped to the manufacturer for calibration. For some probes, vessel owner/operators may want to switch out electrodes more frequently, e.g., once every four months, to maximize accuracy of their probes. During any period when the sensors are not installed and operating on the ballast water treatment system, the vessel must not discharge ballast water.

Ballast water treatment systems that are equipped with automated control systems that initiate a sequence to stop the overboard discharge of the effluent in the event of alarm conditions must be subjected to an annual functional test. The detailed program for a functional test of such equipment is typically developed by the manufacturer, taking into account the features and functions of the specific design of the equipment and the operating and discharge conditions monitored. A copy of the functional test protocol must be carried aboard the vessel at all times.

4.4.3.5.1.1.3 Effluent Biological Organism Monitoring

Biological indicator compliance monitoring sampling is intended to verify the treatment system is operating properly by collecting a small volume sample and analyzing the sample for concentrations of certain biological indicator parameters. Analysis of concentrations of indicator organisms must include at least *E. coli* and enterococci bacteria. 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 type approved devices for which high quality type approval 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, no closer than 14 days apart on water treated during separate treatment episodes, to verify the system is operating 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 of the permit.

In March 2012, the USCG finalized its ballast water discharge standards and type-approval rulemaking (79 FR 17254, March 23, 2012). Under those final regulations, the USCG type-approval process in 46 CFR Part 162, Subpart 162.060 requires use of the EPA-ETV testing protocols (see e.g., 46 CFR 162.060-26; 162.060-28(f), (h), and (j)). Use of the ETV protocols will ensure any USCG type-approvals are based on high quality data. In addition, the USCG final rule provides for temporary use of "Alternative Management Systems, or "AMS" (33 CFR 151.1504 and 151.2026). To obtain a determination by the USCG that a system qualifies for treatment as an AMS, those regulations require the system to have received type-approval by a foreign administration, submission of full analytical procedures and methods, Quality Assurance procedures, and a type-approval application as described under 46 CFR 162.060–12, which in turn includes a requirement for a thorough explanation of how the submission meets or exceeds the requirements of Subpart 162.060 in respect to the ability to meet the discharge standard requirements. These requirements will ensure that systems with an AMS determination from the USCG are based upon high-quality testing data. Thus, systems which receive USCG type-approval or a USCG AMS determination will be considered to have high quality data and subject to the minimum 2 times in the first year (and 1 time per year thereafter if permit limits are met) biological indicator compliance monitoring sampling provisions of the VGP. Though systems with “high quality data” could include systems other than those having received U.S. Coast Guard type approval or a U.S. Coast Guard AMS determination, as a practical matter, EPA does not expect many, if any, other treatment systems to be considered to have “high quality data” without one of these two data quality control reviews. Table 2 in the permit lists the biological indicator compliance monitoring sampling analytical methods and effluent limits for treated ballast water. For today’s permit, EPA has required monitoring of organisms in discharged ballast water, but has limited the scope of the organisms monitored to the bacterial indicators specified in the discharge standard. EPA has limited the scope of biological monitoring due to logistical constraints of conducting such monitoring. In particular, the collection of adequate representative samples for analysis of larger organisms, which can involve significant volumes of water (3-5 cubic meters), could be impractical during the intensive activities associated with conducting cargo operations (including the management of ballast water to adjust for changes in the amount and distribution of cargo within the ship) during relatively limited times during which vessels are at dock.

EPA has established effluent limits for three pathogen indicators: *Escherichia coli*, enterococci, and *Vibrio cholerae*, consistent with the US. Coast Guard Phase I standard. However, EPA notes that the Agency is requiring monitoring for *Escherichia coli* and enterococci but is not requiring monitoring for *Vibrio cholerae*. The Agency is not requiring monitoring for *Vibrio cholerae* because the Agency has found based upon conversations with several ballast water treatment system testing laboratories (e.g., Naval Research Lab, Maryland Environmental Resource Center, the Royal Netherlands Institute for Sea Research) that monitoring of this parameter would generally not result in the detection of the presence of this pathogen, even if the ballast water treatment system were not fully functional. Importantly, EPA also notes that Part 136 methods are not available for detecting *Vibrio cholerae* in wastewater. EPA is also requiring monitoring for total heterotrophic bacteria to establish better information about how bacterial communities respond to ballast water treatment. EPA has found this test to be affordable, and the sample can be collected at the same time other effluent samples are collected.

Effluent biological organism monitoring is required between once per year and four times per year, dependent on whether the system is a device for which high quality type approval data are available, as described above. For vessels with a ballast water treatment system for which high quality type approval data are available, EPA believes that requiring monitoring twice per year during the initial year of system use, and once thereafter (if permit limits are met) will assist in assuring that the system is being maintained and performing to reduce the concentration of living organisms in the discharge.

EPA expects that the vast majority of vendors will either get their systems type-approved by the US Coast Guard, receive a USCG AMS determination, or at minimum, will share their full type approval data packages with the US government during this permit term. Hence, EPA expects that there would be few, if any, systems in use in waters subject to this permit that do not have AMS or USCG type approval. However, EPA notes that some vendors and/or flag administrations have shown a reluctance to share necessary data. Lack of data availability has been noted as a significant impediment to effectively evaluating the efficacy of ballast water treatment systems (Albert, 2011; US EPA SAB, 2011). For those systems for which data are not fully transparent, EPA must receive a higher degree of assurance that the systems are functioning so that they are effective, and that they are effectively eliminating living biological organisms (to the extent allowed by existing testing methodologies). As a result, EPA has required monitoring on a more frequent basis for any ballast water treatment system for which adequate data (e.g., full data packages submitted to flag administrations) are not available. Hence, the monitoring frequency is increased to four times per year for vessels using a ballast water treatment system which full data are not available to the US EPA and the US Coast Guard.

EPA's SAB found that "Measuring adherence to a standard that is 10x more stringent may be possible if a continuously isokinetically taken representative sample is used" (EPA SAB, 2011, page 29). In addition, the SAB reported, "New or improved methods will be required to increase detection limits sufficiently to statistically evaluate a standard 10x more stringent than IMO D-2/Phase 1; such methods may be available in the near future." EPA is working with the Coast Guard to develop improved testing protocols that might establish whether treatment systems are able to remove organisms to a greater extent than the final standards. As part of this process, EPA, working through the ETV program, has a public participation process. The Agency encourages the participation of all interested stakeholders in order to best inform the Agency's decision making on developing new and updated testing protocols. The most recent version of the ETV Protocols (US EPA 2010) can be found at http://www.epa.gov/etv/vp.html. Information on EPA's ETV program can be found at: http://www.epa.gov/nrmrl/std/etv/index.html.

4.4.3.5.1.1.4 Authorization of Residual Biocides Associated with Ballast Water Treatment Systems

Many ballast water treatment systems produce or use biocides as an agent to kill organisms present in ballast water discharges. The definition section of the permit contains a definition of biocides subject to these provisions. Ballast water treatment systems that use biocides as active substances have the reasonable potential to cause or contribute to an excursion of applicable numeric and/or narrative criteria for the protection of aquatic life. EPA established the biocide effluent limitations contained within Part 2.2.3.5.1.1.5 of the VGP to ensure that such discharges are controlled as necessary to ensure compliance with applicable water quality standards, pursuant to 122.44(d)(1)(vi) and (vii).

EPA assumes that a subset of the BWTS installed use biocides as disinfection methods and would have the potential to discharge residual biocides and therefore be subject to the 2013 VGP requirements found in Part 2.2.3.5.1.1.5 of the Permit. According to Lloyd's Register (2011), about half of the 200 BWTS installed as of June 2011 use chemical disinfection methods that have the potential to discharge residual biocides.

EPA notes that this permit does not authorize the use of dispersants in the vessel owner/operators' ballast tanks which may remove the appearance of a visible sheen from the discharge.

The concern with respect to the aquatic environment is that if the treated ballast water contains biocides or their derivatives at levels that are still toxic at the time of discharge, then organisms in the receiving water may be harmed. Part 2.2.3.5.1.1.5 of the permit thus contains specific limitations with respect to discharges of biocides or their derivatives. The permit contains a requirement that any ballast water technology must not discharge (and therefore, must not use) any "pesticide" within the meaning of FIFRA unless the pesticide has been registered for use in ballast water treatment under such Act, or unless the pesticide is generated solely by the use of a "device," within the meaning of the Federal Insecticide, Fungicide, and Rodenticide Act, 7 U.S.C.136 et seq. ("FIFRA"), on board the same vessel as the ballast water to be treated.

In addition, the permit contains specific limits for commonly used biocides in ballast water treatment systems. Chlorination (generally via hypochlorite electrolytic generation) is a commonly used disinfection technology and is known to be proposed for use in ballast water treatment systems. As in the 2008 VGP, the permit provides that Total Residual Chlorine (TRC) may not exceed 100 micrograms per liter (µg/l) as an instantaneous maximum. Routine methods for de-chlorination of treated water are well demonstrated, and in selecting this limit EPA considered existing TRC limits found in a number of NPDES permits for publicly owned treatment works, with the TRC limit for this permit reflecting the median limit for the permits reviewed.

For today's permit, EPA has also established a discharge limit for ozone, expressed as an instantaneous maximum 100 micrograms per liter (µg/l) of Total Residual Oxidizers (TRO as TRC). EPA requires analysis of TRO in ballast water effluent using either of two standard DPD colorimetric methods recognized in the international community: Standard Methods 4500-Cl G and International Organization for Standardization (ISO) Method 7379/2. Although these methods were originally developed to determine residual chlorine, many oxidants used as disinfectants react directly with the colorimetric indicator, thereby allowing for the determination of total residual oxidizers. Examples of detected oxidants relevant to ballast water treatment technologies include chlorine, chlorine dioxide, ozone, bromine, hydrogen peroxide, and disinfectant by-products such as chlorite and chlorate. Because the photometric equipment compares the colorimetric response of the sample to its calibration developed based on chlorine, results are reported as Cl2/L.

EPA has established a limit of 200 micrograms per liter (µg/l) of Chlorine Dioxide for systems using Chlorine Dioxide as a biocide. The manufacturer of one chlorine dioxide based system provided information on aquatic toxicity tests performed in support of achieving discharge approval from the Washington State Department of Ecology and GESAMP. These data were submitted to EPA in response to EPA's 2010 Federal Register notice seeking additional information for this permit. In its supporting documentation, the manufacture assessed chlorine dioxide effects on the survival and growth of silverside minnows (*Menidia beryllina*) and mysids (*Americamysis bahia*), survival and normal development for mussel (*Mytilus sp.*) and Pacific herring (*Clupea pallasi*) embryos, germination and germ tube length for giant kelp (*Macrocystis pyrifera*) zoospores, 96- hour population growth for diatoms (*Skeletonema costatum*), and 96-hour survival for Pacific herring larvae. They documented EC50 concentrations around 0.2 mg/L (equal to 200 µg/l) chlorine dioxide for the most sensitive test endpoints (i.e., mussel normal-survival, kelp germination, and kelp germ tube length). The manufacturer noted that the observed toxic thresholds were sharp and that the effects disappeared when concentrations reached 0.15 mg/L chlorine dioxide. Hence, based on these results, and to be consistent with recommendations made by GESAMP, EPA established the limit of 200 micrograms per liter (µg/l) of Chlorine Dioxide.

EPA has also included limits for Peracetic Acid at 500 micrograms per liter (µg/l) and Hydrogen Peroxide at 1000 micrograms per liter (µg/l) for systems using peracetic acid. Those limits were recently proposed by the GESAMP Ballast Water Working group for one ballast water treatment system which uses Peraclean (a peracetic acid based biocide). EPA notes that in low temperature, low salinity and/or low organic carbon concentrations, self-degradation of peracetic acid slows, maintaining ballast water effluent concentrations that are toxic to aquatic organisms (MEPC 54/2/12 Annex 5; de Lafontaine, 2006; MEPC 62.2). Effluent toxicity can be mitigated by using a chemical neutralization step (e.g., sodium sulfite addition) if natural degradation is not sufficient to reduce effluent concentrations of these active substances to the required limitations.

The permit further provides that in order to be eligible for coverage under the general permit, any other discharged biocides or derivatives (other than those listed above) may not exceed any recommended acute water quality criteria listed in EPA's 2009 National Recommended Water Quality Criteria and subsequent revisions published prior to issuance of today's permit. The 2009 National Recommended Water Quality Criteria can be found at http://water.epa.gov/scitech/swguidance/standards/criteria/current/upload/nrwqc-2009.pdf and any subsequent revisions may be found at http://water.epa.gov/scitech/swguidance/standards/criteria/current/ . Those numeric criteria were developed by EPA under authority of section 304(a) of the CWA based on the latest scientific information on the relationship that the effect of a constituent concentration has on particular aquatic species and/or human health. Normally, the CWA section 304(a) criteria are not regulations and do not impose binding requirements, but rather are information that EPA provides periodically to the states as guidance for use in developing numeric criteria for inclusion in State water quality standards under section 303 of the CWA. See 40 CFR 131.3(c). In this permit, however, EPA is using the CWA section 304(a) criteria as an end-of-pipe limitation because a variety of biocides might be proposed for use in ballast water treatments systems, and the section 304(a) criteria address a wide variety of chemicals, identifying numeric criteria intended to safeguard aquatic life and human health. Because the ballast water treatment systems subject to such limits are using biocides, which by definition are intended to be applied at levels that are toxic to organisms (in ballast water), EPA believes that such compliance is appropriate for use as a permit condition for coverage under this general permit.

Because an exceedance of the effluent limits in Part 2.2.3.5 of the permit is a permit violation, if vessel owner/operators are concerned that that their discharges from vessel discharges might exceed these limits, they are encouraged to first conduct land-based testing before installation on a vessel.

4.4.3.5.1.1.5 Residual Biocide or Derivative Monitoring

While ballast water treatment technologies reduce the probability of invasion, such treatment may introduce other water quality impacts, such as toxicity. For example, the addition or in-process generation of disinfecting chemicals may result in an effluent with some residual toxicity. Depending on the predicted or measured oxidant levels in the ballast water, a chemical neutralizing agent may be applied before ballast water discharge.[15] Use of chemical biocides also has the potential for generation of disinfection by-products, such as trihalomethanes and haloacetic acids. Currently available technologies use chemical neutralization or other means to mitigate residuals, but are not able to reduce disinfection byproducts of concern once created.

Based upon the potential discharge of residual biocides, EPA has incorporated monitoring requirements for both type approved ballast water treatment systems and experimental ballast water treatment systems which use an active substance in Part 2.2.3.5 of today's permit. For vessels having ballast water treatment systems that either add or generate biocides for treatment (e.g., chlorine, chlorine dioxide, ozone, etc.) the vessel must conduct monitoring of the vessel ballast water discharge for any residual biocides to demonstrate compliance with the limits provided in Table 5. For example, if chlorine biocide is used in ballast water treatment, the vessel owner/operator must test four times per year for residual chlorine in the vessel ballast water discharge. All sampling and testing for residual biocides shall be conducted using sufficiently sensitive 40 CFR Part 136 methods or other methods if specifically listed. If methods for a particular residual biocide are not available in 40 CFR 136, then another method may also be used (e.g., ISO methods). Sensors or other test equipment that continuously monitor residual biocide in ballast water discharge must be sufficiently sensitive to measure biocide concentrations before and after any neutralization process to verify discharge concentrations and to control the neutralizer dose.

If a ballast water treatment system uses a biocide not listed in Table 3, the residual biocide 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.[16]

As with biological monitoring, EPA has required different monitoring frequencies for vessels utilizing a ballast water treatment system where high quality type approval data are available to the US EPA and the US Coast Guard. As previously discussed, EPA expects that the vast majority of vendors will either get their systems type approved by the US Coast Guard, or at minimum, will share their full type approval data packages with the US government during this permit term. For those systems, EPA has required that the vessel owner/operator must initially take at least three (3) samples on different days from different treatment episodes over a 180-day period that are representative of the treated ballast water discharge. This is required to demonstrate that residual biocides are in compliance with the permit effluent limits and/or to generate information for EPA which will assist the Agency in evaluating whether certain biocides or their byproducts are likely to cause or contribute to a violation of water quality standards. 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 by the test method for each tested constituent. Thereafter, the vessel must conduct maintenance sampling and analysis for residual biocides at least two (2) times per year of the vessel ballast water discharge to demonstrate continued compliance with

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[15] USEPA, Science Advisory Board (SAB), Ecological Processes and Effects Committee, Efficacy of Ballast Water Treatment Systems, June 2011.

[16] USEPA, National Recommended Water Quality Criteria , 2009. http://water.epa.gov/scitech/swguidance/standards/criteria/current/upload/nrwqc-2009.pdf.

effluent limits and to produce information regarding the continuing performance of the systems and how they might impact the aquatic environment.

For those systems for which high quality data are not fully available to EPA and the Coast Guard, EPA must receive a higher degree of assurance that the systems are functioning effectively so that they are not releasing harmful quantities of residual biocides or byproducts into the aquatic environment. As a result, EPA has required monitoring on a more frequent basis for any ballast water treatment system for which adequate data (e.g., full data packages submitted to flag administrations) are not available. Hence, vessel owner/operators employing these systems must initially take at least five (5) samples on different days from different treatment episodes over a 180-day period that are representative of the treated ballast water discharge. 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 by the test method for each tested constituent. Thereafter, the vessel must conduct maintenance sampling and analysis for residual biocides at least four (4) times per year of the vessel ballast water discharge to demonstrate continued compliance with the effluent limits.

For all ballast water treatment systems, the minimum time period between ballast water sampling events for residual biocides cannot be less than 14 days. EPA has required a minimum time of 14 days between sampling events to assure that the system is performing over time during a given a year. EPA is not requiring monitoring on specified schedule (e.g., once per quarter) because ballast water discharge events might be episodic for some vessel owner/operators, and EPA wanted to provide flexibility to vessel owner/operators as to when they could collect samples. For vessels that only enter U.S. waters on a limited basis (i.e., one time per year or less), the vessel must have conducted ballast water monitoring for residual biocides within the previous year and upon discharge into U.S. waters. If any of the initial or maintenance samples exceed the effluent limits specified in Part 2.2.3.5.1.1.5 of the VGP, the vessel owner/operator must immediately cease discharging from the treatment system and undertake steps necessary to achieve compliance.

Biocides can also generate derivatives in ballast water that have aquatic toxicity when released to the environment. For example, chlorine combined with organic material can generate short chain volatile hydrocarbons (e.g., trihalomethanes). In addition to monitoring for the biocide, vessels must also conduct ballast water effluent sampling for biocide derivatives on the same schedule discussed above. The minimum time period between sampling ballast water sampling events for biocide derivatives cannot be less than 14 days.

4.4.3.5.1.1.6 Use of Biocides not Specifically Addressed in Part 2.2.3.5.1.1.1 of the Permit

The list of specific biocides authorized in section 2.2.3.5.1.1.1 of the permit, including Table 5 of the permit and those listed in the 2009 National Recommended Water Quality Criteria and subsequent revisions published prior to issuance of today's permit, contains most biocides, and/or the derivatives from such biocides, currently in use or potentially to be used in ballast water treatment systems of which EPA is aware. If after permit issuance, a biocide and its derivatives used or produced by a BWTS are not listed in section 2.2.3.5.1.1.1 or found in 2009 National Recommended Water Quality Criteria and subsequent revisions published prior to issuance of today's permit., the permit provides that a vessel owner or operation 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 they are aware. EPA may impose additional limitations on a vessel specific basis, or require the owner/operator to obtain coverage under an individual permit, if necessary. EPA may inform the vessel owner / operator of specific requirements. You may not discharge the biocide at issue until you receive a response from EPA to your notification.

EPA notes that the 2008 VGP included an alternative requirement for Whole Effluent Toxicity (WET) testing for experimental ballast water treatment systems using biocides, or which have derivatives from such biocides, for which there are not acute water quality criteria available. In today's permit, EPA has removed the requirement for certain vessels that employ ballast water treatment systems to perform WET testing. This provision of the 2008 VGP was only used by one vendor to date, and EPA expects that such circumstances are expected to be similarly rare in the 2013 VGP. Given this, EPA believes a vessel-specific approach is more appropriate.

4.4.3.5.1.1.7 Ballast Water Treatment System Recordkeeping and Reporting

Part 2.2.3.5.1.1.6 of the permit addresses recordkeeping and reporting for vessels utilizing shipboard ballast water treatment systems. These provisions were included to ensure that the vessel owner/operator complies with the limits previously discussed for section 4.4.3.5 of this fact sheet.

Like all other records required by the VGP, all records of monitoring must remain onboard the vessel for a minimum of three years and be available for inspection. Documentation regarding ballast water treatment system sensor and other control equipment calibration must also remain on the vessel for a minimum of three years and be made available for inspection by EPA or USCG. Ballast water monitoring data (including treatment system monthly inspection records and equipment calibration records) may be kept in any form, including electronic form, provided they can be made available to the EPA and meet the requirements of Part 1.14 of the permit. Records of monitoring shall include:

- The ballast water treatment system used, its type approval certificate, and records of whether the system is a vessel with type approved devices for which high quality type approval data have been made available;
- 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 2.2.3.5.1.1.1, 2.2.3.5.1.1.2, 2.2.3.5.1.1.4, 2.2.3.5.1.1.5 as applicable);
- The analytical techniques or methods used as applicable, and
- The results of such analyses.

Monthly sensor or other control equipment measurement records must be submitted to EPA as part of the vessel's annual report on ballast water management. EPA found that monthly monitoring is necessary to assure that systems are functioning as designed. Due to the rigorous land based and shipboard testing these systems generally must undergo before they are installed onboard vessels, EPA believes that monitoring the functional parameters on a monthly basis provides a basic level of assurance that the systems are effectively treating the ballast water discharge and removing living organisms to the extent necessary to meet the effluent limits specified in this permit. The biological effluent monitoring of indicator organisms provides EPA added assurance (within the limits of what is feasible with today's monitoring technologies) that these systems are effectively killing living organisms before discharge. Furthermore, considering the nature and effect of ballast water discharges, EPA has determined that annual reporting of these monthly and other monitoring results is appropriate. See 40 CFR 122.44(i). There is no need for EPA to require reporting of monitoring results more frequently than annually, as the monitoring requirements are primarily imposed to ensure that the owner/operator is aware of system malfunctions and, per section 3.2 of the permit, takes necessary corrective action.[17]

4.4.3.5.2 Onshore Treatment of Ballast Water

For those vessels whose design and construction safely allows for the transfer of ballast water to a third party (which may be an onshore facility or on another vessel such as a treatment barge), if such treatment for ballast water is available, practicable and economically achievable, the vessel owner/operator may use this treatment for any ballast water discharges, and thus not discharge ballast water to waters of the US.

Any vessel owner/operator covered by this permit discharging ballast water to a facility onshore or to another vessel must ensure that all vessel 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 prevents untreated ballast water from being discharged into waters subject to this permit.

Discharges containing ballast water from a vessel covered by this permit by an onshore facility or from another vessel not covered by this permit, must be authorized by an NPDES permit issued by the NPDES permit authority responsible for the waters to which the discharge

[17] Information that a system is not running as designed would likely tell EPA nothing about how many living organisms were released during a given time period and thus their invasion potential and therefore would be of limited use to the Agency if such information were required to be submitted to the Agency on a more frequent basis. What is important here is that the Agency knows that when the system was found to be malfunctioning, the owner/operator took necessary corrective action. This is information that will be submitted to the Agency in the annual reports and thus could form the basis for any necessary enforcement action.

occurs (i.e., the state in most cases[18]). EPA recommends that permitting authorities include conditions in the permit providing for treatment to remove living organisms at least as protective as the standards adopted in Part 2.2.3.5 or any subsequent VGP ballast water limits. EPA notes that it has the authority to object to proposed state permits if limits are not in compliance with the CWA (CWA section 402(d)) and intends to work with states, as appropriate, as they develop such permits.

While EPA believes that shipboard treatment of ballast water is an essential part of the solution to ballast water management for much of today's fleet, considering their operations, use of onshore treatment systems, if available (e.g., compatible with the vessel), could be a valid and effective form of ballast water treatment. EPA's SAB concluded that ". . . use of reception facilities may enable ballast water discharges to meet a stricter standard." (US EPA SAB, 2011, page 8). EPA is unaware of any such onshore treatment facilities capable of meeting the VGP's 2.2.3.5 ballast water standards currently available in the U.S. (US EPA SAB, 2011).

The potential advantages of onshore treatment facilities over shipboard treatment include: fewer onshore facilities than shipboard systems would be needed; smaller total treatment capacity would be needed; and onshore facilities would be subject to fewer physical restrictions, and would therefore be able to use more effective treatment technologies and processes than those used for shipboard treatment (US EPA SAB, 2011). Some studies conclude that onshore treatment facilities are a technically feasible option for either the industry as a whole or for some part of the industry (Pollutech, 1992; NAS, 1996; Oemke, 1999; CAPA, 2000; California SWRCB, 2002; Brown and Caldwell, 2007, 2008). Others conclude that cost or other factors could limit their use to part of the industry (Victoria ENRC, 1997; Dames & Moore, 1998, 1999; Rigby & Taylor, 2001a, b; California SLC, 2009, 2010).

Implementing a national U.S. and international network of onshore reception facilities presents many challenges. The most significant challenge is ensuring the availability of onshore treatment facilities at all ports of call, because if even one anticipated port location for a vessel does not have onshore treatment, that vessel may need to install a shipboard treatment system, defer the discharge of ballast water, or decline to call at that port. Another critical challenge is retrofitting vessels with the appropriate pipes and pumps to move ballast water up from tanks and off the ship at a rate fast enough that the vessel can perform cargo operations without significant and costly delays. Finally, onshore treatment facilities may not provide a complete solution to ballast water treatment. For example, some vessels may need to discharge part of their ballast water before arriving at berth so they can conduct cargo operations as soon as possible following arrival at the dock (AQIS, 1993a; Oemke, 1999; Cohen & Foster, 2000; CAPA, 2000; Rigby & Taylor, 2001a); some vessels need to discharge ballast water to reduce draft before arriving at berth (Cohen, 1998; Dames & Moore, 1998, 1999; Oemke, 1999; CAPA, 2000, Rigby & Taylor, 2001a; California SWRCB, 2002; California SLC, 2010); and lightering vessels may need to discharge ballast as they load cargo at designated anchorages or lightering

[18] As explained more fully in sections 3.1 and 3.5.2.1 of this fact sheet, while EPA retains the authority to permit discharges incidental to the normal operation of vessels formerly subject to the exclusion from NPDES permitting at 40 CFR 122.3(a) regardless of the NPDES authorization status of a state, onshore treatment facilities and treatment barges were never within the scope of that exclusion, as onshore facilities are not "vessels" and treatment barges operate in a capacity other than as a means of transportation.

zones (CDR Gary Croot, U.S. Coast Guard, pers. comm.; National Ballast Information Clearinghouse data).

However, onshore treatment of ballast water has been used in the past to remove oil from certain ballast water discharges from certain vessels (e.g., to prevent the discharge of oily ballast water from single hull tanker vessels). Use of these facilities, with modifications made specifically to remove living organisms (e.g., filtration with second stage disinfection) might make operational sense for vessels sailing dedicated routes. For example, an oil tanker engaged in the Coastwise trade which only deballasts in the same Alaskan waters, may elect to utilize onshore treatment if a facility is available. However, should this vessel be shifted to a different route and need to deballast, they will be responsible for finding onshore treatment in the new port in the U.S, need to rapidly install a shipboard ballast water treatment system, or likely will be unable to discharge their untreated ballast water in compliance with this permit's applicable requirements.

4.4.3.5.3 Use of Public Water Supply Water

EPA has addressed in the permit the use of water from US or Canadian public water supplies as a ballast water treatment method for vessels required to complete ballast water treatment. For the 2009 US Coast Guard proposed ballast water discharge standard rulemaking, twenty commenters[19] urged the Coast Guard to exempt vessels from having to treat their ballast water if the water was obtained from a municipal water supply. The commenters stated that this is a common practice for inland towing vessels and/or barges and offshore energy services. Based in part on these comments (available in the docket for today's permit) and comments on the 2011 draft VGP, EPA believes that public water supply water is an option for certain vessels to use in their ballast water management approaches. Furthermore, EPA believes that water which satisfies the standards of the Safe Drinking Water Act (42 U.S.C. §§ 300f-300j) or Canada's "Guidance For Providing Safe Drinking Water in Areas of Federal Jurisdiction" should be acceptable for use as ballast water without posing a significant threat of introducing or spreading ANS. Drinking water treatment processes require a high degree of disinfection and in many cases, filtration, which would make the likelihood of loading ANS into a vessel's ballast tank highly unlikely. EPA notes that it has imposed several BMPs in the permit, pursuant to 40 CFR 122.44(k)(4), to ensure that the applicable effluent limits are achieved. In particular, the permit provides that a vessel owner/operator must certify that it exclusively uses public water supply water in order to utilize this management measure to meet the treatment requirements of this permit. Any mixture of water obtained from a source other than a facility meeting the requirements of the Safe Drinking Water Act will negate acceptability of potable water as discharged ballast water.

4.4.3.5.4 No Discharge of Ballast Water

A fourth option available to vessel owner/operators is to not discharge ballast water. For many vessel types and routes, this is a feasible option which is available, practicable and economically achievable.

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[19] See docket number USCG-2001-10486 for all comments submitted to the U.S. Coast Guard as part of their proposed rulemaking.

Ballast water is treated to mitigate the risk posed by potential ANS contained within the ballast water tank. If a vessel does not discharge any ballast water, the risk associated with such discharges is nil.

Examples of vessels which may not need to discharge any ballast water include some cruise ships, container ships, and utility vessels. These vessels often have numerous ballast tanks onboard with internal piping which connects those tanks. Hence, they can internally shift ballast water between tanks as needed to adjust the trim and stability of the vessel. Other vessels, such as some tugboats, use permanent ballast and never discharge that water (AWO, 2009). In the case of offshore supply vessels, these transport potable water to offshore facilities and do not need to discharge ballast water to receiving waters (see comments submitted in response to US Coast Guard rulemaking; e.g., USCG-2001-10486-0440 and USCG-2001-10486-0457). Finally, though generally in a concept stage, some large vessels, such as tankers, have been designed to be ballastless vessels (Mouawad, 2011; Parson and Kotinis, 2008); some of these designs do not substantially increase the exposed area of the hull (e.g., Mouawad, 2011) (which would increase hull fouling and might not actually reduce the transport of ANS). Though likely not appropriate for all vessel designs and operations, a ballastless design might result in the elimination of ballast water discharges from these vessels.

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

In today's permit, EPA has determined that when technology capable of meeting the numeric concentration-based effluent limits in Part 2.2.3.5 becomes available and economically achievable (i.e., when it becomes BAT) is a function of a vessel's construction date, size, and class. Thus, those numeric effluent limits will become applicable as a vessel's technology-based effluent limits according to the schedule specified in the permit. This schedule is based on a determination by EPA that ballast water treatment technology to meet the numeric limits is or will be available and economically achievable for a vessel by the specified date. Pending installation of ballast water treatment or other methods to meet the numeric effluent limits, ballast water discharges must comply with the other BAT requirements (i.e., non-numeric BMPs) outlined in today's permit.

a. New Vessels

At the time the draft VGP was made available for comment in December 2011 (76 FR 76716), the USCG had proposed, but not finalized, its ballast water discharge standard and type-approval rulemaking (74 FR 44632, August 28, 2009). The draft VGP schedule for achieving compliance with its technology-based numeric limits for ballast water was consistent with the USCG proposal. As discussed in more detail in the Fact Sheet for the draft VGP, available information and analyses indicated that at least five different types of treatment technologies had been shown to be safe, reliable and effective at reducing viable living organisms in ballast water discharges so as to meet the limits in the IMO's BWM Convention Regulation D-2 and the USCG's proposed phase 1 standard. Furthermore, the available information demonstrated that such technologies were commercially available for shipboard installation and their use was economically achievable if they were installed on an appropriate implementation schedule. In light of that, based upon a BPT/BCT/BAT determination as discussed in section 4.4.3.5.1 of the draft 2011 VGP Fact Sheet, EPA proposed to establish numeric ballast water discharge limits consistent with the USCG Phase I proposed discharge standard/IMO standard, with a rolling implementation schedule similar to that contained in the USCG proposal and IMO BWM Convention. As explained in this Fact Sheet, and in the response to comments document, EPA continues to believe that the draft VGP's technology-based ballast water numeric limits are appropriate for inclusion in the final VGP.

Since publication of the draft VGP, the USCG has finalized its ballast water discharge standard and type-approval rulemaking (77 FR 77 17254, March 23, 2012). That final rule, like today's permit, retains the USCG's proposed phase 1/IMO BWM Convention Regulation D-2 numeric limits. However, due to concerns that there would not be an adequate number of approved BWMS , the final rule delayed the date for which a vessel would be considered a new build vessel by 23 months -- from January 1, 2012, to December 1, 2013 (77 FR 17259; 17266; 17271). Under both the USCG and EPA requirements, "new build" vessels must comply with the ballast water discharge standards immediately upon entering into service.

The USCG does not anticipate completing its type approval of any system prior to 2015 (77 FR 17259). In light of that, the USCG March 2012 final rule contains a process ("Alternate Management System" or "AMS") under which, subject to approval by the USCG, a foreign type-approved treatment system may be temporarily used while operating in waters subject to the USCG rule. 33 CFR 151.2026; see 77 FR 17259. As a result, a vessel owner/operator may comply with USCG regulations by using an AMS system and would no longer need to conduct ballast water exchange if previously required to do so. However, even with the AMS process, the USCG anticipates there will not be an adequate number of USCG-approved BWMS to allow vessel owners to meet the compliance date for new vessels as was proposed in their rulemaking (and which was also included in the 2011 draft VGP) (77 FR 17259).

The USCG's final rule's schedule for compliance for existing vessels remained unchanged from their proposal, and, consistent with the December 2011 draft VGP, today's final VGP also leaves the schedule for existing vessels unchanged. However, with respect to new vessels, EPA believes that it is appropriate to revise the VGP schedule for meeting the technology-based ballast water numeric limitations in a manner consistent with the USCG final rule. Based upon comments received on the proposed VGP, and consistent with the changes made in the final USCG rulemaking with respect to new build vessels' compliance dates, EPA has defined "new build" vessels as those constructed (as defined in Appendix A of the VGP) after December 1, 2013 and, like the Coast Guard, has required compliance with the technology-based ballast water numeric limitations upon delivery.

The USCG is responsible for administering and implementing the BWMS type-approval and AMS approval programs and has concluded that for new vessels, such an extension of the schedule is necessary in light of the time it will take to implement its type-approval and AMS process. EPA believes that it is not advisable to in effect require installation of treatment systems that have not undergone required review and quality control under the USCG regulations. The potential consequences of installation of systems which do not function as designed would be less effective treatment than provided by ballast water exchange alone and additional economic costs for vessel operators required to reinstall systems on a short schedule (i.e., if installed systems ultimately proved non-compliant with EPA standards or failed to obtain USCG approval in the required timeframes). As explained further in the economic analysis for today's final VGP, requiring installation of systems before either AMS or type approval has been granted, thereby increasing the potential that treatment systems unable to meet the technology based numeric limits in today's final VGP would have to be torn out and replaced, would raise additional issues of the economic achievability regarding the immediate installation of ballast water treatment systems for vessels built between Jan.1 2012 and Dec. 1 2013. In light of the above, we have revised the Final 2013 VGP schedule to reflect the schedule now contained in the USCG final rule.

b. Existing Vessels

As described more fully above, ballast water treatment technologies have been developed that have been demonstrated to meet the IMO D-2 standard within the context of typical marine vessel constraints, including restrictions on size, weight, and energy demands. While practicable for newly constructed vessels, integrating such technologies on a retrofit basis may be challenging for some vessels (US EPA SAB, 2011). Hence, based upon additional challenges associated with retrofitting the large number of vessels that will need to install treatment technologies to meet the numeric ballast water effluent limits in the permit (see Bacher, 2011; Hintzsche, 2011), EPA has included a rolling implementation schedule that requires the installation of BWTS by the first drydocking after 2014 or 2016 (dependent upon vessel size), which may extend beyond the permit term for certain vessels. This time schedule is consistent with the timelines in the IMO treaty and the Coast Guard's March 2012 rulemaking.

EPA's adoption of this schedule reflects the fact that the BW treatment system industry will need the additional time provided by the schedule to produce the required units, and vessel owners will need that additional time to do the advance work necessary to ensure that they choose and secure the appropriate system for their vessels and, to make arrangements for drydocking or other time out of service and inspection and approval necessary to properly install the technology. Until all of this is accomplished, treatment technology meeting the standards set out in section 2.2.3.5 of this permit will not be "available" within the meeting of the Clean Water Act. Because it is well-known that the IMO standards will imminently come into effect (and USCG ballast water rulemaking has been finalized), manufacturers and vessel owners have been engaging in the multi-year planning necessary to implement the IMO standards on the IMO schedule. Thus, the industry as a whole should be on track to have treatment technologies installed on that schedule. Although EPA did consider accelerating this, the Agency decided against doing so, since, as noted above, the BW treatment system industry needs the additional time reflected in the VGP's schedule to produce the required units. In addition, the Agency is concerned that altering the anticipated schedule at this late a date would disrupt the industry's prior planning and that efforts to establish additional production capacity could distract manufacturers' resources from meeting existing demand, and thus perhaps even result in further delays. Given the magnitude of the task for manufacturing and installing ballast water treatment systems, EPA believes that the timeframes for when treatment technology becomes "available" to meet the limits found in Part 2.2.3.5 of the VGP is reasonable. Further discussion of the factors that informed EPA's adoption of the IMO timeline follows:

Manufacturing capacity: The ballast water treatment system industry is relatively young and currently has a limited production capacity. As of February, 2010, Lloyds Register (2010) estimated that there were 119 ballast water treatment systems installed worldwide. As of June 2011, Lloyds Register (2011) estimated that a total of 200 systems have been installed on vessels worldwide. The government of Japan estimates that more than 70,000 vessels worldwide will need to be fitted with ballast water treatment systems (MEPC 61/2/17); see Figure 1 below. King (2010) notes that even on the IMO schedule, 20,000 to 30,000 systems may need to be installed on vessels per year. If EPA were to require all systems be installed within a 1-2 year period, even only on vessels operating in US waters, it would be highly unlikely that vendors could meet production demand for the large number of vessels operating in US waters during that time. Furthermore, by spreading the production of systems over several years, vendors will have the opportunity to perfect and improve systems, such that any defects or shortcomings observed in the first systems produced and installed can be corrected.

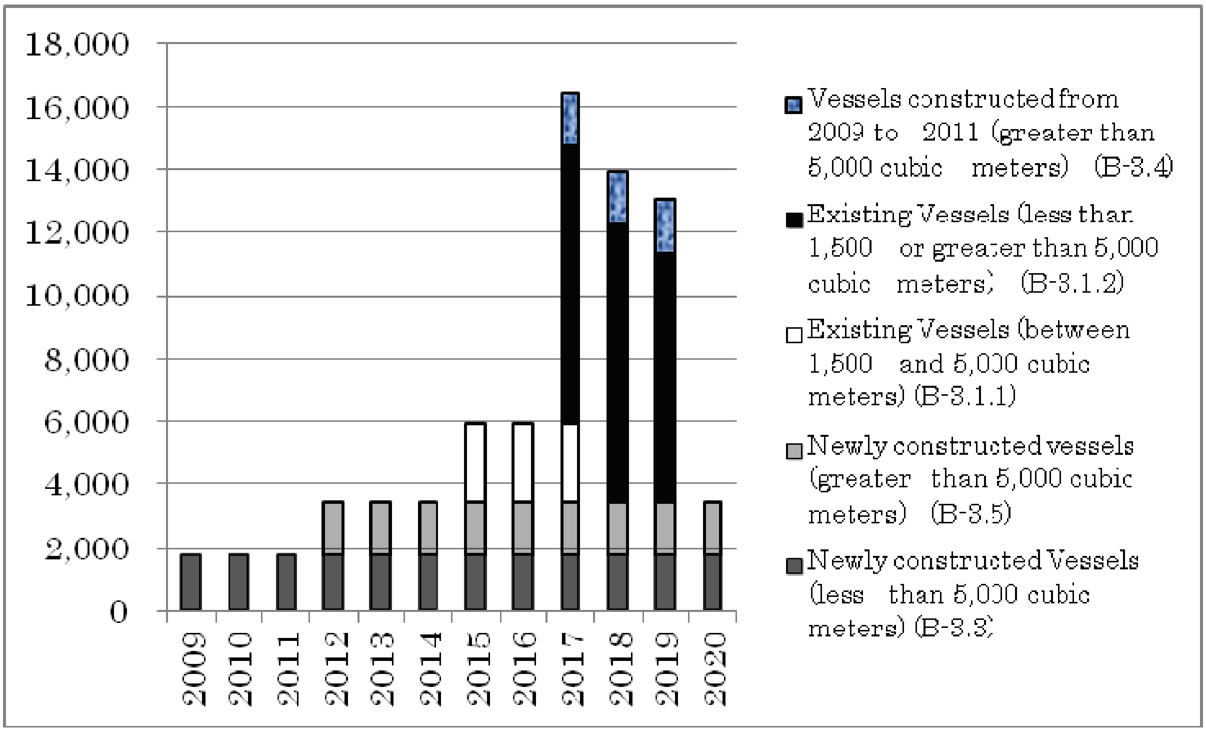

Figure 1. Installation Schedule of Ballast Water Treatment Systems Estimated by the Government of Japan (MEPC 61/2/17).

Drydock availability and time out of service: It is not feasible to expect all existing vessels which operate within U.S. waters to install ballast water treatment systems within a short period of time (e.g., one or two years). EPA expects that many existing vessels will need to enter drydock or make arrangements for time out of service to install a ballast water treatment system and have that installation inspected and approved by their class society and/or flag administration. It is EPA's understanding that vessels drydock on a three to five year cycle and vessels typically arrange for drydocking many months to years in advance. Drydocking must take place no less than once every five years (US EPA SAB, 2011 citing ABS SVR 7/2/1-11), meaning that vessel owner/operators cannot put off installation of ballast water treatment systems indefinitely. Furthermore, worldwide drydocking capacity is limited, and all vessels would not be able to enter drydock within the same year.

Retrofitting: Installation of ballast water treatment systems on existing vessels is more complicated than installation on new-build vessels (ABS, 2010; GLBWC, 2010). Whereas owner/operators of new build vessels have known about ballast water treatment systems and potential requirements, and so could design vessels for their ultimate inclusion, previously constructed vessels are likely to have additional design challenges (Bacher, 2011; Hintzsche, 2011). For instance, many vessels have space or energy limitations, which reduce a vessel's options for which systems they select (Albert and Everett, 2010). Additionally, many vessels will have to install additional ballast system access points and sampling ports; all of which must be designed before installation. Hence, for existing vessels, installation of a ballast water treatment system is not a turn-key operation, and owners will need some time to identify, procure and install the appropriate system for their vessel and its operating circumstances.

Economic Impacts: Please see the discussion above under "Ballast water treatment requirements in the 2013 VGP are economically practicable and economically achievable" for a discussion of what a more rapid implementation schedule might mean economically.

EPA believes that a less rapid implementation schedule than that in today's permit is also not reflective of BAT. Vessel owner/operators have had many years to prepare for the installation of ballast water treatment systems, and as discussed earlier in this fact sheet, numerous ballast water treatment systems are available today. Installation deadlines (e.g., when installation of a treatment system becomes BAT) for existing vessels begin more than 1 year after the anticipated finalization of the next VGP and treatment system requirements phase in over a multi- year period. Additionally, the U.S. Coast Guard finalized the ballast water discharge standard rulemaking with the same schedule for existing vessels as contained in today's permit. If vessel owner/operators anticipate complications with installing ballast water treatment systems during the 2016 to 2019 time period due to high demand and treatment system manufacturer backlog, EPA strongly advises these owner/operators to begin planning and, as appropriate, taking concrete steps, to avoid these complications today. This may include installing ballast water treatment systems before a drydocking before January 1, 2016 in those cases where vessel owner/operators can plan, design, and procure a ballast water treatment system for one or more of their vessels in this shortened time period.

EPA also notes that the CWA requires that BAT be required no later than July 1, 1989 or for entities permitted for the first time after that date, BAT must be achieved immediately upon permit effectiveness. CWA section 301(b)(2). When EPA issued the first VGP in 2008, it established BAT for all vessels, and thus satisfied the statutory timeframe obligation. In this next iteration of the permit, EPA is ratcheting down to a more stringent BAT numeric effluent limitation for certain vessels over time, based upon when technological advancements will make these more stringent limits available and practicable and economically achievable. For certain dischargers, EPA has determined that the technology will be available, practicable and economically achievable at time of permit issuance, and therefore the numeric limit constitutes BAT at that time. For other dischargers, EPA has determined that the technology will be available, practicable and economically achievable over time, and therefore the numeric limits constitute BAT on the dates specified in the implementation schedule.

4.4.3.5.6 Vessels Not Required to Meet Part 2.2.3.5 Treatment Standards

The numeric concentration-based treatment limits do not apply to all vessels subject to this permit. Separate technology-based effluent limitations, in the form of BMPs under 40 CFR 122.44(k)(3) (e.g., Part 2.2.3.3 and 2.2.3.4 of the permit), apply to the vessel classes discussed below:

4.4.3.5.6.1 Vessels Engaged in Short-Distance Voyages

The following vessels, regardless of size, build date and type are not required to meet the ballast water discharge standards found in Part 2.2.3.5 of this permit:

- Vessels which stay within a single US Coast Guard Captain of the Port (COTP) zone; and
- 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 US Coast Guard COTP zone.

EPA has not mandated that vessels meet the numeric ballast water effluent limits in Part 2.2.3.5 for these vessels operating on generally short routes to minimize other non water-quality environmental impacts. 40 CFR § 125.3(d)(3). Such limits are based on the application of certain technologies, and as discussed below, use of ballast water treatment systems results in some non- water quality environmental impacts, including increased energy usage and increased carbon emissions. Vessels which operate on short routes may discharge ballast water more frequently than vessels on longer routes, and as such, would have higher non-water quality impacts (e.g., higher energy usage, increased greenhouse gas emissions) per distance travelled.

Furthermore, many existing ballast water treatment systems use biocides (see Albert et al., 2010 for a list of ballast water treatment systems using biocides as of June 2010; Lloyd's 2011 estimates approximately half of all ballast water treatment systems installed to date use a biocide). These biocides often need minimum contact time to be effective – short distance voyages might not provide this necessary time. Additionally, the discharge of ballast water treated with biocides may contain residuals or byproducts from that treatment, and short voyage times may not permit adequate decay or neutralization.

EPA has included a definition which makes use of US Coast Guard COTP zones and distance travelled. For the first definition of a short voyage, EPA chose the US Coast Guard COTP zone as the boundary within which vessels might voyage without having to meet the limits found in Part 2.2.3.5 of the VGP, as this is a well known administrative district for vessel owner/operators. For example, the US Coast Guard (and the US EPA in the 2008 VGP) does not require ballast water exchange if vessels stay within the COTP zone.

The second definition of a short voyage under the VGP is for vessels such as cross river ferries that might cross a US Coast Guard COTP boundary. Though EPA is not aware of any specific vessels which currently meet these criteria, EPA did not want to inadvertently require ballast water treatment systems for vessels that would result in result in other environmental impacts (e.g., more biocides added to the aquatic environment, more fuel consumed and greenhouse gasses released). If a vessel crosses a US Coast Guard COTP boundary, however, EPA limited the maximum distance which could be voyaged to no more than 10 miles to be considered a short voyage. Additionally, to be considered a short voyage, the vessel cannot cross a physical boundary (e.g., lock, falls). EPA included this upper bound to limit the dispersal of ANS across Coast Guard COTP boundaries (e.g., from one estuary to a nearby coastal estuary) or across potential obstructions to the dispersal of invasive species.

Finally, EPA notes that vessels which travel short distances and do not cross physical barriers are less likely to pose risk in widely dispersing living organisms.

4.4.3.5.6.2 Unmanned, Unpowered Barges

Unmanned, unpowered barges generally move in the inland and coastal waterway system to transport low-value bulk items such as grain, coal, or iron ore. These vessels are roughly equivalent to a maritime railway car and are not manned with crew and do not have infrastructure that allows for complex or energy intensive operations. EPA understands that ballasting for barges is typically done in limited locations to pass under bridges and that the ballast intake and discharge occur immediately before and after transit under the bridge. In other cases, these barges ballast to improve stability in stormy conditions or other rough water. The vessels typically do not have dedicated ballast water tanks but can use wing tanks (void space) in the hull when ballasting is necessary. Minimal water is used for ballasting and EPA does not believe that barges are a significant discharger of ballast water.

Unmanned, unpowered barges have been recognized as posing unique challenges for managing ballast water. For instance, EPA's SAB board notes:

> Inland waterways and coastal barges are not self-propelled, but rather are moved by towing or pushing with tugboats. Because these vessels have been designed to transport bulk cargo, or as working platforms, they commonly use ballast tanks or fill cargo spaces with water for trim and stability, or to prevent excessive motions in heavy seas. However, the application of [Ballast water management systems] on these vessels presents significant logistical challenges because they typically do not have their own source of power or ballast pumps and are unmanned (US EPA SAB, 2011, 40).

Due to the complexities of operating existing type approved ballast water treatment systems, EPA has determined that treatment technologies are not currently available for unmanned, unpowered barges which meet the IMO discharge limit. As a result, EPA has not included numeric treatment limits for unmanned, unpowered barges.

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

Vessels that operate exclusively on the Laurentian Great Lakes are not subject to the numeric limits found in Part 2.2.3.5 of the VGP. The Laurentian Great Lakes means "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 and includes all other bodies of water within the drainage basin of such lakes and connecting channels).), As discussed by EPA's SAB, existing Lakers face unique operational and design constraints:

> In addition to specific environmental and vessel applications, vessel type and vessel operations can dictate [Ballast Water Management System] applicability. Although a multitude of vessel designs and operation scenarios exist, a few important examples of specific constraints can greatly limit treatment options. Perhaps the most dramatic limitations are found with the Great Lakes bulk carrier fleet that operates vessels solely within the Great Lakes with large volumes of fresh, and often cold, ballast water ("Lakers"). The vessels in this fleet have ballast volumes up to 50,000 m3, high pumping rates (up to 5,000 m3/hour), uncoated ballast tanks (older vessels), and some vessels have separate sea chests and pumps for each ballast tank. A further confounding issue is that voyages taken by Lakers average four to five days, with many less than two days. Given these characteristics, a number of limitations are imposed. . . US EPA SAB 2011, 40.

Due to the challenges of installing ballast water treatment systems currently available on the many vessels in the Laker fleet, the cost of installing those systems at this time due to Lakers' unique designs, and the lack of currently available ballast water treatment systems appropriate for the largest Lakers, alternative technologies are being researched. For example, ongoing research by the Great Ships Initiative (GSI), American Steamship Company (ASC), the National Park Service (Isle Royale National Park) and the United States Geological Survey (USGS) is being conducted to test the efficiency of various biocide introduction scenarios into a ship's ballast tanks. Bench-scale and land-based tests of various biocides and neutralizing agents have been conducted by GSI (Cangelosi, 2011), and in August 2011, GSI conducted the first ship board test of a sodium hydroxide biocide with carbon dioxide neutralizing agent onboard the ASC's vessel M/V Indiana Harbor, a large Laker confined upstream of the Welland Canal. This technology is in the experimental testing stage, and thus there are many unresolved issues, including: the efficacy of this or other biocides; whether the active substance used to kill the organisms in the ballast water can be sufficiently neutralized prior to or during discharge so as to not cause toxic effects to the aquatic life of the surrounding water; whether there are other parameters of concern (such as dissolved solids, chlorides, sodium, salts, acidity, etc.) in such a discharge that may have deleterious environmental effects; as well as potential for such systems and chemicals to pose harm to the ship's crew or the ship itself. Nonetheless, if these issues can be appropriately addressed, such as if an active substance and disinfection regime can be identified, such technology might be a potentially useful treatment technology for some Lakers in the future. Additionally, EPA notes that there are questions about whether there is an adequate supply of ballast water treatment systems designed to operate exclusively in cold, freshwater environments, and that the availability of ballast water treatment systems built to operate under these scenarios may lag the development of ballast water treatment systems designed for ocean-going and coastal vessels. Hence, EPA will closely follow the state of technologies currently being tested for all Lakers, including the largest Lakers confined upstream of the Welland Canal. EPA will consider revising permit requirements during the term of the permit if such technologies do become available.

In Today's permit provides that existing vessels operating exclusively on the Laurentian Great Lakes are not be subject to the requirement to meet the effluent (and related) limits in section 2.2.3.5 during the term of this permit. However, EPA is including a permit reopener condition that addresses EPA's ability to modify the permit to require installation of ballast water treatment systems if such systems become available. EPA advises Laker owner/operators that EPA intends to promptly exercise the permit reopener to initiate the process to modify the permit if such systems become available during the permit term. These requirements may include requiring that effluent meet levels achievable by treatment with an IMO type approved device or requiring an alternative technology-based ballast water effluent limit.

EPA further notes that this requirement is generally consistent with the recently finalized Coast Guard ballast water rulemaking. In that rulemaking, USCG states that: "For the reasons we have discussed in th[e] preamble, we are not requiring vessels that operate exclusively in the Great Lakes to comply with BWDS in this final rule" (77 FR 17260).

New Lakers

All Lakers built after January 1, 2009 must meet the ballast water treatment limits found in Part 2.2.3.5 of the permit. EPA selected January 1, 2009 as the cutoff date because this is the date that IMO originally first required treatment for some new build vessels. Any vessel owner/operators building or contracting vessels after this date were well aware of the need to design their systems to meet ballast water discharge limits and EPA therefore assumes that such vessels were so designed. EPA notes that the IMO schedule was extended for vessels with less than 5,000 cubic meters of ballast water, from January 1, 2009 to December 31, 2011 via Assembly Resolution A1005[25].[20] However, EPA notes that any owner/operator constructing vessels by the 2009 date were well aware of impending ballast water management requirements, and hence, should have appropriately designed their vessels to accommodate retrofitting a ballast water treatment system onboard.

Additionally, existing Lakers must meet all other ballast water requirements found in Part 2.2.3.3 of the VGP and Laker specific requirements found in Part 2.2.3.4 of the VGP. These supplemental requirements were developed to reduce the number of living organisms in ballast water, and the risk of their dispersal within the Great Lakes ecosystem.

4.4.3.5.6.4 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 of today's permit. A seagoing vessel means "a vessel in commercial service that operates beyond the boundary line established by 46 CFR Part 7. It does not include a vessel that navigates exclusively on inland waters." (From 151.2005). An inland vessel means a vessel that operates exclusively on inland waters. EPA encourages vessels in this size class to use alternate measures to reduce the number of

[20] Assembly Resolution A1005[25] recommends that States henceforth ratifying, accepting, approving or acceding to the Convention should accompany their instrument of ratification, acceptance, approval or accession, as appropriate, with a declaration or otherwise communicate to the Secretary-General their intention to apply the Convention on the basis of the following understanding, also taking into account paragraph 3:
"A ship subject to regulation B-3.3 constructed in 2009 will not be required to comply with regulation D-2 until its second annual survey, but no later than 31 December 2011."

living organisms in their ballast water discharges, including use of those measures found in Part 2.2.3.5 of this permit and use of onboard potable water generators.

The draft VGP would have required any vessel (not otherwise exempt) that carries greater than 8 cubic meters of ballast water to meet the numeric ballast effluent limitations for ballast water. Several commenters, however, argued that technologies are currently not available and/or economically achievable for the smaller size of non ocean-going vessels (e.g., tugboats) that may carry more than 8 cubic meters of ballast water. In response to these comments, EPA took a closer look at the record for the proposal and reassessed whether it demonstrated that ballast water treatment technologically is available and economically achievable for smaller vessels.

Based upon that review, EPA concluded that ,though technologies are promising for future development, the record at proposal did not support the conclusion that numeric ballast water treatment limits for small inland and seagoing vessels represents BAT at this time or over the life of the permit. For example, most ballast water treatment systems have been designed for larger vessels and/or vessels which only uptake or discharge ballast water on either end of longer voyages and the record at proposal contained no evidence that any vessels smaller than 1600 GRT had successfully installed a treatment systems on their vessel. Supplemental analysis by the Agency confirmed the conclusion that the ballast water numeric limits did not reflect BAT for this class of vessels.[21] EPA further notes that though meeting numeric limits does not represent BAT for these small inland and coastal vessels as a class, ballast water management measures to minimize the discharge of untreated ballast water might be available for some individual vessels in this class of vessels. For example, some smaller vessels because of their unique designs and operations might be able to use potable water for ballasting. For these reasons, EPA reemphasized the requirement for these vessels to meet existing ballast water minimization management measures in Part 2.2.3.3 of the permit and the agency strongly encourages all vessel owner/operators in this size class to take whatever measures they are able to reduce or eliminate the discharge of untreated ballast water into waters subject to this permit.

Other than for the vessel types and voyage patterns discussed above, EPA found no basis for differentiating BPT/BAT solely based on age of equipment and facilities, process, process changes, or other engineering factors.

4.4.3.5.7 Data Sources used in generating today's numeric ballast water limits

In developing today's numeric effluent limits, EPA considered data from numerous peer reviewed publications, literature produced by the federal government, other technical reports and publications, public comments, and comments from experts working in the field (see US EPA SAB, 2011; Albert et al., 2010; CSLC, 2010; GLBWC, 2010; Lloyd's List, 2010; WDNR, 2010). The data sources from which EPA derived information for decision-making purposes are included in the docket for the permit and/or referenced in this fact sheet (any material referenced in the fact sheet but not included in the docket is generally available published material). These

[21] Commenters addressed this issue in terms of "small" vessels generally or with respect to certain small vessel types, such as tugboats, without suggesting a specific threshold for applicability. EPA's evaluation of the data led the Agency to conclude that the 1600 gross registered ton threshold for applicability of the US Coast Guard ballast water rule to inland and seagoing vessels (see 17304, Mar. 23, 2012) accurately reflected the class of vessels for which proven technologies are not yet available or economically achievable.

data sources discuss ballast water discharges, technologies available for the treatment of these discharges, and the effectiveness of the technologies. EPA considered these data and how to design a permit that included the best practicable technology and best available technology economically achievable in formulating the permit.

As an important source used by EPA in setting the technology-based ballast water limits for today's VGP, EPA's SAB (2011) found that systems which meet the IMO D-2 standard are available. The EPA SAB also stated: Regarding the discharge standard 10x more stringent than the IMO D-2/ Phase 1, the criterion used was whether the number of living organisms in all size classes was consistently low following testing (below the detection limit, often reported as zero, or not more than twice the standard). However, as described in the response to charge question 4 (section 6), current testing methods do not provide the resolution required to conclude that 10x standards can be met" (EPA SAB, 2011, p. 32). The SAB further noted that systems "may have the potential to meet [a standard 10 times IMO] with reasonable/feasible modifications to the existing BWMS."

EPA has finalized the numeric concentration based limit contained in the 2013 VGP based on these analyses and had concluded that these limits are reflective of BAT.

4.4.3.6 Interim Requirements for Vessels Not Required to Meet the Ballast Water Management Measures in Part 2.2.3.5 of the VGP

EPA has found the following interim management measures for vessels not meeting the requirements of Part 2.2.3.5 of the VGP to be available, practicable and economically achievable. You must meet the interim management requirements as applicable until you meet the numeric treatment limits in Part 2.2.3.5 of the VGP.

4.4.3.6.1 <u>Requirements for Oceangoing Voyages While Carrying Ballast Water</u>

In the United States, the U.S. Coast Guard has requirements for the management of ballast water listed in 33 CFR Part 151, Subparts C and D. These regulations generally require that prior to vessels being mandated to comply with the numeric ballast water effluent limits in Part 2.2.3.5 of the permit, if they transit to U.S. waters with ballast water that was taken on within 200 nautical miles of any shore into waters of the United States after operating beyond the U.S. EEZ, they must conduct one of the following ballast water management practices:

- Conduct mid-ocean ballast water exchange further than 200 nm from any shore prior to entering U.S. waters or use an AMS;
- Retain the ballast water on board while in U.S. waters;
- Install and operate a USCG type-approved ballast water treatment system; or
- Use only water from a U.S. public water system. 33 CFR 151.1510(a) and 151.2025(a).

The regulations also contain exceptions to these requirements in extraordinary circumstances such as where there are safety concerns and do not require vessels will not be required to deviate from, or delay, their voyage in order to conduct exchange. 33 CFR 151.1515 and 151.2040.

The 2013 VGP incorporates these requirements and allows for most vessels which meet the treatment requirements found in Part 2.2.3.5 of the VGP to not also conduct ballast water exchange (except for certain vessels entering the Great Lakes as discussed in Part 4.4.3.9 of this fact sheet). Please see the BAT/BPT discussion in Parts 4.1 and 4.2 of this fact sheet for additional discussion regarding the basis for these requirements.

4.4.3.6.2 Vessels Carrying Ballast Water Engaged in Pacific Nearshore Voyages

As in the 2008 VGP, EPA has required ballast water exchange as an interim requirement for vessels engaged in Pacific Nearshore voyages. Vessels engaged in Pacific nearshore voyages include:

- Vessels engaged in the Pacific Coastwise trade that cross more than one Captain of the Port Zone and that will discharge ballast water into waters subject to this permit.
- All other vessels that sail from foreign, Atlantic, 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 of the west coast of the continental United States.

Numerous studies and reports by NOAA and others have shown that mid-ocean ballast water exchange significantly reduces the presence of living organisms adapted to surviving in coastal, estuarine, and freshwater environments (Gray et al., 2007; Locke et al., 1993; McCollin et al., 2007; Ruiz & Reid, 2007). In a NOAA technical memorandum authored by Ruiz and Reid (2007), the authors made seven recommendations, one of which is that "B[allast] W[ater] E[xchange] should be considered a useful and beneficial ballast management practice to reduce species transfers and invasion risk. It is a valuable measure, especially because it is available now for immediate use on many vessels and shipping routes, in the absence of proven alternative treatment methods." Hence, ballast water exchange is an appropriate interim step toward mitigating the risk from the spread of ANS until effective treatment technology is available. There has also been considerable discussion about establishing alternate ballast water exchange areas (ABWEA) within areas closer to the coast. Participants in a 2006 workshop (Phillips, 2006) on establishing alternate exchange zones on the Pacific coast made three recommendations, two of which are applicable for the permit:

- In general, ABWEAs should be established no closer than 50 nm from shore and in waters at least 1000 m in depth.
- Establishment of ABWEAs should avoid major estuary and oceanic river plumes, subsurface physical features (e.g. seamounts), and known fishery habitats.

For the most part, the continental shelf along the Pacific coast is narrow along both North and South America. Deep water environments beyond the continental shelf typically support ecosystems that are quite different than those which exist closer to shore. Due in part to this short width of the continental shelf, relatively deep waters beyond 50 nm from the Pacific shore, and existing and pending regulation and statutes in California, Oregon, and Washington that require ballast water exchange for vessels engaged in the coastwise trade, EPA is requiring ballast water exchange under the permit for vessels engaged in Pacific nearshore voyages that will discharge ballast water into waters subject to this permit. If these vessels travel more than 50 miles from shore, they must conduct ballast water exchange while:

- In the Pacific Ocean,
- As early as practicable in the voyage,
- More than 50 nm from shore, and
- Preferably where the vessel is not near major estuary and oceanic river plumes, subsurface physical features (e.g. seamounts), and known fishery habitats.

Based on reasons discussed above and elsewhere and this factsheet (e.g., see sections 4.1 and 4.2), EPA determined these requirements are technologically practicable and achievable, can be widely implemented, and will reduce the discharge of constituents of concern in ballast water streams. Furthermore, with implementation of existing and pending state regulation requiring similar practices, the incremental economic costs are relatively low (see the economic analysis prepared for this permit). However, EPA does not believe that vessels engaged in voyages that take them further than 200 nm from any shore should be allowed to exchange ballast water between 50 and 200 nm from the Pacific shore for the following reasons:

- This provision would not be consistent with existing U.S. Coast Guard regulations.
- Ballast water exchange 200 nm or more from shore generally is more likely to mitigate the risk for the spread of ANS than ballast water exchange closer to shore.

4.4.3.6.3 Mandatory Saltwater Flushing

Mandatory saltwater flushing is required by this permit for all vessels carrying unpumpable ballast water and residual sediment that operate outside the US EEZ which are not required to meet the treatment requirements found in Part 2.2.3.5 of the VGP, travel more than 200 nm from shore, and will subsequently discharge ballast water to waters subject to this permit and for vessels that engage in Pacific nearshore voyages that will discharge ballast water in waters subject to this permit. This requirement is the same as to that found in the 2008 VGP. The permit states that "saltwater flushing means the addition of mid-ocean water to ballast water tanks containing only unpumpable residual ballast water; 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 (ppt) or a salinity concentration equal to the ambient salinity of the location where the uptake of the added water took place" (see Parts 2.2.3.7 and Part 7 of the permit). This process of flushing out empty ballast water tanks with mid-ocean saltwater is also commonly referred to as "swish and spit". The vessels subject to this requirement are either those which have any ballast water tank that is empty or contains unpumpable residual water or those that certify, consistent with the Coast Guard's regulations, that they have "No Ballast on Board" ("NOBOB" vessels). As previously noted, the Coast Guard currently has a voluntary saltwater flushing policy in place for all vessels entering the Great

Lakes, and defines NOBOB vessels as "those vessels that have discharged ballast water in order to carry cargo, and as a result, have only unpumpable residual water and sediment remaining in tanks." 70 FR 51832 (August 31, 2005). The purpose of mandatory saltwater flushing is to prevent the spread of ANS in ballast water tanks that appear empty, but often have unpumpable ballast water and/or residual sediment at the bottom of the tanks that may contain organisms which can become ANS.

Saltwater flushing has been shown to be effective in preventing the introduction of ANS from vessels with residual ballast water and sediment in their ballast water tanks. In a NOAA technical memorandum, another of Ruiz and Reid's (2007) concluding recommendations is that "[t]he use of high-salinity water to flush NOBOB ballast tanks should be considered a useful and beneficial management practice to reduce species transfers and invasion risks associated with NOBOB ships entering the Great Lakes. In the absence of proven alternatives, this practice provides some level of protection against some adult and larval life stages." Additionally, saltwater flushing reduces the concentrations of sediment, a conventional pollutant, in ballast water discharge and, therefore, generally improves the quality of the ballast water discharge.

Transport Canada has mandatory saltwater flushing requirements in its regulations for all vessels that discharge ballast water in Canadian Great Lakes ports. Furthermore, the Saint Lawrence Seaway Development Corporation (SLSDC) recently published a final rule amending joint regulations at 33 CFR Part 401.30. The amendment is an effort to harmonize the ballast water requirements for vessels transiting the U.S. waters of the Saint Lawrence Seaway System with the saltwater flushing requirements already in place for vessels entering the Canadian waters of the Seaway System. The amendment, which went into effect on March 26, 2008, requires vessels that operate outside the EEZ to conduct saltwater flushing of ballast water tanks containing residual amounts of ballast water and sediment at least 200 nautical miles from any shore. The saltwater flushing must occur prior to entering either the U.S. or Canadian waters of the Seaway System. See 33 CFR 401.30(f); 73 FR 9950 (February 25, 2008). Hence, all vessels entering the Great Lakes must already use saltwater flushing for their tanks with unpumpable ballast water and residual sediment, and this permit reinforces these requirements.

As with the 2008 VGP, today's permit extends saltwater flushing requirements for vessels that travel more than 200 nm from shore and vessels engaged in Pacific nearshore voyages because EPA believes saltwater flushing is a widely-used low-cost approach that minimizes the risk that ANS will be successfully introduced from unpumpable ballast water and residual sediment. Saltwater flushing is most effective at eliminating organisms adapted to freshwater and low salinity environments due to the combined impacts of saltwater shock and physical dilution. However, saltwater flushing should also reduce viable living organisms adapted to estuarine, coastal and marine environments. First, saltwater flushing may reduce viable living organisms in residual ballast water through dilution. Secondly, saltwater flushing reduces the number of viable living organisms and organisms in resting stages in the residual sediment. Resting stages of ANS often inhabit the sediment in ballast water tanks: reducing the numbers of these organisms with both physical flushing and saltwater shock when applicable will likely reduce the propagule pressure of these potential invaders. Hence, the requirements for mandatory saltwater flushing are available, practicable and economically achievable. Additionally, the permit applies saltwater flushing on a tank-by-tank basis, and does not just limit this practice to vessels that declare they carry only unpumpable residual ballast water. This is because the empty ballast water tanks in vessels that have a mixture of empty tanks and tanks containing pumpable ballast water still pose a risk of introducing ANS when the empty tanks are subsequently filled and discharged, and saltwater flushing of those tanks will help reduce this potential. However, vessels that seal empty tanks and will not use them to discharge ballast water in waters subject to this permit do not need to conduct saltwater flushing.

4.4.3.6.4 Vessels that Complete Ballast Water Exchange Must Do So as Early as Practicable

As in the 2008 VGP, EPA has included a requirement for vessels to exchange ballast water as early as practicable. For those vessels that carry ballast water that was taken on in areas less than 200 nautical miles from any shore and will discharge into the waters subject to this permit after operating beyond the EEZ, EPA has included a requirement that all vessels that conduct ballast water exchange must do so as early as practicable, so long as the exchange occurs more than 200 nm from shore. This requirement will directly contribute to increased mortality of remaining living organisms in ballast water tanks. Increased mortality will result in the discharge of fewer viable living organisms, which will consequently reduce the likelihood of the risk of the establishment of ANS.

4.4.3.6.5 Requirements for Tankers Engaged in the Coastwise Trade

Section 1101(c)(2)(L) of the National Invasive Species Act of 1996 (16 U.S.C. 4711) generally exempts crude oil tankers engaged in the coastwise trade from ballast water management requirements. There is no counterpart exemption for such vessels in the CWA, nor does it appear that such vessels are inherently unable to perform the ballast water exchange and other ANS management practices that their non-exempt vessel counterparts can and do routinely carry out. Additionally, EPA expects these vessels to be able to meet the treatment requirements in Part 2.2.3.5 of the VGP. Hence, as in the 2008 VGP, the NPDES permit would not exempt crude oil tankers in the Coastwise trade from its ballast water management requirements, and such tankers must either seek coverage under the permit and comply with its applicable terms or seek alternative NPDES permit coverage as discussed under the alternative permits section in Part 1.8 of the permit.

4.4.3.7 Vessels Entering the Great Lakes

EPA has included additional permit conditions requiring all vessels that are equipped to carry ballast water and that enter the Great Lakes to comply with Coast Guard regulations mandating ballast water exchange (33 CFR Part 151, Subpart C). Also, 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 comply with St. Lawrence Seaway Development Corporation regulations that mandate saltwater flushing of ballast tanks (33 CFR part 401.30). These requirements constitute technology-based effluent limits for ballast water discharges from these vessels; additional requirements on vessels entering the Great Lakes are imposed as water quality-based effluent limits in Part 2.2.3.7 of the permit: see section 4.4.3.9 of this fact sheet for additional discussion.

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

A vessel equipped with ballast water tanks is not required to meet the requirements found in Parts 2.2.3.5 (except 2.2.3.5.1.1.5 and 2.2.3.5.1.1.6) and 2.2.3.6 of the VGP if the vessel is accepted by the U.S. Coast Guard into the Shipboard Technology Evaluation Program (STEP) as long as the vessel meets all of the requirements of such program. EPA believes that the STEP program has played, and will continue to play, a critical role in the development of effective ballast water treatment systems, as may other related or similar programs the Coast Guard might implement in the future. The program has encouraged pioneering vessel owner/operators to install ballast water treatment systems, has contributed to the development of effective sampling methods, and allowed for the collection of valuable shipboard ballast water treatment data needed to evaluate the efficacy of ballast water treatment systems. Furthermore, as systems are developed and refined, such programs will play a valuable role in supporting the development of technologies which exceed the performance of the IMO standard. EPA believes that STEP and other such programs will play a key role in the development of a greater range of systems which can meet the limits in today's permit, and will also allow a venue for treatment vendors to develop systems to meet more stringent standards such as the previously proposed U.S. Coast Guard phase II standard. Finally U.S. Coast Guard programs (such as or similar to STEP) provide a mechanism for vessels to use not-yet approved BWMS during the testing required for type approval.

EPA is requiring that vessel owner/operators of vessels enrolled in STEP must meet the requirements of Parts 2.2.3.5.1.1.5 and 2.2.3.5.1.1.6 of the permit. These requirements contain authorization, effluent limits, and basic monitoring for active substances from ballast water treatment systems. They also include recordkeeping and reporting requirements specific for vessels utilizing ballast water treatment systems (vessels enrolled in STEP are using ballast water treatment systems).

Vessel owner/operators enrolled in the STEP program must complete a rigorous application process and undergo extensive review. Additionally, vessels involved in STEP are utilizing ballast water treatment technologies which share similarities in capabilities (and in many cases are the same systems) as those described in section 4.4.3.5.1 of this fact sheet or the technical reports EPA used to inform its decision making (e.g., EPA SAB, 2011). Therefore, EPA has determined that vessels enrolled in STEP and utilizing their ballast water treatment systems are effectively applying ballast water treatment and are meeting BAT. EPA notes that these vessels are utilizing ballast water treatment technologies designed to meet or exceed the permit limits found in Part 2.2.3.5 of the VGP, and vessels enrolled in STEP are playing and will continue to play a key role in improving our understanding of the efficacy of ballast water treatment systems.

4.4.3.9 Narrative Water Quality Based Effluent Limit Applicable to Ballast Water Discharges

Under CWA section 301(b)(1)(C) and its implementing regulations, in addition to the technology-based effluent limitations discussed above, EPA must include in NDPES permits any more stringent effluent limits "necessary to meet water quality standards." In determining what additional effluent limitations, if any, must be included in a permit, EPA first assesses whether, after application of the technology-based effluent limits, the discharge has the "reasonable potential to cause or contribute to" an exceedance of water quality standards. If EPA finds such reasonable potential exists, the permit must contain effluent limits that are as stringent as necessary to meet water quality standards (i.e., water quality-based effluent limits or "WQBELs"). 40 CFR 122.44(d)(1). Such limits may be expressed non- numerically where numeric limits are "infeasible to calculate." 40 CFR 122.44(k)(3).

As described more fully below, recognizing that the Agency's understanding of the relationship between numbers of living organisms in ballast water discharges and probability of successful establishment by invasive species was extremely limited, EPA (with the US Coast Guard) commissioned the National Academies of Science to draft a report on the issue. The goal was to provide the Agency with the best science upon which to make both its reasonable potential determination and, should reasonable potential be found, the Agency's determination as to what constitutes a limit that is necessary to protect water quality standards (Hanlon et al., 2010). After examining the results of the NAS report, as well as other available information, EPA has determined that, after application of the required TBELs, reasonable potential to cause or contribute to an exceedance of water quality standards exists. However, because of data limitations, EPA has determined that calculation of a numeric WQBEL is infeasible at this time. EPA thus has imposed a narrative WQBEL for ballast water discharges.

In this section, we discuss the charge given by the Agency to the NAS and how the findings of the NAS, as well as other expert sources, informed the Agency's views on whether application of the TBELs would be sufficient to meet applicable water quality standards. We also discuss the basis for the Agency's findings that there is "reasonable potential" and that a numeric WQBEL is "infeasible to calculate." Finally, we discuss the WQBELs for ballast water imposed by this permit.

4.4.3.9.1 EPA's Charge to the NAS

In June of 2011, the National Research Council of the National Academies of Science (NAS) issued their report entitled "Assessing the Relationship Between Propagule Pressure and Invasion Risk in Ballast Water" (NAS, 2011). EPA, in close collaboration with the US Coast Guard, commissioned this Report to inform the development of appropriate water quality-based effluent limits for ballast water discharges. The NAS was asked to:

1. Evaluate the state of the science of various approaches that assess the risk of establishment of aquatic nonindigenous species given certain concentrations of living organisms in ballast water discharges.

2. Recommend how these approaches can be used by regulatory agencies to best inform risk management decisions on the allowable concentrations of living organisms in discharged ballast water in order to safeguard against the establishment of new aquatic nonindigenous species and to protect and preserve existing indigenous populations of fish, shellfish, and wildlife and other beneficial uses of the nation's waters.

3. Evaluate the risk of successful establishment of new aquatic nonindigenous species associated with a variety of ballast water discharge limits that have been used or suggested by the international community and/or domestic regulatory agencies.

EPA developed NAS charge question #2 as a general narrative description of what would be necessary to protect all applicable state WQS. EPA's review of applicable state water quality standards revealed no provisions that specifically address aquatic nuisance species. No states have established numeric water quality standards for living organisms (or ANS); therefore, the focus of EPA's evaluation was on protection of designated uses, narrative criteria, and relevant anti-degradation and general policies of applicable state WQS. While State WQS do not specifically address ANS, many narrative criteria and anti-degradation and general policies of applicable state water quality standards do seek to prevent the types of degradation that is associated with the introduction of ANS into receiving waters. For example, the State of Minnesota has narrative standards which state that "the aquatic habitat…shall not be degraded in any manner…the normal fishery and aquatic biota upon which it is dependent and the use thereof shall not be seriously impaired or endangered, the species composition shall not be altered materially, and the propagation or migration of the fish and other biota normally present shall not be prevented or hindered by the discharge of any sewage, industrial waste, or other wastes to the waters." Minn. Admin. Rules Ch. 7050.0150 subpart 3. New York's narrative water quality standards require no impairment of "best usages" for pollutants such as toxic and other deleterious substances, suspended solids, and phosphorus. 6 NYCRR section 703.2. Michigan's water quality standards state that "all Great Lakes and their connecting waters…are designated and protected for coldwater fisheries." NREPA Part 31 R. 323.1100(5). "Coldwater fishery use" is defined as "the ability of a waterbody to support a balanced, integrated, adaptive community of fish species which thrive in relatively cold water." NREPA Part 31 R. 323.1043(r). Similarly, although their language does not specifically address aquatic nuisance species, protection of states' designated uses also require safeguarding against aquatic nuisance species introductions, as ANS are commonly associated with impairment of all of the various designated uses in state water quality standards, including industrial uses, public health and welfare uses, and aquatic and wildlife uses (e.g., in Wisconsin, "All surface waters shall be suitable for supporting public health and welfare" Wisc. Admin. Code NR sec. 102.01(7)(a); in New York, most waters "shall be suitable for fish propagation and survival "6 NYCRR § 701.10; Alaska has classes of designated uses for "Growth and propagation of fish, shellfish, other aquatic life and wildlife" 18 AAC § 70.020; California's designated uses provide for "preservation and enhancement of marine habitats" Cal Water Code § 1243; Louisiana has a designated use for "Fish and wildlife propagation" that "includes the maintenance of water quality at a level that prevents damage to indigenous wildlife and aquatic life species associated with the aquatic environment and contamination of aquatic biota consumed by humans" LAC 33:IV.1111; Michigan's "Other Indigenous Aquatic Life" designated use requires that, "At a minimum, all surface waters of the state are designated and protected for other indigenous aquatic life" Mich. Admin. Code R 323.1100.)

4.4.3.9.2 Effectiveness of the TBEL at Addressing Water Quality Impacts

As the NAS concluded, "[i]t is abundantly clear that reducing propagule pressure (i.e., the quality, quantity, and frequency with which living organisms are introduced into a given location) will reduce the probability of invasions, when controlling for all other variables," noting that "[t]here is both strong theoretical and empirical support for this, across a diverse range of habitats, geographic regions, and types of organisms." (NAS, 122). The NAS recommended that "[a]s a logical first step, a benchmark discharge standard should be established that clearly reduces concentrations of coastal organisms below current levels resulting from ballast water exchange (such as the IMO D-2 standard). This will serve to reduce the likelihood of invasion in coastal ecosystems beyond that of the present time." (NAS, p130).. EPA is in this permit establishing numeric effluent limitations at the IMO D-2 standard (the permit's numeric TBEL). EPA concurs with the NAS study that such limitations will result in significant reductions in concentrations of living organisms beyond current management practices (i.e., ballast water exchange and the other management practices described in the permit). The numeric discharge limitations for ballast water in the permit are expected to be effective in reducing the risk from untreated or exchanged ballast water discharges.

A suite of studies have examined the increased environmental protection offered by the IMO discharge standard, and all of them indicate a reduction in risk associated with that standard. Several approaches for evaluating the risk of invasion associated with ballast water discharges are discussed in Lee et al. (2010). Of those approaches, the population viability analysis, per capita invasion probabilities approach, and reaction diffusion models all indicate that reduction of inoculum densities should significantly reduce the risk (either relative or absolute) of invasion from ballast water discharges.

EPA also notes that treatment to the IMO discharge standard will result in a significant decrease in the concentration of living organisms discharged from ballast tanks for the vast majority of vessels applying treatment. Several studies have looked at the composition of living organisms found in ballast water tanks for some or all organisms greater than 50 µm; comparing the results of today's permit limit for this size class to the values presented in the studies illustrates that there would be a substantial decrease in inoculum density after treatment. For example, for each of the studies discussed below, EPA derived the percentage that the discharge concentration would be reduced from the mean, median, or mode values (dependent on the study and how the authors present the data). This percent reduction is 99.67% to 99.94% from mean and mode values presented in Minton et al. (2005),[22] 99.63% from median values presented in Bailey et al. (2011),[23] 99.994% from mean values presented in David et al. (2007),[24] 95.15% from mean values presented Murphy et al. (2002),[25] and 99.93% from mean values presented in

[22] Minton et al. (2005) counted the total number of zooplankton collected from the ballast tanks of 354 ships using 80 µm mesh netting. Hence, as many organisms smaller than 80 µm are not captured, this is likely a underestimate for the total numbers of organisms greater than 50 µm found in the tank. The values presented here were derived by EPA from either those presented by the authors (as the mode values for the density of zooplankton) or based on the density of zooplankton identified in unmanaged ballast water based on visual estimates of Figure 2 of Minton et al. (2005).

[23] Bailey et al. (2011) notes the mean abundance of invertebrates recorded from ballasted ships using 53 µm mesh plankton nets.

[24] David et al. (2007) notes the mean abundance of microzooplankton (20-200µm), macroalgae (200-20,000µm), and zooplankton (200-2000µm) recorded from ballasted ships using unfiltered counts, 50um mesh plankton nets and 100um mesh plankton nets, respectively.

[25] Murphy et al. (2002) determined the average bivalve larvae and crab zoea concentration in ballast tanks of the MV Iron Stuart during 2 voyages at three depths using a 100 µm mesh net. The derived value presented here indicates

Verling et al. (2005).[26] The maximum values presented by the authors show considerably more notable reduction; this is noteworthy because EPA assumes that these high concentration discharge events pose more risk. The discharge concentration would be reduced from the maximum value presented by 99.98% to 99.99% from the range of mean[27] and upper 1.1% of density values presented in Minton et al. (2005),[28] 99.96% from the range of median values presented in Bailey et al. (2011),[29] 99.999% from the range of mean values presented in David et al. (2007),[30] 99.41% from the range of mean values presented Murphy et al. (2002),[31] and 99.97% from the range of mean values presented in Verling et al. (2005).[32]

One specific study, Bailey et. al. (2009) evaluated the efficacy of such limitations through the use of mesocosm experiments and modeling of certain parthenogenetic taxa (i.e, organisms that reproduce asexually) that are of significant concern for invasion to the Great Lakes. In this study, the authors concluded that the proposed IMO standards for >50 micron organisms would reduce the probability of establishment of certain parthenogenic species by three fold. Even taking a "precautionary approach by deliberately investigating establishment success under favourable physical, and chemical, and biological conditions (e.g., reduced competition and predation inside enclosures)" results in "best fit estimates of establishment probabilities for inocula less than 10 individuals m-3 [that] are nil, indicating that the proposed ballast water discharge standards [the IMO standard] will be very effective even for parthenogenetic taxa" (Bailey, 2009, 271).

In short, this clear reduction in inoculum density reduces risk – EPA expects those reductions in risk to be substantial. Hence, EPA believes that requiring treatment to the IMO standard may be protective of water quality standards. However, EPA has nonetheless

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the density of both bivalve larvae and crab zoea identified in ballast water tanks based on visual estimates of Figure 3 and 4 of the publication. EPA notes that this study only looked at a small range of organisms that could be expected to be found in ballast water tanks, and that the value presented is likely significantly conservative (low), and therefore notably underestimates the percent reduction of organisms.

[26] Verling et al. (2005) counted the zooplankton concentration in ballast tanks of vessels during 25 voyages using 80 μm mesh netting. The value EPA used as a basis for calculating the reduction is taken from authors' presentation of the density of zooplankton identified in ballast water immediately before deballasting activities,

[27] When EPA uses the expression "range of" mean, median, or values, this indicates evaluation of all of the mean, median or upper values given by the authors in their respective papers from their results sampling a ballast tank or ballast water discharge. EPA did not pool or average values presented by each respective author. EPA notes that there are challenges in comparing the results of each of these papers with each other because of variations in methods used (e.g., in some studies, all species are enumerated while in others, only target species from select phyla are examined) and differences in how data is presented.

[28]See Footnote 22. Additionally, the max value is the number of zooplankton in the upper 1.1% density of all samples collected in unmanaged ballast water.

[29]See Footnote 23. Additionally, the maximum density of zooplankton identified in unmanaged ballast water based on visual estimates of Figure 2 of Bailey et al. (2011)

[30]See Footnote 24.

[31]See Footnote 25. Additionally, the maximum density values presented here are from both bivalve larvae and crab zoea identified in ballast water tanks.

[32]See Footnote 26. Additionally, the value used to derive percent reduction here is based on the maximum density of zooplankton identified in ballast water among Transatlantic, Atlantic, and Pacific voyages.

determined that the discharge of ballast water has the reasonable potential to cause or contribute to an exceedance of water quality standards, for the reasons discussed below.

4.4.3.9.3 Reasonable Potential Determination for Ballast Water Discharges

In determining that ballast discharges have reasonable potential to cause or contribute to a water quality standards exceedance after imposition of the TBELs imposed by today's permit, EPA looked at existing controls on ballast water discharges (such as ballast water exchange) and the variability of living organisms in the effluent after imposition of this permit's numeric TBELs (the IMO standard after installation of treatment technology). Examination of existing controls is important because the permit's implementation schedule means that not all existing vessels will meet the numeric TBEL at permit issuance. During the time prior to imposition of the numeric limit, and for those vessels not subject to the numeric limit, the other TBELs, such as narrative BMPs in Parts 2.2.3 of the permit and corrective actions in Part 3 of the permit to promptly correct shortcomings, will apply.

As discussed above, the risk of invasion will significantly decrease after installation of treatment technology to meet the permit's numeric TBELs, which are designed to reduce propagule pressure. However, "while inoculum density (e.g., propagule pressure) is a key component of invasion probability, it is but one of scores of variables that can and do influence invasion outcome." (NAS, p4). These variables "include the identity (taxonomic composition), sources, and history of the propagules; their frequency of delivery; and their quality. Further influencing the outcome of propagule release is a host of factors that include both species traits and the recipient region's environmental traits." (NAS, 5). The NAS noted that there are "significant differences between source regions; the diversity, abundance, and density of entrained organisms; and the compatibility of source and recipient regions" (NAS, 5). In evaluating the risk of successful establishment of new aquatic nonindigenous species associated with a variety of ballast water effluent limits, including ballast water exchange and treatment to the IMO standard, the NAS concluded that there is "a profound lack of data and information to develop and validate models," and "it was not possible with any certainty to determine the risk of nonindigenous species establishment under existing discharge limits." (3). EPA expects that compliance with the permit's numeric effluent limitations will likely result in discharges that are controlled as necessary to result in a very small absolute risk of invasion and thus are controlled as necessary to achieve applicable water quality standards. Nonetheless, EPA also finds that the variety of other factors that influence invasion outcome should not be completely ignored, and therefore, even at the IMO level of discharge, reasonable potential exists for such discharges to cause or contribute to violations of applicable water quality standards pursuant to 122.44(d)(1)(ii). Because the reductions in concentrations of living organisms in ballast water achieved by technology meeting the IMO standard are generally superior to that which would be achieved by the application of BMPs either during the time prior to imposition of that limit, or for vessels not subject to the limit, EPA concludes that there is reasonable potential for discharges subject to those limits as well.[33]

[33] As discussed above, in evaluating whether ballast water discharges subject to the technology-based effluent limits in this permit would cause, or have the reasonable potential to cause, or contribute to an excursion above any water quality standard, EPA assessed whether the TBELS were sufficient to "safeguard against the establishment of new

4.4.3.9.4 Ballast Water WQBELs

4.4.3.9.4.1 WQBELs are Infeasible to Calculate

EPA has determined that pursuant to 40 CFR 122.44(k)(3), it is infeasible to calculate numeric water quality-based effluent limit for ballast water discharges. While "[i]n principle, a well-supported model of the relationship between invasion risk and organism release could be used to inform a ballast water discharge standard," (NAS, 5) the "current state of science does not allow a quantitative evaluation of the relative merits of various [numeric] discharge standards in terms of invasion probability." (NAS, 130) Therefore, the lack of available data and information prevents an accurate quantification or estimation of the risk associated with ballast water discharges Though EPA believes that the work done by numerous scientists (Lee et al., 2010, USCG 2008, Drake et al., 2005) has greatly improved our understanding of the risk posed by ballast water discharge events, and some have clearly quantified a relative reduction in risk by using various standards versus ballast water exchange (USCG 2008), EPA agrees with the NAS panel that establishing a precise, quantified ballast water discharge standard more stringent than the numeric TBELs contained in Part 2.2.3.5 of the VGP at this time is not possible with available data and information, and thus, numeric water quality-based effluent limits are infeasible to calculate.[34]

4.4.3.9.4.2 WQBELs in Today's Permit

The narrative WQBEL applicable to all vessel discharges is found in Part 2.3 of the VGP and discussed in section 4.5 of this fact sheet. For ballast water discharges, this narrative WQBEL addresses situations in which reasonable potential exists after application of narrative and numeric TBELs and is included in the permit to meet 40 CFR 122.44(d)(1)'s requirement that the permit include any additional or more stringent requirements than those in the applicable TBELs necessary to "achieve water quality standards established under section 303 of the CWA, including State narrative criteria for water quality." For those vessels which do not have to immediately comply with the permit's numeric TBEL, and those vessels for which the numeric TBEL is inapplicable, the narrative WQBEL is included for the same reason. In deriving appropriate water quality-based effluent limits for ballast water discharges for today's permit, EPA made every effort to identify generally applicable BMPs beyond those already imposed on a technology basis for ballast water discharges, but except as discussed below for vessels that

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aquatic nonindigenous species and to protect and preserve existing indigenous populations of fish, shellfish, and wildlife and other beneficial uses of the nation's waters." As mentioned, after surveying and evaluating the wide array of state water quality standards, EPA concluded that this characterization accurately captures what would be necessary to protect all water quality standards.

[34] Though EPA believes that each of these approaches has merit, particularly for informing the Agency about relative risk, the Agency acknowledges that *a profound lack of data* has impaired the Agency's ability to calculate a numeric WQBEL based on existing information alone. EPA believes that the models highlighted by Lee et al. (2010), USCG (2008), and others may present a viable option for calculating numeric water quality based effluent limits in the future. However, the Agency notes that, as the NAS panel found, sufficient data to input, calibrate, and validate those models is lacking. Hence, EPA is working with our federal partners to fill many of the data gaps identified by the 2011 NAS ballast water study for use in future iterations of this permit as needed. As additional data are gathered, modeling inputs are further explored and refined, and the state of the science further developed, EPA will reexamine whether numeric water quality based limits for the numbers of living organism in ballast water are feasible to calculate.

uptake ballast water in freshwater and then voyage across the open ocean prior to discharging in the Great Lakes, was unable to do so. EPA thus has determined that it is appropriate to impose the site-specific narrative WQBEL on ballast water discharges.

In Part 2.2.3.7 of the VGP, EPA maintains the existing ballast water exchange requirement for vessels that uptake ballast water in freshwater or brackish water, then voyage across the open ocean before discharging in the Great Lakes. In addition to meeting the effluent standards contained in the Part 2.2.3.5 of the permit, these vessels must also continue to conduct mid-ocean BWE when they have taken on ballast water from a freshwater or brackish water port in the previous month.[35] For purposes of this permit, the brackish water requirements apply when the water taken in is from oligohaline or mesohaline portions of estuaries or other waters (i.e., the intake water has a saltwater concentration of less than 18 ppt[36]). The purpose of this requirement is to add another measure of protection against invasive species to reduce the compatibility of source and recipient regions when freshwater or brackish water is transported via ballast tanks into the Great Lakes. Due to an environmental mismatch, any freshwater species being taken up in the ship's ballasting in fresh or brackish waters, will be shocked by saline water during ballast water exchange before being discharged into the freshwater of the Great Lakes. This BWE exchange requirement, in combination with the treatment requirements, is designed to address the factors other than inoculum density that influence invasion outcomes described above, thus creating additional protection for the Great Lakes freshwater ecosystem. EPA recognizes that the Great Lakes are a unique and valuable resource and that those water bodies have been particularly impacted by the introduction of various invasive species. EPA also recognizes that mid-ocean ballast water exchange is most effective for minimizing risk of invasions for discharges into freshwater ecosystems. Considering these issues, EPA included existing ballast water exchange practices as WQBEL requirements for certain vessels entering the Great Lakes.

EPA believes requiring BWE in addition to the application of effluent limits that reflect available treatment technologies (with the added assurance provided by the narrative WQBEL in Part 2.3 of the permit) will achieve applicable water quality standards, as we expect continued BWE to further decrease the probability that non-native organisms will be introduced into and establish themselves in the Great Lakes. EPA expects such a practice will reduce the number of organisms adapted to freshwater and lightly brackish conditions, (i.e., "high risk" organisms) discharged into the freshwater ecosystem of the Great Lakes, which consequently will result in further reduction in propagule pressure and invasion risk to the Great Lakes. Additionally, for the unique Great Lakes large freshwater ecosystem where BWE is particularly effective, such a practice serves as a back-up in the event that a ballast water treatment system fails. This is important for the Great Lakes where some entities have noted that existing treatment systems have not been widely tested specifically for lentic freshwater environments.

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[35] EPA notes that regulation of the discharge of ballast water mid-ocean is beyond the scope of this permit.

[36] EPA established the limit at 18 ppt because this is a widely scientifically accepted differentiation between salinity levels within estuarine ecosystems. Scientists generally classify estuarine waters as limonitic (freshwater) (salinity less than 0.5 ppt), oligohaline (salinity between 0.5 and 5 ppt), mesohaline (less than 18 ppt), polyhaline (between 18 and 30 ppt), euhaline (between 30 and 40 ppt), and hyperhaline (more than 40 ppt).

As discussed elsewhere in this factsheet, there is considerable uncertainty when it comes to quantifying invasion risk (NAS 2011). However, it is also quite clear that the lower the propagule pressure, the lower the risk (NAS 2011). Furthermore, EPA limited the exchange plus treatment requirement to focus on vessels whose voyage patterns are more likely to result in ballast water discharges which may pose a higher risk of invasion (i.e., those vessels that have recently taken on ballast from freshwater or brackish waterbodies). Because of the current uncertainty with quantifying the invasion risk associated with the IMO standard, and the unique vulnerabilities of the Great Lakes ecosystem, EPA has required the exchange plus treatment requirement as a way to enhance protection for these water bodies. Expert analyses and preliminary experimental research supports use of BWE in addition to treatment as an enhanced means to reduce invasion risks to freshwater ecosystems such as the Great Lakes (Reid, 2012; Briski et al, 2013). The most significant additional "treatment effect" from the exchange would be the biocidal effect of the osmotic shock delivered to freshwater organisms. Such saline biocidal effects would be considerably lower for saline waters exchanged when coupled with the already present treatment effects from the treatment systems[37]; hence, EPA does not believe this is an appropriate additional practice to reduce risks to marine ecosystems where treatment is already imposed. Please see Reid (2012) for significant additional discussion regarding osmotic shock.

EPA notes that it did receive comments from the shipping industry expressing the view that it would be operationally preferable to discontinue ballast water exchange on ships where treatment systems are in place. Based on discussions with U.S. Coast Guard, EPA also notes the international maritime community under the International Maritime Organization (IMO) has adopted the Ballast Water Management Convention which phases out the use of exchange as a ballast water management practice under an implementation schedule. EPA recognizes the desire for international consistency in regulating the maritime industry to avoid disruption of trade and economies. EPA assures the shipping industry that the Agency expects and intends that the practice of ballast water exchange plus treatment requirements contained in today's permit will not be necessary in perpetuity, and may not extend beyond the current permit. As discussed elsewhere in this fact sheet, the numeric TBELs in today's permit, which are consistent with the IMO D-2 standard, are a significant step towards reducing the risk of biological invasions. EPA recognizes that ideally, a single, technology-based method of managing invasion risks from ballast water discharges is preferred to achieve consistency in ship operations, and to avoid the potential complications associated with conducting ballast water exchange. For these reasons, EPA views ballast water exchange plus treatment as an interim strategy that adds an additional, yet currently unquantified, measure of protection against invasive species being introduced into the Great Lakes until understanding of both the performance of first generation treatment

[37] As discussed elsewhere in this fact sheet, ballast water exchange has been shown to be effective in reducing risk of invasion; however, that risk is more prominent for reducing the risk posed by freshwater ANS. Ballast water exchange works for two reasons: increased mortality from osmotic shock for most freshwater and many brackish water organisms and the physical flushing process removing potential ANS from ballast water tanks. For potential marine ANS, EPA believes that dilution alone would not notably reduce the numbers of living marine organisms once that water has been treated with a treatment system to justify its environmental risks, including risks to water quality. The low levels of beneficial effect, if any, are offset by environmental costs include a potentially shorter holding time for the biocides to reduce the numbers of living organisms in ballast tanks before discharge (therefore possibly *increasing* the concentration of potential marine ANS in the discharge), increased carbon emissions, and increased biocide byproduct and residual discharge.

technology and the relationships between ballast water discharges and risk of biological invasions improve. Technological innovations in both treatment systems and measurement methods will likely improve over time, allowing more stringent standards to be set as appropriate to reduce risks of invasions to the Great Lakes.

EPA is committed to working with DOT and USCG to further study ballast water exchange in addition to treatment as it impacts water quality in the Great Lakes. EPA, DOT, USCG, the Canadian Government, and other entities are currently engaged in significant research activities to better understand the relationship between the risk of invasion and ballast water discharge concentrations and the efficacy of BWTS. Prior to the issuance of the 2018 VGP, the agencies intend to further examine the efficacy of exchange plus treatment. The requirement for treatment plus exchange will be retained in future VGPs only if the administrative record supports a decision that use of a BWTS alone is not sufficiently protective Under those circumstances, the requirement for treatment plus exchange can be eliminated. In making these findings and determinations, EPA will coordinate with DOT and USCG. Though beyond the scope of the permit, the Agencies will invite the Canadian government to coordinate on these research endeavors in reducing risks of biological invasions.

The EPA and the USCG will consider adopting standards more stringent than the IMO standard, as appropriate and consistent with each agency's statutory responsibilities to protect the aquatic environment of the U.S. (this Fact Sheet, 77 Federal Register 17254). As treatment systems improve and are able to treat to lower discharge concentrations, the decreased propagule pressure will reduce the risk of invasion to all waters, including the estuarine and marine waters for which exchange plus treatment offers little incremental environmental benefit. Hence, it is the Agency's desire that treatment systems continue to develop, become more effective, and become more efficient, and the Agency supports such actions.

4.4.4 Antifouling Hull Coating Leachate (Part 2.2.4)

The primary constituent of concern in most antifouling coatings is copper, although zinc may also be used as an ingredient. While the rate at which the metals leach from coatings is relatively slow (4 – 17 µg/cm2/day in controlled testing), these coatings can account for significant accumulations of metals in receiving waters of ports where numerous vessels are present. Tributyltin (TBT), a metal based biocide, was historically applied to vessel hulls as an antifouling hull coating. TBT causes deformities in aquatic life, including deformities that disrupt or prevent reproduction. Numerous studies and several peer reviewed publications ((Bentivegna & Piatkowski, 1998; Haynes & Loong, 2002; Negri et al., 2004; Negri & Heyward, 2001; Ruiz et al., 1995; V. Axiak et al., 1995) examine the environmental impacts of anti-foulant paint leachate containing TBT. TBT is also stable and persistent, resisting natural degradation in water bodies. Thus, due to its acute toxicity, TBT is a pollutant of concern to be addressed in this permit. There is a zero discharge standard for TBT and all other organotin compounds under this permit. Furthermore, if there are any vessels with existing exposed TBT coatings, those vessels must either seek individual NPDES permit coverage consistent with Part 1.8 of the permit or overcoat the existing TBT coating. EPA expects that few, if any, vessels have exposed TBT coatings on their hulls. EPA believes that a zero discharge standard for all organotin compounds, including TBT is technologically available based on the availability of other anti-foulant coating options (e.g. copper and silicon) and feasible and economically achievable because few, if any, vessels still utilize TBT as an anti-foulant.

In the United States and many other countries, the use of antifouling paints containing TBT has been phased-out due to concerns about its environmental impacts. The last TBT antifouling paint registration in the United States was voluntarily cancelled in 2005. Furthermore, the use of TBT antifouling paints or entry to port of vessels with TBT coatings is already prohibited by a large number of other countries, including many countries in Europe (see Regulation (EC) No 782/2003 of the European Parliament and the Council of 14 April 2003 on the prohibition of organotin compounds on ships). In addition, the VGP's zero discharge standard for TBT is consistent with the requirements of the Clean Hulls Act of 2010, P.L. 111-281, section X, which implements the Convention on the Control of Harmful Anti-fouling Systems on Ships.[38] The treaty, adopted at the IMO in October 2001, prohibits the use of organotins, like TBT, in anti-fouling paints. The treaty entered into force on September 17, 2008. The United States deposited its instrument of ratification with the IMO on August 21, 2012, and will become a contracting party to the Convention on November 21, 2012.

EPA clarifies that for the purposes of this permit, EPA has prohibited the use of antifouling paints containing TBT or any other organotin compounds (for purposes of a biocide on hulls). In cases where TBT antifouling coatings have been applied to a ship, all residual TBT must be removed from immersed surfaces or a sealer-coat must be applied to prevent any residual TBT leaching into the environment. EPA is unaware of any nonbiocidal use of TBT which would result in a residual presence in antifouling paints; hence, EPA reaffirms that there must be zero discharge of TBT from vessel hulls. Other less toxic organotin compounds such as dibutyltin oxide are used in very small quantities as catalysts in some biocide-free coatings. One class of biocidal-free coatings, which are sometimes referred to as fouling release coatings, produce a low-energy surface (i.e., non-stick) to which fouling organisms cannot firmly adhere. To function properly, the coating surface must remain smooth and intact, and not leach into the surrounding water. Because these less toxic organotins are used as a catalyst in the production of biocide free coatings, such production may result in trace amounts of organotin in anti-foulant coatings. Part 2.2.4 of the VGP authorizes the use of non-biocidal coatings which contains trace amounts of catalytic organotin (other than TBT) under the following conditions:

1) The trace amounts of organotin are not used as a biocide. When used as a catalyst, an organotin compound is not to be present above 2500 mg total tin per kilogram of dry paint.

2) The coating is not designed to slough or otherwise peel from the vessel hull. Incidental amounts of coating may be released by abrasion during cleaning or after contact with other hard surfaces (e.g., moorings).

EPA has identified three types of BMPs for control of other antifouling hull coating leachate. The first type of BMP addresses the contents and application of the coating. EPA recognizes that different coatings options are available and believes that the types of active agents in hull coatings should be selected to minimize potential effects. The practice of applying

[38] The Clean Hulls Act of 2010 replaced the 1988 Organotin Anti-Foulant Paint Control Act.

coatings according to the instructions on the coating's FIFRA label should currently be a BMP for all vessels. Label instructions, or "Directions of Use," provide information about how to apply antifouling coatings so they are efficacious. Coatings applied in an improper manner may contribute to environmental loading without providing the intended protection. Product labels may also provide information on proper disposal of antifouling wastes and wait-times for returning a vessel to the water to optimize coating longevity and performance. This helps to assure that excess amounts of toxins are not applied, that they are not applied too frequently, and that ships are not reintroduced to the aquatic environment before the manufacturer has recommended, providing adequate environmental protection.

In addition, should a vessel operator choose to use a hull coating that does not have a FIFRA label, they must ensure that the coating does not contain biocides or toxic materials that are banned in the U.S. Vessel operators are always encouraged to select the least environmentally harmful coating possible (e.g., use of lower biocide content coatings, lower biocide release rate, non-persistent biocides, or non-biocidal alternatives).

The second type of BMP addresses the need for particular coatings and selection of the type of coating to apply. The selection of an antifouling system for a particular vessel must be made in consideration of the vessel's operational profile, including operating speed, drydocking requirements, and the waters in which the vessel will be operating, because such factors affect the fouling rate of the hull and other underwater areas of the vessel. Fouling on vessels that typically operate at high speeds may be effectively managed with non-stick, low surface energy, antifouling coatings. Vessels traveling in waters with lower fouling pressure (i.e., reproduction and growth of hard- and soft-fouling organisms) and those that spend less time at dock are expected to have a lower fouling rate; consequently, such vessels should be able to use either non-biocidal coating or antifouling coatings with lower biocide release rates. The permit requires that vessel operators minimize the use of antifouling coatings that are designed to control fouling in higher fouling-pressure environs than those in which the vessel is expected to operate. EPA believes these options should be used where feasible rather than opting for more environmentally damaging coatings.

The third type of BMP is accomplished by matching the coating's abilities or strength to drydock cycles. Larger vessels, particularly those used in trade and cargo transport, must adhere to requirements for safety inspections and maintenance activities that dictate how frequently they must be drydocked. The major manufacturers of hull coatings for this industry will typically guarantee the effectiveness of their products for a certain period of time based on ship and operational characteristics, so the owner/operator should match the hull coating choice to the appropriate drydocking interval. By factoring this schedule into the hull coating selection, EPA believes that vessel operators will make better decisions regarding the use of coatings that will sufficiently protect the vessel for the period of time needed without creating additional leachate or wastes.

4.4.5 Aqueous Film-Forming Foam (AFFF) (Part 2.2.5)

The constituents of AFFF can vary by manufacturer, but can include ingredients that are persistent, bioaccumulative, and nonbiodegradable. However, EPA recognizes the desirability of using this type of fire fighting agent for certain classes of fires. Therefore, the permit requirements for AFFF do not apply when the discharge occurs during a fire emergency. If such an emergency discharge occurs, an explanation of the emergency and the need to discharge AFFF must be written in the ship's log or other recordkeeping documentation, as long as it is consistent with Part 4.2 of this permit.

While EPA recognizes that the ability to properly maintain and train personnel on firefighting equipment is an important safety requirement for vessels, EPA believes that there are available practices for maintenance and training which can be conducted in a fashion that is not deleterious to the environment. In addition, vessel owner/operators may decide where they conduct the maintenance, and thus, have the ability to limit where they will discharge. Therefore, BMPs for reducing AFFF discharges focus on maintenance- and training-related discharges of AFFF. EPA believes BMPs that result in any reduction in discharges of AFFF have environmental benefits. For vessels that do not regularly leave waters subject to the permit, EPA has determined that due to the potential environmental effects caused by certain AFFF constituents, maintenance and training discharges must be minimized and should be collected and disposed of onshore. Furthermore, EPA also has found that a less toxic (non-fluorinated), substitute foam is available for use for training purposes. Owner/operators must use these non-fluorinated substitutes for training when practicable and achievable. Because these activities are planned and occur on an infrequent basis (annually or semi-annually), vessel operators can arrange to conduct the activities according to the BMPs required in the permit and in a location that poses the least environmental threat. Hence, if these vessel owner/operators will be using these substances in waters subject to this permit, AFFF must be collected and stored for onshore disposal if technologically feasible unless the vessel uses non-fluorinated or alternative foaming agent. For those vessels for which it is not technologically feasible to collect and store the fluorinated AFFF foam, vessel owner/operators must limit the discharge to that amount necessary to conduct legally required tests. Lastly, if a vessel will discharge, they should do so as far from shore as practicable.

For vessels that regularly leave the territorial sea, discharge of fluorinated AFFF for maintenance and training purposes into waters subject to this permit is prohibited. EPA has determined that the most effective BMP is to conduct maintenance and training activities as far from shore as possible. Discharge amounts for regulatory certification and inspection should still be minimized; and within waters subject to this permit, a non-fluorinated foaming agent must be substituted if practicable and achievable, for the regular foaming agent found in the AFFF. To meet this goal, permittees should use an alternative AFFF formulation that does not contain perfluorinated surfactants.

For all vessels, discharges of AFFF may not occur in or within 1 nm of waters subject to this permit referenced in Part 12.1 of the permit, unless they are discharged for emergency purposes, by rescue vessels for firefighting purposes, or by vessels owned or under contract to do business exclusively in or within 1 nm of these waters. If an emergency discharge occurs in these waters, an explanation of the emergency and the need to discharge AFFF must be written in the ship's log or other recordkeeping documentation, consistent with Part 4.2 of this permit. Those vessels owned or under contract to do business exclusively in or within 1 nm of areas protected either federally, or by a state, must use non-fluorinated AFFF or collect it and dispose of it onshore to the extent feasible.

EPA provided these exceptions to discharges of AFFF to waters listed in 12.1 so that this permit would not interfere with essential emergency management operations. The provision for vessels that are owned or under contract to do business exclusively in or within 1 nm of these waters was provided so that vessels will not have to divert in order to conduct necessary training and maintenance, which would result in additional cost for these vessels and cause other environmental impacts (increased fuel usage and air emissions). However, in order to protect these higher quality waters, these vessel owner/operators must use less environmentally damaging non-fluorinated AFFF.

4.4.6 Boiler/Economizer Blowdown (Part 2.2.6)

The constituents of boiler blowdown discharge vary according to the types of feedwater treatment used, but may include priority pollutants such as antimony, arsenic, cadmium, copper, chromium, lead, nickel, selenium, thallium, zinc, and bis (2-ethylhexyl) phthalate. Discharge volumes are typically less than 300 gallons but the discharge, which consists of steam, water, and sludge, occurs under high pressure (≤1200 psi) and at a high temperature (>325º F) below the water line.

BMPs to reduce impacts from boiler/economizer blowdown additives are based on minimization of their discharge to nearshore or port receiving waters, thus allowing for more mixing. To further mitigate potential impacts, EPA has specified that vessels greater than 400 gross tons that leave the territorial seas at least once per week cannot discharge within 3 nm of shore, except when the vessel remains in waters subject to this permit for longer than the necessary duration between blowdowns, the vessel needs to conduct blowdown immediately before entering drydock, or for safety purposes. EPA selected once per week as the threshold because the necessary frequency of boiler blowdown can vary from approximately once in two weeks to once in a couple of months for many vessels. For these vessels, it is therefore practical and achievable for these vessels to only discharge boiler blowdown further than 3 nm from shore. EPA included the caveat that vessels which remain in waters subject to this permit for more than a week can discharge if a week is longer than the necessary duration between blowdown cycles because the Agency became aware that some vessels need to discharge boiler blowdown more often than once a week. In all cases, boiler/economizer blowdown should be discharged as far from shore as practical. No vessel may discharge boiler/economizer blowdown in waters listed in Part 12.1 of the permit, except for safety purposes.

4.4.7 Cathodic Protection (Part 2.2.7)

The constituents of cathodic protection discharges include ionized zinc, magnesium, or aluminum. As an alternative method, Impressed Current Cathodic Protection (ICCP) systems use direct current from a ship-based source in lieu of current supplied from an oxidizing anode (i.e., sacrificial anode). The discharge from either method of cathodic protection is continuous whenever the vessel is waterborne.

EPA believes that ICCP systems are the environmentally preferable method because these systems eliminate or reduce the need for sacrificial anodes. EPA recommends the use of Impressed Current Cathodic Protection (ICCP) in place of or to reduce the use of sacrificial electrodes when technologically feasible (e.g. adequate power sources, appropriate for vessel hull size and design), safe, and adequate to protect against corrosion, particularly for new vessels. Cathodic protection may be considered technologically feasible if there is an adequate onboard power supply and the vessel hull size and design can be adequately protected by ICCP.

For sacrificial anode systems, EPA believes that requiring vessel operators to utilize the BMP of selecting the least toxic anode material that is practicable, in the order of preference of magnesium, aluminum, then zinc, represents a practicable and achievable approach to reducing impacts from this necessary hull protection operation. Additionally, sacrificial anodes should be used in conjunction with corrosion control coatings to minimize the release of dissolved metals. Furthermore, sacrificial anodes must not be used more than is necessary to adequately prevent corrosion of the vessel's hull, sea chest, rudder, and other exposed vessel areas.

If the vessel owner/operator considers and rejects use of electrode devices with metals that are less toxic, EPA requires that they document why use of the less toxic metal is not technologically feasible and/or economically practicable and achievable. EPA expects such documentation to be a brief explanation, such as "The vessel classifications society mandates that if my vessel type uses a sacrifical anode, it must be zinc, and therefore less toxic options are not available." In addition, EPA is specifying that vessel operators utilize proper BMPs for cleaning and replacing anodes during drydock to reduce excessive flaking or releases from the oxidizing anodes or the dialectic coating from ICCP systems.

4.4.8 Chain Locker Effluent (Part 2.2.8)

When an anchor is onboard and not in use, the anchor chain is stored in the chain locker, which is often equipped with a sump that can accumulate marine organisms as well as residue from the inside of the locker itself, such as rust, paint chips, grease, and zinc. The chain locker sump is emptied either directly overboard or is drained into the bilge tank for later disposal.

BMPs to reduce or eliminate chain locker effluent discharge require the vessel operator to ensure the chain itself is properly cleaned when brought out of the water to reduce the likelihood of transporting marine organisms and sediment. This practice is currently performed by vessels, using their firemain system, to remove sediments and other material. However, EPA believes vessel operators should use this practice routinely and be advised to perform more thorough wash downs to effectively prevent the transport of marine organisms between water bodies.

Additionally, EPA is requiring ocean-going vessels to clean out, rinse, or pump out chain lockers in open waters (greater than 50 nm from shore), if technically feasible, to reduce the chances of transporting organisms to other water bodies where they may cause potential harm. Vessels that leave waters subject to this permit at least once per month are not allowed to rinse or pump chain lockers in waters subject to this permit, unless not doing so would compromise safety. Because these practices are or can be implemented easily by these vessels, EPA believes this BMP is reasonable for this general permit. The requirement to clean chain lockers as part of scheduled drydock maintenance provides additional protection from discharges resulting from chipped paint or oily leaks from machinery.

4.4.9 Controllable Pitch Propeller (CPP) and Thruster Hydraulic Fluid and other Oil to Sea Interfaces including Lubrication Discharges from Paddle Wheel Propulsion, Stern Tubes, Thruster Bearings, Stabilizers Rudder Bearings, Azimuth Thrusters, and Propulsion Pod Lubrication and Wire Rope and Mechanical Equipment Subject to Immersion (Part 2.2.9).

Vessel owner/operators often use lubricants to maintain the functionality and structure of equipment such as wire rope and other mechanical equipment. This permit requires vessel owner/operators to use environmentally acceptable lubricants for oil to sea interfaces unless technically infeasible. Based on public comment received, EPA added the "unless technically infeasible" provision for new vessel owner/operators to account for those instances in which technical limitations may prevent use of an EAL in an oil-to-sea interface. In addition, all vessel owner/operators must apply lubricants and maintain all seals so that discharges do not result in quantities of oil that may be harmful. In the final permit, EPA has clarified that, for purposes of using EALs in oil-to-sea interfaces, technical infeasibility means that no EAL products are approved for use in a given application that meet manufacturer specifications for that equipment, that pre-purchased lubricated products (e.g., wire ropes) have no available alternatives manufactured with EALs, that products meeting a manufacturers specifications are not available within any port in which the vessel calls, or that change over and use of an EAL must wait until the vessel's next drydocking.

For all applications where lubricants are likely to enter the sea, environmentally acceptable lubricant formulations using vegetable oils, biodegradable synthetic esters or biodegradable polyalkylene glycols as oil bases instead of mineral oils can offer significantly reduced environmental impacts across all applications (EPA 2011c). Other formulations of EALs are also available.

The final permit retains the requirement that before being placed in service, and after periodic lubrication, wire ropes or cables and other equipment must be thoroughly wiped down to remove excess lubricant. However, the final permit clarifies that this is not required if doing so is deemed unsafe by the Master of the vessel.

Constituents of hydraulic and lubricating oils will vary by manufacturer but may include copper, tin, aluminum, nickel, and lead. Up to 20 ounces of oil may be released for every CPP blade that is replaced, with blade replacement occurring several times per month on average. When the blade replacement includes removal of the blade port cover (generally occurring infrequently, less than once per month), it is possible that, in a worst case scenario, five gallons of oil might be discharged into surrounding waters. Normal blade replacement is typically done in drydock unless the blade has been damaged.

The permit includes BMPs to reduce or eliminate CPP hydraulic fluid discharge and require that the seals be maintained in good working order to reduce leakage. In addition, maintenance activities should be conducted while the vessel is in drydock to prevent accidental spillage of oil.

BMPs to reduce or eliminate stern tube oily discharge require that the seals or fittings be maintained in good working order to prevent leakage. Furthermore, except in emergency situations, major maintenance should occur in drydock where oils cannot be released to the environment. If emergency maintenance must occur in the water, the permittee must use an oil boom, or other appropriate spill response resource, to contain any potential oil discharge and must have appropriate spill cleanup materials on hand.

Depending on the type of rudder bearings in use, this discharge can cause oil or grease to be released into the water column. Oil-lubricated bearings are kept at a slightly positive pressure in relation to the outside ambient water pressure and will only discharge into the surrounding water if a leak occurs around the rudder mechanism. Vessels can install hull seals where the rudder penetrates the hull to prevent the type of leaks that could lead to oil discharges.

EPA has determined that discharges of lubricants should generally not occur if vessels are properly maintained. Vessel operators should employ all necessary control measures such as regular maintenance and inspections to ensure that leaks do not occur.

As noted above, today's permit mandates the use of environmentally acceptable lubricants (EALs) in a wide variety of applications. The market for EALs continues to expand, particularly in Europe, where the use of such lubricants is being encouraged through a combination of tax breaks, purchasing subsidies, and national and international labeling programs, which are based on well-defined criteria. Those criteria include the lubricant's toxicity, biodegradability, bioaccumulation rates, and renewable content. Examples of National Labeling programs include Germany's Blue Angel Program, The Swedish Standard, Nordic Swan, and the European Eco-Label Program.

The German Blue Angel Program has criteria for several classes of lubricants, including hydraulic fluids, lubricating oils, and greases. In order to qualify for certification, a lubricant must possess the following characteristics: biodegradability; low toxicity to aquatic organisms; not bioaccumulative; and not containing dangerous components, such as carcinogens or toxic substances as defined by Germany's Ordinance on Hazardous Substances. A product must also pass technical performance characteristics appropriate for its use.

The Swedish Standard has standards for hydraulic fluids (SS 155434) and greases (SS 155470). Evaluation of a lubricant under the Swedish Standard involves evaluation of biodegradability and aquatic toxicity, as well as sensitizing properties of a lubricant formulation and its components (Habereder et al. 2008). The Swedish Standard evaluates biodegradability using ISO test methods (e.g., ISO 9439), and has varying requirements, depending upon class, for renewable resources content (SP 2010). The Swedish Standard is unique because it was conceived and developed as a collaborative project between government and industry. The program has more listed lubricant products, particularly hydraulic fluids, than any national labeling program (IENICA 2004).

The first international labeling program for EALs was the Nordic Swan program, encompassing Norway, Sweden, Finland, Iceland, and Denmark, which was initially introduced for hydraulic oil, two-stroke oil, grease, and transmission and gear oil (IENICA 2004). The Nordic Swan certification addresses biodegradability, aquatic toxicity (OECD 201&202) and technical performance, as well as renewability. The renewability requirement are the highest of all the labeling programs (e.g., at least 65% renewable content for hydraulic fluid, transmission fluid, gear oil, or grease, and at least 50% for two-stroke oil).

Eco-label is considered to be the first major advancement towards creating a single international standard, and is becoming the most generally accepted label. The Eco-label for lubricants was established in 2005, and includes hydraulic fluids, greases, and total loss lubricants, such as two-stroke oils. This labeling scheme consists of seven criteria encompassing biodegradability, aquatic toxicity, bioaccumulation, and the presence of certain classes of toxic substances (Habereder et al. 2008). A complete list of all lubricants that carry the European Eco-Label can be found at http://ec.europa.eu/ecat/.

Additionally, EPA's Design for the Environment Program (DfE) has launched a new initiative to label environmentally friendly lubricants to assist vessel operators in selecting more environmentally friendly products. EPA's DfE program is a voluntary labeling program that works in partnership with industry, environmental groups, and academia to reduce risk to people and the environment by finding ways to reduce or prevent pollution. The DfE program office has worked to ensure that any products meeting their labeling requirements would, at a minimum, meet the requirements of today’s VGP. The DfE logo on a product means that the DfE scientific review team has screened each ingredient for potential human health and environmental effects and that—based on currently available information, EPA predictive models, and expert judgment—the product contains only those ingredients that pose the least concern among chemicals in their class. Manufacturers of marine lubricants can partner with EPA DfE to have products tested to ensure that they meet the DfE Standard for Safer Products and ingredient criteria which define the characteristics and toxicity thresholds for ingredients that are acceptable in DfE-labeled products. DfE evaluates bioaccumulation, fate and aquatic toxicity, renewability and technical performance for each ingredient of the product. More information on the DfE program may be found at http://www.epa.gov/dfe/pubs/projects/formulat/saferproductlabeling.htm.

The new requirements in this permit will increase the use of EALs by vessels operating in waters of the United States. Part 7 of the permit defines environmentally acceptable lubricants to denote a lubricant that is biodegradable, exhibits low toxicity to aquatic organisms and has a low potential for bioaccumulation. This iteration of the VGP will further increase the use of these products, which will result in decreased environmental impact from the operational discharges of oil. Because the majority of a lubricant is composed of the base oil, the base oil used in an EAL must be biodegradable. The three most common categories of biodegradable base oils are: 1) vegetable oils, 2) synthetic esters, and 3) polyalkylene glycols. Traditional mineral oils have a small biodegradation rate, a high potential for bioaccumulation and a measurable toxicity towards marine organisms. In contrast, the base oils derived from oleochemicals (vegetable oils and synthetic esters) degrade faster and have a smaller residual, do not bioaccumulate appreciably and have a lower toxicity to marine organisms. Polyalkylene glycol-based lubricants are also generally biodegradable and do not bioaccumulate; however, some PAGs are more toxic due to their solubility. Lower environmental impacts will occur when a greater proportion of base oils are manufactured from non-mineral based oils.

If a vessel owner/operator finds it is technically infeasible to use an environmentally acceptable lubricant for their vessel, the owner/operator must explain why they cannot do so in their recordkeeping documentation, and must note the use of a non-environmentally acceptable lubricant in the vessel's Annual Report.

The information to be documented is intended to be simple, basic, and straightforward. A vessel owner/operator need only keep one brief record of their determination that use of EALs is technically infeasible. For example, if the vessel owner/operator or his authorized representative determines that there is a lack of supporting equipment or use of EALs is incompatible with the operations and/or operating environment of the ship and loads on the system (including faster degradation of the lubricant caused by exposure to seawater in systems designed to allow seawater infiltration). Technical infeasibility may also be determined if a class society says EALs are not appropriate for a particular use, or the vendor has not specified that EALs are appropriate for that piece of equipment (e.g., if a vendor only allows the vessel operator to use approved products and there are no approved EALs), the owner/operator can note that it is not technically feasible to use EALs on this basis.

EPA has found that use of EALs in all oil-to-sea applications on existing vessels (unless technically infeasible) represents BAT. EALs are available and their use is economically achievable (see US EPA, 2011a). In establishing different requirements for new build vessels versus existing vessels, EPA considered the processes employed and potential process changes which might be necessary by some existing vessels to use EALs. If the performance of EALs does not meet the needs of existing equipment onboard existing vessels, the cost of substituting new equipment might be substantial. However, many existing vessels can use EALs which are compatible with their existing equipment. Hence, it is technically feasible for many existing vessels to use EALs, but might not be technically feasible for some existing vessels to use EALs with existing equipment. For these vessels, EPA does not believe it is economically achievable to require those vessels to install new equipment so that they can use these more environmentally friendly lubricants. Using similar reasoning, EPA believes the use of EALs for most oil to sea interfaces for all new build vessels it is less likely to be technically infeasible and would be economically achievable. New build vessels can select equipment during design and construction which is compatible with EALs. Furthermore, vessel owner/operators can design additional onboard storage area for EALs if they choose to use traditional mineral based oil for engine lubrication (thereby needing two types of oils on-hand). Extra storage area needed would be minor. Nonetheless, in the event specific vessel oil-to-sea applications do not allow for use of EALs, EPA has included a "unless technically infeasible" provision.

Use of an environmentally acceptable lubricant does not authorize the discharge of any lubricant in a quantity that may be harmful as defined in 40 CFR Part 110 as these oils still cause many undesirable environmental impacts, though these impacts are potentially less severe than those caused from petroleum based oils.

Lastly, any discharge of oil, including oily materials, from any of these oil to sea interfaces may not result in a discharge that may be harmful as defined by 40 CFR Part 110 or result in the production of a visible sheen.

4.4.10 Distillation and Reverse Osmosis Brine (Part 2.2.10)

Onboard distillation and RO systems discharge brine is essentially concentrated seawater with the same constituents of seawater, including dissolved and suspended solids and metals. Anti-scaling treatments and anti-foaming and acidic cleaning compounds may be injected into the distillation system. The effluent constituents from distillation and RO discharge were found to exceed water quality criteria for several metals, nitrogen, and phosphorus but did not exceed thermal mixing zone standards. These constituents are generally present in the receiving water used in the distillation or reverse osmosis process and are merely concentrated in the distillation or osmosis process.

The BMPs EPA has included in the permit require vessel operators to keep the reject water from coming into contact with materials, products, or wastes which may contaminate the discharge with potentially environmentally harmful substances. The Agency believes that returning the concentrated seawater back to the marine environment should not cause environmental harm if done in areas where the brine can be appropriately diluted by the receiving water.

4.4.11 Elevator Pit Effluent (Part 2.2.11)

Elevator pit discharge will have constituents similar to those found in deck runoff and firemain water, which may include lubricants, cleaning solvents, soot, and paint chips. Tests conducted by EPA and DOD (US EPA, 1999) on Armed Forces vessels discovered that some detected constituents from elevator pit effluent exceeded the most stringent state water quality standards, including total nitrogen, bis(2-ethylhexyl) phthalate, copper, iron, and nickel.

The permit does not authorize the discharge of untreated elevator pit effluent except in emergency situations or when managed with the ship’s bilge water. The emergency situation must be documented in the ship’s log or other recordkeeping documentation consistent with Part 4.2. The information in today’s permit demonstrates that the discharge of untreated elevator pit effluent is not generally essential to the safe operation of a vessel and that it can easily be held for proper disposal or treated with the vessel’s bilgewater. Further, the Agency feels that the limited amount of effluent generated and the high likelihood of its contamination at harmful levels can best be addressed by storage of the effluent for treatment and disposal onshore. However, if elevator pit effluent must be managed with the ship’s bilgewater, it may be discharged provided the bilgewater/elevator pit effluent meets the requirements of Part 2.2.2.

4.4.12 Firemain Systems (Part 2.2.12)

Firemain water can contain a variety of constituents, including copper, zinc, nickel, aluminum, tin, silver, iron, titanium, and chromium. Many of these constituents can be traced to the corrosion and erosion of the firemain piping system, valves, or pumps. Discharges from the firemain system are allowed under the permit in case of emergency, when necessary to ensure the safety of the vessel and crew, as well as for testing purposes to ensure the system will be operational in an emergency. However, when feasible, the maintenance and training discharges of the firemain should occur outside ports or other shallow waters and outside waters subject to this permit. In addition, EPA believes that the use of firemain systems for anchor chain washdowns is likely to result in benefits by reducing the potential transport of invasive species. Therefore, the discharge of firemain systems is allowed under the permit when pulling the anchor and anchor chain from protected waters in accordance with the anchor washdown requirements of the permit.

4.4.13 Freshwater Layup (Part 2.2.13)

Discharges of freshwater layup effluent include the constituents of the potable water along with residual seawater, any residue that may leach from the condenser while the water is being held, and disinfectants like chlorine or chloramine. The Agency recognizes that disinfectants are necessary to reduce aquatic growth within the condenser system. Therefore, the permit requires that vessel operators reduce the potential for harmful impacts by minimizing the use of these treatment chemicals to the lowest effective level that will meet the needs of the system. EPA believes that this can be accomplished by following the application rate suggestions provided by the treatment manufacturers to keep the discharge of the disinfectants as low as possible.

4.4.14 Gas Turbine Wash Water (Part 2.2.14)

Rates and concentrations of gas turbine wash water discharge vary according to the frequency of washdown with some Navy vessels conducting washdowns as frequently as every 48 hours with over 100 gallons of washwater being generated. Discharges resulting from gas turbine washdown may include cleaning solvents and substances such as naphthalene and other hydrocarbons. Furthermore, due to the nature of the materials being cleaned, there is a higher probability of heavy metal concentrations. Washdown water from gas turbines may not be discharged into waters subject to this permit unless it is infeasible to separately collect this washwater or only conduct washes outside 3 nm. If it is infeasible to separately collect the water, the washwater must be treated by an oily water separator before discharge. Under most circumstances, EPA believes the water generated is of small enough volume that either 1) it can be collected and held for onshore disposal or disposal in waters not subject to this permit provided the discharge meets all other applicable law or 2) vessel operators can wash down gas turbines when they are not in waters subject to this permit.

4.4.15 Graywater (Part 2.2.15)

The volume of graywater generated by a vessel is dependent on the number of passengers and crew. It is estimated that, in general, 30 – 85 gallons of graywater is generated per person per day (Copeland, 2008). Estimates of graywater generation by cruise ships that can accommodate approximately 3,000 passengers and crew range from 96,000 to 272,000 gallons of graywater per day or 1,000,000 gallons per week. Navy designers use a generation standard of 50 gallons per person per day when constructing graywater collection systems.

Graywater discharges can contain bacteria, pathogens, oil and grease, detergent and soap residue, metals (e.g., cadmium, chromium, lead, copper, zinc, silver, nickel, mercury), solids, and nutrients. Of these constituents EPA has found ammonia, copper, lead, mercury, nickel, silver, and zinc concentrations that exceed water quality criteria in the discharge.

Several BMPs are practicable and available for control of graywater impacts. First, vessel operators are required to minimize the production and discharge of graywater while in port. Producing less graywater while in port will result in less volume of graywater discharge in those areas. Secondly, for large vessels that regularly leave waters subject to the permit with the capacity to store graywater for a sufficient period, graywater must be discharged greater than 1 nm from shore while the vessel is underway unless the vessel meets the treatment standards and other requirements contained under Parts 5.1.1 and 5.1.2 or 5.2.1 and 5.2.2 of the permit along with any vessel specific requirements. Releasing large volumes of untreated graywater in nearshore environments, estuarine environments, or in waters with limited circulation is more likely to cause negative environmental impacts. This is because these environments are likely to have higher vessel traffic and, therefore, greater graywater generation and discharge, are more likely to be stressed by other anthropogenic forces, and are likely to have less ability for dilution and assimilative capacity. The provision limiting the discharge of untreated graywater within 1 nm of shore when the vessel has holding capacity is a limit that will help protect these ecosystems. Additional conditions apply to vessels which do not travel more than 1 nm from shore in order to help reduce the discharge of untreated graywater to these environments. EPA does not expect existing vessel owner/operators to install graywater treatment storage capacity. Vessels which have sufficient graywater storage capacity but do not currently treat their graywater to the standards listed in the permit, must utilize onshore treatment when available and economically practicable and achievable. These requirements will reduce their discharges of untreated graywater.

Additionally, soaps and detergents used in any capacity that will be discharged as graywater must be minimally-toxic and phosphate-free, and should be biodegradable where possible unless there is evidence that they would be harmful to the aquatic environment. Not all biodegradable soaps are appropriate for all aquatic environments, but EPA believes that non-harmful varieties will be available in most situations and should be used when they are available. EPA expects that minimally-toxic cleaners and detergents will contain little to no nonylphenols. Phosphate free soap is considered to contain 0.5% by weight or less of phosphates or derivatives of phosphates. Reducing use of these products will reduce acute and chronic impacts of vessels that generate graywater on aquatic waterbodies and will limit eutrophication in all waters that are phosphorus limited ecosystems. Products meeting these standards are currently commercially available. Changes in cost associated with using these products are estimated in the economic analysis.

Vessels that do not travel more than 1 nm from shore shall minimize the discharge of graywater and, provided the vessel has available graywater storage capacity, must dispose of graywater on shore if appropriate facilities are available and such disposal is economically practicable and achievable unless the vessel meets the treatment standards and other requirements contained under Parts 5.1.1 and 5.1.2 or 5.2.1 and 5.2.2 of this permit. Minimize the discharge of graywater when the vessel is not underway.

4.4.15.1 Additional Graywater Requirements for Vessels Operating in the Great Lakes

As discussed above, vessels that are commercial vessels as defined in CWA section 312(a)(10) are not subject to this section. All other vessels subject to this permit must hold all graywater for onshore discharge to an appropriate shoreside facility or must treat the graywater prior to discharging, in accordance with the standards listed in Part 2.2.15.1(ii) when operating on the Great Lakes. These vessels must also conduct monitoring in accordance with Part 2.2.15.2 of the permit, including keeping records.

EPA has included this requirement because the Agency determined that treatment of this waste stream by VGP vessels represents the appropriate level of control. EPA had previously believed that any non-recreational vessel greater than 79 feet treated or otherwise held their graywater when operating on the Great Lakes. However, EPA heard from vessel owner/operators who believe that their vessels do not meet the definition of "commercial vessel" in section 312(a)(10). (The Agency takes no position on whether any individual vessel discussed by these commenters falls within the "commercial vessel" definition.) EPA therefore believes it is appropriate to set limits for any such vessels.

Numerous vessels operating on the Great Lakes currently either hold their graywater for onshore disposal at a sewage treatment plant or treat that graywater using an existing Marine Sanitation Device meeting the 40 CFR Part 140 standards. Hence, holding capacity is present on vessels or treatment devices are available and used for managing graywater from vessels operating on the Great Lakes, and EPA believes most, if not all VGP eligible vessels operating on the Great Lakes should already be meeting these conditions.

Therefore, EPA believes that meeting these standards represents a BPT/BCT level of control. At this time, unlike with Cruise Ships (see sections 7.1 and 7.2 of this fact sheet for discussion), EPA does not have the information necessary to require a more stringent technology-based graywater discharge limit for these vessels.

4.4.15.2 Graywater Monitoring

The requirements in Part 2.2.15.2 of the permit apply to vessels constructed on or after December 19, 2013 which provide overnight accommodation to at least 15 crew, and apply to "non-commercial" vessels operating on the Great Lakes, pursuant to Part 2.2.15.1 of the permit.

EPA is requiring monitoring for vessels subject to 4.4.15.1 above to assure they are meeting the effluent limits in that part. New build vessels which provide overnight accommodation to at least 15 crew are required to monitor, whether they use treatment or not, to help the Agency better characterize the effluent from these permittees, and for those permittees that use treatment, to better understand the efficacy of that treatment. EPA will use this information in the development of the next VGP. EPA has not required monitoring for existing vessels so as to not require the retrofitting needed for graywater systems to install petcock valves or similar sampling ports. Likewise, EPA has not required vessels with fewer than 15 crew and overnight accommodation to monitor because 1) these vessels tend to produce less graywater and 2) these vessels tend to have lower revenues than larger vessels and the costs imposed might be more burdensome for these vessel owner/operators at this time.

Each vessel subject to these requirements must conduct and analyze two samples per year and report the results as part of the vessel's Annual Report. Part 2.2.15.2 states that samples must be taken for BOD, fecal coliform, suspended solids, pH, and total residual chlorine, and that sampling must be conducted in accordance with the 40 CFR Part 136 methods. Fecal Coliform (or *e. coli* as collected) must only be analyzed once per year if vessels have difficulty analyzing the results within recommended holding times. EPA reduced the minimum monitoring frequency for this biological parameter to ease difficulties associated with analyzing the sample in a tight window after collection for one sampling event. Samples taken from non-commercial vessels operating on the Great Lakes must meet the standards specified in Part 2.2.15.1 of the permit. Records of monitoring information must include the date, exact place, and time of sampling/measurements, the individual(s) who performed the sampling/measurements, the date(s) the analyses were performed, the individual(s) who performed the analyses, the analytical techniques/methods used, and the results of such analyses.

All records of the sampling and testing results must be retained onboard in the vessel's recordkeeping documentation for 3 years. If a vessel does not enter waters subject to this permit for the calendar year, the owner/operator does not need to conduct monitoring for that year. However, the vessel's Annual Report must clearly state that the vessel did not enter waters subject to this permit during that year.

4.4.16 Motor Gasoline and Compensating Discharge (Part 2.2.16)

Ambient water is added to fuel tanks as the fuel is used. When gasoline is reloaded to the tanks while in port, the water is discharged. The discharged ambient water may contain traces of gasoline constituents, which generally will contain alkanes, alkenes, aromatics (e.g., benzene, toluene, ethylbenzene, phenol, and naphthalene), metals, and additives. Analyses of compensating discharge have shown that benzene, toluene, ethylbenzene, phenol, and naphthalene may exceed water quality criteria in the discharge.

EPA has included BMP limitations in the permit based on a vessel's ability to treat the compensating discharge using an oil water separator to meet oil limitations of less than 15 ppm. The permit also requires that this discharge be minimized while the vessel is in port, which can be accomplished by disposing of the wastewater onshore where practicable and available.

4.4.17 Non-Oily Machinery Wastewater (Part 2.2.17)

Non-oily machinery wastewater discharge rates vary by vessel size and operation type, ranging from less than 100 gallons per hour (gph) to over 4,000 gph. Constituents of non-oily machinery wastewater discharge include a suite of conventional pollutants, metals, and organics. Many of the specific constituents in the discharge can exceed water quality criteria, including copper, nickel, silver, zinc and a collection of nutrients. Mercury also may be present, but reported concentrations did not exceed the standards.

EPA has determined that non-oily machinery wastewater can be discharged if control measures are instituted to keep the waste stream free of oils and additives that are toxic and bioaccumulative. Alternatively, non-oily machinery wastewater can drain to the bilge.

4.4.18 Refrigeration and Air Condensate Discharge (Part 2.2.18)

This discharge may contain metals from the refrigeration/air conditioning coils and drainage systems, including aluminum, copper, iron, lead, nickel, silver, tin, and zinc. Traces of detergent also may be found in this discharge from the cleaning of refrigerated spaces, as can seawater and freshwater. This waste stream can easily be kept segregated from oily wastes and safely discharged, channeled and collected for temporary holding until disposed of onshore, or drained to the bilge. The permit prohibits refrigeration and air condensate from coming into contact with oily or toxic materials if it is discharged directly overboard. However, if the condensate is collected for internal recycling, it may be subsequently commingled with other oily discharges provided that the combined discharge meets the requirements of Part 2.1.4 and, if applicable, Part 2.2.2.

4.4.19 Seawater Cooling Overboard Discharge (Including Non-Contact Engine Cooling Water; Hydraulic System Cooling Water, Refrigeration Cooling Water) (Part 2.2.19)

The potential constituents of seawater cooling overboard discharge include entrained or dissolved materials from the system itself, including copper, iron, aluminum, zinc, nickel, tin, titanium, arsenic, manganese, chromium, lead, and oil and grease. Based on existing research conducted for the UNDS program, seawater cooling discharge rates can reach as much as 170,000 gallons per minute (gpm) for an in-transit aircraft carrier with copper, nickel, and silver concentrations in the discharge that exceed water quality criteria.

Cooling water also can reach high temperatures with the thermal difference between seawater intake and discharge typically ranging from 5°C to 25°C, with maximum temperatures reaching 140°C. EPA has not prohibited the discharge of the heated seawater because it is infeasible with existing vessel design to prohibit its discharge. However, the Agency believes if vessel operators institute the BMP of reducing discharges to ports or enclosed water bodies, impacts from the heated waters will be reduced. Discharges of seawater can be reduced by using shore based power when electrical systems on board vessels are compatible with the available shore power.

In addition, mud, biota, and other debris can stick to the strainer plates and require periodic clearing. The permit requires that vessel operators incorporate the regular removal of fouling organisms from seawater piping and cooling systems to prevent possible transport of species to other water bodies. The risk of introducing invasive species is reduced considerably when vessel owner/operators remove fouling organisms while at sea (greater than 50 nm from any shore). Hence, vessel owner/operators should clean piping while at sea in lieu of cleaning these systems in waters subject to this permit if they frequently sail far from the coast.

4.4.20 Seawater Piping Biofouling Prevention (Part 2.2.20)

To prevent biofouling of seawater cooling systems, small amounts of biocidal substances are sometimes injected near the seawater intakes to prevent biofouling by any organisms that may have been drawn in along with the cooling water. Seawater that has been discharged after being treated with chlorinating substances will contain free chlorine and reaction products (halamines, free bromine, and halogenated organics).

The requirements of the permit reinforce current environmental regulations established under FIFRA. Under the permit, biofouling chemicals for seawater piping must be used according to their FIFRA label and are prohibited from discharge if they are banned for use in the U.S. A banned pesticide does not simply mean one that is unregistered under FIFRA.

Vessel owner/operators must use the minimum amount of biocide needed to keep fouling under control. Using visual observations, vessel operators can determine if they are achieving the desired level of biofouling prevention with lower concentrations of biocide. If an organic biocide is used, it should have a short half-life. If an oxidizing biocide is being used, the total residual oxidant concentration of the effluent should be monitored periodically to ensure that excessive amounts of biocide are not being released into the environment.

4.4.21 Boat Wet Engine Exhaust (Part 2.2.21)

Large vessels may have one or many smaller vessels onboard that serve purposes ranging from lifeboats to landing craft. These auxiliary vessels may have engines which produce wet exhaust. Wet exhaust can contain nitrogen oxides, sulfur dioxide, hydrocarbons and other organic compounds, carbon monoxide, and particulates. The amount of wet engine exhaust depends on the size of the marine engine, the diameter of the water pump's impeller, and the engine speed, measured as revolutions per minute (RPM). For smaller motors such as outboards, EPA estimates wet engine exhaust discharge rates can range from 5 to 10 gpm when operated between 1,500 and 3,000 rpm. For inboard diesel engines, flows can range from 20 gpm to 30 gpm when the engine operates between 1,500 and 2,000 rpm (Shirwood Pumps, 2011) to more than 100 gpm for larger engines operating above 2,500 rpm. In comparison, for naval vessels, EPA estimates that outboard engines discharge wet exhaust at a rate of 20 gpm while inboard diesel engines have an estimated discharge rate of 150 gpm. The constituents discharged by outboard engines differ from those discharged by inboard engines, due to the different fuel and engine types. For these outboard engines, a handful of organic constituents are estimated to exceed water quality criteria in the discharge. Inboard engines may produce discharges that exceed water quality criteria for polycyclic aromatic hydrocarbons (PAHs). EPA believes that well maintained engines are less likely to cause these exceedances, and is therefore, requiring operators to implement control measures to ensure their engines are maintained in proper working order. Furthermore, vessel owner/operators should use low sulfur or alternative fuels for their vessels to reduce the concentration of pollutants in their discharge.

Vessels that generate wet exhaust must be maintained in good operating condition and functioning according to manufacturer specifications. Vessel operators are encouraged to consider four-stroke engines in lieu of two-stroke engines to minimize the discharge of pollutants to waters subject to this permit. Vessels that use two-stroke engines must use environmentally acceptable lubricants, if feasible. EPA has included this requirement because two-stroke engines tend to release more oil to receiving waters than 4 stroke engines. Use of environmentally acceptable lubricants will reduce the environmental impact of those oils when discharged.

4.4.22 Sonar Dome Discharge (Part 2.2.22)

Sonar domes are typically found on research vessels and may sporadically be found on other vessels covered by this permit. Maintenance on the sonar dome, while typically (but not always) done while a vessel is in dry dock, can involve the release of the inner sonar dome water. In addition, the components of the outside of the sonar dome can leach into the surrounding waters, including antifouling agents, plastic, iron, and rubber. Along with these materials, tin, zinc, copper, nickel, and epoxy paints may be found on the inside of sonar domes. Some of the discharge concentrations of these components can exceed water quality criteria. Discharge rates are estimated at as little as 300 gallons and as much as 74,000 gallons from inside the sonar dome with every repair event.

Because EPA has not identified any available BMP or feasible treatment technology other than zero discharge, this permit requires that water from inside the sonar dome may not be discharged. In addition, vessel operators should not use bioaccumulative biocides on the exterior of sonar domes when other viable alternatives are available.

4.4.23 Underwater Ship Husbandry and Hull Fouling Discharges (Part 2.2.23)

Extensive hull repair that requires the use of significant raw materials or other potentially toxic chemicals should be conducted while the vessel is in drydock when feasible. Owner/operators must take all precautions to minimize the discharge of raw, toxic, or oily materials while doing any underwater vessel repairs, and these discharges must comply with all applicable federal laws. EPA recommends that extensive hull cleaning be conducted when the vessel is in drydock or when the byproducts of the cleaning can be contained and disposed of properly, especially when cleaning hulls using water pressure based systems. This BMP encourages all waste to be collected and disposed of properly to ensure that it is not washed into nearby waters. While these practices do not specifically address the release of antifouling materials from hulls during vessel operations (i.e., hull coating leachate), they are critical to controlling levels of contaminants that result in the same type of environmental degradation. In addition, these same practices will reduce the potential for release of introduced species during hull cleaning and paint preparation activities.

Some vessels are too large to be regularly removed from the water and any repair or maintenance required on the hull or hull appendages must occur while the vessel is pier-side between drydockings. Hull cleaning and repair activities conducted on the water can cause the release of a wide range of constituents, including elements of the vessel hull; hull coatings; cleaning agents; and species that are attached to and are associated with the hull and other submerged areas of the vessel and were transported to non-native waters. Use of minimally-toxic paints (e.g., low surface energy paints) will reduce the discharge of toxic materials into the water column during any cleaning. If cleaning and repair activities on hulls coatings with biocidal activity must take place when the vessel is in the water, certain practices can reduce the potential risks associated with those activities.

EPA has not identified an alternative to underwater ship husbandry, a viable treatment technology, or specific practices that will eliminate all releases of contamination. To limit such releases the Agency is requiring that vessel operators employ removal and cleaning methods that reduce the environmental impacts due to releases of biocides, hull coating materials, and invasive species. EPA has determined that use of soft brushes when cleaning hulls helps eliminate the release of paints and hull materials; hence, you must use the softest brush practicable to effectively remove living organisms from the vessel hull. Furthermore, when available, EPA recommends that vacuum cleaning technologies be employed in conjunction with mechanical scrubbing to reduce releases of environmental contaminants. Vacuum cleaning allows the materials scrubbed from the vessel hulls to be collected and disposed of onshore. These approaches are not widely commercially available; hence, EPA has not required that they must be used in this permit. Dry dock cleaning is the preferred alternative to underwater ship husbandry whenever possible. Additionally, hull husbandry should be minimized in critical habitats for aquatic listed species. The list of critical habitat can be found at: http://www.nmfs.noaa.gov/pr/species/criticalhabitat.htm; and http://criticalhabitat.fws.gov/crithab/.

In addition, vessel hulls and hull appendages are a potential source for the spread of aquatic nuisance species. Vessel owner/operators must minimize the transport of attached living organisms when they travel into waters subject to this permit from outside the U.S. economic zone or when traveling between COTP zones. Minimization techniques include preventing the hull from fouling using appropriate anti-foulant paint (see 4.4.3.9.4 of this fact sheet) and frequently removing fouling organisms from the hull. In the final permit, EPA included further explanation of management measures necessary to minimize the transport of attached living organisms. Specifically, these measures include: selecting an appropriate anti-foulant management system and maintaining that system, in water inspection, cleaning, and maintenance of hulls, and thorough hull and other niche area cleaning when a vessel is in dry dock. This clarification language was incorporated to provide guidance to vessel owner/operators on how to minimize the transport of living organisms. Furthermore, the clarifying language, while giving vessel owner/operators concrete steps that reduce the risks from introducing new invasive species, maximizes consistency with management principles established in the international guidelines "2011 Guidelines for the Control and Management of Ships' Biofouling to Minimize the Transfer of Invasive Aquatic Species" (MEPC.207(62)).

4.4.24 Welldeck Discharges (Part 2.2.24)

Potential constituents of welldeck discharges include fresh water, distilled water, firemain water, graywater, air-conditioning condensate, sea-salt residues, paint chips, wood splinters, dirt, sand, organic debris and marine organisms, oil, grease, fuel, detergents, combustion by-products, and lumber treatment chemicals. EPA has determined that control measures can reduce some of the potential impacts from welldeck discharges. The permit, therefore, distinguishes what types of waste may be discharged as welldeck discharges.

Further, EPA is requiring that vessel operators practice good housekeeping to ensure that no garbage or wastes that can cause a visible sheen are discharged. Should these wastes be present, the vessel operator must retain the discharge for onshore disposal.

4.4.25 Graywater Mixed with Sewage from Vessels (Part 2.2.25)

Some vessel operators mix graywater with sewage discharges. Once these two discharge types are commingled, it is impossible to separate out which constituents within the effluent are from which discharge type. Therefore, although discharges of sewage from vessels are exempt from permitting pursuant to CWA section 502(6), all graywater discharges containing sewage are required to meet the relevant standards contained within this permit for graywater including discharge minimization requirements, prohibitions, standards, and other requirements applicable to graywater in Part 2 and Part 5 as appropriate. While not a requirement of this permit, vessel operators should be aware that CWA section 312 and its implementing regulations contain requirements for discharges of sewage from vessels which also apply to sewage mixed with graywater.

4.4.26 Exhaust Gas Scrubber Washwater Discharge (Part 2.2.26)

On October 9th, 2008, the Parties to MARPOL adopted stringent new standards to control harmful exhaust emissions from the engines that power ocean going vessels. These engine and fuel standards are included in amendments to Annex VI of MARPOL. The United States ratified Annex VI on October 8, 2009, and the revised Annex VI entered into force on July 1, 2010.

Annex VI, among other things, requires vessels to reduce their air emissions of sulfur. The allowable sulfur content of fuel will fall in the Emission Control Areas (ECAs), including the Baltic Sea, the North Sea and the English Channel, from 1.5% to 1% in July of 2010 and to 0.1% in January of 2015. A North American ECA (including waters adjacent to the Pacific, Atlantic and Gulf coasts and the 8 main Hawaiian Islands) will become enforceable in 2012 (US EPA, 2010b). Globally, the highest permitted sulfur content of fuel will fall from 4.5% to 3.5% in January of 2012 and to 0.5% in January of 2020.

The IMO developed guidance criteria for the use of exhaust gas cleaning devices, such as SO_x scrubbers, as an alternative to operating on low sulfur fuel. As a component of their analyses, the IMO also set out scrubber washwater criteria in section 10 of the guidelines for Exhaust Gas Cleaning Systems (Resolution MEPC. 170(57)). The IMO has subsequently updated their guidelines in the *2009 Guidelines for Exhaust Gas Cleaning Systems* (IMO Annex 9, Resolution MEPC. 184(59), adopted July 17, 2009). A byproduct of some exhaust gas cleaning technology is the washwater generated by the exhaust scrubbing. This washwater may include suspended solids, nitrates and sulfates (and nitric and sulfuric acids which impact pH), metals, and polycyclic aromatic hydrocarbons (PAHs). Before the washwater is discharged, it generally would need to be processed to remove numerous pollutants.

Exhaust gas scrubbers can be classified as dry scrubbers, wet scrubbers, and hybrid scrubbers. Dry scrubbers do not use washwater to capture sulfur oxides from the exhaust gas and thus to not discharge wastewater into waters of the US. Instead, exhaust gas is passed through a bed of granular solid media such as calcium carbonate ($CaCO_3$), burnt lime (CaO), or hydrated lime ($Ca(OH)_2$), to which the sulfur oxides absorb and react to form gypsum ($CaSO_4$) (Couple Systems, 2010).

There are two main wet scrubber technologies. The first, referred to as seawater scrubbing, is an open-loop design which uses seawater to scrub the exhaust and then discharges the washwater back to the sea following treatment. In a seawater scrubber, the exhaust gases are brought into contact with seawater, either through spraying seawater into the exhaust stream or routing the exhaust gases through a water bath. The sulfur dioxide (SO_2) in the exhaust gas dissolves in the washwater, where it is ionized to bisulphate and sulfite, which are then readily oxidized to sulfate (Karle and Turner, 2007). The ionization also produces acidity, as does the sulfuric acid formed from sulfur trioxide (SO_3). The sulfuric acid in the water then reacts with carbonates and other salts in the seawater to form sulfates which are removed in the washwater

(US EPA, 2009). The washwater is then treated to remove solids and raise the pH prior to discharge back to the sea.

A second type of wet SO_x scrubber is a closed loop system. Fresh water is used as washwater, and caustic soda is injected into the washwater to neutralize the sulfur in the exhaust. A small portion of the washwater is bled off and treated to remove suspended solids, which are held as sludge and disposed of ashore, as with the open loop design. The treated bleed-off washwater can be discharged at open sea or held on board. Additional fresh water is added to the system as needed. While this design is not completely closed loop, strictly speaking, it can be operated in zero discharge mode for a period of time (US EPA, 2009).

Hybrid scrubbers can operate as either open or closed scrubbers. The hybrid systems can operate with either seawater (open loop) or freshwater (closed loop). At sea, the system operates with seawater and, in harbors and estuaries, the system can operate on freshwater in a closed loop system (Aalborg, 2010).

The limits applicable in the VGP apply to wet scrubbers and hybrid scrubbers. Wet scrubbers have been designed to process and remove pollutants before they are discharged. Several trials have been conducted using wet SO_x scrubbers aboard marine vessels, which have demonstrated the capabilities of this technology to remove sulfur emissions from exhaust gas (Entec 2005, EPA 2009). These trials have also provided limited data which characterize constituent concentrations in washwater discharges. The trials aboard three vessels, the *Zaandam*, *Pride of Kent* and *Suula* provided measurements of several washwater constituents including pH and pollutants removed from the exhaust gas (SO_x and NO_x, and the products of their transformation: acidity, SO_4, NO_3 and COD) and particulate matter (PM), (which may contain PAHs, hydrocarbons and metal oxides). Other constituents in seawater scrubber washwater (dissolved metals) were attributable to dissolution of scrubber system materials due to the high acidity of washwater in the open scrubber systems. Neutralization of washwater was achieved by blending with sufficient seawater "reaction water". Washwater was also treated to remove the suspended solids that were attributed to PM removed by the scrubbers. This was accomplished using multicylones (alone or in combination with filtration), or more effectively using an advanced treatment system incorporating coagulation and filtration, floatation and adsorption.

As provided in Part 2.2.26 of the VGP, EPA has a numeric BAT limit in this iteration of the permit which is consistent with the international guidelines established by the IMO. Though marine gas exhaust systems are in the early stages of development, EPA has found that all marine manufacturers are designing and testing systems with these IMO guidelines in mind. Furthermore, these systems are generally based on technologies that have been used in land based applications, and these technologies generally transfer well to ship-based applications.

Furthermore, EPA has found that use of these technologies is economically achievable for several reasons. First, as discussed above, the limits are fundamentally similar to an existing international standard; one to which treatment manufacturers are currently designing their equipment. By adopting these limits, EPA is applying no additional burden. Second, vessel owner/operators may realize cost savings when using lower grade fuel (which requires use of a scrubber) compared to the higher grade, lower sulfur content fuels.

EPA has also included several monitoring requirements for those vessels which use exhaust gas scrubber systems. These requirements are based on the IMO washwater discharge criteria, which are intended to act as guidance for implementing Exhaust Gas Cleaning System (EGCS) designs. The IMO Guidelines state that the criteria should be revised in the future as more data become available on the characteristics of the discharge and its environmental impacts, taking into account any advice given by the Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP). Administrations (i.e., ship registry authorities) should therefore provide for collection of relevant data. To this end, IMO requests ship owners, in conjunction with the EGCS manufacturer, to sample inlet water (for background), water after the scrubber (but before any treatment system) and discharge water and to analyze these samples using EPA or ISO test procedures for the following parameters:

- pH
- PAH and oil (detailed GC-MS analysis)
- Nitrate and nitrite
- Metals (Cd, Cu, Ni, Pb, Zn, As, Cr and V)

EPA is supportive of the goals of gathering more information about the functioning of these systems. In order to ensure that the discharges are meeting the required effluent limits in Part 2.2.26 of the permit, EPA has required monitoring of any vessel's exhaust gas scrubber system which discharges into waters subject to this permit. The standards and monitoring requirements listed in Parts 2.2.26.1 and 2.2.26.2 of the permit are consistent with IMO guidelines for exhaust gas cleaning systems in resolution Marine Environmental Protection Committee (MEPC) 184(59). The monitoring requirements require both continuous monitoring by probes, and periodic analytical monitoring. Continuous monitoring of pH, PAHs (when available), turbidity and temperature, the regular calibration of continuous monitoring equipment, and compliance with standard continuous monitoring equipment requirements will ensure that exhaust gas cleaning systems are appropriately operated and maintained. The analytical monitoring requirements are generally consistent with the IMO requirements, meeting IMO goals of generating more information about the functioning of these systems. These additional requirements assure that probes remain accurate, and they generate additional information about other pollutants in order to provide assurance to EPA that constituents within the discharge are not likely to cause or contribute to an exceedance of water quality standards.

EPA made changes to the analytical monitoring requirements between the proposed VGP and this final VGP. Namely, this provision has been amended to require that monitoring must happen 2 times during the first year, with each sampling event being no less than 14 days apart. This is to provide vessel owner/operators with flexibility when they sample, while generating the data needed to evaluate system performance. Vessels then need only sample one time per year thereafter. Furthermore, to better align with IMO, EPA has required the sampling of inlet water (for background), water after the scrubber (but before any treatment system) and discharge water and to analyze these samples Additionally, EPA has removed the analytical monitoring requirements for temperature and dissolved oxygen from the analytical monitoring requirements based on comments submitted on the proposed permit.

Additionally, EPA notes that matrix interference is a known issue for monitoring selenium and arsenic in saltwater samples. During the ESA consultation process, one resource agency raised concerns that existing monitoring data indicated that selenium levels are elevated; however, EPA noted that these elevated levels are likely due to matrix interference. Selenium was only monitored in one of the three reports reviewed by EPA. We have the results from those studies, but do not have the raw laboratory data, including QA/QC information. The sampling method used was EPA 200.8, the same method for which EPA identified matrix interference for arsenic and selenium in EPA's 2010 study on vessel discharges (EPA 2010). Bromines are found in high concentrations in seawater, with an average bromide concentration in typical seawater (35 ppt) around 65 ppm. Notable interference can be observed as low as 100 or 200 ppb (personal communication, Terri White and Robin Costas, 2012). For further discussion, please see Albert and Piziali (2012).

In order for vessel owner/operators to report results to EPA that are not elevated as a direct result of matrix interference, EPA strongly recommends that vessel operators utilize techniques and/or equipment known to reduce or eliminate this interference. These techniques, all of which are consistent with EPA methods 200.8 or 200.9, include Octopole Reaction Cell ICP-MS, Dynamic Reaction Cell ICP-MS, and hydride generation with a graphite furnace. Other ICP-MS approaches can also be taken which minimize such interference; however, as discussed above, owner/operators must use analytical methodologies which correct for this interference.

In respect to other monitoring results, EPA is particularly interested in the results from any PAH analysis. The group of 16 PAHs required by the 2013 VGP is customarily analyzed and measured as individual chemicals, but in the IMO Guidelines the washwater criteria for PAH is set in "phenanthrene equivalents". The rationale for this seems to be that measuring PAH is a surrogate for hydrocarbons and phenanthrene was found to be the most abundant PAH in the analysis of washwater during trials on vessel *Pride of Kent*. Hence, EPA is requiring analytical monitoring of all PAH compounds to ensure that the discharge of PAHs from these compounds does not pose unacceptable risks to receiving waters.

In order to maximize consistency with the IMO guidelines for exhaust gas cleaning systems, today's permit includes a revised discharge standard for washwater from the exhaust gas scrubber treatment system for pH from that proposed in the draft VGP. EPA believes the revised limit is both technically feasible and will ensure the discharge does not pose an unacceptable risk to receiving water. The revised standard requires that the discharge washwater must have a pH of no less than 6.0 measured at the ship's overboard discharge. The proposed limit of no less than 6.5 was modified to better align with the IMO guideline. The IMO guideline includes the following two provisions regarding discharge limits of pH from exhaust gas scrubber washwater:

1. The discharge washwater should have a pH of no less than 6.5 measured at the ship's overboard discharge with the exception that during maneuvering and transit, a maximum difference of 2 pH is allowed between the ship's inlet and overboard discharge; or

2. During commissioning of the unit(s) after installation, the discharged washwater plume should be measured externally from the ship (at rest in a harbor) and the

discharge pH at the ship's overboard pH monitoring point will be recorded when the plume at a distance of 4 meters from the discharge point equals or exceeds a pH of 6.5. This discharge pH, which is found to achieve a minimum pH of 6.5 in the washwater plume 4 meters from the ship, will become the overboard pH discharge limit. (Resolution MEPC.184(59)).

In the proposed permit, EPA included the first provision of the IMO guideline but did not include the second provision. Several commenters had concerns with not including the second approach, claiming this was imposing a more stringent standard than is currently required internationally. When issuing NPDES permits, EPA typically, for the purposes of compliance monitoring, applies discharge limitations at either 1) the point of discharge into waters of the U.S. or 2) at some point within the control of the permittee. Furthermore, EPA typically requires that the sampling is representative of the monitored activity. Thus, the second provision of the IMO guideline, as written, is inconsistent with that approach. Additionally, EPA believes that it is impracticable to require vessel owner/operators to monitor four meters from their vessel hull on a regular basis – hence, assuring compliance with these numeric limits in the permit would be challenging. However, EPA is interested in maximizing consistency with international standards where the Agency believes that they are reflective of BAT and that those standards protect applicable water quality criteria.

Therefore, EPA has changed the pH limit from 6.5 to 6.0 applied at the point of discharge in order to maximize consistency with the IMO guideline by accounting for some pH buffering likely to occur within the 4 meter range. EPA notes that the lower bound limit of 6.0 is consistent with the BAT analyses developed in effluent guidelines for the vast majority of other industry sectors. These technology based limits provide an acceptable range of 6.0 – 9.0 for pH (e.g., see 40 CFR parts 402, 419, 434, etc.). Also, the permit limit continues to include the additional provision, consistent with the IMO guideline, that the maximum difference allowed between inlet and outlet during maneuvering and transit is 2.0 pH units.

Based on existing monitoring data provided from the trials conducted on the *Zaandam, Pride of Kent* and *Suula*, EPA believes it is reasonable to expect that a properly functioning system can achieve a pH of no less than 6.0 for their washwater discharger. The trial data indicates that the pH of the washwater discharge can range from 5.4 to 7.65 after treatment. The lower bound of the range was measured from the *Zaandam* where it was noted that problems with pumps reduced the flow rates in the scrubber system. The same system, however, also demonstrated higher discharge pH values while in Alaskan coastal waters in 2008 where the mean discharge pH was 6.3. The increase in pH was achieved by raising the volume of reaction water being blended with washwater and lower engine loads. The trial conducted on the *Pride of Kent* included samples taken downstream from the scrubbers, prior to blending with reaction water. The pH values from the untreated washwater ranged from 2.67 to 3.79. However, after blending the washwater with the reaction water, the lowest pH measured in the overboard discharge was 6.15.The trials conducted on the *Suula*, included the addition of sodium hydroxide (NaOH) to the scrubbing water circulation to maintain the process pH and the efficiency of SOx removal. The pH of the discharge was maintained at a value of 7.65. (US EPA, 2011f). Based upon these monitoring data, existing exhaust gas scrubber systems can meet a pH limit of 6.0 at the point of overboard discharge, and therefore, systems are available which can meet the limit.

Therefore, the adjusted limit reflects best available technology and remains substantially similar to an existing international standard.

EPA believes the revised limit will continue to ensure the discharge does not pose unacceptable risks to receiving waters. In addition, given the variability of pH between freshwater and saltwater, the maximum allowed difference of 2.0 units of pH will provide additional assurance that the washwater discharge does not have an adverse impact on the receiving water. For example, the mean pH of ocean surface waters ranges between 7.9 and 8.3. (Bindoff, 2007). For discharges occurring in waters at the higher end of that range (8.3), the washwater discharge pH cannot be below 2.0 units less than the intake, in this case a pH of no less than 6.3. Discharges that occur in fresh or brackish water, which tends to have a lower pH, will be subject to the lower limit of no less than 6.0. For example, the Chesapeake Bay watershed has an ambient pH range of 7.0-8.5. (Waldbusser, 2011). In this case, a washwater discharge would be subject to a pH of no less than 6.0 to 6.5, depending on pH of the receiving water. Therefore, the pH discharge limitations established in this permit will provide reasonable assurance that the discharge will not pose an unacceptable risk to the water quality of the receiving water.

Reporting of both continuous and periodic monitoring of parameters listed in 2.2.26.2.2 and 2.2.26.2.3 is necessary to assure compliance with the permit's limits for this discharge, and will provide EPA with data representative of the discharge being monitored. <u>See</u> 40 CFR 122.48(b). Vessel owner/operators must submit all monitoring results to EPA annually through EPA's e-Reporting system, unless exempted from electronic reporting consistent with Part 1.14 of the VGP.

Additionally, the 2013 VGP retains from the 2008 VGP other requirements to assure that exhaust gas scrubber discharges are consistent with existing US law. Vessel owner/operators must follow all existing regulations, including the prohibition against the discharge of oil, including oily mixtures, in quantities that may be harmful as defined in 40 CFR Part 110. In addition, sludge generated from exhaust gas scrubber washwater may not be discharged in waters subject to this permit.

4.4.27 Fish Hold Effluent

Commercial fishing vessels use different methods to keep seafood fresh after catch. Most seafood is either dead when brought onboard or is killed shortly thereafter, before being stored in a refrigerated seawater holding tank, with the exception of certain shellfish (e.g., crab, lobster), which must be kept alive. The two most common methods of cooling seawater are by mechanical refrigeration or by adding ice. Mechanical refrigeration is common on tenders, purse seiners, and some trawlers, while chipped and slurry ice tanks are more common on trollers, longliners, gillnetters, and some other trawlers.

Fish holds are also often cleaned or disinfected by vessel crews between catches. To rinse the tank, vessel crews use either dockside municipal water supply or surrounding ambient water. Cleaning may simply involve rinsing the tanks, or crews also sometimes add detergents or disinfectants. Crews often use scrub brushes to clean the walls and floor of the fish hold to maximize the removal of organic material. Therefore, fish hold cleaning results in a combination of residual fish hold water and ambient or municipal water and often contains soaps or detergents.

In addition to the pollutants from fish hold cleaning, fish hold effluent also may contain waste fish parts or other materials generated by fish cleaning, unused bait, solids, oils, nutrients, bacteria, and viruses. Fish hold effluent may create scum and foam, produce a visible slick or sheen on surface waters, generate odors, and exert oxygen demand in receiving waters. This discharge also has the potential to introduce ANS into receiving waters.

EPA's 2010 "Study of Discharges Incidental to the Normal Operation of Commercial Fishing Vessels and Other Non-recreational Vessels Less Than 79 feet" concluded that impacts from individual small vessels and individual commercial fishing vessels likely have a minimal environmental impact. However, it concluded that "the impacts are potentially significant where there are high vessel concentrations, low circulation in waters, additional environmental stressors, or pollutant loadings from other sources" (US EPA, 2010a). Reducing fish hold effluent discharges when in port will reduce the amount of fish hold effluent discharged into these particular areas of concern, which might address some of the potential impacts EPA discussed above.

The effluent limits in Part 2.2.27 in the 2013 VGP are common practices that are easily implemented by vessel owner/operators and are designed to reduce the volume of fish hold effluent discharged into sensitive water bodies and to reduce the adverse environmental impact fish hold effluent that is discharged. The requirement to physically separate excess fish waste from fish hold effluent prior to discharge is intended to reduce the volume and concentration of the discharge. Use of physical separation techniques or equipment is consistent with existing fishing vessel practices. For example, most vessels have coarse filters (with screens ½ inch or smaller) to keep solid fish waste from being discharged with liquid effluent (US EPA, 2011g). Another way that vessel operators remove solids is through use of a De-Watering Box (DWB) or Wetpump Separator, which serve as a physical separation barrier. A DWB is standard commercial fishing industry chamber-type separation equipment used by vessel owners and processing plants to separate fishery products from the vessel's chilled seawater. The fish hold contents are pumped directly from the vessel into the DWB chamber by conveyor belt and across a screen grate to separate seawater and organic matter. Screening large solid material from any fish hold effluent discharged overboard will help protect water quality in nearshore waters by limiting the spread of ANS and reducing oxygen demand, odor, nutrients, and any pathogens in unused bait and fish solids.

Discharging fish hold effluent to an available shore-based discharge facility when in port will reduce the amount of fish hold effluent discharged into these nearshore waters. When vessel operators are evaluating whether the facilities are available, factors they should consider include whether the facility has been designed to receive fish hold effluent; whether the vessel and the facility have the infrastructure to transfer the effluent; and whether the transfer would not unduly delay the departure of the fishing vessel. In the absence of available shore-based facilities, use of physical separation techniques or equipment, such as use of DWBs, will assist in protecting nearshore waters, and these approaches can be used to meet the requirements of the VGP. With use of a DWB, after physical separation and wherever possible, the chilled seawater is collected and re-circulated back to the vessel for disposal at sea, or is pumped into the plant's waste water system [At sea disposal, however, must be outside of harbors or other protected and enclosed coastal waters, and outside of other areas where EPA has found that such deposits could endanger health, the environment, or ecological systems in a specific location under the Marine Protection, Research and Sanctuaries Act, 33 U.S.C 1412(d). At sea disposal of such fish wastes at such locations requires a permit under that statute.] When these alternatives are not available, the fish hold effluent that passes through the separation barrier is discharged at the pier. For purposes of the VGP a vessel at a pier may discharge fish hold effluent and fish hold cleaning effluent consisting of refrigerated seawater, provided the water and fishery products (incl. organic matter) are physically separated using a de-watering box-type or similar separation technique, or by screening the outflow valve in the fish hold if shore based facilities are not available.

The onshore treatment provisions are not applicable to discharges from pumped through holding tanks used for the sole purpose of keeping the catch alive before being immediately discharged (e.g., holding tanks on crabbing/lobster vessels). The effluent from this latter type of vessel, which involves the pumping of continuous "once through" ambient water, is less likely to have accumulated the type and volume of biological wastes that otherwise is removed under this permit limitation.

This permit also prohibits discarding unused live bait overboard, unless the bait was caught in that waterbody or watershed. The release of live bait is suspected as having introduced invasive species into new waters. For instance, both the European green crab (*Carcinus maenas*) and the rough periwinkle snail (*Littorina saxatilis*) may have been introduced to the San Francisco Bay as a result of the release of live bait (Cohen et al., 1995). The discharge of all other unused bait overboard is strongly discouraged unless the bait was caught in the same water body or watershed. For purposes of the VGP and this requirement, the term "fish hold" means the area on the vessel where both catch and/or bait are stored. Although the term "waterbody" is not defined in the permit, a rational understanding of the term may be implied, to include a lake, river segment, or reasonably proximate area of ocean. For purposes of these permits, the entire Pacific Ocean should not be considered one waterbody, but regions of an ocean where the ecosystem and species found are similar could be regarded as part of the same waterbody. The prohibition on the discharge of unused live bait will help to prevent the spread or dispersal of potentially invasive species if the bait are invasive species or are contaminated with invasive pathogens. Finally, in Part 5.1.1.1.3 of the 2013 VGP, EPA has required that any cleaners or detergents used to clean the fish hold must be phosphate-free, minimally-toxic, and biodegradable. This Part applies to the cleaning of fish holds. Use of these products will reduce the impacts from fish hold effluent cleaning into surrounding waters.

4.5. Additional Water Quality-Based Effluent Limits (Part 2.3)

This permit includes water quality-based effluent limits (WQBELs) to control discharges as stringently as necessary to meet applicable water quality standards. The provisions of Part 2.3 of the permit constitute additional WQBELs for this permit, and supplement the permit's technology-based effluent limits in Parts 2.1, 2.2, and 5 (where applicable). Where the implementation of the technology-based requirements in this permit are not sufficient to meet the applicable receiving water's water quality standards, the permittee may be subject to further WQBELs. Prior to or after permit issuance and authorization to discharge, EPA may require additional WQBELs on a site-specific basis, or require the permittee to obtain coverage under an individual permit, if information in the NOI, required reports, or from other sources indicates that, after meeting the technology-based limits in Parts 2.1, 2.2, and 5 (where applicable) and the WQBELs in Part 2.3, the facility is causing or contributing to an excursion above water quality standards.[39]

Part 2.3 includes the permit limits that are as stringent as necessary to achieve water quality standards, consistent with CWA section 301(b)(1)(C) and 122.44(d)(1). EPA generally expects that vessels that achieve the permit's technology-based limits through the careful implementation of effective pollution control measures and BMPs are likely to already be controlling their vessel discharges to a degree that would make additional water quality-based controls unnecessary. However, to ensure that this is the case, the permit contains additional conditions, which, in combination with the BAT/BPT/BCT limits in this permit, EPA expects to be as stringent as necessary to achieve water quality standards.

EPA notes that the WQBELs included in this permit are non-numeric. EPA relies on a narrative expression of the need to control discharges as necessary to meet applicable water quality standards, and to employ additional controls where necessary to be consistent with applicable WLAs in an approved or established TMDL or to comply with a State or Tribe's antidegradation policies. This is a reasonable approach for this permit because EPA has determined that it is infeasible to calculate numeric water quality based effluent limits for most vessel discharges at this time. EPA reached this determination primarily based on the mobile nature of vessels used in a capacity of transportation. With thousands of water bodies across the country, and the potential for any vessel to discharge into almost any water, it is infeasible for EPA to calculate numeric limits for each vessel for each water body at this time. Furthermore, establishing numeric water quality based limits poses many of the same challenges that EPA faced in setting technology-based discharge limits.

As mentioned, this permit requires that each permittee must control its discharge as necessary to meet applicable water quality standards. EPA generally expects that compliance with the other conditions in this permit (e.g., the technology-based limits, corrective actions, etc.) will result in discharges that are controlled as necessary to meet applicable water quality standards. If the permittee becomes aware, or EPA determines, that the discharge causes or contributes to a standards exceedance, corrective actions and EPA notification are required. In addition, at any time EPA may impose additional, more stringent WQBELs on a site-specific basis, or require an individual permit, if information suggests that the discharge is not controlled as necessary to meet applicable water quality standards. The language in Part 2.3 affirms the permittee's requirement to control its discharges as stringently as necessary to meet applicable water quality standards. EPA reserves the authority to require more stringent requirements where necessary to meet applicable standards, or, alternatively, to require the permittee to apply for an individual permit.

[39] In using the phrase "excursion above," the permit tracks the language in 40 CFR 122.44(d)(1). There are some instances, however, where pollutants would cause nonattainment of the applicable criterion by lowering the water quality *below* the criterion, as with dissolved oxygen. In such situations, such lowering would be considered an "excursion above" within the meaning of the permit condition.

The purpose of Part 2.3.2 is to include a definition for "impaired waters" so that the scope of the requirements in 2.3.2 can be more readily understood by permittees. Part 2.3.2 defines "impaired waters" as those which have been identified by a State or EPA pursuant to section 303(d) of the Clean Water Act as not meeting applicable State water quality standards. This may include both waters with approved or established TMDLs, and those for which a TMDL has not yet been approved or established. The permit contains additional provisions for vessels discharging pollutants that have the reasonable potential to cause or contribute to an impairment of those specified waters.

Part 2.3.2.1 reiterates that if a vessel discharges to an impaired water without an EPA-approved or established TMDL, EPA can provide the permittee with additional requirements with which to comply. EPA can also impose additional requirements on discharges that are not directly to an impaired water if they cause or contribute to an exceedance in another water body affected by the discharge.

Part 2.3.2.2 outlines the process for imposing additional requirements on permittees when they discharge into waters that have a waste load allocation (WLA) assigned to vessels. During the term of the permit, EPA may inform the owner/operator if such a WLA has been established that applies to their vessel discharges. In addition to requiring permittees to comply with the conditions of the WLA, EPA will also assess whether any more stringent requirements are necessary to comply with the WLA, whether compliance with the permit's existing requirements is sufficient to comply with the WLA, or whether the owner/operator must apply for individual permit coverage (see part 1.8.1).

5. CORRECTIVE ACTIONS (PART 3)

5.1. PURPOSE OF CORRECTIVE ACTION SCHEDULES

The purpose of including a corrective action section in this permit is to assist permittees with effectively meeting effluent limits and implementing the best management practices in this permit. Corrective actions in this permit are follow-up actions a permittee must take to correct problems identified in an inspection; they are a requirement to review and revise control measures and vessel operations to ensure that any problems are eliminated and will not be repeated in the future. The permit makes clear that the permittee is expected to assess why a specific problem has occurred, and document what steps were taken to eliminate the problem. EPA believes this approach will aid vessel owner/operators in reaching compliance with the requirements of the permit quickly. Compliance with many of the permit's requirements, for instance, those related to good housekeeping, reporting, recordkeeping, and some of those related to operation and maintenance requirements can be accomplished immediately, and therefore, are not considered problems that trigger corrective actions.

The permit requires that a corrective action assessment be completed as soon as any of the listed problems are identified. Pursuant to provisions of the permit found in Part 4.2, any problems that constitute violations of permit requirements (instances of noncompliance) must be either noted as part of the vessel's records or reported to EPA. As part of the corrective action assessment found in Part 3.2 of the permit, the owner/operator must give a detailed account of the problem(s) identified, take steps to discover the causes of the problem(s), and outline a schedule for addressing the problem(s). The specific contents of the corrective action assessment are detailed in the permit. This corrective action assessment must be kept with the other recordkeeping documentation required by this permit.

Part 3.3 of the permit outlines types of problems that trigger the need for corrective action and stipulates time periods for implementing actions to remedy deficiencies and violations. EPA emphasizes that these time frames are not grace periods within which an operator is relieved of any liability for a permit violation. When any of the listed problems are identified, such as discovery that effluent limits are being violated, the owner/operator must take steps to ensure the problems causing the violations are eliminated. If the original inadequacy constitutes a permit violation, then that violation is not excused by the time frame EPA has allotted for corrective action, although EPA will consider the timeliness and appropriateness of the corrective action in determining an appropriate response to the violation. EPA assumes that vessel owner/operators will need less time to make minor repairs or change shipboard practices than to make substantial renovation or repair. Time limits are included specifically so that problems are not allowed to persist indefinitely. Failure to take the necessary corrective action within the stipulated time limit constitutes an additional and independent permit violation. The three deadlines for corrective actions are based on how extensive the corrections are. For example:

- A minor adjustment may include altering practices for material or equipment storage that cause contamination during a precipitation or high wave event. Corrective actions to address the underlying cause of the noncompliance and return to compliance and/or complete necessary adjustments or repairs to prevent these effluent violations in the future must be implemented as soon as possible but no more than 2 weeks after the discovery of the problem. For example, if materials caused contamination of the deck washdown water, or bilgewater containing emulsifiers, detergents, or other additives was discharged, then violations have occurred. For a vessel that will leave waters subject to this permit within 2 weeks of discovering the problem, corrective actions must be taken either within 2 weeks after the discovery of the problem, or prior to re-entering waters subject to this permit, whichever is later.
- A major adjustment may include drips or spills from leaky infrastructure, or operations that cause violations, but can be repaired or corrected without the vessel being put into dry dock. These adjustments or repairs could include fixing leaking pipe connections or seals that allow oil or other contaminants to reach discharges; installation of drip pans to prevent equipment spills or machinery area runoff from reaching deck washdown effluent; or requiring additional training of crew on correct compliance procedures if vessel activities are not in compliance with the permit.

  Major adjustments must be made within 3 months. EPA believes that this allows sufficient time to locate the parts or personnel to make the repair or complete the correction. During the period immediately following the initial violation and before the corrective action has been completed, the vessel operator must make every effort to reduce potential environmental harm. If longer than 3 months is required, the appropriate EPA regional office must be notified of why the additional time is needed and a date when the correction is anticipated to be completed. This information must be recorded in the vessel's recordkeeping documentation. For a vessel that will leave waters subject to this permit within 3 months of discovering the problem, corrective actions must be taken either within 3 months after the discovery of the problem, or prior to re-entering waters subject to this permit, whichever is later.

- A major renovation is one that can only be performed in dry dock. This may include such modifications as replumbing waste lines, rerouting drains, or installation of additional holding capacity for select discharge types; or overcoating or removal of TBT on vessels previously coated with this anti-fouling hull coating.

  Major renovations must be accomplished during the next available or scheduled opportunity for dry dock renovations. An owner/operator that has a vessel that is in dry dock after incurring a violation that does not take corrective action to alleviate the identified problem will be in violation of the corrective actions section of the permit for every occurrence or discharge after re-launching the vessel (in addition to any original violations prior to going into drydock). All vessels will need to begin complying with its terms on December 19, 2013; hence vessel operators should consider implementing plans as soon as possible to make necessary renovations or repairs part of their current dry dock scheduling.

EPA will consider the appropriateness and promptness of corrective action in determining enforcement responses to permit violations.

6. INSPECTIONS, MONITORING, REPORTING, RECORDKEEPING (PART 4)

Pursuant to CWA section 308 and 402(a)(2), 40 CFR 122.43(a), and other applicable implementing regulations, the following requirements have been included in the permit, as discussed below.

6.1. SELF-INSPECTIONS AND MONITORING (PART 4.1)

Vessel self-inspections are required as a means of identifying, for example, sources of spills, broken pollution prevention equipment, or other situations that are or might lead to permit violations and allow the owner/operator to correct the situation as soon as possible. The permit requires self-inspections so that the owner or operator can diagnose and fix problems to remain compliant with the permit. These self-inspections can and must be conducted while the vessel is underway as well as while in port, and are designed to fit easily into other, already established vessel routines. For instance, the permit allows the routine visual inspections to be conducted as part of an existing (or updated) international safety management (ISM) code safety management system (SMS) plan, as long as all the permit requirements are met.

The routine visual inspections required by the permit are reasonable measures of good marine practice that the prudent mariner is already employing to ensure vessel, crew, and environmental health and safety. Inspections must be conducted at least once per week or once per voyage, whichever is more frequent, except that vessels that engage in multiple voyages per day are required to inspect daily, rather than on every voyage. If the vessel hull is not readily visible, it should be inspected when feasible, particularly the portions of the hull above the water line at any given time. During the implementation of the 2008 VGP, EPA developed a “Q & A” to address the frequently asked question of what constitutes a "voyage" under this Part. We repeat the answer to that question below.

For the purposes of VGP section 4.1.1 (including its routine visual inspection provisions), a voyage is generally considered to begin when the vessel departs a dock or other location at which it has loaded or unloaded (in whole or in part) cargo or passengers, and to end after it has tied-up at another dock or location in order to again conduct either of such activities. For example, for a barge on the Mississippi River, such voyage would begin when it departs a location at which it has cargo loaded onto it and end when cargo is unloaded at another location.

EPA has made one substantive change to section 4.1, which is intended to provide some additional flexibility to vessel owner/operators while still meeting the objectives of the self-inspection requirements. Specifically, the permit provides that in situations where multiple voyages occur within a one week period, for example a barge that makes daily voyages (i.e., it conducts cargo operations at a different port every day), the vessel operator may employ a limited visual inspection that targets only those areas that may have been affected by activities related to docking and cargo operations that day. For example, for a vessel that only conducted cargo operations involving one compartment or hold onboard that vessel, the limited visual inspection need only be targeted to that compartment or hold and any appurtenant equipment, e.g., piping and pumps, used that day. The use of such targeted intra-week visual inspections does not in any way serve to relieve permittees of the VGP's minimum requirement that a comprehensive visual inspection be conducted at least once per week. For vessels such as mobile oil and gas rigs, which are in a mode of transportation only when relocating between drill sites, a voyage for purposes of VGP section 4.1.1 is generally considered to begin when the rig departs one site and to end when it arrives at the new site to commence operations which are not transportation-oriented, such as drilling.

For vessels such as harbor tugs, which may be in semi-continuous operation for up to a week within the same harbor and do not carry passengers or cargo, for purposes of VGP section 4.1.1, a voyage is generally considered to begin when the crew or master take charge of the vessel and to end when that crew or master are replaced by another crew or master, at which point a new voyage would begin due to the arrival of the new crew or master. For example, if crew changes occur every seven days on a harbor tug, the voyage begins with crew arrival, ends on day seven with departure of that crew, and a new voyage begins on day seven with arrival of the new crew. A routine visual inspection thus would be necessary during the tenure of the initial crew and also during tenure of the new crew.

Discussion

Section 4.1.1 of EPA's Vessel General Permit (VGP) provides that at least once per week or once per "voyage," whichever is more frequent (but not more than once per day), permittees must conduct a visual inspection of safely accessible deck and cargo areas and all accessible areas where chemicals, oils, dry cargo or other materials are stored, mixed, and used, as well as verifying that monitoring, training, and inspections are logged according to VGP requirements. The routine visual inspections under this VGP section were intended to be measures of good marine practice that the prudent mariner is already employing to ensure vessel, crew, and environmental health and safety (see VGP Fact Sheet section 6.1).

The term “voyage” was previously not defined in the VGP, nor does it have a single clearly understood meaning in the maritime context (see generally, discussion of maritime law “voyage” definitions at http://www.duhaime.org/LegalDictionary/V/Voyage.aspx). In general usage, the term voyage involves a trip by water of some duration (see Webster's New World College Dictionary (4th Ed.), defining “voyage” as “a relatively long journey or passage by water or, formerly, by land”). The lack of a clear commonly understood definition has resulted in questions as to how VGP section 4.1.1 (which uses the term “voyage” as a trigger for some of its requirements) is to be interpreted.

EPA has interpreted the term “voyage” for purposes of VGP section 4.1.1 in order to provide clarity as to when its obligations are triggered. For each situation addressed in the above answer, the analysis began with the general understanding of the term voyage to mean a trip by water of some duration, and for the need to provide easily recognizable discrete beginning and end points so as to clarify what constitutes a “voyage.” EPA’s interpretation was developed taking into account a variety of underlying vessel usages and the underlying purpose of the visual inspection requirement – to ensure that such inspection occurs when conditions on the vessel have changed in a way that might implicate vessel discharges.

Accordingly, the “general” interpretation, which addresses vessels used in carrying cargo or passengers, takes into account the movement of cargo or passengers onto or off the vessel in defining “voyage.” Such an approach ensures that an inspection occurs after a vessel departs following loading or unloading cargo or passengers, as those operations can result in, for example, spillage of cargo material or discarding of rubbish on deck or discharge into the water. For vessels that do not engage in such activities, we necessarily looked to other logical beginning and endpoints to use in defining “voyage,” as set out in the second and third paragraph of the answer above. While we generally interpret “voyage” as described above, there are certain classes of vessels where such a definition does not work and, therefore, EPA interprets the terms differently for such vessels as set out in the following paragraph.

Vessels that shift in and out of use as a means of transportation (such as mobile drilling rigs) are operating in a capacity as a means of transportation when moving between sites, and therefore are covered by the VGP during that period, but not when operating in their industrial capacity as a drilling rig (see VGP Fact Sheet section 3.5.2.1 for further discussion). The transition from industrial mode to transportation mode is a change in operation that may affect the nature and characteristics of discharges such that a visual inspection is prudent. Thus, for such vessels we interpret “voyage” in paragraph 2 of the answer above in terms of departure from one site and arrival at a new site to commence non-transportation activities. Harbor tugs, which operate within harbor confines and also do not carry cargo or passengers, are addressed in paragraph 3 of the answer above, which uses the instance of a new crew or master taking over operation of the vessel to determine when a “voyage” begins and ends. This change was chosen as a trigger because, in addition to being a readily identifiable discrete event, it also will result in a visual inspection being performed by incoming sets of crew, thereby ensuring that they become familiar with conditions on the vessel that may implicate vessel discharges.

Lastly, we note the interpretation of “voyage” does not in any way serve to relieve permittees of the VGP’s minimum requirement that visual inspection be conducted at least once per week. See VGP section 4.1.1 (stating visual inspections must be conducted at least once per week or per voyage, whichever is more frequent).

Each routine visual inspection must be noted in the official logbook or other recordkeeping documentation, signed by the person conducting the inspection, and must include basic information relating to the inspection. For limited visual inspections, the person conducting the inspection need only initial that the inspections were conducted as an addendum to the documentation of the full "weekly" visual inspection, unless additional potential problems or contamination is found. This documentation establishes a record of inspections conducted for both the owner/operator and EPA to track compliance with the permit. The record can help the owner/operator track which areas of the vessel cause more permit violations or hold the most potential pollution problems. By being aware of and focusing on these areas, the owner or operator can change or establish onboard procedures to make permit compliance easier.

For today's permit, EPA has included provisions allowing for the use of Extended Unmanned Period (EUP) Inspections in lieu of routine visual inspections and other monitoring requirements (e.g., ballast water treatment system functional monitoring) in limited circumstances. EPA included these provisions to better address the unique circumstances of owner/operators of unmanned barges. These inspections may also be used when a vessel enters an extended unmanned period. A vessel is considered to be in an EUP if the vessel is unmanned, fleeted, jacked-up, or otherwise has its navigation systems and main propulsion shut down (e.g., extended lay-up) for 13 days or greater. The EUP inspection is an alternative inspection for fleeted, jacked-up, or similarly situated vessels, which routinely go into temporary or extended periods of lay-up.

A vessel owner/operator or their authorized representative may conduct EUPs in lieu of routine visual inspections if they are up-to-date with all other inspection and reporting requirements found in Part 4 of this permit (including routine and annual inspections) and the vessel owner/operator must not have received any VGP related notices of violation from EPA or its authorized representative or faced any VGP-related enforcement action from EPA within the previous 24 months. EPA has included this provision so that it can ensure that vessel owners/operators previously cited for violations are appropriately implementing the terms of the permit. Self-reported violations do not disqualify a vessel for EUPs, unless EPA notifies the vessel owner to the contrary.

The EUP inspection consists of three primary components: a pre lay-up inspection, a periodic external observation of the vessel and surrounding waters, and a post lay-up routine visual inspection. Additionally, while a vessel is in EUP, only the monitoring and inspection requirements specified in Part 4.1.1.2 will be applicable to the vessel. Once a vessel reenters service and is no longer considered to be in EUP, all applicable monitoring and inspection requirements apply. EPA designed the pre lay-up inspection so that the owner/operator can assure that vessel is in good operating order, there are no leaks or loose materials that may enter any waste stream or be discharged, and that the vessel does not pose an environmental risk while it is unmanned. The periodic external observation of the vessel and surrounding waters is to make sure the vessel continues to not pose an environmental risk, the vessel is adequately secured, and no pollutants (including oily mixtures) are present in surrounding waters which might have originated from that vessel. If any deficiencies are observed while the vessel is in

EUP, the vessel owner/operator must document those deficiencies and take corrective actions to resolve those deficiencies as appropriate. The post lay-up routine inspection is designed to be sure that all terms of the VGP continue to be met before the vessel re-enters active service. As part of this inspection, the owner/operator must document the date the EUP ended, whether fluids (e.g., fuel, ballast water) are at their pre EUP levels, and whether any spills or leaks of oily materials are observed. Any noted deficiencies must be corrected before the vessel re-enters service.

The comprehensive annual inspection requirements include a more detailed, thorough inspection of areas of the vessel that are difficult to inspect on a more regular basis, such as the vessel hull. However, the annual inspection does not require the vessel be placed into drydock. Areas of the vessel that cannot be safely inspected without placing the vessel in drydock should be inspected and documented during the next scheduled drydocking period. The owner/operator should note in the annual inspection report which areas are able to be inspected during drydock only. Annual inspection of these areas ensures they are inspected frequently enough to identify and correct problems. In addition, the annual review of all inspection and monitoring data highlights problem areas of the vessel that may need additional attention. This allows the Master, owner, or operator to establish and implement additional procedures applicable to problem areas to reduce future problems. Additionally, the annual inspection requires that all pollution control equipment be inspected to ensure it is functioning properly. This requirement provides a reminder and opportunity to complete maintenance activities on onboard equipment. Based on public comments, the annual inspection requirements were revised to specify that the areas of inspection include the "vessel hull, including niche areas, for fouling organisms..." The term "niche areas" was included to be consistent with the international inspection guidelines "2011 Guidelines for the Control and Management of Ships' Biofouling to Minimize the Transfer of Invasive Aquatic Species" established in resolution MEPC.207(62).

Owners/operators may use applicable portions of the results from the annual inspections conducted by the Coast Guard or the classification society to meet some requirements of the annual inspection. For example, if the Coast Guard examines the oily water separator, then the owner may note in their inspection report that the Coast Guard had completed the inspection and they would not be required to inspect it again. However, for portions of the vessel that are not inspected by the Coast Guard or classification society for environmental performance, the owner/operator must conduct an inspection to be sure that the vessel is meeting requirements of this permit. Regardless of who conducts the inspections, the owner/operator is responsible for a thorough inspection being conducted and taking corrective actions based on that inspection. If the owner/operator is unsure of the quality of inspections that they will use to fulfill their annual inspection requirement under this permit, EPA strongly recommends they use their own personnel to conduct the full inspection. The owner/operator is ultimately responsible for completion of this requirement.

Each annual inspection must be recorded in the official logbook or other recordkeeping documentation, signed by the person conducting the inspection, and must include basic information relating to the inspection and any corrective actions taken as a result of inspection findings.

6.2. DRYDOCKING INSPECTION REPORTS (PART 4.1.4)

Many class societies and the United States Coast Guard require that the vessel operator conduct drydock inspections before relaunching the vessel. Based on discussion with technical experts, EPA assumes most, if not all vessels currently must undergo drydock inspections. When a vessel is in drydock, it is much easier to access a wide range of areas on the vessel that are not easily accessible while the vessel is in water. The thorough examination of the vessel that occurs while it is in drydock provides owners/operators with an additional opportunity to implement the permit's requirements. For example, cleaning the vessel hull of attached organisms is much easier in drydock, and is safer for the environment because any attached organisms can be properly disposed of away from water, minimizing the risk of an introduction of ANS. For any drydock report, the permit requires that it include confirmation that the chain locker, hull, and cathodic protection have been inspected and cleaned, that anti-fouling hull coatings are maintained and applied in accordance with the permit's requirements, and that all pollution control equipment is maintained and properly functioning. In instances where vessel owners/operators have drydock reports conducted by the applicable class society or the Coast Guard, or where the vessel operators prepare another drydock inspection report, the permit requires the owner/operator to make such reports available to EPA or an authorized representative of EPA upon request.

6.3. RECORDKEEPING REQUIREMENTS (PARTS 4.2 AND 4.3)

Written records are useful tools for both the vessel owner or operator and EPA. They allow an owner or operator to assess their own permit compliance by providing an easy way to reference permit requirements that have been met, as well as a way to identify troublesome areas of the vessel that cause more pollution-related issues. They also allow EPA to assess permit compliance. By identifying which areas consistently require more cleaning or repair work, the owner or operator can establish and implement procedures specifically designed to minimize pollution and streamline cleaning and maintenance efforts in those areas.

Much of the information that must be recorded under the permit is the same as the information that is required of vessels equipped with ballast tanks bound for a port or place in the United States by the Coast Guard Regulations at 33 CFR §151.2045. This basic information allows the identification of the vessel, the vessel's travels and itineraries, and responsible parties. While the Coast Guard regulation applies only to vessels with ballast tanks, the requirements of the permit apply to all vessels covered by the permit, whether they have ballast water tanks or not. By using the existing vessel recordkeeping requirements as a framework into which the recordkeeping requirements of the permit fit, EPA has attempted to streamline the requirements, make compliance with the permit simple, and do so without imposing significant additional paperwork on vessel owners and operators. Streamlining the paperwork and recordkeeping requirements (for vessels also covered under Coast Guard regulations) increases compliance and allows EPA to achieve both permit enforcement and environmental protection goals.

The information to be recorded is intended to be simple, basic, and straightforward. There are no specific forms to fill out or file; a permittee need only keep one brief record of each inspection, noting when and how it was completed and any relevant information discovered during the inspection. Inspection records must be kept on the vessel or accompanying tug and may be kept in any form provided they can be made available to the EPA. Examples include the ship's official logbook, the oil record book, shipboard oil pollution emergency plan or other official vessel recordkeeping documentation. There do not need to be multiple copies of the records. Additional requirements include a record of maintenance of specific pieces of equipment that cause discharges covered under the permit and a record of each incidence where a discharge occurs pursuant to a safety or emergency exception (e.g., bilge water 2.2.2, AFFF 2.2.5, boiler blowdown 2.2.6, elevator pit 2.2.11, firemain 2.2.12). This can assist in troubleshooting any future pollution problems by showing how often maintenance was performed, what maintenance or repairs were completed, and how often and under what circumstances emergency exceptions were invoked.

This permit contains provisions reinforcing reportable release requirements. The permit specifically does not allow the discharge of hazardous substances or oil in excess of reportable quantities, even if they are associated with the normal operation of a vessel. This provision has been included to clarify that the permit is not authorizing any reportable quantity releases of any material that were not authorized before issuance of this permit. These spills must be reported as required under 40 CFR Part 110 and 40 CFR Part 117.

Vessels equipped with ballast water tanks are required by the permit to meet the requirements of 33 CFR 151.2045. This requirement applies both to vessels that are already subject to these Coast Guard regulations and to vessels that are not. The USCG regulations establish a recordkeeping system to collect information related to ballast water capacity, uptakes, exchanges, and discharges. In addition, like the 2008 VGP, the 2013 VGP requires the ballast water exchange and saltwater flushing requirements for vessels with ballast water tanks. These vessels that conduct saltwater flushing must note that fact on the Ballast Water Reporting Form, which is found in the Appendix to 33 CFR Part 151, Subpart D. Furthermore, in order to close an information gap in ballast water reporting, crude oil tankers engaged in the Coast Wise trade are also required to submit their ballast water reporting forms to the NBIC as a requirement of this permit.

6.3.1 Electronic Records

Recordkeeping technology is a rapidly changing field. Many vessel operators are increasingly using electronic record keeping systems to create and maintain required records, using software, electronic forms and onboard computer terminals that collect and transmit data electronically to shoreside databases for collection and storage.

For the 2008 VGP, EPA interpreted the permit's recordkeeping provisions to allow for owners/operators to use electronic recordkeeping systems to meet the requirements that "written" records be kept "on the vessel," if those records satisfy the requirements in part 4.2 of the permit, which are designed to ensure that the records are: in a format that can be read in a similar manner as a paper record, legally dependable with no less evidentiary value than their paper equivalent, and accessible to the inspector during an inspection to the same extent as a paper copy stored on the vessel would be. In order to clarify for the purposes of this iteration of the VGP, EPA has explicitly included appropriate factors in Part 4.2 of the permit, and provides further guidance below:

(1) Readability/Legal Dependability

EPA expects the requirements of an electronic recordkeeping system in Part 4.2.1 of the VGP would together generally ensure that records created and/or maintained in such systems are readable and legally dependable with no less evidentiary value than their paper equivalent:[40]

a. From the vessel or tug, and from any other point of access to the electronic recordkeeping system, electronic records, including signatures, certifications, and alterations, can be: (i) displayed to EPA, including its authorized representatives, in a format that can be read in a manner similar to a paper record and that associates data with field names or other labels that give the data contained in the record meaning and context (not solely in a computer code or data string), (ii) easily copied for EPA, including its authorized representatives, to review and access at EPA staff computers using non-proprietary software, and (iii) can easily be printed to paper form;

b. Associated metadata in their native format is preserved and available upon request;

c. Electronic records cannot be modified without detection and are preserved in a manner that cannot be altered once created. For example, any changes to an electronic record are automatically and indelibly recorded in a logically associated (i.e., cryptographically bound) audit trail that records each change made without obscuring the data to which the modification is made or its antecedents;

d. The electronic recordkeeping system automatically identifies any person who creates, certifies, or modifies an electronic record using electronic signatures that meet the same signature, authentication, and identity-proofing standards set forth at 40 CFR § 3.2000(b) for electronic reports (including robust second-factor authentication);

e. Originals of any electronic record are immediately and automatically transferred to and held at a single location by a custodian of records who is not an author, certifier, or modifier of the electronic records. The original electronic record is secured in a fashion that protects it from tampering or destruction;

f. The electronic recordkeeping system automatically identifies: 1) the name, address, telephone number and email address for the custodian of records described in "d" above; and 2) the address and owner of the location where the original electronic record is located. The electronic records and their associated metadata remain available and the discharger/permittee can demonstrate that the records have not been changed in any modification of the record-keeping system or migration to a successor record-keeping system;

g. Clear instructions guide users of the electronic record-keeping system in proper use of the system and unambiguously communicate the legal significance of using an electronic signature device; and

[40] EPA notes that it may change this guidance at any time, based upon experience with electronic recordkeeping, or any other new information or considerations.

h. Computer systems (including hardware and software), controls, and attendant documentation that are part of the electronic record-keeping system are readily available for, and subject to, agency inspection.

(2) Accessibility

EPA will generally consider electronic records to be accessible enough to be considered to be stored "on the vessel" when the vessel operator is able to, immediately, upon request, provide to government officials or authorized representatives:

a. Paper or electronic copies of requested records required to be maintained pursuant to the VGP; and

b. Electronic access, using hardware and software available on the vessel or tug, to required VGP records via electronic storage on the vessel or tug, or via direct access to an electronic system of records stored elsewhere, provided that the location of the original record is within the United States.

6.4. REPORTING (PART 4.4)

6.4.1 Annual Report

The Annual Report replaces the annual noncompliance report and one-time report requirements found in the 2008 VGP by consolidating the requirements of the annual noncompliance report and the one-time report into one reporting form. All instances of noncompliance must be reported as part of the Annual Report, instead of separately, as previously required by the 2008 VGP. Previously, there were no parameters for how an annual noncompliance report was to be submitted; the new Annual Report provides a structured format to alleviate frequent concerns from vessel owner/operators and EPA regarding whether sufficient information was submitted. All permittees must submit an Annual Report for each of their vessels (or a combined annual report as allowed; see section 6.4.2 of the fact sheet below for further discussion) – both those permittees with active NOIs for their vessels and covered vessels less than 300 gross tons and having a capacity of less than 8 cubic meters of ballast water operating in U.S. waters. One Annual Report for each vessel is required per calendar year, except for 2013. Any relevant information from 2013 must be reported in the Annual Report for 2014. Annual Reports for a given calendar year must be submitted to EPA no later than February 28 of the following year. As a condition of having active permit coverage, vessels must submit an annual report. However, if they did not operate in waters subject to this permit during that year, they only need complete identifying information in that report and check that they did not operate in those waters. EPA has included this requirement so that Agency does not unnecessarily seek out vessels with active NOI coverage who did not file annual reports because they are not operating in waters subject to the permit.

EPA also advises that vessel owner/operators covered under the 2008 VGP must submit their annual noncompliance reports (if applicable) for the January 1, 2013 to December 18, 2013 time period consistent with the terms of that permit.

6.4.2 Combined Annual Reports for Unmanned, Unpowered Barges or Vessels less than 300 Gross Tons

Based upon experience from implementation of the 2008 VGP, comments from vessel owners/operators expressing a desire to reduce administrative burden where possible because of unique operational constraints, and the new requirements in this permit for EUPs, EPA has determined that it makes sense to streamline the annual reporting process for owners/operators that have several vessels if they meet certain defined criteria. Therefore, this permit allows owners/operators of multiple vessels to submit one Annual Report (known as the "Combined Annual Report") if they meet all of the conditions listed in Part 4.4.2 of the permit. Those conditions are that the answers for each vessel covered by the report must be the same, no analytical monitoring is required for the vessels' discharges, the report will be submitted electronically, and that none of the vessels have had any instances of noncompliance or identified deficiencies in the previous 23 months, and each vessel must have an active NOI to identify it. Vessels that do not meet these requirements cannot be included in the Combined Annual Report.

EPA has authorized a Combined Annual Report for unmanned, unpowered barges and vessels less than 300 gross tons because many of these vessels are fundamentally similar and have a limited number of discharges. Furthermore, vessel owners/operators may have several thousand barges or several vessels less than 300 gross tons with these similar characteristics. Hence, EPA identified this provision as an efficient way to gather the information without sacrificing data quality while minimizing burden on a significant portion of the regulated universe.

Part 4.4.3 of the permit, "Reportable Quantities of Hazardous Substances or Oil" explains that the release of a reportable quantity of any hazardous substance or oil must be reported to the National Response Center. The National Response Center is staffed 24 hours a day by U.S. Coast Guard personnel, who will ask you to provide as much information about the incident as possible, including: your name, location, organization, and telephone number; name and address of the party responsible for the incident; date and time of the incident; location of the incident; source and cause of the release or spill; types of material(s) released or spilled; medium (e.g. land, water) affected by release or spill; danger or threat posed by the release or spill; number and types of injuries or fatalities (if any); weather conditions at the incident location; name of the carrier vessel, or other identifying information; whether an evacuation has occurred; other agencies notified or about to be notified; any other information that may help emergency personnel respond to the incident. In the case of reporting quantities of hazardous substances or oil, if a report is provided to the National Response Center, it is not necessary to report to EPA as outlined in part 4.4.4 of the permit.

Part 4.4.4 of the permit, "Additional Reporting," provides additional reporting requirements – a requirement to comply with the standard permit reporting provisions in Part 1.13 of the permit, a requirement to timely report to EPA when certain types of noncompliance occur, namely, those that endanger health or the environment. In the case where discharges may affect drinking water supplies, recreational waters, elicit fish kills, or may otherwise endanger human health or the environment, the discharge must be reported orally to the appropriate EPA regional office within 24 hours from the time of discovery, followed by an electronic or written report (per the requirements of Appendix B, section 12(F)) within 5 days.

EPA also encourages operators to report the releases that may have human health ramifications to the appropriate local authorities (e.g., public water supply operator, health department). Follow-up monitoring results must be reported via the electronic system (when available) or in writing to the appropriate EPA Regional Office (Part 3.7) within 30 days of receiving the results. The report should include the permit identification number; vessel name, address and location; receiving water; monitoring data from this and the preceding monitoring event(s); an explanation of the situation; what has been done and shall be done to further reduce pollutants in the discharge; and an appropriate contact name and phone number.

Vessel owners/operators under Parts 5.1, 5.2, and 5.8 of this permit have additional reporting requirements. They must report their monitoring data for their graywater treatment systems (5.1 and 5.2)

6.5. Applicability of Inspection and Recordkeeping Requirement for Vessels Leaving Waters Subject to This Permit

The VGP's inspection and recordkeeping requirements do not apply worldwide. Once vessels enter waters subject to this permit, they must be in compliance with the permit's requirements that apply to their discharges before those discharges occur in waters subject to the permit (which in most cases will be at the moment they enter those waters, because many discharges occur continuously during vessel operation). With respect to how the permit's periodic inspection and reporting requirements apply in situations where a vessel transits in and out of waters subject to the VGP, EPA intends for such conditions to be read in light of what they are – conditions prerequisite to discharge into those waters. Thus, for example, a vessel transiting in and out of waters would be in compliance with the routine visual inspection requirement if the vessel had conducted a compliant inspection in the week prior to discharging or on the voyage during which they will discharge into waters subject to the VGP. EPA does not intend for the permit to be read to require that the weekly inspection also would have had to have occurred, for example, two, three, and four weeks prior to the discharge into waters subject to the permit.

EPA's intent is the same for other periodic inspection requirements - annual inspections must have occurred within a year prior to discharge into waters subject to the permit. Drydock inspection reports are likewise a condition prerequisite to discharge into waters subject to the permit -- because the report is necessary to ensure that discharges covered by the permit meet the requirements of the permit, they are required regardless of whether they were prepared inside or outside of the United States. EPA notes that inspections and recordkeeping are directly related to ensuring that the vessel is in compliance with the permit prior to discharging into waters subject to the permit.

Existing recordkeeping systems could be used or adopted, so long as they contain the necessary information.

7. ADDITIONAL TECHNOLOGY BASED AND RELATED PERMIT REQUIREMENTS BASED ON CLASS OF VESSEL (VESSEL CLASS-SPECIFIC REQUIREMENTS) (PART 5)

7.1. LARGE CRUISE SHIPS (PART 5.1)

Large cruise ships are those ships that provide overnight accommodations and are licensed to carry 500 or more passengers for hire. Requirements for cruise ships authorized to carry 500 or more passengers apply regardless of the actual number of passengers onboard. EPA selected this threshold defining large cruise ships to be consistent with the requirements of "Title XIV—Certain Alaskan Cruise Ship Operations" of the Miscellaneous Appropriations Bill (H.R. 5666) in the Consolidated Appropriations Act of 2001 (P.L. 106-554) (commonly referred to as Title XIV) passed on December 12, 2000. Title XIV set discharge standards for sewage and graywater from certain cruise ships (those authorized to carry 500 or more passengers for hire) while operating in the Alexander Archipelago and the navigable waters of the United States in the State of Alaska and within the Kachemak Bay National Estuarine Research Reserve (referred to here as "Alaskan waters").While most cruise ship vessel discharges are similar to those of other similarly sized vessels, cruise ships have several unique characteristics and discharges for which they require additional permit requirements. Cruise ships provide accommodations and extensive amenities to a large number of passengers. These extensive onboard services provided for guests contribute to the increase in the volume of cruise ship discharges. For example, because these vessels carry a large number of people onboard, they generate considerably more graywater discharges than a container or cargo ship. Other amenities provided, such as photo developing, dry cleaning, and day spas, use and produce chemicals that are toxic to the aquatic environment. Discharges of these substances are not authorized by the permit.

7.1.1 Graywater Management

As previously mentioned, the amount of graywater produced by large cruise ships is many times greater than what is produced by a cargo vessel of similar size. Graywater, especially in such large quantities, can cause environmental harm. The graywater produced by cruise ships may contain high levels of nutrients, pathogens, residual levels of organic material, and cleaning chemicals.

EPA established the numeric effluent limits for graywater found in Part 5.1.1.1.2 (discussed below) because data gathered by EPA demonstrate that technologies are available, as well as economically practicable and achievable, and therefore, would represent BPT and BAT. The treatment technologies that remove non-conventional pollutants also treat conventional pollutants; hence, EPA applied the BAT standard to all pollutants for which the permit proposes standards for graywater. For additional discussion of BAT, BCT, and the requirements of each, please see Part 4.2.3 of the Fact Sheet.

The technology to meet the effluent limits found in Part 5.1.1.1.2 of the permit is currently in use and already required for large cruise ships operating in Alaskan waters which discharge within the territorial seas. EPA anticipates no major physical impediments to installing such technology on large cruise ships, and in fact, many cruise ships are already capable of meeting these standards. There are two systems available that cruise ships typically use to treat graywater: traditional Type II marine sanitation devices (MSDs) and advanced wastewater treatment systems (AWTSs). An in depth discussion of how each system works can be found in the EPA Cruise Ship Assessment Report, Part 2.3, which is available in the docket for this permit. In general, AWTSs are capable of treating graywater and graywater mixed with sewage to more stringent standards than traditional Type II MSDs, and EPA has therefore based the effluent limits in this permit on the AWTSs technology. AWTSs on board cruise ships have been shown to reduce ammonia, total Kjeldahl nitrogen, and total phosphorus by moderate amounts and conventional pollutants such as BOD5, TSS, and fecal coliform substantially. In monitoring conducted by EPA in 2004 and 2005, nitrate/nitrite levels were low and remained relatively unchanged by treatment. Nitrogen and phosphorus are likely taken up by microorganisms in the bioreactor and removed from the system in the waste sludge. Table 3: AWT Effluent Concentrations and Removals[1]Table 3 shows the influent and effluent concentrations for these systems for Cruise Ships in Alaska (adapted from US EPA, 2008a).

Table 3: AWT Effluent Concentrations and Removals[1]

Analyte	**Unit**	**Average Concentration in Cruise Ship AWT Influent[1]**	**Average Conc. (± SE) in Cruise Ship AWT Effluent[2]**	**Percent Removal Ranges[3]**
Fecal Coliform	CFU/100 ml	103,000,000* (61 detects out of 62 samples)	14.5* (26 detects out of 285 samples)	>99
Total Suspended Solids	mg/L	545 (50 detects out of 50 samples)	4.49* (±0.193) (73 detects out of 587 samples)	>99
Biochemical Oxygen Demand (5-day)	mg/L	526 (24 detects out of 24 samples)	7.99* (±0.798) (358 detects out of 568 samples)	>99
pH	SU		99.5% of samples within range of 6.0 to 9.0) (921 detects out of 921 samples)	
Total Residual Chlorine	mg/L		0.338* (±0.129) (41 detects our of 547 samples)	
Ammonia As Nitrogen	mg/L	78.6 (35 detects out of 35 samples)	36.6* (±5.50) (136 detects out of 138 samples)	58 to 74
Nitrate/Nitrite as Nitrogen	mg/L	0.325* (26 detects out of 50 samples)	3.32* (±0.653) (66 detects out of 152 samples)	NC

Table 3: AWT Effluent Concentrations and Removals[1]

Analyte	Unit	Average Concentration in Cruise Ship AWT Influent[1]	Average Conc. (± SE) in Cruise Ship AWT Effluent[2]	Percent Removal Ranges[3]
Total Kjeldahl Nitrogen	mg/L	111 (50 detects out of 50 samples)	32.5* (±3.27) (169 detects out of 170 samples)	70 to 76
Total Phosphorus	mg/L	18.1 (25 detects out of 25 samples)	5.05* (±0.460) (146 detects out of 154 samples)	41 to 98

[1]The data presented in Table 3 represents the treatment of a combined sewage and graywater waste stream. Data in EPA's Cruise Ship Discharge Assessment Report demonstrates that the average concentration in cruise ship AWT influent is of higher strength than the average concentration in untreated graywater alone, but is similar in composition (see Part 2.3.3 p. 2-16; Part 3.3, p 3-9) . Consequently, the combined waste stream data can be used to draw conclusions regarding the treatability of graywater by similar treatment devices.
[2] Based on data collected by EPA in 2004 and 2005.
[3] Based on data collected by ADEC/Coast Guard from 2003 to 2005; data collected by EPA in 2004 and 2005; and data collected through EPA's 2004 cruise ship survey.
"NC" indicates that percent removal not calculated because the effluent concentration was greater than the influent concentration or the analyte was not detected in the influent samples from one or more sampled ships.
* Average includes at least one nondetect value; this calculation uses detection limits for nondetected results.

One recent estimate Choi (2007) stated that the cruise industry estimated that roughly 40% of the International Council of Cruise Lines members' 130 ships (which make up two-thirds of the world fleet) have installed AWTSs, with 10 to 15 more systems added each year (Choi, 2007). In 2006, 23 of 28 large cruise ships that operated in Alaskan waters had AWTSs in order to meet the more stringent discharge requirements required under Title XIV (see subsection 2.2.3 of EPA's Cruise Ship Discharge Assessment Report for additional information). The remainder operated traditional Type II MSDs and held the treated sewage and untreated graywater in double-bottom ballast tanks for discharge outside Alaskan waters. For additional information on Title XIV and cruise ship discharges, please see Part 2 of the EPA's Cruise Ship Discharge Assessment Report.

The standards that EPA has included are also economically practicable and achievable. EPA estimates that the cost of maintaining a graywater treatment system (which treats graywater commingled with blackwater) is $7.09 per passenger (including crew) berth per season. For more information, please see the Economic Analysis accompanying this permit. In addition, EPA considered other impacts that would be caused by the imposition of these standards, such as increased energy use onboard the cruise ships, and found those impacts to be negligible. Cruise ships can expect to expend additional fuel when operating the AWTSs, to generate solid sludge or other waste from these systems, and/or to have additional cost in transporting treated or untreated graywater out of specific waters; however, all of these effects are relatively small.

7.1.1.1 Pierside Limits

While pierside, cruise ship operators are required to use graywater reception facilities if they are reasonably available unless the vessel treats graywater with a device to meet the standards found in Part 5.1.1.1.2 of the permit. If not available, graywater must be held for later discharge beyond 3 nm. These requirements will minimize the volume of pollutants discharged while the cruise ship is pierside or operating in nearshore environments. These restrictions will also reduce the discharge of chemicals, nutrients, and pathogens into harbors and ports, which can be located in ecologically sensitive estuaries, and where there are large numbers of vessels discharging in close proximity. Hence, the cumulative impact of numerous untreated graywater discharges in harbors and ports may be significant. Furthermore, based on responses to surveys with vessel operators and industry representatives conducted as part of the economic analysis, most cruise ship operators have voluntarily agreed not to discharge graywater within 4 nautical miles of shore (CLIA 2006). Large cruise ships have the capacity to hold graywater for a minimum of 1 to 2 days, as evidenced by their ability to hold all wastewaters while sailing in areas such as Glacier Bay in Southeast Alaska, where discharges are generally prohibited under their concession contracts with the National Park Service. According to responses to EPA's 2004 cruise ship survey of large cruise ships operating in Alaskan waters, graywater holding capacity ranged from 5 to 90 hours, with an average holding capacity of 56 hours.

Though the standards specified in the permit do not include numeric limits for nutrients, the systems capable of meeting the other standards in this permit (listed in Part 5.1.1.1.2) have been shown to remove considerable amounts of nutrients and successfully achieve pathogen standards as shown above in Table 3 (US EPA 2008). For the reasons discussed above, approaches to meet these requirements are technologically available and economically practicable and achievable.

7.1.1.2 Operational Limits

The 2008 VGP prohibited the discharge of graywater within 1 nm of shore unless the graywater has been treated to treatment standards in Part 5.1.1.1.2 of the permit. For the 2013 VGP, EPA is requiring that cruise ships may only discharge graywater treated to the standards found in Part 5.1.1.1.2 of this permit within 3 nm from shore. EPA made this change after considering the six factors under 40 CFR § 125.3(c), which sets BAT treatment limits and the efficacy of these treatment systems.

Data from those vessels which discharge graywater effluent (commingled with blackwater) through an AWTS indicate that cruise ships with these treatment systems are consistently able to meet the operational limits contained within this permit. This is despite the fact that, as of the issuance of this permit, some of these systems are starting to age. The systems have been used onboard cruise ships for multiple years, have proven reliable, effective, and significantly reduce pollutants being discharged from cruise ship graywater effluent. Hence, the processes employed and the engineering aspects of installing and using these systems are well understood and clearly appropriate for use onboard these vessels. EPA expects no substantial process changes for the industry from existing practice: as discussed above, EPA believes that a significant portion of vessels are already treating this effluent to the standards found in Part 5.1.1.1.2 and those that are not have significant holding capacity. There may be some vessels which have to dedicate additional holding tanks or may elect to install an AWTS to treat the effluent; however, EPA does not believe this process will be especially challenging, as use of these devices or holding the effluent is common practice among this class of vessels. The non-water quality environmental impacts are minimal: for those vessels treating graywater to the standards found in Part 5.1.1.1.2, EPA assumes that these vessel owner/operators were also using their treatment equipment to treat graywater between 1 and 3 nautical miles. For those vessels which choose not to treat graywater, and therefore either discharge pierside to an onshore facility or discharge it underway outside of 3 nm, these vessels will have to hold their untreated graywater for the time sailing from 1 to 3 nm. Generally, EPA expects the time many cruise ships spend between 1 to 3 nm from shore to be relatively short considering cruise ships' typical voyage patterns (i.e., in ports for lengthy periods, then sailing to and from different ports). Finally, when examining costs, EPA notes that no significant additional costs are expected to be incurred from the 2008 VGP requirements. Vessels which were not previously treating between 1 and 3 nm (but treating within 1 nm) may have marginal increased energy costs and associated costs from extra time spent running the systems. Vessels that were previously holding their graywater may spend slightly more on fuel costs to transport the wastewater effluent further or to offload a greater volume of effluent to onshore facilities. Hence, EPA concluded that graywater treatment systems to meet the limits found in Part 5.1.1.1.2 of the permit are widely available and their use by this class of vessels is economically achievable.

Finally, the graywater discharge standards in this permit are consistent with those for large cruise ships underway in Alaskan waters required under Title XIV. As mentioned, industry information shows that many cruise ships are already meeting the operational standards required by the permit.

7.1.1.3 Limits Applicable to Operation in Nutrient Impaired Waters

Nutrients are a pollutant of concern addressed by this permit. EPA found it not to be economically practicable and achievable to require discharges of graywater to be prohibited in all cases; however, a partial restriction on such discharges would represent the BPT and BAT levels of control. Because discharges of graywater are of particular concern in nutrient impaired waters, the permit contains limits designed to minimize the discharge of graywater in those waters. Under this permit, graywater discharges are not authorized in nutrient impaired waters, unless the length of the voyage through those waters exceeds the ship's holding capacity. If the voyage length does exceed the holding capacity, the cruise ship operator has two options: treat the excess graywater (above the holding capacity) to meet the standards of 5.1.1.1.2 prior to discharging it or dispose of graywater properly onshore (before exceeding capacity). These measures will limit the amount of graywater and the amount of chemicals, nutrients, and pathogens discharged into nutrient-impaired waters. The average holding capacity for graywater, based on EPA's 2004 cruise ship study, is 56 hours. Hence, most cruise ship owners/operators would be able to meet the requirements to hold their graywater as required in the permit.

7.1.1.4 Graywater Treatment Standards

The permit requires the discharge of treated graywater to meet the following requirements: the minimum level of effluent quality specified in 40 CFR 133.102; the geometric mean of the samples during any 30-day period may not exceed 20 fecal coliform/100ml and not more than 10 % of the samples could exceed 40 fecal coliform/100 ml; and concentrations of total residual chlorine may not exceed 10.0 micrograms per liter (μg/l). These graywater treatment standards are based on the Title XIV standards that are published in Coast Guard regulations at 33 CFR 159.309. EPA expects owners of large cruise ships to incur some cost, although these costs are considered affordable, would cause no closures, and should not cause any cruise ship owner/operators to exceed a 1% revenue threshold.

7.1.1.5 Sculleries and Galleys

The permit requires cruise ship operators to use phosphate free detergents in the scullery and galley. Additionally, it requires any degreaser used to be minimally-toxic if the degreaser or its residue otherwise would be discharged as part of any waste stream. The use of phosphate free soaps and cleaners is a simple step toward reducing the amount of nutrients, namely phosphorus, present in graywater discharge. Phosphate free detergents and minimally-toxic detergents are readily available for purchase, are comparably priced, and are an affordable management measure for reducing phosphates and toxic compounds in waste streams. Based on the economic analysis prepared for this permit, the purchase of phosphorus free soaps will result in negligible additional costs for any owner or operator. Hence, use of these more environmentally friendly products is technologically available and economically practicable and achievable.

7.1.1.6 Other Materials

Many of the services provided to cruise ship passengers use toxic chemicals that can end up in the graywater discharge (US EPA 2008a). These include dry cleaning operations, photo developing, medical services, and spa and salon services. The permit requires that other materials, including waste from mercury containing products, dry cleaners or dry cleaner condensate, photo processing labs, medical sinks or floor drains, salon floor drains, chemical storage areas, and print shops using traditional or non-soy based inks and chlorinated solvents be prevented from entering the ship's graywater, blackwater, or bilge systems. Discharges of these materials are not eligible for coverage under this permit. There are several ways that ship owner/operators can prevent these materials from entering the graywater, blackwater, or bilge systems, including plugging any drains that lead to the graywater, blackwater, or bilge systems in areas where these wastes are produced, creating alternative waste receptacles, or replumbing drains to appropriate holding tanks. Drain plugging, alternative waste receptacles, and/or re-plumbing would allow the chemicals to be stored and properly treated. Also, in order to prevent the addition of known toxic materials to waters subject to this permit, the permit prohibits addition of toxic materials, including products containing acetone, benzene, or formaldehyde, into spa or salon sinks or floor drains if those sinks or drains lead to any system which will ever discharge into waters subject to this permit. Due to the highly toxic nature of these materials, they must be sent to an alternative waste receptacle or holding tank and cannot be discharged into waters subject to this permit or allowed to enter any discharge stream which later discharges into waters subject to this permit.

Based on information collected as part of the economic analysis, all cruise ship owners and operators are already taking these measures. For any vessels that have not yet taken these measures, EPA expects these preventive measures to be technologically available and economically practicable and achievable.

7.1.1.7 Pool and Spa Discharges

Pool and spa water may also be added to the graywater treatment systems; however, it must still be de-chlorinated and/or debrominated prior to discharge subject to this permit. In addition, the effluent discharged from the graywater treatment system must meet all treatment standards found in Part 5.1.1.1.

Discharges from pools and spas are authorized under this permit, provided that if they use chlorination or debromination, they are dechlorinated and/or debrominated. To be considered dechlorinated, the total residual chlorine in the pool or spa effluent must be less than 100µg/l if the pool or spa water is discharged without going through an advanced wastewater treatment system. To be considered debrominated, the total residual oxidant in the pool or spa effluent must be below 25µg/l if the pool or spa water is discharged without going through an advanced wastewater treatment system. EPA determined the dechlorination limits by using those established for ballast water treatment systems and by evaluating comments submitted by public commenters that indicated such limits are achievable. Furthermore, this limit is consistent with common dechlorination limits from shore based sewage treatment facilities. In addition, the permit provides that vessel owners/operators may only discharge pool or spa water while the vessel is underway; hence, EPA anticipates that this discharge will be significantly diluted.

7.1.2 Monitoring Requirements (Part 5.1.2)

Cruise ship operators must complete specific monitoring steps to document compliance with graywater treatment and discharge requirements under the permit. The monitoring requirements for large cruise ships are similar to those required by the Coast Guard regulations implementing Title XIV published at 33 CFR 159.309. These monitoring requirements are required by the U.S. Coast Guard for Alaskan cruise ship operators that discharge graywater and sewage within nearshore Alaskan waters. EPA evaluated these monitoring requirements and elected to use the same standards to remain consistent with the Coast Guard. The monitoring regime selected is sufficient to show that the systems are properly functioning before large cruise ships enter domestic territorial seas and that the systems are properly maintained.

The monitoring requirements in this permit delineate a specific schedule for sampling, testing, and reporting, in compliance with the requirements of 40 CFR 122.44 and 122.48. Permittees need to use test methods that are listed in 40 CFR Part 136 for all constituents sampled. The monitoring requirements will yield data representative of the discharge being monitored, allowing both EPA and permittees to accurately evaluate both compliance and the effectiveness of the permit requirements. The requirements include monitoring, sampling, and testing for specific parameters likely to be present in the effluent. These measurements characterize treatment efficacy and enable documentation of permit compliance. Monitoring results need to be reported annually, following reporting of initial monitoring to establish the efficacy of the treatment system (see below).

7.1.2.1 Untreated Graywater

Since graywater from large cruise ships must be treated in all waters subject to this permit, a large cruise ship can no longer legally discharge untreated graywater (see discussion above in 7.1.1 for why EPA made changes to the operational discharge limits for Cruise Ships). However, if a large cruise ship discharges untreated graywater, the vessel owner/operator must keep records estimating all discharges of untreated graywater into waters subject to the permit, including date, location, and volume discharged. This constitutes a permit violation and it must be recorded in the vessel's Annual Report. In order to streamline recordkeeping and reporting requirements, this information may be kept in the sewage and graywater discharge record book otherwise required by 33 CFR §159.315 for those vessels that keep these records. Alternatively, cruise ship operators could record these data in the ship's log or other recordkeeping documentation, as long as the location of the information is clearly known and can be made available to EPA or any EPA representative immediately on request. EPA may use this information, in part, to monitor compliance with and effectiveness of the permit requirements.

7.1.2.2 Treated Graywater

Prior to entering domestic territorial seas, or within 90 days of obtaining permit coverage, whichever is later, cruise ship operators are required to demonstrate that the vessel has the ability to treat graywater to the applicable standards found in Part 5.1.1.1.2 if the vessel will be discharging graywater within 3 nm of shore or into nutrient impaired waters subject to this permit. These data must be reported to EPA consistent with the requirements discussed below.

The 2013 VGP also requires large cruise ships to monitor for several additional parameters: several nutrients and *E. coli*. EPA is requiring monitoring of nutrients to better characterize the effluent from these vessels. Since large cruise ships are already monitoring for other parameters, they will only need to collect extra water for these additional parameters. Hence, there is marginal incremental cost. Many new EPA permits have established pathogen limits for *E. coli* instead of fecal coliform. EPA has left the requirement for fecal coliform to be consistent with Title XIV; however, the Agency believes that it is appropriate to gather *E. coli* concentrations from these vessels to better characterize the effluent.

Furthermore, the permit requires the owner/operator to maintain records estimating the volume of all discharges of treated graywater into waters subject to the permit. These records would consist of the date, location, and volume discharged and could be maintained as part of the sewage and graywater discharge record book required under 33 CFR §159.315.

7.1.2.3 Initial Monitoring

Within 90 days of obtaining permit coverage, large cruise ship operators are required to demonstrate that the vessel has the ability to treat graywater to the applicable standards if the ship will be discharging graywater within 3 nm of shore. Cruise ship operators are required to initially demonstrate the effectiveness of the graywater treatment system by taking at least five (5) samples over 30 days. Samples are required to meet standards for BOD_5, fecal coliform, suspended solids, pH, and total residual chlorine. The requirement for five initial samples is consistent with the Title XIV requirements for large cruise ships operating in Alaska. The permit requires records of monitoring information be kept, including the date, exact place noted in latitude and longitude, and time of sampling or measurements; the individual(s) who performed the sampling or measurements; the date(s) analyses were performed; the individual(s) who performed the analyses; the analytical techniques or methods used; and the results of such analyses. The permit requires records be kept for 3 years.

Additionally, in order for EPA to better understand the performance of AWTSs and to better characterize cruise ship discharges, EPA has included monitoring requirements for *E. coli*, total phosphorus (TP), ammonia, nitrate/nitrite, and Total Kjeldahl Nitrogen (TKN). These tests are not expensive; samples can be taken at the same time as the sampling for which effluent limits have been established, and the information will be helpful for EPA and others to establish the potential environmental impact (if any) of treated Cruise Ship discharges. Such information might be useful for future permit iterations: for instance, EPA could examine whether the prohibition of treated cruise ship effluent in nutrient impaired waters is necessary if systems are removing substantial nutrient concentrations.

For chlorine monitoring, analytical results that are below the method detection limit are considered in compliance with the permit effluent limits, as long as the testing method used had a detection limit no higher than 10 μg/l under ideal conditions. EPA has found that method SM4500-CL G (DPD Colorimetric Method) is able to reach 10 μg/l under ideal conditions. SM4500-Cl G is typically the method that ADEC/USCG uses for compliance monitoring.

In addition, testing and reporting for total residual chlorine is not required if chlorine is not used as the disinfectant in the wastewater treatment process and no water to which chlorine has been added (swimming pools, spas, etc.) is drained to the graywater system.

7.1.2.4 Maintenance Monitoring

After initially demonstrating the effectiveness of the treatment system, operators must conduct the same sampling and testing at least once per quarter to show continued effectiveness of the system and compliance with the permit. This requirement includes keeping all required records of the sampling and testing results for at least 3 years.

Based on public comments, EPA has clarified in the permit that sampling and testing need only be conducted once per quarter for any quarter the vessel discharges graywater into waters subject to this permit. The purpose of this requirement is to ensure that the treatment systems are working properly; however, EPA recognizes that some vessels only discharge periodically or once per year.

7.1.2.5 Treated Pool and Spa Discharges (5.1.2.3)

Vessel owner/operators must monitor chlorine or bromine (as total residual oxidant) concentrations (as applicable) in pool and spa water before discharging such water into waters subject to this permit. Such monitoring for chlorine must use Part 136 methods in order to ensure the dechlorination process is complete. Such monitoring for bromine must use Part 136 methods or may also use colorimetric methods, including with test kits, (for pool and spa discharges only), provided that test kit has method detection limit no higher than 50 μg/L. In addition, vessel records must include the location, estimated volume, and concentration of chlorine or bromine in the discharge.

As with monitoring for chlorine in graywater, analytical results that are below the method detection limit are considered in compliance with the permit effluent limits, as long as the testing method used had a detection limit no higher than 10 µg/l under ideal conditions. EPA has found that method SM4500-CL G (DPD Colorimetric Method) is able to reach 10 µg/l under ideal conditions and so meets these requirements. SM4500-Cl G is typically the method that ADEC/USCG uses for compliance monitoring. For bromine, analytical results below the method detection limit shall be deemed compliant with the effluent limits, provided the permittee uses a testing method with a detection limit no higher than 50.0 µg/L.

7.1.2.6 Monitoring Reporting

In addition to the other reporting requirements established by this permit, vessel operators must submit the initial sampling and testing information to EPA. Once an electronic reporting system is established, it will be available at www.epa.gov/npdes/vessels/enoi. You may check www.epa.gov/npdes/vessels to determine whether electronic reporting for the relevant document has been implemented. If the website indicates that electronic reporting for the document has not been implemented, you do not need to seek the waiver. Maintenance sampling and testing information must be submitted at least once a year.

EPA notes, that unlike the 2008 VGP, monitoring data must be reported directly to EPA. This is to ensure that EPA can review whether all cruise ship data collected are complete and allows cruise ship operators to consolidate all of the reporting requirements into one annual report.

7.1.2.7 Reserved Authority

Meeting the monitoring requirements would not shield the vessel operator from liability if EPA or Coast Guard tests the graywater discharge and finds it is not in compliance with the treatment standards. Non-compliance with any effluent limit would be a violation of the permit.

7.1.3 Education and Training Requirements (Part 5.1.3)

Pursuant to CWA section 402(a)(2), and 40 CFR 122.43(a), and other implementing regulations, EPA is imposing the following education and training requirements.

Crew training is extremely important because the vessel's crew plays a significant role in increasing or decreasing the volume and quality of vessel discharges. The permit requires the cruise ship owner/operator to train the crew members who actively take part in the management of a discharge, or who may affect a discharge, in environmental procedures sufficiently so that the crew could demonstrate proficiency in implementing the procedures; provide advanced training in environmental management procedures to any crew members directly involved in the management of a specific discharge, such that the crew could demonstrate proficiency in implementing the procedures; and establish and enforce sufficient reprimand procedures for any crew member whose actions lead to a violation of any of the effluent limits in this permit, or a violation of other procedures established by the cruise ship operator to minimize the discharge of pollutants.

In addition, the permit requires the cruise ship operator to educate passengers about potential environmental impacts and steps the passengers can take to minimize those impacts. Proper education of crew and passengers plays an important role in meeting environmental protection goals because they are often in the best position to minimize vessel discharges. Graywater is one example. Passengers can minimize the amount of graywater produced onboard if they are made aware of water conservation practices such as reusing sheets and towels. Passengers can control the constituents added to graywater discharge, such as through proper disposal of unused pharmaceuticals which would prevent their ultimate introduction into the aquatic environment. The permit allows flexibility in how these goals are accomplished, and allows the passenger education to take place via posting or distribution of signage, flyers, or other handouts, incorporating environmental information into passenger orientation presentations, holding lectures or seminars, or making announcements over the ship's public address system.

Most cruise ship operators have already incorporated environmental training into established training and education requirements. Some of these education requirements included in the permit are based in part on industry literature created by the industry trade group Cruise Lines International Association (CLIA). The steps required by the permit are already being employed by many cruise ship operators in the industry and thus are available as well as economically practicable and achievable. Inclusion of education requirements in the permit is designed to elevate the standard of conduct to the level of the most responsible operators. Most cruise ship operators are already meeting the permit requirements. For more information on cruise ship operators voluntary actions, please see CLIA 2006.

7.2. MEDIUM CRUISE SHIPS [PART 5.2]

Medium cruise ships are those ships authorized to carry 100 to 499 passengers for hire and provide overnight accommodation to those passengers. EPA selected a threshold of 100 people as the lower end of the range to capture vessels where the volume of graywater generated gradually increases. The discharges of untreated graywater from cruise ships in this size range has been shown to contain similar pollutants to those in untreated graywater discharges from large cruise ships (ADEC, 2002). Therefore, these discharges also have a similar negative impact on water quality. As discussed above, cruise ships have unique characteristics that require additional discharge management requirements. While medium cruise ships carry fewer passengers than large cruise ships, the volume of graywater generated is still significantly higher than that generated by a cargo ship carrying crew only. See Part 7.1 for additional discussion on the nature of cruise ship discharges, the reason effluent limits were established, and how these limits represent BPT/BAT.

EPA has made changes from the proposed 2013 VGP to the final 2013 VGP for requirements for medium cruise ships. In the proposed VGP, EPA would have altered the applicability for existing medium-sized cruise ships (i.e., constructed before issuance of the 2008 VGP) that had to meet the numeric treatment limits. EPA had proposed changing the applicability threshold from a vessel unable to voyage more than 1 nm from shore to a vessel unable to voyage more than 3 nm from shore. EPA was persuaded by the comments received not to make the proposed change in the final VGP. The final VGP retains the applicability threshold that is consistent with the 2008 VGP for medium Cruise Ships. EPA did not intend to inadvertently require retrofits for a vessel that is able to voyage more than 1nm from shore, but not 3 nm from shore. Based on the previous permit conditions in the 2008 permit, some existing (constructed before issuance of the 2008 VGP) medium-sized vessels may have foregone installation of graywater treatment during regularly scheduled vessel maintenance and repair since issuance of the 2008 VGP based on the 2008 VGP provisions that had authorized the discharge untreated graywater while underway.

Like in the 2008 VGP, today's final permit continues to identify who must meet numeric graywater treatment limits as "vessels unable to voyage more than 1 nm from shore and [that] were constructed before December 19, 2008." As discussed above, retains this applicability term in recognition that there may be medium cruise ships built before December 19, 2008 (the day after the issuance date of the first VGP) that could voyage more than one nm from shore, but not voyage three nm from shore. The provision has been retained for clarity and so as not to inadvertently require an existing medium sized cruise vessel (built prior to the issuance of the first VGP) to retrofit to a graywater treatment system if the vessel had no other management options.

There may be rare cases where some medium sized cruise vessels constructed on or after December 19, 2008 are unable to install graywater treatment systems or to use other management options to meet the numeric treatment limits in Part 5.2.1.1.2 of the permit. These cases may include when an existing cruise vessel (originally built before the issuance of the first VGP) undergoes a major conversion, but re-plumbing the graywater infrastructure within the vessel to a centralized collection and treatment point may not be feasible. Other examples could include medium cruise ships that were inadvertently designed and constructed during the first term of the VGP in such a unique manner as to render the installation of graywater treatment systems on-board impossible. In these cases, the medium sized cruise ship owner/operator may apply for an individual permit for graywater discharges on the basis that specific technology based limits for that vessel should be developed. EPA has determined, however, based on available data and in the absence of compelling vessel-specific data indicating otherwise, that the treatment-based limits in today's VGP represent BAT for all new build medium cruise ships. Any request for an individual permit would need to include data and information demonstrating why these requirements are not BAT for that particular vessel.

7.2.1 Graywater Management

As in the 2008 VGP, vessels newly built after December 19, 2008 must meet the limits found in Part 5.2 of the VGP. EPA established the numeric effluent limits for graywater found in Part 5.2.1.1.2 of the VGP because data gathered by EPA demonstrate that technologies are available, as well as economically practicable and achievable, and therefore, would represent BPT and BAT levels of control (see additional discussion below). The treatment technologies that remove non-conventional pollutants also treat conventional pollutants; hence, EPA applied the BAT standard to all pollutants for which the permit establishes standards for graywater. For additional discussion of BAT, BCT, and the requirements of each, see sections 4.1 and 4.2 of this fact sheet.

7.2.2 Differences Between the Requirements for Large Cruise Ships and Medium Cruise Ships

The permit requirements for medium cruise ships are identical to those for large cruise ships, with two exceptions. These are:

- An additional option for discharging while operating in Nutrient Impaired Estuaries.
- Differences for existing medium cruise ships (built before December 19, 2008) unable to voyage more than 1 nm from shore.

7.2.2.1 Different Requirements in Nutrient Impaired Waters

In nutrient impaired waters such as estuaries, this permit allows for medium sized cruise ships unable to retain graywater on board to discharge untreated graywater while moving at a speed of at least 6 knots. This difference was included because, at this time, EPA expects fewer of these size vessels to have treatment capacity to meet the more stringent standards in Part 5.2.1.1.2. Hence, owner/operators may not be able to adjust their fleet positions to assure that vessels are available that have either sufficient holding capacity or the ability to treat to the standards in Part 5.2.1.1.2 of the permit to meet the nutrient impaired estuary requirements. Though EPA fully expects most medium cruise ships to have the ability to hold the graywater until they get further than 3 nm offshore (for example, medium cruise ships sailing in Glacier Bay in Southeast Alaska hold their wastewater and do not discharge for the duration of their visit in the park), it may be difficult to hold the graywater for prolonged periods in large nutrient impaired estuaries (in which the channel can be more than 3 nm from any shore). Though treatment technologies to meet the standards in part 5.2.1.1.2 are available, EPA has not concluded that requiring all medium cruise ship owner/operators to install these systems prior to coverage under this permit is economically achievable. This extra flexibility for medium cruise ships allows owner/operators to comply with the requirements of the permit, while offering a more environmentally protective approach than allowing the discharge of graywater into nutrient-impaired estuaries while stationary. Hence, these requirements, taken as a whole, are technologically available and economically practicable and achievable.

7.2.2.2 Differences for Existing Medium Cruise Ships Built Before December 19, 2008 Unable to Voyage More than 1 nm from Shore

Some older, existing medium cruise ships that operate on rivers or lakes, are not authorized to go beyond 1 nm (e.g., are restricted by their operational certificate to operating only within 1nm of shore), or otherwise never go beyond 1 nm from shore. A Medium Cruise Ship in operation as of December 19, 2008 is not required to meet the graywater requirements found in Part 5.2.1.1.1 if the ship is unable to voyage 1 nm from shore, unless the ship undergoes a major conversion subsequent to the VGP effective date. Vessels constructed on or after December 19, 2008 are required to meet the graywater standards found in Part 5.2.1.1.1. (the same as large cruise ships). If, during the permit term, a vessel that is in operation on the effective date of this permit undergoes a major conversion as defined in Part 7 of the permit, the discharge from such a ship must meet the treatment standards found in Part 5.2.1.1.1 of the permit.

Unlike large cruise ships, which by their operational necessities are ocean going, some medium cruise ships are unable to regularly voyage 1 nm from shore. If onshore treatment is not readily available in river port towns for treatment of graywater, then the ship would be unable to meet these graywater treatment standards immediately. Furthermore, installation of AWTSs may be more complicated on older vessels than on newer vessels. Hence, based on the comments submitted and further economic analysis (included in the economic analysis for this permit) and unlike with larger cruise ships, many medium cruise ships may not be able to immediately achieve these treatment standards without installation of equipment that could require a major overhaul of the vessel. This type of vessel repair or conversion could be extensive, require dry-docking, and in some cases, re-design of major structural components of the vessel. For these reasons, EPA determines that it is not economically practicable or achievable to require all existing medium cruise ships which are unable to travel outside 3 nm to meet the requirements of Part 5.2.1.1.1 at this time. However, EPA notes that it may yet become economically achievable to include this requirement for all medium cruise ships in future iterations of this permit and owner/operators are so advised should they upgrade existing graywater vessel treatment capacity. For additional information on economic achievability and BAT, please see the economic analysis for this permit.

7.3. LARGE FERRIES (PART 5.3)

Ferries are vessels for hire that are designed to carry passengers and/or vehicles between two ports, usually in inland, coastal, or nearshore waters. They usually travel the same route several times a day and do not provide overnight accommodations to their passengers. They have discharges unique to their industry because of the potentially high volume of both pedestrian and vehicular traffic that they carry, usually on inland or coastal waters. These waters usually carry a relatively high volume of vessel traffic and also can contain highly valuable and ecologically sensitive mating and nesting grounds for birds, fish, and mammals. The permit provisions apply to large ferries. For purposes of the permit, large ferries are those ferries authorized to carry a) more than 100 tons of cars, trucks, trains, or other land-based transportation or b) 250 or more people.

EPA could not find a preexisting definition of large ferry. Hence, the Agency reviewed the number of ferries captured at different weight thresholds using data including all steel hulled, self-propelled vessels classified by the WTLUS/VESDOC as Passenger Vessels, Combination Passenger/Cargo ships, and by Ferries Data DOC as Passenger Vessels, Combination Passenger/Cargo ships, and Ferries. EPA considered the relative increase in the discharge of pollutants, particularly those pollutants generated from land-based transportation on board vessels, as ferry size increased when establishing this threshold. For this permit, EPA has stated that a “Large Ferry” means a “ferry” that: a) has a capacity greater than or equal to 100 tons of cargo, e.g., for cars, trucks, trains, or other land-based transportation or b) is authorized by the Coast Guard to carry 250 or more people.

In order to minimize the harmful effects of discharges from large ferries, this permit imposes specific requirements with respect to the potential spills, drips, and leaks associated with carrying of vehicles. These requirements include treatment of runoff from below deck (e.g. areas not exposed to the elements) parking and storage areas with an oily water separator or other similar device, and require that this discharge not be released into waters listed in Part 12.1. In addition, pursuant to CWA sections 402(a)(2), and 40 CFR 122.43(a), and other implementing regulations, the permit sets out requirements for all large ferries with respect to educating the crew and passengers about environmental procedures. It is the crew that will implement the environmental requirements found in the permit, and because of that, they must be taught what to do, how to do it, and why they are doing it. Large ferry owner/operators also are required to educate passengers on their potential environmental impacts and how those can be mitigated. This education must address eliminating the discharge of trash into any waste stream, minimizing the production of trash from parking areas and storage areas, eliminating the addition of unused soaps, detergents and pharmaceuticals to the graywater or blackwater systems, and minimizing the production of graywater. There are many ways that a ferry operator can accomplish passenger education, including posted signage, distribution of informational materials, incorporating environmental material in orientation presentations, and broadcasting environmental information over loudspeakers or the public address system.

Some of these education requirements included in the permit are based in part on industry literature created by the industry trade group CLIA. EPA anticipates that educating crew and passengers on cruise ships is similar to educating the crew and passengers of large ferries. The educational requirements in the permit are already being employed by many cruise ship owner/operators in the industry.

For those large ferries which are authorized by the Coast Guard to carry 250 or more people, the permit also requires use of shoreside graywater reception facilities if they are reasonably available. If not available, such large ferries are required to hold their graywater while in port if the vessel has the holding capacity and to discharge the effluent while the vessel is underway under the operational conditions set out in section 5.3.1.2 of the permit.

The technologies upon which the permit’s graywater requirements are based are technologically available and economically practicable and achievable. These requirements are intended to reduce the volume of graywater discharged while large ferries are pierside so as to reduce the discharge of chemicals, nutrients, and pathogens into marinas and ports, which can be located in ecologically sensitive estuaries, and where large numbers of vessels may be discharging in close proximity. The cumulative impact of numerous graywater discharges in port may be significant. In addition, these requirements will help reduce potential impacts if graywater needs to be discharged while underway by setting out operational limits on such discharges, as further explained in the Fact Sheet discussions for graywater from cruise ships.

Unlike the 2008 VGP, this permit does not authorize the discharge of coal ash slurry from coal fired propulsion systems from ferries. The previous VGP suspended the authorization for these discharges in December 2012. Either coal ash discharges must cease into waters subject to this permit or they must be authorized under an individual NPDES permit.

7.4. BARGES (INCLUDING HOPPER BARGES, CHEMICAL BARGES, FUEL BARGES, CRANE BARGES, DRY BULK CARGO BARGES) (PART 5.4)

Barges are large flat-bottomed boats typically used to move cargo in inland waterways. Barges are usually not powered vessels, but are instead pushed or pulled by tugboats. Due to the way they carry cargo, the permit imposes additional measures in order to prevent and minimize the discharge of pollutants from barges. Specifically, the permit requires additional measures to prevent the contamination of condensation with oily or toxic materials. Based on information provided in comments received in response to the June 21, 2007 Federal Register notice, it is a technologically available and economically achievable and practicable practice for barge owner/operators to prevent the contamination of condensation. This permit also prohibits any discharge that has or causes a visible sheen or is otherwise discharged in a quantity that may be harmful.

The permit also requires barges to conduct an inspection not required for other vessels. Every time water is pumped from any area below deck, the vessel operator must conduct a visual sheen test by conducting a visual inspection of the discharge and the water around the barge to check the water for a visual sheen. EPA is imposing this requirement due to our understanding that this is current good marine practice and that pumping water from below deck (where water may have come into contact with cargoes) is more likely to result in a discharge that may be harmful. Under 40 CFR 110 or 40 CFR 302, if a visible sheen is detected, you must report the discharge immediately to the National Response Center at 1-800-424-8802 or on the Center's website at www.nrc.uscg.mil. Furthermore, appropriate corrective actions must be taken according to the corrective actions section in Part 3 of the permit and the event must be recorded according to Part 4.2 of the permit.

Today's VGP improves efficiency for many unmanned, unpowered barges. This includes reducing the recordkeeping requirements found under Part 4.2 of the Permit, allowing electronic recordkeeping, reducing requirements for routine visual inspections when a vessel is "fleeted", and allowing vessel owner/operators to submit combined annual reports for certain vessels. EPA believes that some of these changes should significantly improve efficiency for most vessel owner/operators, but several will result in particular efficiencies for the barge industry.

7.5. OIL AND PETROLEUM TANKERS (PART 5.5)

Oil tankers are designed to carry oil and other petroleum products in bulk tanks. Due to the cargo they carry and how they carry their cargo, they are prone to environmentally harmful discharges of oil, particularly during cargo loading and unloading operations. To mitigate these risks, the permit requires that scuppers be blocked during cargo operations to prevent oil from contaminating discharges authorized by this permit. Any oil that is spilled must be cleaned up with oil absorbent cloths or other device to minimize contamination of any authorized discharge. The discharges of water from deck seals are authorized when such deck seals are installed as an integral part of an inert gas scrubber system. These requirements represent existing good marine practice for these vessels.

A visual sheen test must be conducted after cargo loading operations, cargo unloading operations, and deck washing. The visual sheen test detects the presence of free oil on the surface of the water surrounding the vessel. That free oil is visible on the water's surface as an oily sheen. Under 40 CFR 110 or 40 CFR 302, if a visible sheen is detected, you must report the discharge immediately to the National Response Center at 1-800-424-8802 or on the Center's website at www.nrc.uscg.mil. Furthermore, appropriate corrective actions must be taken according to the corrective actions section in Part 3 of the permit and the event must be recorded according to Part 4.2 of the permit.

Oil spill management measures are carried out by the tanker's crew. Pursuant to CWA sections 402(a)(2), and 40 CFR 122.43(a), and implementing regulations, EPA is requiring that all crew members who actively take part in management of a discharge or who may affect a discharge receive training so they are aware of what they must do, when to do it, and why to do it in order to minimize the discharge of oil and other toxic pollutants. In addition, reprimand procedures must in place to hold crew accountable for any failure to follow established pollution prevention procedures.

7.6. RESEARCH VESSELS (PART 5.6)

Research vessels are those that are engaged in investigation or experimentation aimed at the discovery and interpretation of facts, revision of accepted scientific theories or laws in the light of new facts, or practical application of such new or revised theories or laws. They typically include State, Federal, non-profit, educational, and occasionally corporate vessels conducting scientific research and experiments. They are not engaged in commercial activity that results in the direct production of or harvesting for sale of mineral or living resources collected during their voyages. This permit lists the following materials that research vessels are authorized to discharge: tracers (dyes, fluorescent beads, SF_6), drifters, tracking devices and the like, and expendable bathythermograph (XBT) probes. The permit's provisions limit these discharges to the minimal amount that is necessary to conduct the research. In addition, these discharges are only authorized for the sole purpose of conducting research on the aquatic environment or its natural resources in accordance with generally recognized scientific methods, principles, or techniques. EPA expects research vessels to employ responsible research practices at all times. EPA believes that these practices allow for productive research while minimizing the discharge of materials, and that they are technologically available and economically practicable and achievable.

7.7. EMERGENCY VESSELS (PART 5.7)

Emergency vessels include firefighting boats, police boats, and other boats with a public safety mission. These vessels have supplemental permit provisions in Part 5.7 of this permit that specifically allow discharges incidental to their public safety responsibilities. The permit allows the discharge of substances necessary for securing and saving lives at sea. In addition, it allows discharges for training, testing and maintenance purposes, as long as those discharges comply with any additional requirements of the CWA, including section 311, which imposes conditions on the discharge of oil. Furthermore, when these discharges include the use of foaming agents for oil or chemical fire response, they must be in accordance with the National Contingency Plan, pursuant to 40 CFR 300. The National Contingency Plan contains procedures for preparing for and responding to discharges of oil and hazardous substances.

EPA notes that the most commonly used aquatic firefighting substance, AFFF, has the potential for significant environmental impact. In addition to requirements of Part 2.2.5 of this permit, EPA encourages operators of emergency and fire boats to use AFFF formulations that contain low concentrations of perfluorinated surfactants or contain non-fluorinated surfactants that maintain emergency operations effectiveness. Use of alternative formulations of AFFF is strongly recommended for those vessels that operate in areas near active commercial or recreational fisheries, near swimmable waters, or in high traffic areas. EPA encourages emergency vessel owner/operators to use common sense to minimize unnecessary discharges of these toxic firefighting substances. Furthermore, EPA encourages emergency vessel owner/operators to use less persistent (non-fluorinated) substitute foam for training purposes.

8. STATE OR TRIBAL REQUIREMENTS (PART 6)

Part 6 of the final VGP identifies provisions provided to EPA by States and Tribes in their CWA § 401 certifications that the States and Tribes deemed necessary to assure compliance with applicable provisions of the CWA and any other appropriate requirements of State and Tribal law. See 33 U.S.C. 1341(d); 40 CFR § 124.53(e)(1). Pursuant to CWA § 401(d), EPA has attached those State and Tribal provisions to the final VGP; those that constitute effluent or other limitations or monitoring requirements are enforceable conditions of the federal permit. *American Rivers, Inc. v. FERC*, 129 F.3d 99, 107 (2nd Cir. 1997). These conditions are subject to review in State and Tribal administrative and judicial tribunals with appropriate jurisdiction. 40 CFR § 124.55(e); *American Rivers, Inc. v. FERC*, 129 F.3d 99, 102 (2nd Cir. 1997); *Roosevelt Campobello Int'l Park Comm'n v. EPA*, 684 F.2d 1041, 1056 (1st Cir. 1982). Part 6 of the permit also includes conditions provided by states as part of their concurrence with this permit for CZMA purposes if applicable (see Part 12.1 of this fact sheet).

9. DEFINITIONS (APPENDIX A)

Appendix A of the Permit provides permit-specific definitions of statutory, regulatory, and other terms important for understanding this permit and its requirements. Any terms that are not listed in this definitions section have the meaning given to the terms by 40 CFR Part 122.2 (the definitions section of the NPDES regulations). To develop these definitions, EPA has, where possible, relied on existing definitions in other laws and regulations applicable to this universe of permittees in order to provide consistency with those laws and provide permittees with a familiar framework. For those definitions that were developed based on another source, the citation to that law or regulation is included in brackets after the definition.

EPA has added several new definitions to this permit, including “biodegradable,” “active substances,”“”alternative management systems,” “environmental acceptable lubricants,” “fish hold,” “Lakers,” “niche areas,” “seafood processing,” “untreated graywater,” and “voyage.” Based on public comment received, EPA has modified definitions including biodegradable and bioaccumulative.

10. NOTICE OF INTENT AND NOTICE OF TERMINATION (APPENDIX E AND F)

Appendix E of the permit gives those owners and operators who will be required to submit an NOI form an explanation of the process and requirements. This Part reiterates who must file an NOI, pursuant to 1.5.1 of this permit ("How to Obtain Authorization"), and includes a table that outlines the deadlines for submission of an NOI, and corresponding discharge authorization dates. This table provides the same information as Table 1 of this permit. In addition, Part 10.2 provides the actual NOI form, and gives section-by-section instructions on how to fill out the form. The website address for submitting the NOI form is www.epa.gov/npdes/vessels eNOI. The NOI form for vessel discharges will be available on the website approximately 6 months after permit issuance.

Appendix F of the permit discusses how and when to terminate permit coverage using a Notice of Termination (NOT) form, pursuant to the permit's requirements in 1.6. Like the NOI form in Part 10, Part 11 provides the web address for submission of the NOT form, a section-by-section explanation about each section of the NOT form, and the actual NOT form.

11. WATERS FEDERALLY PROTECTED WHOLLY OR IN PART FOR CONSERVATION PURPOSES [APPENDIX G]

Appendix G (formally referred to as Part 12 waters in the 2008 VGP) of this permit lists "waters federally protected in whole or in part for conservation purposes," and several of the permit's technology-based effluent limits prohibit or limit various discharges in these waters to the extent they are within waters subject to this permit. As discussed in section 4.2.3 of this fact sheet, EPA has found that the prescribed limits are technologically available and economically practicable and achievable for certain discharges. Because it is possible to limit discharges to certain times, but not to limit those discharges indefinitely, EPA focused on imposing these limitations for waters federally protected in whole or in part for conservation purposes. To develop this list of waters, EPA reviewed several federal authorities that protect waters that are known to be of particular high value or sensitive to environmental impacts. These waters are comprised of areas that are important to EPA, our federal partners, and the public at large, as evidenced by the waters' special status or designation by the Federal government as National Marine Sanctuaries, Marine National Monuments, National Parks, National Wildlife Refuges, National Wilderness Areas, or parts of the National Wild and Scenic Rivers System. As mentioned, these waters are likely to be of high quality and consist of unique ecosystems which may include distinctive species of aquatic animals and plants. Furthermore, as protected areas, these waters are more likely to have a greater abundance of sensitive species of plants and animals that may have trouble surviving in areas with greater anthropogenic impact.

12. OTHER LEGAL REQUIREMENTS

12.1. COASTAL ZONE MANAGEMENT ACT (CZMA)

The Coastal Zone Management Act (CZMA) and its implementing regulations (15 CFR Part 930) require that any Federal agency activity or Federally licensed or permitted activity occurring within (or outside but affecting) the coastal zone) of a state with an approved coastal zone management program (CZMP) be consistent with the enforceable policies of that approved program to the maximum extent practicable. Agency general permits that do not involve case-by-case or individualized determinations by the Agency are federal activities for the purposes of CZMA section 307(c)(1). Following proposal of the VGP, EPA provided the relevant state coastal zone management agencies with EPA's national consistency determination regarding the enforceable policies in approved state CZM programs for the coastal zones including state waters where the VGP would authorize discharges. 15 CFR 930.31(d). Consistent with the maximum extent practicable standard in 15 CFR 930.32, the final VGP either incorporates state conditions (see VGP Part 6), or if not incorporated or if a state coastal zone management agency objected to the VGP, Part 6 of the VGP notifies potential users of the permit that the VGP is not available for use in that State unless vessel owner/operators wanting to use the VGP in that State provide the State agency with an individual consistency certification under 15 CFR Part 930 subpart D and the State agency concurs.

12.2. ENDANGERED SPECIES CONSULTATION

Section 7(a)(2) of the Endangered Species Act (ESA) requires each Federal agency, in consultation with and with the assistance of the Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS), collectively "the Services," to ensure that the actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any endangered or threatened species (referred to as "listed species") or result in the destruction or adverse modification of their designated critical habitats.

The Services have published regulations implementing ESA section 7 at 50 CFR Part 402. The regulations provide that a Federal agency (such as EPA) must consult with FWS, NMFS, or both if the agency determines that an activity authorized, funded, or carried out by the agency may affect listed species or critical habitat. The kinds of effects that trigger the consultation obligation could include, among other things, beneficial, detrimental, direct and indirect effects. EPA commenced informal consultation with the Services in December 2011. Informal consultation consisted of briefing the Services' staff on the contents of the draft permits, discussing EPA's proposed outline and methodological approach of a BE for both permits, including using a detailed analysis of expected constituents in and impacts from incidental vessel discharges, representative listed species, and reference action areas to inform the broader effects analysis. EPA also requested species lists, additional pertinent information from the Services, and discussed the permit issuance timeline. As part of informal consultation, EPA met with the Services on multiple occasions, and sought and received valuable input on the design of the Agency's Biological Evaluation (EPA 2012b, Nagle 2012).

EPA initiated formal consultation with the Services on July 3, 2012, submitting a formal consultation package including an extensive biological evaluation for the 2013 VGP and sVGP. Section 7 of the ESA allows 90 days for interagency consultation and an additional 45 days for the Services to prepare a biological opinion, under most circumstances. After a short, mutually agreed upon extension of the formal consultation time frame, EPA and the Services successfully concluded formal consultation on November 28 and 29, 2012 with transmittal of separate biological opinions. Both of those opinions concluded that EPA's issuance of the VGP was not likely to jeopardize listed or proposed species or adversely modify designated or proposed critical habitat. Both biological opinions can be found in the docket for this permit issuance.

Furthermore, on March 23, 2012 the United States Coast Guard published their final ballast water discharge standard in the Federal Register, and subsequently the Services concluded consultation on that action in June 2012. The FWS concluded on June 1, 2012 that the USCG's action was not likely to jeopardize listed or proposed species or adversely modify designated or proposed critical habitat and NFMS followed with a June 20, 2012 biological opinion that the USCG's ballast water discharge standard may affect but is not likely to adversely affect threatened and endangered species or their critical habitat. The Vessel General Permit both requires adherence to the USCG's ballast water discharge standard and contains additional environmental protections from that recently issued rulemaking.

12.3. ESSENTIAL FISH HABITAT CONSULTATION

Pursuant to section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), Federal agencies must consult with National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS) regarding any of their actions authorized, funded, or undertaken, or proposed to be authorized, funded, or undertaken that may adversely affect Essential Fish Habitat (EFH). Upon review, EPA has determined that issuance of this final permit will have no adverse effect on EFH. Any effects of this permit on essential fish habitat would be beneficial by imposing restrictions, including management practices, on discharges incidental to the normal operation of vessels. Since prior to enactment of the CWA and the Magnuson-Stevens Act, such discharges have occurred without restrictions.

12.4. MARINE PROTECTION, RESEARCH AND SANCTUARIES ACT

Title I of the Marine Protection, Research and Sanctuaries Act (MPRSA) (also known as the Ocean Dumping Act) generally prohibits, unless authorized by a permit issued under the Act, (1) transportation of material from the US for the purpose of ocean dumping; (2) transportation of material from anywhere for the purpose of ocean dumping by US agencies or US-flagged vessels; and (3) dumping of material transported from outside the US into the US territorial sea or dumping of material transported from outside the US into the US contiguous zone, to the extent that it may affect the territorial sea or the territory of the United States. MPRSA section 101.

Dumping under the MPRSA means "a disposition of material: Provided, that it does not mean a disposition of … a routine discharge of effluent incidental to the propulsion of, or operation of motor-driven equipment on, vessels," nor "a disposition of any effluent from any outfall structure to the extent that such disposition is regulated under the [CWA]." MPRSA 3(f), 33 U.S.C. 1402(f). The VGP regulates such discharges, i.e., routine discharges incidental to the propulsion or normal operation motor-driven equipment on vessels and/or effluent from outfall structures, and thus the regulated discharges are not regulated under the MPRSA.

12.5. OIL SPILL REQUIREMENTS

Section 311 of the CWA prohibits the discharge of hazardous substances in harmful quantities. Discharges incidental to the normal operation of a vessel specifically controlled by the permit are excluded from the provisions of section 311. However, this permit does not preclude the institution of legal action or relieve the permittee from any responsibilities, liabilities, or penalties for other unauthorized discharges of hazardous substances which are covered by section 311 of the CWA.

12.6. Paperwork Reduction Act

The information collection requirements for the first iteration of the VGP were approved by the Office of Management and Budget (OMB) under the Paperwork Reduction Act, 44 U.S.C. 3501 et seq. as part of the NPDES Consolidated ICR. On September 28, 2008 EPA published the first public notice of this ICR under the OMB control number 2040-0004 and on December 17, 2008 EPA published the final public notice for a 30 day comment period.

This information must be collected in order to appropriately administer and enforce the terms and conditions of the VGP. This information collection is mandatory as authorized by Clean Water Act section 308 and all information collected will be treated as Confidential Business Information (CBI).

An agency may not conduct or sponsor, and a person shall not be subject to any penalty for failing to comply with, a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for EPA's regulations in 40 CFR are listed in 40 CFR Part 9. When this ICR is approved by OMB, the Agency will publish a technical amendment to 40 CFR Part 9 in the Federal Register to display the OMB control number for the approved information collection requirements contained in this final permit.

12.7. Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations

Executive Order (EO) 12898 (59 FR 7629 (Feb. 16, 1994)) establishes federal executive policy on environmental justice. Its main provision directs federal agencies, to the greatest extent practicable and permitted by law, to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations in the United States.

EPA has determined that these permits will not have disproportionately high and adverse human health or environmental effects on minority or low-income populations because it increases the level of environmental protection for all affected populations without having any disproportionately high and adverse human health or environmental effects on any population, including any minority or low-income population. The provisions in these permits include, among other things, new requirements for ballast water discharges, other incidental discharges, commercial fishing vessels, and vessels less than 79 feet, which will result in an increase in the level of environmental protection. The requirements in the VGP and sVGP apply equally to discharges from regulated vessels, and therefore do not disproportionately and adversely affect minority or low-income populations.

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VESSEL GENERAL PERMIT FOR DISCHARGES INCIDENTAL TO THE NORMAL OPERATION OF VESSELS (VGP)

AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Clean Water Act (CWA), as amended (33 USC 1251 et seq.), any owner or operator of a vessel being operated in a capacity as a means of transportation who:

- Is eligible for permit coverage under Part 1.2; and
- If required by Part 1.5.1, submits a complete and accurate Notice of Intent (NOI) or completes a Permit Authorization and Record of Inspection (PARI) form and retains it onboard the vessel

Is authorized to discharge in accordance with the requirements of this permit.

General effluent limits for all eligible vessels are given in Part 2. Further vessel class or type specific requirements are given in Part 5 for select vessels and apply in addition to any general effluent limits in Part 2. Specific requirements that apply in individual states and Indian Country Lands are found in Part 6. Definitions of permit-specific terms used in this permit are provided in Appendix A.

This permit becomes effective on December 19, 2013.

This permit and the authorization to discharge expire at midnight December 19, 2018.

Signed and issued this 28th day of March, 2013
Ira W. Leighton, Deputy Regional Administrator
EPA Region 1

Signed and issued this 28th day of March, 2013
Joan Leary Matthews, Director
Clean Water Division, EPA Region 2

Signed and issued this 28th day of March, 2013
Ramon Torres, Acting Director
Caribbean Environmental Protection Division
EPA Region 2

Signed and issued this 28th day of March, 2013
Jon M. Capacasa, Director
Water Protection Division, EPA Region 3

Signed and issued this 28th day of March, 2013
James D. Giattina, Director
Water Protection Division, EPA Region 4

Signed and issued this 28th day of March, 2013
Tinka G. Hyde, Director
Water Division, EPA Region 5

Signed and issued this 28th day of March, 2013
William K. Honker, Director
Water Quality Protection Division,
EPA Region 6

Signed and issued this 28th day of March, 2013
Karen Flournoy, Director
Water, Wetlands and Pesticides Division,
EPA Region 7

Signed and issued this 28th day of March, 2013
Derrith R. Watchman-Moore, Assistant Regional Administrator
Office of Partnerships and Regulatory Assistance, EPA Region 8

Signed and issued this 28th day of March, 2013
John Kemmerer, Acting Director
Water Division, EPA Region 9

Signed and issued this 28th day of March, 2013
Daniel D. Opalski, Director
Office of Water and Watersheds, EPA Region 10

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1. COVERAGE UNDER THIS PERMIT

1.1 Permit Structure

This permit is structured as follows:

- General requirements that apply to all eligible vessel discharges are found in Parts 1 through 4;
- Specific additional requirements that apply to particular vessel classes are found in Part 5; and
- Specific additional requirements that apply in individual states or Indian Country Lands are found in Part 6.

The Appendices A through K include definitions, the NOI form, the Notice of Termination (NOT) form, a list of waters federally protected for conservation purposes, the annual report form, DMR forms, the Permit Authorization and Record of Inspection (PARI) form, and supplemental information.

1.2 Eligibility

You must meet the following provisions to be eligible for coverage under this permit.

1.2.1 General Scope of this Permit

This permit is applicable to discharges incidental to the normal operation of a vessel identified in Part 1.2.2 into waters subject to this permit. These waters are "waters of the United States" as defined in 40 Code of Federal Regulations (CFR) §122.2 (extending to the outer reach of the 3 mile territorial sea as defined in section 502(8) of the CWA). This includes all navigable waters of the Great Lakes subject to the jurisdiction of the United States. Recreational vessels as defined in section 502(25) of the CWA are not subject to this permit. Such vessels are not subject to NPDES permitting under section 402 of the CWA, and are instead subject to regulation under section 312(o) of the CWA. EPA expects that most vessels seeking coverage under this permit will be greater than 79 feet in length; however, commercial fishing vessels and other non-recreational vessels less than 79 feet are also eligible for permit coverage under this permit or those vessels may seek coverage under EPA's small Vessel General Permit (sVGP), as available and appropriate. If auxiliary vessels or craft, such as lifeboats, rescue boats, or barges onboard larger vessels require NPDES permit coverage, they are eligible for coverage under this permit and are covered by submission of the NOI for the larger vessels. For purposes of recordkeeping, inspections, and reporting, auxiliary vessels may be considered as part of the same entity as the larger vessel. Nothing in this permit shall be interpreted to apply to a vessel of the Armed Forces as defined in section 312(a)(14) of the CWA.

1.2.2 Vessel Discharges Eligible for Coverage

Unless otherwise made ineligible under Part 1.2.3, the following discharge types are eligible for coverage under this permit:

1.2.2.1 Deck Washdown and Runoff and Above Water Line Hull Cleaning

1.2.2.2 Bilgewater/Oily Water Separator Effluent

1.2.2.3 Ballast Water

1.2.2.4 Anti-fouling Hull Coatings/Hull Coating Leachate

1.2.2.5 Aqueous Film Forming Foam (AFFF)

1.2.2.6 Boiler/Economizer Blowdown

1.2.2.7 Cathodic Protection

1.2.2.8 Chain Locker Effluent

1.2.2.9 Controllable Pitch Propeller and Thruster Hydraulic Fluid and other Oil Sea Interfaces including Lubrication Discharges from Paddle Wheel Propulsion, Stern Tubes, Thruster Bearings, Stabilizers, Rudder Bearings, Azimuth Thrusters, and Propulsion Pod Lubrication, and Wire Rope and Mechanical Equipment Subject to Immersion

1.2.2.10 Distillation and Reverse Osmosis Brine

1.2.2.11 Elevator Pit Effluent

1.2.2.12 Firemain Systems

1.2.2.13 Freshwater Layup

1.2.2.14 Gas Turbine Washwater

1.2.2.15 Graywater

Except that Graywater from commercial vessels within the meaning of CWA section 312 that are operating in the Great Lakes is excluded from the requirement to obtain an NPDES permit (see CWA section 502(6)), and thus is not within the scope of this permit.

1.2.2.16 Motor Gasoline and Compensating Discharge

1.2.2.17 Non-Oily Machinery Wastewater

1.2.2.18 Refrigeration and Air Condensate Discharge

1.2.2.19 Seawater Cooling Overboard Discharge (Including Non-Contact Engine Cooling Water; Hydraulic System Cooling Water, Refrigeration Cooling Water)

1.2.2.20 Seawater Piping Biofouling Prevention

1.2.2.21 Boat Engine Wet Exhaust

1.2.2.22 Sonar Dome Discharge

1.2.2.23 Underwater Ship Husbandry

1.2.2.24 Welldeck Discharges

1.2.2.25 Graywater Mixed with Sewage from Vessels

1.2.2.26 Exhaust Gas Scrubber Washwater Discharge

1.2.2.27 Fish Hold Effluent

1.2.3 Limitations on Coverage

1.2.3.1 Discharges Not Subject to Former NPDES Permit Exclusion and Vessel Discharges Generated from Vessels when they are Operated in a Capacity Other than as a Means of Transportation

Discharges that are outside the scope of the former exclusion from NPDES permitting for discharges incidental to the normal operation of a vessel as set out in 40 CFR §122.3(a), as in effect on December 18, 2008, are ineligible for coverage under this permit. This permit does not apply to any vessel when it is operating in a capacity other than as a means of transportation. For any discharges identified in this permit, discharges are not eligible if they contain materials resulting from industrial or manufacturing processes onboard or other materials not derived from the normal operations of a vessel.

Vessels when they are being used as an energy or mining facility, a storage facility, a seafood processing facility, or when secured to the bed of waters subject to this permit or to a buoy for the purpose of mineral or oil exploration or development are not eligible for coverage under this permit. Furthermore, “floating” craft that are permanently moored to piers, such as “floating” casinos, hotels, restaurants, bars, etc. are not covered by the former vessel exclusion and would not be covered by this vessel permit.

1.2.3.2 Sewage

Discharges of sewage from vessels, as defined in CWA section 502(6) and 40 CFR §122.2, are not required to obtain NPDES permits. Instead, these discharges are regulated under section 312 of the CWA and 40 CFR Part 140 and 33 CFR Part 159. Under CWA section 312(a)(6), the definition of sewage includes graywater discharges from “commercial vessels” (as defined in CWA section 312(a)(10)) operating on the Great Lakes. If a vessel operating on the Great Lakes is not a “commercial vessel” as defined in CWA section 312(a)(10), the vessel’s graywater discharges are eligible for coverage under this permit, and are subject to the additional permit requirements in Part 2.2.15.1.

1.2.3.3 Used or Spent Oil

Discharges of used or spent oil no longer being used for their intended purposes are not eligible for coverage under this permit.

1.2.3.4 Garbage or Trash

Discharges of rubbish, trash, garbage, or other such materials discharged overboard are not eligible for coverage under this permit. “Garbage” includes discharges of bulk dry cargo residues as defined at 33 CFR §151.66(b) (73 Fed. Reg. 56492 (September 29, 2008)) and agricultural cargo residues. Discharges of garbage are subject to regulation under 33 CFR Part 151, Subpart A.

1.2.3.5 Photo-Processing Effluent

Discharges from photo-processing operations are not eligible for coverage under this permit.

1.2.3.6 Effluent from Dry Cleaning Operations

Discharges of spent or unused effluent from dry cleaning operations are not eligible for coverage under this permit. This includes any spent or unused tetrachloroethylene (perchloroethylene) from these operations.

1.2.3.7 Discharges of Medical Waste and Related Materials

Discharges of medical waste as defined in 33 USC 1362(20) are not eligible for coverage under this permit. Discharges of spent or unused pharmaceuticals, formaldehyde, or other biohazards no longer being used for their intended purposes are not eligible for coverage under this permit.

For purposes of this permit, the liquid produced by dialysis treatment of humans is not deemed to be “medical waste,” and, like other human body waste, is subject to regulation under CWA §312 if introduced into marine sanitation devices, or under VGP Part 2.2.25 if added to a blackwater system combined with a graywater system. The direct overboard discharge of such liquid without treatment is not eligible for coverage under this permit.

1.2.3.8 Discharges of Noxious Liquid Substance Residues

Discharges of noxious liquid substance residues subject to 33 CFR Part 151, Subpart A or 46 CFR §153.1102 are not eligible for coverage under this permit.

1.2.3.9 Tetrachloroethylene (Perchloroethylene) and Trichloroethylene (TCE) Degreasers

Discharges of tetrachloroethylene (perchloroethylene) and trichloroethylene (TCE) degreasers or other products containing tetrachloroethylene or trichloroethylene are not eligible for coverage under this permit.

1.2.3.10 Discharges Currently or Previously Covered by an another NPDES Permit

The following discharges are not eligible for coverage under this permit:

- Vessel discharges covered, as of the effective date of this permit, under an individual or a general NPDES permit other than the VGP, unless EPA specifically allows coverage under Part 1.8.2, or otherwise provides written permission to be covered under this permit, or

- Discharges from vessels covered by any NPDES permit that has been or is in the process of being denied, terminated, or revoked by EPA or a state permitting authority (this does not apply to the routine reissuance of permits every five years).

1.3 Reserved

1.4 Permit Compliance

The CWA provides that any person who knowingly falsifies, tampers with, or renders inaccurate any monitoring device or method required to be maintained under the CWA shall, upon conviction, be punished by a fine of not more than \$10,000, or by imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than \$20,000 per day of violation, or by imprisonment of not more than 4 years, or both. The Act similarly provides that any person who knowingly makes any false material statement, representation, or certification in any application, record, report, plan or other document filed or required to be maintained under the CWA shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both. In addition, false statements or representations, as well as alterations or false entries in documents, may be punishable by more severe criminal penalties pursuant to 18 USC §1001 or 18 USC §1519.

Permittees have a duty to comply with this permit consistent with 40 CFR §122.41(a), as incorporated by reference in Part 1.13 of this permit. Any noncompliance with the requirements of this permit constitutes a violation of the CWA and grounds for enforcement action consistent with provisions outlined in 40 CFR §122.41(a). Each day a violation continues is a separate violation of this permit. Where requirements and schedules for taking corrective actions are included in this permit, the time intervals provided are not grace periods, but schedules considered reasonable for making repairs and improvements. They are included in this permit to ensure that the conditions prompting the need for these corrective actions are not allowed to persist indefinitely. You must return to compliance as promptly as possible, but no later than the time period specified in this permit. For provisions specifying a time period to remedy noncompliance, the initial and continuing failure, such as a violation of numeric or non-numeric effluent limits, constitutes a violation of this permit and the CWA. As such, any time periods specified for remedying noncompliance do not relieve parties of the initial underlying noncompliance. However, EPA will consider the appropriateness and promptness of corrective action in determining enforcement responses to permit violations.

To provide clarity for the permittee, there are additional reminders in certain sections of this permit about what constitutes a permit violation. The absence of such a reminder in a particular section does not mean that failure to meet that requirement is not a permit violation.

1.5 Authorization under this Permit

1.5.1 How to Obtain Authorization

To obtain authorization to discharge under this permit, you must meet the Part 1.2 eligibility requirements. If your vessel meets the requirements under Part 1.5.1.1, and you were authorized to discharge under the 2008 VGP, you must submit an NOI to receive permit coverage seven days before the effective date of this permit to continue uninterrupted coverage. Vessels authorized to discharge under the 2008 VGP were vessels that had submitted an NOI or were not subject to the NOI requirement by Part 1.5.1.2 of the 2008 VGP. If you were not authorized to discharge under the 2008 VGP and your vessel meets the requirements under Part 1.5.1.1, you must submit an NOI to receive permit coverage at least 7 days or more than 30 days (as applicable) before discharging into waters subject to this permit (see Table 1 below). Owner/operators of vessels that meet the requirements under Part 1.5.1.2 are not required to submit NOIs. Instead these owner/operators must sign and maintain a copy of the PARI form.

1.5.1.1 Vessels Required to Submit Notices of Intent (NOIs)

If your vessel is greater than or equal to 300 gross tons or the vessel has the capacity to hold or discharge more than 8 cubic meters (2,113 gallons) of ballast water, you must submit a signed and certified, complete and accurate NOI in accordance with the requirements of Appendix E to receive coverage under this permit. Submission must be in accordance with the deadlines in Table 1.

If you are required to submit an NOI, you must submit your NOI using EPA's Electronic Notice of Intent (eNOI) system (www.epa.gov/npdes/vessels/eNOI) unless you meet one of the exemptions in Part 1.14 of this permit. EPA will post on the Internet, at www.epa.gov/npdes/vessels/eNOI, all NOIs processed. If you do not have an active NOI, before you commence discharging, you will be in violation of the permit.

Paper NOIs will only be accepted if you meet one of the electronic reporting exemptions found in Part 1.14 of this permit. However, even if accepted, there may be an extended waiting period for your authorization to discharge as compared to the waiting period for electronic submissions. As noted in the footnote to the Table, the Discharge Authorization Date may be delayed by EPA.

Table 1: NOI Submission Deadlines/Discharge Authorization Dates

Category	NOI Deadline	Discharge Authorization Date*
Vessels authorized to discharge under the 2008 Vessel General Permit (VGP)	No later than December 12, 2013 or 7 days prior to discharge into waters subject to this permit, whichever is later	For eNOIs: December 19, 2013 or, if not submitted by December 12, 2013, 7 days after complete NOI processed** by EPA For Paper NOIs: 30 days after complete NOI processed by EPA
New Owner/Operator of Vessel – transfer of ownership and/or operation of a vessel whose discharge is previously authorized under this permit	By date of transfer of ownership and/or operation	Date of transfer or date EPA processes NOI, whichever is later
New vessels delivered to owner or operator after December 19, 2013	For vessels submitting eNOIs: 7 days prior to discharge into waters subject to this permit For vessels submitting Paper NOIs: At least 30 days prior to discharge into waters subject to this permit	For eNOIs: 7 days after complete NOI processed by EPA For Paper NOIs: 30 days after complete NOI processed by EPA
Existing vessels delivered to owner or operator after December 19, 2013 that were not previously authorized under this permit	For vessels submitting eNOIs: 7 days prior to discharge into waters subject to this permit For vessels submitting Paper NOIs: At least 30 days prior to discharge into waters subject to this permit	For eNOIs: 7 days after complete NOI processed by EPA For Paper NOIs: 30 days after complete NOI processed by EPA

* Based on a review of your NOI or other information, EPA may delay the discharge authorization date for further review, or may deny coverage under this permit and require submission of an application for an individual NPDES permit, as detailed in Part 1.8 of the permit. In these instances, EPA will notify you in writing of the delay or the request for submission of an individual NPDES permit application. If EPA requires an individual permit for an existing vessel previously covered by this general permit, EPA will allow the permittee a reasonable amount of time to obtain individual permit coverage before their general permit coverage terminates.
** NOI processing means that a complete electronic NOI has been submitted and successfully signed and certified by the permittee, or in the case of a paper NOI, that EPA has received your NOI and input the information into its electronic system. Submitting a paper NOI may result in processing delays dependent upon the volume of NOIs received by EPA.

1.5.1.2 Vessels Not Required to Submit Notices of Intent (NOIs)

If your vessel is less than 300 gross tons and your vessel does not have the capacity to hold or discharge more than 8 cubic meters (2113 gallons) of ballast water, you do not need to submit an NOI. However, you must complete the PARI form found in Appendix K, and keep a copy of that form onboard your vessel at all times. Provisions for retaining an electronic copy of the PARI form are described in Part 4.2.1.

1.5.2 Continuation of this Permit

If this permit is not reissued or replaced prior to the expiration date, it will be administratively continued in accordance with section 558(c) of the Administrative Procedure Act (5 USC 558(c)) and EPA's implementing regulations at 40 CFR §122.6 and remain in force and effect for discharges that were covered prior to expiration. If you were granted permit coverage prior to the expiration date, you will automatically remain covered by this permit until the earliest of:

- Your authorization for coverage under a reissuance or replacement of this permit, following your timely and appropriate submittal of a complete NOI requesting authorization to discharge under the new permit and compliance with the requirements of the new permit; or
- Your submittal of a Notice of Termination (NOT); or
- Issuance of a new general permit that covers your vessel discharges or vessel type and provides you coverage without requiring you to submit an NOI to obtain coverage; or
- Issuance or denial of an individual permit for the vessel's discharges; or
- A formal permit decision by EPA not to reissue this general permit, at which time EPA will identify a reasonable time period for covered dischargers to seek coverage under an alternative general permit or an individual permit. Coverage under this permit will cease at the end of this time period.

1.6 Terminating Coverage

1.6.1 Terminating Coverage for Vessels Required to Submit a Notice of Intent (NOI)

1.6.1.1 Submitting a Notice of Termination (NOT)

If you wish to terminate coverage under this permit, and you were required to file a NOI by Part 1.5.1.1, you must submit your NOT in accordance with Appendix F. Vessels holding a valid NOI are not required to terminate their NOI when they move in and out of waters subject to the VGP, or when they are engaged in industrial activity and subject to another NPDES permit while conducting those activities.

If you were required to file a NOI by Part 1.5.1.1, you may use the eNOI system to file your NOT, available at www.epa.gov/npdes/vessels/eNOI. Your authorization to discharge under this permit terminates at 11:59 pm on the day that a complete NOT is processed and posted on EPA's website (www.epa.gov/npdes/vessels/eNOI). If you submit a NOT without meeting at least one of the conditions identified in Part 1.6.1.2, then your NOT is not valid. You will continue to be responsible for discharges from your vessel until you have submitted a valid NOT and it is posted on EPA's website, unless permit coverage is terminated without a NOT pursuant to Part 1.6.2 or 1.8.

1.6.1.2 When to Submit a NOT

If you were required to submit a NOI pursuant to Part 1.5.1 to be released from the requirements of this permit, you must submit a NOT within 30 days after one or more of the following conditions have been met:

- A new owner or operator has taken over responsibility for the vessel; or
- You have permanently ceased operating the vessel in waters subject to this permit and there are no longer vessel discharges in such waters; or
- You have obtained coverage under an individual or alternative general permit for all discharges required to be covered by an NPDES permit, unless you were directed to obtain this coverage by EPA in accordance with Part 1.8.1.

1.6.2 Terminating Coverage for Vessels not Required to Submit a Notice of Intent (NOI)

For vessels that are not required to submit a NOI under Part 1.5.1.2, termination of coverage is automatic if any of the following conditions are met:

- A new owner or operator has taken over responsibility for the vessel; or
- You have permanently ceased operating the vessel in waters subject to this permit and there are no longer vessel discharges; or
- You have obtained coverage under an individual or alternative general permit for all discharges required to be covered by an NPDES permit.

1.7 Certification

The NOI, NOT, the VGP PARI Form, and any reports (including any monitoring data) submitted to EPA must include the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information contained therein. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information contained is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

All other documentation required under this permit, but not required to be submitted to EPA, must be signed and dated by the person preparing the documentation.

1.8 Alternative Permits

1.8.1 EPA Requiring Coverage under an Alternative Permit

Pursuant to 40 CFR §122.28(b)(3), EPA may require you to apply for an individual NPDES permit or an alternative NPDES general permit. Any interested person may petition EPA to take action under this paragraph. If EPA requires you to apply for an individual NPDES permit, EPA will notify you in writing that a permit application is required. This notification will include a brief statement of the reasons for this decision and will provide application information. In addition, if you are an existing permittee authorized to discharge under this permit, the notice will set a deadline to file the permit application, and will include a statement that on the effective date of the individual NPDES permit, or the alternative general permit as it applies to you, coverage under this general permit will terminate. EPA may grant additional time to submit the application if you request it. If you are covered under this permit and fail to submit an individual NPDES permit application as required by EPA, then your coverage under this permit is terminated at midnight on the day specified by EPA as the deadline for application submittal. In addition, if EPA denies your application for an individual NPDES permit, you are also not authorized to discharge under this general permit. EPA may take enforcement action for any unpermitted discharge.

When an individual NPDES permit is issued to you or you are authorized to discharge under an alternative NPDES general permit, your coverage under this permit is terminated on the effective date of the individual permit or the date of authorization of coverage under the alternative general permit. In this case (where EPA requires you to obtain coverage under an individual or alternative general permit), you are not required to file a NOT as discussed above.

1.8.2 Permittee Requesting Coverage under an Alternative Permit

You may request to be excluded from coverage under this general permit by applying for an individual permit per 40 CFR §122.28(b)(3)(iii). In such a case, you must submit an individual permit application in accordance with the requirements of 40 CFR §122.21, with reasons supporting the request, to EPA at the appropriate EPA Regional Office(s) listed in Appendix B of this permit, no later than 90 days after December 19, 2013. The request may be granted by issuance of an individual permit or authorizing coverage under an alternative general permit if your reasons are adequate to support the request. A source excluded from this general permit solely because it already has an individual permit may request that the individual permit be revoked, and that it be covered by this general permit. Upon revocation of the individual permit, this general permit shall apply to the source.

When an individual NPDES permit is issued to you or you are authorized to discharge under an alternative NPDES general permit, your authorization to discharge under this permit is terminated on the effective date of the individual permit or the date of authorization of coverage under the alternative general permit.

1.9 Permit Reopener Clause

1.9.1 Modification of the VGP

Permit modification or revocation will be conducted according to 40 CFR §§122.62, 122.63, 122.64, and 124.5.This permit is subject to modification in accordance with 40 CFR §§124.5 and 122.62. Grounds for such modification include receipt of new information that was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and would have justified the application of different permit conditions at the time of permit issuance. With respect to ballast water discharges, new information that will be considered in determining whether to modify this permit includes, but is not limited to, data or information from permittees, the general public, states, academia, scientific or technical articles or studies, results of monitoring conducted under this permit, and whether the U.S. Coast Guard has received a written extension request pursuant to 33 CFR 151.2036 indicating that:

- Treatment technology has improved such that these improved technologies would have justified the application of significantly more stringent effluent limitations or other permit conditions had they been known at the time of permit issuance;
- Treatment technologies known of at the time of permit issuance perform better than understood at the time of permit issuance such that this improved performance would have justified the application of significantly more stringent effluent limitations or other permit conditions had this been understood at the time of permit issuance;
- Treatment technology for a certain vessel(s) will not be available within the timeframe specified in Part 2.2.3.5.2, Table 6, such that this information would have justified the imposition of a different implementation date had it been known at the time of permit issuance.
- Scientific understanding of pollutant effects or of invasion biology has evolved such that this new information would have justified the application of significantly more stringent effluent limitations or other permit conditions had this been understood at the time of permit issuance; or
- The cumulative effects of any discharge authorized by the VGP on the environment are unacceptable.

Regarding implementation dates of the limits found in Part 2.2.3.5 of the VGP, EPA advises that where the U.S. Coast Guard has granted or denied an extension request pursuant to 33 CFR 151.2036, that information will be considered by EPA, but is not binding on EPA.

1.9.2 Water Quality Protection

EPA may require you to obtain an individual permit in accordance with Part 1.8 of this permit for cause. This may happen, for example, if there is evidence that the discharges authorized by this permit cause or have the reasonable potential to cause or contribute to an excursion above any applicable water quality standard in the receiving water body or downstream waters. Similarly, EPA may modify this permit to include different limitations and/or requirements for cause.

1.10 Severability

Invalidation of a portion of this permit does not necessarily render the whole permit invalid. EPA's intent is that the permit remains in effect to the extent possible; in the event that any part of this permit is invalidated, EPA will advise the regulated community as to the effect of such invalidation.

1.11 State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation under authority preserved by section 510 of the CWA.

1.12 Federal Laws

Nothing in this permit shall be construed to affect, supersede, or relieve the vessel owner or operator of any otherwise applicable requirements or prohibitions under other provisions of federal law or regulations.

1.13 Standard Permit Conditions

As provided by the introductory text of 40 CFR §122.41 and the regulation at 40 CFR §122.43(c), all of the standard permit conditions published in federal regulations at 40 CFR §122.41 are hereby incorporated by reference.

1.14 Electronic Reporting Requirement

All vessel owner operators must submit all NOIs, NOTs, annual reports, Discharge Monitoring Reports (DMRs), and other reporting information as appropriate electronically, unless the vessel owner/operator meets one of the following exemptions:

For purposes of the VGP, temporary waivers from electronic reporting may be granted if:

- EPA has not yet implemented such electronic reporting;
- If the owner/operator's headquarters is physically located in a geographic area (i.e., zip code or census tract) that is identified as under-served for broadband Internet access in the most recent report from the Federal Communications Commission and the vessel never travels to any areas with adequate broadband Internet access; or
- If the vessel owner/operator has issues regarding available computer access or computer capability.

You may check www.epa.gov/npdes/vessels to determine whether electronic reporting for the relevant document has been implemented. If that website indicates that electronic reporting for the document to be submitted is not yet available, you do not need to seek a waiver for a paper submission.

If you wish to obtain waiver for submitting your reports electronically, you must submit a request to EPA at the following address:

EPA NPDES Vessels Team
Attn: Vessel Reporting Waiver Requests
Mail Code 4203M
1200 Pennsylvania Ave. NW
Washington DC, 20004

In requesting a waiver from electronic reporting, you must document which exemption you believe you meet, and provide evidence supporting these claims and a copy of your completed NOI or PARI form (as applicable). A waiver may only be considered granted once you receive written confirmation from EPA or its authorized representative.

EPA intends to make any ballast water monitoring information transmitted to the Agency in electronic form available to the public in electronic form.

1.15 Additional Notes

- All requirements in this permit to comply with statutes and regulations, other than CWA section 402 and its implementing regulations, refer to those authorities as codified as of the date of Federal Register notice announcing availability of this final permit. Furthermore, with respect to references to class society or flag state requirements, all references to requirements are to those as of the date of Federal Register notice announcing availability of this final permit.
- All requirements to comply with specified statutes include the requirement to comply with any applicable implementing regulations.
- Provisions stating that "EPA recommends" certain actions, or that you "should" take certain actions, constitute recommendations by the Agency and thus are not mandatory requirements of this permit.
- EPA intends to implement the VGP in accordance with the CWA as well as U.S. international legal obligations, including those obligations associated with a vessel's right to innocent passage as provided for under customary international law.
- EPA notes that vessel masters have the responsibility to ensure the safety and stability of the vessel and the safety of the crew and passengers, and nothing in this permit is intended to interfere with their fulfillment of that responsibility. EPA further notes its regulations at 40 CFR 122.41(m)(4)(A) include a bypass provision which would address the situation of a shipboard emergency that endangers the safety of the vessel or its crew, specifically the provisions regarding the "diversion of waste streams from any portion of the treatment facility" where unavoidable to prevent loss of life, personal injury, or severe property damage. See 40 CFR 122.41(m)(4)(A) and Part 1.13 of this permit. Additionally, EPA has provided targeted safety exemptions to VGP permit requirements in Parts 2.2.3, 2.2.5, 2.2.6, 2.2.13, and 2.2.26 of the permit.

2. Effluent Limits and Related Requirements

In the limits below and throughout this permit, the term "minimize" means reduce and/or eliminate to the extent achievable using control measures (including best management practices) that are technologically available and economically practicable and achievable in light of best marine practice.

You may not add any constituents to any discharge that are not incidental to the normal operation of a vessel.

You may not dilute discharges eligible for coverage under this permit prior to their discharge for the purpose of meeting limits set forth in this permit.

2.1 Technology-Based Effluent Limits and Related Requirements Applicable to all Vessels

You are required to meet the following effluent limits, regardless of the type of vessel you own or operate.

2.1.1 Material Storage

For cargoes or onboard materials which might wash overboard or dissolve as a result of contact with precipitation or surface water spray, or which may be blown overboard by air currents, you must minimize the amount of time these items are exposed to such conditions. Locate storage areas on the vessel for such items in covered areas where feasible and consistent with any applicable regulations promulgated by the Secretary of the Department in which the Coast Guard is operating that establish specifications for safe transportation, handling, carriage, and storage of pollutants (see Part 2.1.5). If water draining from storage areas comes in contact with oily materials, except for naturally occurring fish oils from fishing gear stored on deck, you must:

- Use dry cleanup methods or absorbents to clean up the wastewater;
- Store the water for onshore disposal; or
- Run the water through an oily water separator when required by Coast Guard regulations, or if not subject to such requirement, use other effective methods to comply with Part 2.1.4 of this permit to prevent the discharge of any oils, including oily materials, into waters subject to this permit in quantities which may be harmful as defined in 40 CFR Part 110. This permit does not authorize the discharge of any oily water which might otherwise be inconsistent with requirements found in the Act to Prevent Pollution from Ships or under the International Convention for the Prevention of Pollution from Ships, 1973 as modified by the protocol of 1978 (MARPOL 73/78).

2.1.2 Toxic and Hazardous Materials

Where consistent with vessel design and construction, you must locate toxic and hazardous materials in protected areas of the vessel to minimize exposure to ocean spray and precipitation, unless the Master determines this would interfere with essential vessel operations or safety of the vessel or doing so would violate any applicable regulations promulgated by the Secretary of the Department in which the Coast Guard is operating that establish specifications for safe transportation, handling, carriage, and storage of pollutants (see Part 2.1.5). Any discharge made for the foregoing reasons must be documented consistent with Part 4.2. You must ensure that toxic and hazardous materials are in appropriate sealed containers constructed of a suitable material, labeled, and secured. Containers must not be overfilled and incompatible wastes should not be mixed. Exposure of containers to ocean spray or precipitation must be minimized. Jettisoning of containers holding toxic or hazardous material is not authorized by this permit.

2.1.3 Fuel Spills/Overflows

Fuel spills or overflows must not result in a discharge of oil in quantities that may be harmful, pursuant to 40 CFR Part 110. You must conduct all fueling operations using control measures and practices designed to minimize spills and overflows and ensure prompt containment and cleanup if they occur. Vessel operators must not overfill fuel tanks. For vessels with interconnected fuel tanks, fueling must be conducted in a manner that prevents overfilling and release from the system to the environment.

Vessels with air vents from fuel tanks must use spill containment or other methods to prevent or contain any fuel or oil spills. Large-scale fuel spills or overflows are not incidental to the normal operation of the vessel and are not authorized by this permit.

The following requirements apply to fueling of auxiliary vessels such as lifeboats, tenders or rescue boats deployed from "host" vessels subject to this permit:

- While fueling, examine the surrounding water for the presence of a visible sheen. If a visible sheen is observed, as a result of your fueling, it must be cleaned up immediately.
- It is important to know the capacity of the fuel tanks before you begin fueling in order to prevent unintentionally overfilling the tank.
- Prevent overfilling and do not top off your fuel tanks.
- When possible, fill fuel tanks while boat is on shore or recovered from the water.
- When possible, fill portable tanks on shore or on the host vessel, not on the auxiliary vessel.
- Use an oil absorbent material or other appropriate device while fueling the auxiliary vessel to catch drips from the vent overflow and fuel intake.
- Regularly inspect the fuel and hydraulic systems for any damage or leaks.

Owner/operators shall ensure that all crew responsible for conducting fueling operations are trained in methods to minimize spills caused by human error and/or the improper use of equipment.

2.1.4 Discharges of Oil Including Oily Mixtures

All discharges of oil, including oily mixtures, from ships subject to Annex I of the International Convention for the Prevention of Pollution from Ships as implemented by the Act to Prevent Pollution from Ships and U.S. Coast Guard regulations found in 33 CFR §151.09 (hereinafter referred to as "MARPOL vessels") must have concentrations of oil less than 15 parts per million (ppm) (as measured by EPA Method 1664 or other appropriate method for determination of oil content as accepted by the International Maritime Organization (IMO) (e.g. ISO Method 9377-2) or U.S. Coast Guard) before discharge. All MARPOL vessels must have a current International Oil Pollution Prevention Certificate (IOPP) issued in accordance with 33 CFR §§151.19 or 151.21. All other discharges of oil including oily mixtures must not contain oil in quantities that may be harmful, pursuant to 40 CFR Part 110.

2.1.5 Compliance with Other Statutes and Regulations

As required by 40 CFR §122.44(p), you must comply with any applicable regulations promulgated by the Secretary of the Department in which the Coast Guard is operating that establish specifications for safe transportation, handling, carriage, and storage of pollutants.

Any discharge from your vessel must comply with sections 311 (33 USC 1321) of the CWA, the Act to Prevent Pollution from Ships (APPS 33 USC §§1905-1915), the National Marine Sanctuaries Act, (16 USC 1431 et seq.) and implementing regulations found at 15 CFR Part 922 and 50 CFR Part 404, the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA, 7 USC §136 et seq.), and the Oil Pollution Act (OPA of 1990, 33 USC §2701-2720).

The US Code of Federal Regulations containing these provisions can be found at: www.gpoaccess.gov/ecfr/.

2.1.6 General Training

All owner/operators of vessels must ensure that the master, operator, person-in-charge, and crew members who actively take part in the management of incidental discharges or who may affect those discharges are adequately trained in implementing the terms of this permit. In addition, all owner/operators of vessels must ensure appropriate vessel personnel be trained in the procedures for responding to fuel spills and overflows, including notification of appropriate vessel personnel, emergency response agencies, and regulatory agencies. This training need not be formal or accredited courses; however, it is the vessel owners/operators' responsibility to ensure these staff are given the necessary information to conduct shipboard activities in accordance with the terms of this permit.

Vessel owners/operators must also meet all training-related recordkeeping requirements of Part 4.2 of this permit.

2.2 Effluent Limits and Related Requirements for Specific Discharge Categories

The requirements in Part 2.2 constitute technology-based effluent limitations and related requirements except where it is specifically noted that the requirements constitute water quality based limits.

2.2.1 Deck Washdown and Runoff and Above Water Line Hull Cleaning

Vessel owner/operators must minimize the introduction of on-deck debris, garbage, residue, and spill into deck washdown and runoff discharges. Before deck washdowns occur, you must broom clean (or equivalent) exposed decks or use comparable management measures and remove all existing debris. When required by their class societies (e.g., oil tankers), their flag Administrations, or the U.S. Coast Guard, vessels must be fitted with and use perimeter spill rails and scuppers to collect the runoff for treatment. Where feasible, machinery on deck must have coamings or drip pans where necessary to collect any oily discharge that may leak from machinery and prevent spills. The drip pans must be drained to a waste container for proper disposal and/or periodically wiped and cleaned. Additionally, to reduce the risk of any leakage or spills of harmful oils into the aquatic environment, EPA strongly encourages the use of environmentally acceptable lubricants in all above deck equipment. The presence of floating solids, visible foam, halogenated phenol compounds, and dispersants, or surfactants in deck washdowns must be minimized. Vessel owners/operators must minimize deck washdowns while in port.

Vessel owners/operators must maintain their topside surface and other above water line portions of the vessel to minimize the discharge of rust (and other corrosion by-products), cleaning compounds, paint chips, non-skid material fragments, and other materials associated with exterior topside surface preservation. Furthermore, vessel owners/operators must minimize residual paint droplets from entering waters subject to this permit whenever they are conducting maintenance painting. Possible minimization techniques include, but are not limited to, avoiding paint spraying in windy conditions or avoiding overapplication of paint. This permit does not authorize the disposal of unused paint into waters subject to this permit.

If deck washdowns or above water line hull cleaning will result in a discharge, they must be conducted with "minimally-toxic" and "phosphate free" cleaners and detergents as defined in Appendix A of this permit. Furthermore, cleaners and detergents should not be caustic and must be biodegradable.

2.2.2 Bilgewater/Oily Water Separator Effluent

All bilgewater discharges must be in compliance with the regulations in 40 CFR Parts 110 (Discharge of Oil), 116 (Designation of Hazardous Substances), and 117 (Determination of Reportable Quantities for Hazardous Substances) and 33 CFR §151.10 (Control of Oil Discharges). In addition:

- Vessel operators may not use dispersants, detergents, emulsifiers, chemicals, or other substances that remove the appearance of a visible sheen[1] in their bilgewater discharges. This requirement does not prohibit the use of these materials in machinery spaces for the purposes of maintaining or cleaning equipment.
- Except in the case of flocculants or other required additives (excluding any dispersants or surfactants) used to enhance oil/water separation during processing (after bilgewater has been removed from the bilge), vessel operators may not add substances that drain to the bilgewater that are not produced in the normal

[1] 40 CFR §110.4 states that: "addition of dispersants or emulsifiers to oil to be discharged that would circumvent the provisions of this part is prohibited." 33 CFR §151.10 (g) states that: "No discharge into the sea shall contain chemicals or other substances introduced for the purpose of circumventing the conditions of discharge specified in this regulation.

operation of a vessel. The use of oil solidifiers, flocculants, or other required additives are allowed only as part of an oil water separation system provided they do not alter the chemical make-up of the oils being discharged and any discharge of such materials into waters subject to this permit must be minimized. Routine cleaning and maintenance activities associated with vessel equipment and structures are considered to be normal operation of a vessel if those practices fall within normal marine practice.

- All vessels must minimize the discharge of bilgewater into waters subject to this permit. This can be done by minimizing the production of bilgewater, disposing of bilgewater on shore where adequate facilities exist, or discharging into waters not subject to this permit (i.e., more than 3 nautical miles [nm] from shore) for vessels that regularly travel into such waters. Though not regulated under this permit, EPA notes that discharges of bilgewater outside waters subject to this permit (i.e., more than 3 nm from shore) are regulated under Annex I of the International Convention for the Prevention of Pollution from Ships as implemented by the Act to Prevent Pollution from Ships and U.S. Coast Guard regulations found in 33 CFR part 151.
- Vessels greater than 400 gross tons shall not discharge untreated oily bilgewater (i.e., bilgewater not treated with an onboard separator or bilgewater with a concentration of oil greater than 15 ppm) into waters subject to this permit.
- Vessels greater than 400 gross tons that regularly sail outside the territorial sea (at least once per month) shall not discharge treated bilgewater within 1 nm of shore if technologically feasible (e.g., holding would not impact safety and stability, would not contaminate other holds or cargo, or would not interfere with essential operations of the vessel). Any discharge which is not technologically feasible to avoid must be documented as part of the requirements in Part 4.2 and reported to EPA as part of the vessel's annual report.
- Vessels greater than 400 gross tons shall not discharge treated bilgewater into waters referenced in Appendix G unless the discharge is necessary to maintain the safety and stability of the ship. Any discharge of bilgewater into these waters must be documented as part of the recordkeeping requirements in Part 4.2 and reported to EPA as part of the vessel's annual report.
- For vessels greater than 400 gross tons that regularly sail outside the territorial sea (at least once per month), if treated bilgewater is discharged into waters subject to this permit, it must be discharged when the vessel is underway (sailing at speeds greater than 6 knots), unless doing so would threaten the safety and stability of the ship. EPA notes that vessel operators may also choose to dispose of bilgewater on shore where adequate facilities exist. Any discharge which is made for safety reasons must be documented as part of the requirements in Part 4.2 and reported to EPA as part of the vessel's annual report.

2.2.2.1 Bilgewater Monitoring

"New Build" vessels built after December 19, 2013 greater than 400 gross tons that may discharge bilgewater into waters subject to this permit must monitor (i.e., sample and analyze) their bilgewater effluent at least once a year for oil and grease content. That monitoring can be conducted as part of the vessel's annual survey.

To demonstrate treatment equipment maintenance and compliance with this permit, the bilgewater sample must be analyzed for oil by either Method ISO 9377-2 (2000) Water Quality–Determination of Hydrocarbon Oil Index–Part 2: Method Using Solvent Extraction and Gas Chromatography (incorporation by reference, see 46 CFR §162.050–4) or EPA Method 1664. At the time of sample collection, the reading on the oil content meter (OCM) must be recorded such that the oil and grease concentration measured by the laboratory can be compared to the OCM.

If your analytical results show oil and grease concentrations of less than 5 ppm for two consecutive years, you need not sample and analyze subsequent years of permit coverage if:

- Your vessel uses an oily water separator capable of meeting a 5 ppm oil and grease limit, or you use an alarm which prevents the discharge of oil and grease above 5 ppm whenever you discharge in waters subject to this permit,
- You calibrate your OCM at least annually (calibrations during a vessel survey meet this requirement), and
- Your OCM never reads above 5 ppm during discharges into waters subject to this permit. If this information is recorded in the oil record book, you need not record these data in other recordkeeping documentation.

Records of monitoring must be retained onboard for at least 3 years in the vessel's recordkeeping documentation and must include:

- The date, exact place, and time of sampling or measurements;
- The individual(s) who performed the sampling or measurements;
- The individual(s) who performed the analyses and any meter recalibration;
- The techniques or methods used for sample analyses;
- The results of such analyses and OCM readings.

2.2.2.2 Monitoring Reporting

For those vessels for which monitoring must be conducted, analytical and corresponding OCM monitoring data must be submitted at least once per calendar year no later than February 28 of the year after the data are collected. Additionally, if you have met the requirements in part 2.2.2.1 to waive analytical monitoring after two years, you must note your waiver qualifications on your report. Data may be submitted as part of the vessel's annual report (Appendix H) on the VGP bilgewater DMR.

2.2.3 Ballast Water

All discharges of ballast water must comply with the requirements in this permit as described below. Additionally, owner/operators of all vessels subject to coverage under this permit which are equipped with Ballast Tanks must comply with any additional BMPs in this section.

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	
E. coli	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 <u>Requirements and Effluent Limitations for BWTS that use Active Substances (e.g., biocides)</u>

2.2.3.5.1.1.5.1 <u>Authorization of Residual Biocides Associated with Ballast Water Treatment Systems</u>

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

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; CHEMetrics 2010)	25 mL	As soon as possible	500 µg/L	Report	NA

	Hydrogen peroxide/	Titimetric analysis (JIS K 1463:2007; EMD Chemicals, 2011; CHEMetrics 2010))	25 mL	As soon as possible	500 µg/L	Report	NA

* 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 <u>Ballast Water Treatment System Recordkeeping and Reporting</u>

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 <u>Onshore Treatment of Ballast Water</u>

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 <u>Use of Public Water Supply Water</u>

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 of 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.

2.2.7 Cathodic Protection

Cathodic protection must be maintained to prevent the corrosion of the ship's hull. The discharge of zinc, magnesium, and aluminum are expected from properly functioning cathodic protection sacrificial electrodes. However, vessel operators must minimize the flaking of large, corroded portions of these anodes. Sacrificial anodes must not be used more than necessary to adequately prevent corrosion of the vessel's hull, sea chest, rudder, and other exposed areas of the vessel. Vessel operators must appropriately clean and/or replace these anodes during periods of maintenance (such as drydocking), so that release of these metals to waters is minimized. Furthermore, when feasible, sacrificial anodes should be flush-fitted to the hull, or vessel operators must fill the space between the anode and hull backing to remove the potential for hotspots for fouling organisms.

Vessel operators should note that magnesium is less toxic than aluminum and aluminum is less toxic than zinc. If vessel operators use sacrificial electrodes, they must select electrode devices with metals that are less toxic to the extent technologically feasible and economically practicable and achievable. For vessels that spend the majority of their time in freshwater, if aluminum or zinc is selected, the vessel owner/operator must document in their recordkeeping documentation why the use of magnesium is not appropriate. Likewise, for vessels that spend the majority of their time in saltwater, if vessel zinc is selected, the vessel owner/operator must document why aluminum is not selected. The documentation requirement is applicable after the vessel's first drydocking after December 19, 2013 (e.g., if the vessel drydocks in 2015, the requirement is applicable for that vessel starting in 2015).

EPA recommends, particularly for new vessels, the use of Impressed Current Cathodic Protection (ICCP) in place of or to reduce the use of sacrificial electrodes when technologically feasible (e.g., adequate power sources, appropriate for vessel hull size and design), safe, and adequate to protect against corrosion. If vessel operators use ICCP, they must maintain dielectric shields to prevent flaking.

2.2.8 Chain Locker Effluent

The anchor chain must be carefully and thoroughly washed down (i.e., more than a cursory rinse) as it is being hauled out of the water to remove sediment and marine organisms. In addition, chain lockers must be cleaned thoroughly during dry-docking to eliminate accumulated sediments and any potential accompanying pollutants. For vessels that regularly sail outside waters subject to this permit (at least once per month), if technically feasible, periodically clean, rinse, and/or pump out the space beneath the chain locker prior to entering waters subject to this permit (preferably mid-ocean) if the anchor has been lowered into any nearshore waters. Furthermore, for vessels that leave waters subject to this permit at least once per month, chain lockers shall not be rinsed or pumped out in waters subject to this permit, unless not emptying them would compromise safety. Such a safety claim must be documented in the vessel's recordkeeping documentation consistent with Part 4.2.

2.2.9 Controllable Pitch Propeller and Thruster Hydraulic Fluid and Other Oil-to-Sea Interfaces Including Lubrication Discharges from Paddle Wheel Propulsion, Stern Tubes, Thruster Bearings, Stabilizers, Rudder Bearings, Azimuth Thrusters, Propulsion Pod Lubrication, and Wire Rope and Mechanical Equipment Subject to Immersion

The protective seals on controllable pitch propellers, azimuth thrusters, propulsion pods, rudder bearings, or any other oil-to-sea interfaces must be maintained in good operating order to minimize the leaking of hydraulic oil or other oils. The vessel owner/operator must not discharge oil in quantities that may be harmful as defined in 40 CFR Part 110 from any oil-to-sea interface. If possible, maintenance activities on controllable pitch propellers, thrusters, and other oil-to-sea interfaces should be conducted when a vessel is in drydock.

Minimize maintenance activities on stern tube seals when a vessel is outside of drydock. If maintenance or emergency repair must occur on stern tubes or other oil-to-sea interfaces which have a potential to release oil in quantities that may be harmful as defined in 40 CFR Part 110, appropriate spill response equipment (e.g., oil booms) must be used to contain any oil leakage. Operators of the vessel must have ready access to spill response resources to clean up any oil spills.

After applying lubrication to wire rope and mechanical equipment subject to immersion, wire ropes, and other equipment must be thoroughly wiped down to remove excess lubricant unless doing so is deemed unsafe by the Master of the vessel.

All vessels must use an EAL in all oil to sea interfaces, unless technically infeasible. “Environmentally acceptable lubricants” means lubricants that are “biodegradable” and “minimally-toxic” and are “not bioaccumulative” as defined in Appendix A of this permit. For purposes of requirements related to EALs, technically infeasible means that no EAL products are approved for use in a given application that meet manufacturer specifications for that equipment, products which come pre- lubricated (e.g., wire ropes) have no available alternatives manufactured with EALs, products meeting a manufacturers specifications are not available within any port in which the vessel calls, or change over and use of an EAL must wait until the vessel’s next drydocking.

If a vessel is unable to use an EAL, you must document in your recordkeeping documentation consistent with Part 4.2 why you are unable to do so, and must report the use of a non-environmentally acceptable lubricant to EPA in your Annual Report. Use of an environmentally acceptable lubricant does not authorize the discharge of any lubricant in a quantity that may be harmful as defined in 40 CFR Part 110.

EPA recommends that all new build vessel operators endeavor to use seawater-based systems for their stern tube lubrication to eliminate the discharge of oil from these interfaces to the aquatic environment.

2.2.10 Distillation and Reverse Osmosis Brine

Brine from the distillation system and reverse osmosis reject water shall not contain or come in contact with machinery or industrial equipment (other than that necessary for the production of potable water), toxic or hazardous materials, or wastes.

2.2.11 Elevator Pit Effluent

Discharges of untreated elevator pit effluent are not authorized within waters subject to this permit except in cases of emergency. Elevator pit effluent may be discharged into waters subject to this permit if it is managed with the vessel's bilgewater and meets all the requirements of Part 2.2.2 of this permit. Otherwise, it must be treated with an oily-water separator and discharged with an oil content below 15 ppm for existing vessels, as measured by EPA Method 1664 or other appropriate method for determination of oil content as accepted by the IMO (e.g., ISO Method 9377) or U.S. Coast Guard. Emergency discharges must be documented in the ship's log or other vessel recordkeeping documentation consistent with Part 4.2.

2.2.12 Firemain Systems

Discharges from firemain systems are authorized for emergency purposes to ensure the safety and security of the vessel and her crew, other emergency situations, and testing and inspections of the firemain systems in order to assure its operability in an emergency. Firemain systems may be discharged in port for certification, maintenance, and training requirements if the intake comes directly from the surrounding waters or potable water supplies and there are no additions (e.g., AFFF) to the discharge. Furthermore, firemain systems may be used for deck washdown or other secondary uses if the intake comes directly from the surrounding waters or potable water supplies and the discharge meets all relevant effluent limitations associated with that activity. When feasible, maintenance and training should be conducted outside port and/or outside waters subject to this permit.

The vessel owner/operator shall not discharge firemain systems in waters listed in Appendix G except in emergency situations or when washing down the anchor chain to comply with anchor wash down requirements in Part 2.2.8.

2.2.13 Freshwater Layup

Minimize the amount of disinfection or biocidal agents used in freshwater layup to the minimum required to prevent aquatic growth.

2.2.14 Gas Turbine Washwater

Gas turbine washwater must not be directly discharged within waters subject to this permit. Where feasible, gas turbine washwater must be prevented from commingling with bilgewater that will be discharged in waters subject to this permit, for example by collecting it separately and properly disposing of it at an onshore facility. Under no circumstances may oils, including oily mixtures, from gas turbine washwater be discharged into waters subject to this permit in quantities that may be harmful as determined in accordance with 40 CFR Part 110.

2.2.15 Graywater

All vessels must minimize the discharge of graywater while in port. For those vessels that cannot store graywater, the owner or operator and their crews must minimize the production of graywater in port. Examples of ways to minimize production of graywater include delaying laundry, scullery activities, and restricting length of showers while in port, and using high efficiency faucets and showerheads. All vessels that have the capacity to store graywater shall not discharge it in waters listed in Appendix G. For vessels that cannot store graywater, vessel operators must minimize the production of graywater while in waters listed in Appendix G.

For vessels greater than 400 gross tons that regularly travel more than 1 nm from shore that have the capacity to store graywater for a sufficient period, graywater must be discharged greater than 1 nm from shore while the vessel is underway, unless the vessel meets the treatment standards and other requirements contained under Parts 5.1.1 and 5.1.2 or 5.2.1 and 5.2.2 of this permit. Additional specific requirements for graywater apply to cruise ships (Parts 5.1 and 5.2) and large ferries (Part 5.3).

Vessels that do not travel more than 1 nm from shore shall minimize the discharge of graywater and, provided the vessel has available graywater storage capacity, must dispose of graywater onshore if appropriate facilities are available and such disposal is economically practicable and achievable unless the vessel meets the treatment standards and other requirements contained under Parts 5.1.1 and 5.1.2 or 5.2.1 and 5.2.2 of this permit. You must also minimize the discharge of graywater when the vessel is not underway.

If graywater will be discharged in waters subject to this permit, the introduction of kitchen oils to the graywater system must be minimized. When cleaning dishes, you must remove as much food and oil residue as practicable before rinsing dishes. Excess oils used in cooking, including animal fats and vegetable oils, shall not be added to the graywater system. Under no circumstances may oil from the galley and scullery be discharged in quantities that may be harmful as defined in 40 CFR Part 110.

Vessel owners/operators must use phosphate-free and minimally-toxic soaps and detergents, as defined in Appendix A of this permit, for any purpose if graywater will be discharged into waters subject to this permit. Soaps and detergents must be free from toxic or bioaccumulative compounds and not lead to extreme shifts in receiving water pH. For purposes of this part, extreme shifts means causing pH to fall below 6.0 or rise above 9.0 as a direct result of the discharge.

If your vessel is underway in a nutrient-impaired water, or a water that is impaired as a result of nutrient enrichment (such as waters listed as impaired for phosphorus, nitrogen, or for hypoxia or anoxia [low dissolved oxygen concentrations]), you must follow these additional requirements:

When the vessel has adequate graywater storage capacity, the vessel owner/operator shall not discharge graywater into nutrient-impaired waters subject to this permit (e.g., the Chesapeake Bay). A complete list of such waters can be found at www.epa.gov/npdes/vessels. Where the vessel does not have adequate storage capacity to eliminate such discharges, graywater production and discharge must be minimized in such waters. Any such discharge must be conducted while the vessel is underway in areas with significant circulation and depth to the extent feasible. Graywater stored while in such waters can later be disposed of onshore or discharged in accordance with the other requirements of this permit.

2.2.15.1 Additional Graywater Requirements for Certain VGP Vessels Operating in the Great Lakes

Any vessel operating on the Great Lakes that is not a "commercial vessel" as defined in CWA section 312(a)(10) must meet one of the following requirements for graywater management:

(i) The vessel must hold all graywater for onshore discharge to an appropriate shoreside facility (an appropriate shoreside facility is either an NPDES permitted facility or an entity that delivers wastewater directly to an NPDES permitted facility); or

(ii) The graywater discharge must not exceed 200 fecal coliform forming units per 100 milliliters and contain no more than 150 milligrams per liter of suspended solids.

Vessels subject to this part must conduct monitoring required under Part 2.2.15.2 to demonstrate treatment equipment maintenance and compliance with the limits of this part. Records of the sampling and analysis results must be retained onboard for at least 3 years in the vessel's recordkeeping documentation consistent with Part 4.2 of this permit.

2.2.15.2 Graywater Monitoring

The following monitoring requirements are applicable to vessels which discharge graywater into waters subject to this permit and meet one of the following conditions:

- The vessel is a new build vessel constructed on or after December 19, 2013, has a maximum crew capacity greater or equal to 15, and provides overnight accommodations to those crew; or
- The vessel is subject to Part 2.2.15.1 of this permit.

Vessel owners/operators must collect and analyze two samples per year, collected at least 14 days apart, and report the results of those samples as part of their Annual Report. Samples must be taken for Biochemical Oxygen Demand (BOD), fecal coliform, suspended solids, pH, and total residual chlorine. Vessel owner/operators may choose to conduct monitoring for *e. coli* in lieu of fecal coliform. Fecal Coliform or *e. coli* must only be analyzed once per year if vessels have difficulty analyzing the results within recommended holding times. Sampling and testing shall be conducted according to 40 CFR Part 136. If the vessel is subject to Part 2.2.15.1, measured samples must meet the standards specified in that part.
Records of monitoring information shall include:

- The date, exact place, time, and sampling port location(s) of sampling or measurements;

- The individual(s) who performed the sampling or measurements;
- The date(s) analyses were performed;
- The individual(s) who performed the analyses;
- The analytical techniques or methods used;
- The results of such analyses; and
- Proportions of wastestreams being treated and sampled (such as mixed graywater, mixed graywater and blackwater, and galley. If actual amounts are not available, the estimated proportions should be provided).

Vessels subject to this part must note whether the graywater effluent is treated or untreated, and also note whether the effluent is graywater alone or if it is mixed with another effluent type (e.g., graywater mixed with sewage). Records of the sampling and testing results must be retained onboard for at least 3 years in the vessel's recordkeeping documentation consistent with Part 4.2.

Vessels which do not enter waters subject to this permit for the calendar year need not conduct monitoring for that year, but must clearly indicate on their Annual Report that they did not enter waters subject to this permit during that year.

2.2.16 Motor Gasoline and Compensating Discharge

The discharge of motor gasoline and compensating effluent must not have oil in quantities that may be harmful as defined in 40 CFR §110.3, which includes discharges resulting in a visible sheen, or an oil concentration that exceeds 15 ppm. Determination of oil concentration may be measured by EPA Method 1664 or other appropriate method for determination of oil content as accepted by the IMO (e.g., ISO Method 9377) or U.S. Coast Guard. Compliance with the 15 ppm oil concentration limitation may be established with visual monitoring for an oily sheen. Minimize discharge of motor gasoline and compensating discharge in port. If an oily sheen is observed, the vessel operator must deploy appropriate oil containment practices. Vessels shall not discharge motor gasoline and compensating discharge in waters subject to this permit listed in Appendix G.

2.2.17 Non-Oily Machinery Wastewater

If discharged directly overboard, non-oily machinery wastewater, technical water, or potable water must be free from oils in quantities that may be harmful pursuant to 40 CFR Part 110 and any additives that are toxic or bioaccumulative in nature. Non-oily machinery wastewater may also be drained to the bilge.

Any discharge of packing gland or stuffing box effluent must not contain oil, including oily materials, in quantities that may be harmful. These discharges must not produce a visible sheen of oil or oily materials.

2.2.18 Refrigeration and Air Condensate Discharge

You must not allow refrigeration and air condensate discharge to come into contact with oily or toxic materials if it is discharged directly overboard. Refrigeration and air conditioning condensate that is collected and plumbed for internal recycling (e.g., recycled as "technical water") is allowed to commingle with oily water; however, the commingled discharge must meet all requirements of Part 2.1.4 of this permit and Part 2.2.2 of this permit if applicable.

2.2.19 Seawater Cooling Overboard Discharge (Including Non-Contact Engine Cooling Water; Hydraulic System Cooling Water, Refrigeration Cooling Water)

When possible, non-contact engine cooling water, hydraulic system cooling water, refrigeration cooling water and other seawater cooling overboard discharges should occur when the vessel is underway to minimize any thermal impacts to the receiving water.

To reduce the production and discharge of seawater cooling overboard discharge, EPA recommends that vessel owner/operators use shore-based power when the vessel is in port if:

- Shore power is readily available for vessel owner/operators from utilities or port authorities;
- Shore-based power supply systems are capable of providing all needed electricity required for vessel operations; and
- The vessel is equipped to connect to shore-based power and such systems are compatible with the available shore power.

Maintenance of all piping and seawater cooling systems must meet the requirements of Part 2.2.20 (Seawater-Piping Biofouling Prevention).

2.2.20 Seawater Piping Biofouling Prevention

Seawater piping biofouling chemicals subject to FIFRA registration (see 40 CFR §152.15) must be used in accordance with their FIFRA label. No pesticides or chemicals banned for use in the United States may be discharged into waters subject to this permit.

Vessel owner/operators must use the minimum amount of biofouling chemicals needed to keep fouling under control. Discharges containing active agents must contain as little chlorine as possible.

Vessel owner/operators must remove fouling organisms from seawater piping on a regular basis and dispose of removed substances in accordance with local, state, and federal regulations. Removed fouling organisms shall not be discharged into waters subject to this permit and EPA recommends that if discharged into any waters, should be discharged more than 50 nm from shore. Vessel owner/operators should remove any organisms while at sea where technically feasible to reduce the risk of invasive species introduction in ports.

2.2.21 Boat Engine Wet Exhaust

Vessel engines generating wet exhaust must be maintained in good operating order, well tuned, and function according to manufacturer specifications to decrease pollutant contributions to wet exhaust. Vessel owner/operators should use low sulfur or alternative fuels for their vessels to reduce the concentration of pollutants in discharges from boat engine wet exhaust.

EPA encourages vessel operators to consider four stroke engines instead of two stroke engines for vessels generating wet exhaust that are covered under this permit. Use of a four stroke engine may minimize the discharge of pollutants to waters subject to this permit. Where vessels utilize two stroke engines, environmentally acceptable lubricants (as defined in Appendix A of this permit) must be used unless technologically infeasible. If technologically infeasible, the vessel owner/operator must document in their recordkeeping documentation why they are not using environmentally acceptable lubricants.

2.2.22 Sonar Dome Discharge

The water inside the sonar dome shall not be discharged into waters subject to this permit for maintenance purposes. Vessel operators should not use biofouling chemicals that are bioaccumulative for the exterior of sonar domes when non-bioaccumulative alternatives are available.

2.2.23 Underwater Ship Husbandry and Hull Fouling Discharges

Vessel owners/operators must minimize the transport of attached living organisms when traveling into U.S. waters from outside the U.S. economic zone or between Captain of the Port (COTP) zones. Management measures to minimize the transport of attached living organisms include selecting an appropriate anti-foulant management system and maintaining that system, in water inspection, cleaning, and maintenance of hulls, and thorough hull and other niche area cleaning when a vessel is in drydock.

Whenever possible, rigorous hull-cleaning activities should take place in drydock, or at a land-based facility where the removal of fouling organisms or spent antifouling coatings paint can be contained. If water-pressure-based systems are used to clean the hull and remove old paint, you must use facilities which treat the washwater prior to discharging to waters subject to this permit in order to remove the antifouling compound(s) and fouling growth from the washwater. If mechanical means (scraping, etc.) are used to clean the hull and remove old paint, the materials removed from the hull during that process must be collected and disposed of properly (e.g., onshore). These materials must not be allowed to contaminate nearby waters.

Vessel owners/operators who remove fouling organisms from hulls while the vessel is waterborne must employ methods that minimize the discharge of fouling organisms and antifouling hull coatings. These shall include:

- Use of appropriate cleaning brush or sponge rigidity to minimize removal of antifouling coatings and biocide releases into the water column;
- Limiting use of hard brushes and surfaces to the removal of hard growth; and
- When available and feasible, use of vacuum or other control technologies to minimize the release or dispersion of antifouling hull coatings and fouling organisms into the water column.

Vessel owners/operators must minimize the release of copper-based antifoulant paints during vessel cleaning operations. Cleaning of hull surfaces coated with copper-based antifoulant paint must not result in any visible cloud or plume of paint in the water; if a visible cloud or plume of paint develops, shift to a softer brush or less abrasive cleaning technique. A plume or cloud of paint can be noted by the presence of discoloration or other visible indication that is distinguishable from hull growth or sediment removal. Production of a plume or cloud of sediment or hull growth is normal in some cases during vessel hull cleaning, but this plume or cloud must be substantially paint free (e.g., paint should not be clearly identifiable in the plume or cloud). When feasible, attempts must be made to minimize the release of fouling organisms and antifouling systems (including copper-based coatings) into surrounding waters.

Vessels that use copper-based anti-fouling paint must not clean the hull in copper-impaired waters within the first 365 days after paint application unless there is a significant visible indication of hull fouling. EPA maintains a list of copper-impaired waters on its webpage at www.epa.gov/npdes/vessels. If you clean before 365 days after paint application in copper-impaired waters, you must document in your recordkeeping documentation why this early cleaning was necessary.

2.2.24 Welldeck Discharges

Welldeck discharges that contain graywater from smaller vessels should not be discharged within waters subject to this permit except in cases of emergency. Welldeck discharges from washdown of gas turbine engines may not be discharged within waters subject to this permit. Welldeck discharges from equipment and vehicle washdowns must be free from garbage and must not contain oil in quantities that may be harmful as defined in 40 CFR Part 110.

2.2.25 Graywater Mixed with Sewage from Vessels

The commingled discharge of graywater mixed with sewage from vessels must comply with the effluent limits for graywater discharge in Part 2.2.15 or Part 5 of this permit if applicable. Though not a requirement of this permit, vessel owner/operators are advised that all discharges commingled with sewage must meet the requirements set forth in section 312 of the CWA and its implementing regulations found at 40 CFR Part 140 and 33 CFR Part 159. Hence, discharges of graywater mixed with sewage must meet both standards to be in compliance with the CWA.

2.2.26 Exhaust Gas Scrubber Washwater Discharge

Exhaust gas scrubber washwater discharge must not contain oil, including oily mixtures, in quantities that may be harmful as determined in accordance with 40 CFR Part 110. Sludge or residues generated in treating exhaust gas scrubber washwater discharge must not be discharged in waters subject to this permit and must be delivered ashore to adequate reception facilities.

In addition, owner/operators of vessels with exhaust gas cleaning systems that result in washwater discharges must meet the numeric effluent limits found in Part 2.2.26.1 and the monitoring requirements found in Part 2.2.26.2 this permit. These limits are consistent with the IMO washwater guidelines set forth in section 10 for Exhaust Gas Cleaning (EGC) Systems (resolution MEPC.184(59)). Among other things, these guidelines recommend the establishment of limits for concentrations of pollutants in the effluent.

2.2.26.1 Exhaust Gas Scrubber Washwater Discharge Standards

2.2.26.1.1 pH

The discharge of washwater from the exhaust gas scrubber treatment system must have a pH of no less than 6.0 measured at the ship's overboard discharge, with the exception that during maneuvering and transit, the maximum difference between inlet and outlet of 2.0 pH units is allowed. This difference is to be measured at the ship's inlet and overboard discharge.

2.2.26.1.2 PAHs (Polycyclic Aromatic Hydrocarbons)

The maximum continuous PAH concentration in the washwater must not be greater than 50 μg/L PAHphe (phenanthrene equivalence) above the inlet water PAH concentration for washwater flow rates normalized to 45 t/MWh. MWh refers to the maximum continuous rating (MCR) or 80 percent of the power rating of the fuel oil combustion unit. For the purposes of this criterion, the PAH concentration in the washwater must be measured downstream of the water treatment equipment, but upstream of any washwater dilution or other reactant dosing unit, if used, prior to discharge.

The 50-μg/L limit is adjusted upward for lower washwater flow rates per MWh, and vice-versa, and the applicable permit limits are contained in Table 7.

Table 7: PAH Permit Limits in Exhaust Gas Scrubber Discharge

Flow Rate (t/MWh)	Discharge Concentration Limit (μg/L PAH_{phe} equivalents)	Measurement Technology
0 - 1	2,250	Ultraviolet Light
2.5	900	Ultraviolet Light
5	450	Fluorescence[2]
11.25	200	Fluorescence
22.5	100	Fluorescence
45	50	Fluorescence
90	25	Fluorescence

For a 15-minute period in any 12-hour period, the continuous PAH concentration limit may exceed the limit described above by 100 percent. This is to allow for an abnormal start up of the exhaust gas scrubber unit.

2.2.26.1.3 Turbidity

The washwater treatment system must be designed to minimize suspended particulate matter, including heavy metals and ash. The maximum turbidity (monitored continuously) in washwater must not be greater than 25 FNU (formazin nephelometric units) or 25 NTU (nephelometric turbidity units) or equivalent units, above the inlet water turbidity. However, during periods of

[2] For any flow rate greater than 2.5 t/MWh fluorescence technology should be used.

high inlet turbidity, the precision of the measurement device and the time lapse between inlet measurement and outlet measurement are such that the use of a difference limit is unreliable. Therefore, all turbidity difference readings must be a rolling average over a 15-minute period to a maximum of 25 FNU or NTU. For the purposes of this criterion, the turbidity in the washwater must be measured downstream of the water treatment equipment but upstream of washwater dilution (or other reactant dosing) prior to discharge. For a maximum of one 15-minute period within any 12-hour period, the continuous turbidity discharge limit may be exceeded by 20 percent.

2.2.26.1.4 Nitrates +Nitrites

The washwater treatment system must prevent the discharge of nitrates, plus nitrites beyond that associated with a 12 percent removal of NO_x from the exhaust, or beyond 60 mg/l normalized for washwater discharge rate of 45 tons/MWh, whichever is greater. MWh refers to the MCR or 80 percent of the power rating of the fuel oil combustion unit. For the purposes of this criterion, the nitrate concentration in the washwater must be measured downstream of the water treatment equipment, but upstream of any washwater dilution or other reactant dosing unit, if used, prior to discharge.

The 60-mg/L limit is adjusted upward for lower washwater flow rates per MWh, and vice-versa, and the applicable permit limits are contained in Table 8.

Table 8: Nitrates + Nitrites Permit Limits in Exhaust Gas Scrubber Discharge

Flow Rate (t/MWH)	Discharge Concentration Limit (mg/L nitrate + nitrite)
0 - 1	2,700
2.5	1,080
5	640
11.25	240
22.5	120
45	60
90	30

2.2.26.2 Exhaust Gas Scrubber Analytical Monitoring Requirements

2.2.26.2.1 Continuous Monitoring

The data recording system must comply with the guidelines in sections 7 and 8 of MEPC.184(59) and must continuously record pH, PAH (as available), and turbidity. The vessel owner/operator must continuously monitor for PAH discharges where continuous monitoring technologies (e.g., probes/analyzers) are available (availability should include the technology's robustness, reliability and ability to perform over for a minimum of two years). When the EGC system is operated in waters subject to this permit, the washwater monitoring and recording must be continuous. The values monitored and recorded must include pH, PAH (as available), turbidity, and temperature.

The pH electrode and pH meter must have a resolution of 0.1 pH units and temperature compensation. The electrode must comply with the requirements defined in BS 2586 or of equivalent or better performance and the meter should meet or exceed BS EN ISO 60746-2:2003.

The PAH monitoring equipment must be capable of monitoring PAH in water in a range of at least twice the discharge concentration limit given in the table above. A demonstration must be made that the equipment operates correctly and does not deviate more than 5 percent in washwater with turbidity within the working range of the application. For those applications discharging at lower flow rates and higher PAH concentrations, ultraviolet light monitoring technology or equivalent should be used due to its reliable operating range.

The turbidity monitoring equipment must meet requirements defined in ISO 7027:1999 or USEPA 180.1.

All continuous monitoring equipment must be calibrated as recommended by probe manufacturers or Exhaust Gas scrubber manufacturers. At a minimum, all probes must be calibrated at least annually. EPA expects many probe types (e.g., turbidity probes) will need to be calibrated on a more frequent basis.

2.2.26.2.2 Analytical Monitoring

In addition to the continuous monitoring found in Part 2.2.26.2.1 of this permit, vessel owner/operators must collect and analyze two samples in the first year of permit coverage or system operation, whichever is first, for each of the constituents analyzed in Part 2.2.26.2.3 to demonstrate treatment equipment maintenance, probe accuracy, and compliance with this permit. Samples must not be collected within 14 days of each other. Samples must be collected for inlet water (for background), water after the scrubber (but before any treatment system), and discharge water. 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.

After the first year, samples must be collected at least once per calendar year for inlet water (for background), water after the scrubber (but before any treatment system), and discharge water, and may be collected as part of the vessel's annual survey as appropriate. 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.

2.2.26.2.3 Analytes for Analytical Monitoring

Vessels conducting monitoring as required by Part 2.2.26.2.2 must monitor for the following parameters, choosing either sufficiently sensitive EPA Part 136 methods or other methods if specifically allowed:

- <u>Dissolved and Total Metals</u>, including, Arsenic, Cadmium, Chromium, Copper, Lead, , Nickel, Selenium, Thallium, Vanadium, and Zinc (recommend using EPA Methods 200.8 or 200.9. Because matrix interference is a known issue for arsenic and selenium in saltwater samples, the Agency strongly recommends operators using Octopole Reaction Cell ICP-MS, Dynamic Reaction Cell ICP-MS, hydride generation with a graphite furnace, or other appropriate approach consistent with 200.8 or 200.9 to minimize this interference);

- PAHs including Acenaphthylene, Acenaphthene, Anthracene Benz[*a*]anthracene, Benzo[*ghi*]perylene, Benzo[*a*]pyrene, Benzo[*b*]fluoranthene +, benzo[k]fluoranthene, Chrysene, Dibenz[*a,h*]anthracene, Fluoranthene, Fluorene, Indeno[1,2,3,*c,d*]pyrene, Naphthalene, Phenanthrene, and Pyrene (recommend using EPA Methods 550.1, 610, 625, 8100, 8270c, 8310);
- Nitrate-Nitrite (recommend using EPA Method 353.2);
- pH (using Standard Methods (SM) 4500-H B);

2.2.26.2.4 Monitoring Reporting

Vessel owners/operators must submit all monitoring data to EPA electronically, unless exempted from electronic reporting consistent with Part 1.14 of this permit. Monitoring data must be submitted at least once per calendar year no later than February 28 of the following year on the vessel annual report. Data must be submitted on or attached to the exhaust gas scrubber DMR available in Appendix H of this permit or submitted to EPA electronically. The system is scheduled to be available at www.epa.gov/vessels/eNOI. Data may be submitted as part of the vessel's annual report.

2.2.27 Fish Hold Effluent

All reasonable steps must be taken to prevent the discharge of excess fish hold water and ice while the vessel is stationary at the pier. If large solid pieces of fish waste are contained in the fish hold effluent (e.g., fish heads, internal organs) the fish hold effluent may not be discharged while the vessel is pierside and stationary, unless a physical separation method is used (e.g., ½ inch coarse screens or smaller, a screened hose having ½ inch screen openings or smaller, filters, or other methods to remove large solids).

Solid fish waste must be disposed of shoreside on land or at sea (but outside of harbors or other protected and enclosed coastal waters, and other areas where EPA has found that such deposits could endanger health, the environment, or ecological systems in a specific location under the Marine Protection, Research and Sanctuaries Act, 33 U.S.C 1412(d)).

Except for discharges from holding tanks for the sole purpose of keeping the catch alive during transit by pumping continuous "once through" ambient water into and through the tank prior to immediate discharge (e.g., crabbing/lobster vessels), if you are unloading your catch at a shore-based seafood processor or other pier and a shore-based discharge facility is available and economically achievable, you must discharge your effluent (including dirty ice) to that shore-based facility instead of discharging to surrounding waters if:

- Its use is economically achievable, and
- The facility has a valid NPDES permit, or
- That facility discharges to an NPDES-permitted sewage treatment facility.

Do not discard any unused live bait overboard, unless you caught that bait in that waterbody or watershed. Unused live bait purchased from a bait shop or dealer may not be discharged overboard unless the vessel operator has documentation from the dealer that the bait was caught in that waterbody.

2.3 Additional Water Quality-Based Effluent Limits

The requirements in Part 2.3 constitute the water quality-based effluent limitations in this permit. These water quality-based effluent limitations supplement this permit's effluent limitations in Parts 2.1, 2.2, 2.3.2 and 5 of this permit.

2.3.1 Water Quality-Based Effluent Limitations

Your discharge must be controlled as necessary to meet applicable water quality standards in the receiving water body or another water body impacted by your discharges.

EPA generally expects that compliance with the other conditions in this permit, including Parts 2.1, 2.2, and 5, will control discharges as necessary to meet applicable water quality standards. If at any time you become aware, or EPA determines, that your discharge causes or contributes to an exceedance of applicable water quality standards, you must take corrective actions as required in Part 3; you must also report the exceedance(s) to EPA as required in Parts 1.14 and 4.4.1.

EPA may impose additional water quality-based limitations on a site-specific basis, or require you to obtain coverage under an individual permit, if information in your NOI (if applicable), required reports, or from other sources indicates that, after meeting the water quality-based limitations in this part, your discharges are not controlled as necessary to meet applicable water quality standards, either in the receiving water body or another water body impacted by your discharges. EPA or an authorized representative of EPA may inform vessel owner/operators of specific requirements.

2.3.2 Discharges to Water Quality Impaired Waters

Impaired waters or "water quality limited segment[s]" are those which have been identified by a state or EPA pursuant to section 303(d) of the CWA as not meeting applicable state water quality standards. Impaired waters may include both waters with EPA-approved or EPA-established Total Maximum Daily Loads (TMDLs), and those for which EPA has not yet approved or established a TMDL.

2.3.2.1 Discharges to Impaired Waters without an EPA-Approved or Established TMDL

If you discharge to an impaired water without an EPA-approved or established TMDL, you are required to comply with the requirements in Part 2.3.1, including any additional requirements that EPA may impose pursuant to that part. Note that this provision also applies to situations where EPA determines that your discharge is not controlled as necessary to meet water quality standards in another water body, even if your discharge is to a receiving water that is not specifically identified on a section 303(d) list of impaired waters.

2.3.2.2 Discharges to Impaired Waters with an EPA-Approved or Established TMDL

If you discharge to an impaired water with an EPA-approved or established TMDL and EPA or state TMDL authorities have informed you that a Waste Load Allocation (WLA) has been established that applies specifically to your vessel's discharges, to discharges from vessels in your vessel class or type, or to discharges from vessels in general, your discharge must be consistent with the assumptions and requirements of that WLA. If such a WLA exists, EPA will inform you if any additional limits or controls are necessary for your discharge to be consistent with the assumptions of any available WLA in the TMDL, or whether an individual permit application is necessary in accordance with Part 1.8.1. Note that this provision also applies to situations where EPA determines that your discharges are covered by the WLA in an EPA-approved or established TMDL for another water body, even if your discharge is to a receiving water that is not specifically identified on a section 303(d) list.

If an applicable TMDL exists either individually or categorically for your vessel or vessel class (including disallowing discharges from your vessel), EPA and/or state TMDL agencies will inform vessel owners/operators of specific requirements.

3. CORRECTIVE ACTIONS

The corrective action requirements in Part 3 in no way impair EPA's or an authorized representative acting on EPA's behalf to require remedies to bring a vessel owner/operator into compliance with this permit as soon as possible. On a case-by-case basis, EPA may take enforcement action to require any remedy or corrective action necessary to achieve compliance as quickly as possible, including more stringent time tables than those listed in this part.

3.1 Problems Triggering the Need for Corrective Action

If any of the following problems are identified, you must take action to ensure that the problem is eliminated and will not be repeated:

- You violate one or more effluent limits in Part 2 or Part 5 or any other requirement of this permit, or an inspection or evaluation of your vessel by an EPA official or an official agent acting on EPA's behalf determines that modifications to the control measures are necessary to meet the effluent limits;
- You become aware, or EPA determines, that your measures do not control discharges as stringently as necessary to meet applicable water quality standards; or
- You find, or EPA determines, that your pollution control measures or best management practices are not being properly operated and maintained, or are not having the intended effect in minimizing pollutant discharges.

Problems might be identified through: the routine visual inspections or comprehensive annual inspections required by this permit under Part 4; any other inspection or evaluation of your operations by you, a government official, or anyone else; or through any other means.

3.2 Corrective Action Assessment

Following the identification of any of the problems listed in Part 3.1, you must conduct a corrective action assessment into the nature, cause, and potential options for eliminating these problems. The assessment must include the following:

- A description of the problem(s) discovered (e.g., the release of untreated ballast water not meeting the effluent limit, spilling oil in quantities that may be harmful as defined in 40 CFR Part 110), including the date, time, and locations on the vessel where it occurred, the types of impacts observed, and the name, title, and signature of the person who identified the problem and of the person who recorded the problem.
- An explanation of the cause of the problem(s), if known. If unknown at the time of the assessment, provide an indication of what steps will be taken to determine the cause.
- A description of the corrective actions to be taken necessary to eliminate the problem(s), and a schedule of activities for completing such actions within the timeframes established in Part 3.3.

- An indication of whether the corrective action requires the vessel to be in drydock and, if so, the next planned date the vessel will be dry-docked.
- Once the corrective action is implemented, record the date(s) and time(s) of the action, a description of the corrective action implemented, and the name, title, and signature of the person recording this information.

You must retain the findings of your corrective action assessment in your recordkeeping documentation or in your ship's log (pursuant to Part 4.2), signed and certified in accordance with Part 1.7 of this permit.

3.3 Deadlines for Eliminating Problem

Corrective action with respect to many permit requirements can be accomplished immediately. These requirements include, but are not limited to, housekeeping and certain operation and maintenance requirements. In these situations, you must return to compliance immediately.

Restoring compliance with some permit requirements may require additional time for the vessel owner/operator to reasonably correct the problem. The following deadlines apply for eliminating the problem identified in Part 3.1 depending on the type of corrective action that must be taken:

- Corrective actions that can be accomplished with relatively simple adjustments to your control measures, using existing personnel and resources, and not requiring the vessel to be in drydock: you must address the underlying cause of the noncompliance and return to compliance and/or complete necessary adjustments or repairs as soon as possible but no later than 2 weeks after the discovery of the problem, or, if leaving waters subject to this permit, before the expiration of the 2-week period or before reentering waters subject to this permit, whichever is later.
- Corrective actions that require new parts, require equipment or parts that are not onboard the vessel or readily available, or require the installation of new equipment, not requiring the vessel to be in drydock: you must address the underlying cause of the noncompliance and return to compliance and/or complete necessary repairs no later than 3 months after the discovery of the problem, or, if leaving waters subject to this permit, before the expiration of the 3-month period or before reentering waters subject to this permit, whichever is later. However, if completing repairs within 3 months is impracticable, you must complete repairs as soon as possible after 3 months and document the reason why more time is needed as part of your corrective action assessment.
- For corrective actions that require large or comprehensive renovations, alterations, or repairs to the vessel that can only be achieved while the vessel is in drydock: you must address the underlying cause of the noncompliance and return to compliance and/or complete necessary renovations or repairs prior to re-launching the vessel from drydock or prior to reentering waters subject to this permit following the next drydock, whichever is later.

3.4 Effect of Corrective Action

If the initial occurrence of the problem in Part 3.1 constitutes a violation of the permit, conducting the Part 3.2 assessment and correcting the problem according to Part 3.3 does not absolve you of liability for this original violation. However, failure to comply with Parts 3.2 and/or 3.3 constitutes an additional permit violation. EPA will consider the appropriateness and promptness of corrective action in determining enforcement responses to permit violations.

EPA may impose additional requirements and schedules of compliance, including requirements to submit additional information concerning the condition(s) triggering corrective action or schedules and requirements more stringent than specified in this permit. Those requirements and schedules will supersede those of Part 3.3 if such requirements conflict. EPA may also notify you that an individual permit application is necessary in accordance with Part 1.8.1.

4. INSPECTIONS, MONITORING, REPORTING, AND RECORDKEEPING

4.1 Self Inspections and Monitoring

You must conduct the following inspections of your vessel. Please see the accompanying Fact Sheet for guidance on how these requirements apply to vessels frequently outside waters subject to this permit.

4.1.1 Routine Visual Inspections

Except as provided below, a routine visual inspection must be conducted at least once per week or per voyage, whichever is more frequent, unless the vessel meets the requirements for extended unmanned period inspections in Part 4.1.1.2 of this permit, or unless multiple voyages occur in a single day. If vessel owners/operators engage in multiple voyages per day, they need not conduct inspections on every voyage, but must conduct inspections at least once per day. The term "voyage" for purposes of the VGP is defined in Appendix A of this permit.

Routine visual inspections should be conducted on a schedule that coincides with other routine vessel inspections if feasible. Conduct routine visual inspections of all accessible areas addressed in this permit, including, but not limited to cargo holds, boiler areas, machinery storage areas, welldecks, and other deck areas. Ensure these areas are clear of garbage, exposed raw materials, oil, any visible pollutant or constituent of concern that could be discharged in any waste stream, that pollution prevention mechanisms are in proper working order, and pollution prevention procedures are in place to minimize the addition of pollutants to any waste stream. At a minimum, the routine visual inspection must verify to the extent feasible that requirements of Part 2.1 are being met and document any instances of noncompliance. Your routine visual inspection must also include a visual inspection of safely accessible deck and cargo areas and all accessible areas where chemicals, oils, dry cargo, or other materials are stored, mixed, and used, whether or not the areas have been used since the last inspection. A ship's watch must include visual monitoring of the water around and behind the vessel for visible sheens, dust, chemicals, abnormal discoloration or foaming, and other indicators of pollutants or constituents of concern originating from the vessel. Particular attention should be paid to deck runoff, ballast water, and bilgewater. If you identify or are made aware that pollutants or constituents of concern are originating from your vessel in a manner that violates the limitations in this permit, you must initiate corrective actions, as described in Part 3 of this permit. Vessel owners/operators may conduct these inspections as part of meeting their existing (or updated) international safety management code (ISM) safety management system (SMS) plan obligations, provided that those inspections meet the minimum requirements discussed above.

In situations where multiple voyages occur within a one-week period, you may choose to conduct a limited visual inspection addressing only those areas that may have been affected by activities related to the docking and cargo operations conducted during each voyage instead of conducting a full routine visual inspection per voyage (or per day, if there are multiple voyages in one day). If you employ such an approach, you must conduct a full visual inspection of the vessel at least once per week.

4.1.1.1 Documentation of the Routine Visual Inspection

You must document the findings of each routine visual inspection in the official ship logbook or as a component of other recordkeeping documentation referenced in Part 4.2. You must document the date and time of inspection, ship locations inspected, personnel conducting the inspection, location of any visual sampling and observations, note any potential problems and sources of contamination found, and it must be signed by the person conducting the inspection, if not the Master. For limited visual inspections, you need only initial that the inspections were conducted as an addendum to the documentation of the full "weekly" visual inspection, unless additional potential problems or contamination is found.

The person conducting the inspection must be a signatory under 40 CFR §122.22. A signatory includes the person in charge (e.g., the Master), or his or her duly authorized representative. The records of routine visual inspections must be made available to EPA or its authorized representative upon request. Vessel operators must initiate corrective actions, as required under Part 3 of this permit, for any of the conditions listed in Part 3.1 that are identified in their inspections.

4.1.1.2 Extended Unmanned Period (EUP) Inspections

A vessel is considered to be in an extended unmanned period (EUP) if the vessel is temporarily (e.g., for storage or repair) unmanned, fleeted, jacked-up, or otherwise has its navigation systems and main propulsion shut down (e.g., a vessel in drydock or extended lay-up) for 13 days or greater. During an EUP, a vessel owner/operator may elect to either continue conducting routine inspections of the vessel consistent with Part 4.1.1 of this permit, or he or she may conduct an EUP Inspection. The EUP inspection is an alternative inspection for fleeted, jacked-up, or similarly situated vessels, which routinely go into temporary or extended periods of lay-up.

Vessel owners/operators may conduct EUP inspections in lieu of routine visual inspections if they are up-to-date with all other inspection and reporting requirements found in Part 4 of this permit (including routine and annual inspections) and the vessel owner/operator must not have received any VGP-related notices of violation or faced any VGP-related enforcement action from EPA within the previous 24 months.

The EUP inspection consists of three primary components: a pre lay-up inspection, a periodic external observation of the vessel and surrounding waters, and a post lay-up routine visual inspection. Each is explained in greater detail below.

Immediately before a vessel is placed in an EUP, the vessel operator must conduct the pre lay-up inspection, which will consist of:

- A routine visual inspection consistent with Part 4.1.1 of this permit.
- Ensuring Part 2.1.1, material storage and Part 2.1.2, toxic and hazardous material requirements are met.
- Ensuring all oils and oily machinery are properly secured, covered, and protected. Any spilled or leaked oils must be cleaned up immediately. If machinery or

equipment is leaking oil, the leaks must be stopped or appropriate containment must be in place to capture any leaking oil.
- Documenting whether automatic bilge water pump(s) will be engaged on the vessel during the EUP.
- Documenting the amount of fuel on board.
- Documenting the amount of ballast water on board.
- Documenting the date the EUP began.

While a vessel is in EUP, the owner/operator or an authorized representative must examine the outside of the vessel and surrounding waters at least once every two weeks for any evidence of leaks, loss of cargo, or any other spills which might result in an unauthorized discharge. If any deficiencies are observed while the vessel is in EUP, the vessel owner/operator must document those deficiencies and the corrective actions taken to resolve those deficiencies. If a visible sheen is noted on the surface of the surrounding water, the source of the oil must be identified and corrective action must be taken immediately. Furthermore, EPA must be notified of the visible sheen in accordance with Part 4.4 of this permit. If these inspections are conducted as part of the routine operations of a fleeter or similar vessel caretaker, the vessel owner/operator does not need to keep recordkeeping documentation onboard the vessel if the owner/operator has electronic access to all records (including records of a fleeter or other caretaker kept in a central office), and those records are made immediately available to EPA or its authorized representative upon request. See Part 4.2.1 of this permit for electronic recordkeeping requirements.

While a vessel is in EUP, the only applicable monitoring and inspection requirements are those specified in this Part 4.1.1.2. Once a vessel reenters service and is no longer considered to be in EUP, it must comply with all previously applicable monitoring and inspection requirements.

Before a vessel reenters service, the vessel owner/operator must conduct a post lay-up routine visual inspection. As part of this inspection, the owner/operator must document the date the EUP ended, whether fluids (e.g., fuel, ballast water) are at their pre-EUP levels, and whether any spills or leaks of oily materials are observed. Any deficiencies noted must be corrected before the vessel reenters service.

4.1.2 Analytical Monitoring

Analytical monitoring requirements for specific discharge types are identified in Parts 2.2.2, 2.2.3, 2.2.15, and 2.2.26 of this permit, and for specific vessel types in Part 5 of this permit.

4.1.3 Comprehensive Annual Vessel Inspections

Comprehensive vessel inspections must be conducted by qualified personnel at least once every 12 months. Qualified personnel include the Master or owner/operator of the vessel, if appropriately trained, or appropriately trained marine or environmental engineers or technicians or an appropriately trained representative of a vessel's class society acting on behalf of the owner/operator.

Comprehensive annual inspections must cover all areas of the vessel affected by the requirements in this permit that can be inspected safely and without forcing a vessel into drydock. Special attention should be paid to those areas most likely to result in a discharge, likely to cause or contribute to exceedances of water quality standards in the receiving waterbody or another water body impacted by your discharges, or violate effluent limits established in this permit. Areas that inspectors must examine include, but are not limited to:

- The vessel hull, including niche areas, for fouling organisms, flaking anti-foulant paint, exposed TBT or other organotin surfaces;
- Ballast water tanks, as applicable;
- Bilges, pumps, and oily water separator (OWS) sensors, as applicable;
- Oil discharge monitoring system and electronic valve switching function, as applicable;
- Protective seals for lubrication and hydraulic oil;
- Oil and chemical storage areas, cargo areas, and waste storage areas; and
- All visible pollution control measures to ensure that they are functioning properly.

If any portions of the vessel are not inspectable without the vessel entering drydock, the vessel owner/operator must inspect these areas during their drydock inspection. For areas not accessible during the annual inspection, vessel owner/operators must document that these areas of the vessel were not accessible and inspectable in their recordkeeping documentation.

The annual inspections must also include a review of monitoring data collected in accordance with Part 5 if applicable, and routine maintenance records to ensure that required maintenance is being performed (e.g., annual tune-ups for small boats that have wet exhaust). Vessel owner/operators must also consider the results of the past year's visual and analytical monitoring when planning and conducting inspections. Furthermore, the inspection must verify whether all monitoring, training, and inspections are logged and documented according to permit requirements.

When a comprehensive annual vessel inspection schedule overlaps with a routine visual inspection required under Part 4.1.1 of this permit, the comprehensive annual vessel inspection may also be used to meet the requirement of conducting the routine visual inspection, provided that all conditions of both types of inspections described in this permit are met.

If any inspection reveals deficiencies that would result in a violation of the effluent limits in Parts 2 and 5, or indicates that a control measure is not functioning as anticipated or is in need of repair or upgrade, you must take corrective action to resolve such deficiencies in accordance with Part 3. You must record all findings and results from your annual inspection in your vessel's recordkeeping documentation or logbook.

4.1.4 Drydock Inspection Reports

Vessel owner/operators must make any dry-dock reports prepared by the class society or their flag administrations available to EPA or an authorized representative of EPA upon request. If you do not have a dry-dock report from either of these entities, you must prepare your own dry-dock report and it must be made available to EPA or an authorized representative of EPA upon request. The dry-dock report must note that:

- The chain locker has been cleaned and/or flushed in accordance with the requirements of Part 2.2.8 of this permit (to remove sediment, living organisms, and other constituents of concern as applicable);
- The vessel hull, propeller, rudder, thruster gratings, sea chest, and other surface and niche areas of the vessel have been inspected for attached living organisms and those organisms have been removed or neutralized;
- Any antifoulant hull coatings have been applied, maintained, and removed consistent with the FIFRA label if applicable; any exposed existing or any new coating does not contain biocides or toxics that are banned for use in the United States under the Clean Hull Act of 2010 (33 U.S.C. §§ 3801 *et seq*.);
- For all cathodic protection, anodes or dialectic coatings have been cleaned and/or replaced to reduce flaking; and
- All pollution control equipment is properly functioning.

4.2 <u>Recordkeeping</u>

Vessels covered by this permit must keep records on the vessel or accompanying tug that include the following information (as applicable):

1. Owner/Vessel information:
   a. Name,
   b. Owner and Vessel IMO Number (official number if IMO number not issued),
   c. Vessel type,
   d. Owner or operator company name,
   e. Owner or operator certifying official’s name,
   f. Address of owner/operator,
   g. Gross tonnage,
   h. Call sign, and
   i. Port of Registry (Flag).

2. Voyage Log. Include the dates and ports of arrival, vessel agent(s), last port and country of call, and next port and country of call (when known).

3. If you have any violation of any effluent limit, you must document the violation. You must also record:
   a. A description of the violation,
   b. Date of the violation,
   c. Name, title, and signature of the person who identified the violation,
   d. Name, title, and signature of the person who is recording the violation (if different from person who identified the violation),
   e. If a Corrective Action Assessment pursuant to Part 3.2 is needed, attach a copy or indicate where the corrective action assessment is stored, and
   f. If a Corrective Action Assessment was previously conducted pursuant to Part 3.2 (and revisions are not needed for this violation of the effluent limit), a reference to that previous corrective action assessment.

4. Log of findings and any deficiencies and problems identified during routine visual inspections and extended unmanned inspections (if applicable) conducted under Part 4.1.1, including a discussion of any corrective actions taken as required by Part 3, if applicable. Include date, inspector's name, findings, and corrective actions planned or taken. If no deficiencies or problems are found during a routine visual inspection, the vessel owner/operator shall record that the inspection was completed with the inspector's name and date. Routine visual inspections and extended unmanned inspections (if applicable) must be recorded as completed according to Part 4.1.1.

5. Analytical results of all monitoring referenced in Part 4.1.2, including sample documentation, results, and laboratory quality assurance (QA) documentation.

6. Log of findings from comprehensive annual vessel inspections conducted under Part 4.1.3, including a discussion of any corrective actions planned or taken required by Part 3. Include date, inspector's name, findings, and a description of the corrective actions taken.

7. Log of findings from drydock inspections conducted under Part 4.1.4 including a discussion of any corrective actions planned or taken required by Part 3. Include date, inspector's name, findings, and a description of the corrective actions taken.

8. Record of any specific water quality based requirements in Part 2.3 given to your vessel by EPA or its authorized representative and how you have met those requirements.

9. Additional maintenance and discharge information to be recorded and kept in a log on the vessel:
    a. Deck maintenance. Record dates, materials used, application process, etc. for any significant maintenance of the deck surface(s) (e.g., more than routine, daily cleaning activities, such as cleaning, sweeping, scraping, or touch-up paint).
    b. Bilgewater. Record dates, location, oil concentration (for MARPOL vessels) or visible sheen observation (non-MARPOL vessels), and estimated volume of bilgewater discharges. Record the same information for bilgewater disposed of at onshore locations.
    c. Paint application. Record dates, materials used, application process, etc. for any antifouling paint applied to the vessel.
    d. AFFF. Record dates, estimated volumes, and constituents of any discharges of AFFF.
    e. Chain locker inspections. Record dates of inspections and any rinsing conducted within waters subject to this permit.
    f. Controllable pitch propeller, stern tube, and other oil-to-sea interface maintenance. Record dates and locations of any maintenance of

controllable pitch propellers that occurs while the vessel is in waters subject to this permit.

g. Any emergencies requiring discharges otherwise prohibited to waters listed in Appendix G.

h. Gas Turbine Water Wash. Record dates and estimated volume of any discharge of gas turbine washwater within waters subject to this permit. If hauled or disposed of onshore, record log hauler and volume.

i. Estimated volume and location of graywater discharged while in waters subject to this permit.

j. Technical data sheets (MSDS) for all EALs used in Oil-to-Sea interfaces onboard the vessel. Document whether the EAL registered under a labeling program (e.g., DfE, Blue Angel). If it is technically infeasible to use an EAL in an Oil-to-Sea application, include documentation as to the reason.

10. All other documentation required pursuant to this permit.

11. Record of training completed as required by this permit, and where applicable, strategy for passenger training. For purposes of this part, if vessel owners/operators include their training plans as part of their ISM or similar environmental management plans, and they can document that they fully implement those plans, they will meet the recordkeeping requirements of this part.

Vessel owner/operators may keep paper or electronic records on the vessel or accompanying tug. All electronic recordkeeping must meet the requirements found in Part 4.2.1 of this permit.

Owners/operators of unmanned, unpowered barges need not maintain records for numbers 2, 5, 9, and 11 above. However, owners/operators of unmanned, unpowered barges must provide a history of areas where the vessel has operated and applicable general maintenance records to EPA upon request. If barge operators are unable to make applicable general maintenance records and a history of where the vessel has been available to EPA upon request (e.g., promptly retrieve those data from the vessel owner), they must maintain the records for numbers 2, 5, 9, and 11 on the vessel or accompanying tug.

It is not the intention of this permit to require separate records for the Coast Guard and EPA. Rather, vessels can harmonize their recordkeeping practices, where appropriate, so that records are not unnecessarily duplicative. For example, information can be logged with maintenance records, the ship's log, in existing ISM/SMS plans or recordkeeping, the oil record book, shipboard oil pollution emergency plan, or other additional recordkeeping documentation as appropriate but must be provided to EPA or its authorized representative if requested. Operators may choose how these records will be maintained, but must retain these records on the vessel for a period of 3 years.

Certification of accurate information is required for all NOIs, NOTs, the PARI form, and any report (including any monitoring data) submitted to EPA, pursuant to Parts 1.7 of this permit and 40 CFR §122.22. The vessel owner/operator must retain copies of all reports, certifications, records, monitoring data, and other information required by this permit, and records of all data used to complete the NOI to be covered by this permit, for a period of at least 3 years from the date that your coverage under this permit expires or is terminated.

The vessel master, owner/operator, or person in charge shall make available to EPA or an authorized representative from EPA all records kept under this part upon request.

4.2.1 Electronic Recordkeeping

For purposes of the VGP, records may be kept electronically if the records are:

- In a format that can be read in a similar manner as a paper record,
- Legally dependable with no less evidentiary value than their paper equivalent, and
- Accessible to the inspector during an inspection to the same extent as a paper copy stored on the vessel would be, if the records were stored in paper form.

4.3 Additional Recordkeeping for Vessels Equipped with Ballast Tanks

Except for vessels operating exclusively within one Captain of the Port Zone, for vessels equipped with ballast tanks that are bound for a port or place in the United States, you must meet the recordkeeping requirements of 33 CFR Part 151.

The master, owner, operator, or person in charge of a vessel bound for a port or place in the United States must keep written records that include the following information:

1. Total ballast water information. Include the total ballast water capacity, total volume of ballast water on board, total number of ballast water tanks, and total number of ballast water tanks in ballast. Use units of measurements such as metric tons (MT), cubic meters (m^3), long tons (LT), and short tons (ST).

2. Ballast water management. Include the total number of ballast tanks/holds that are to be discharged into the waters of the United States or to a reception facility. Indicate whether the vessel has a ballast water management plan and IMO guidelines on board, and whether the ballast water management plan is used.

3. Information on ballast water tanks that are to be discharged into waters subject to this permit or to a reception facility. Include the following:
    a. The origin of ballast water. This includes date(s), locations(s) (including latitude and longitude and port [if relevant]), volume(s), and temperatures(s). If a tank has been exchanged, list the loading port of the ballast water that was discharged during the exchange.
    b. The date(s), location(s) (including latitude and longitude), volume(s), method, thoroughness (percentage exchanged if exchange conducted), sea height at time of exchange if exchange conducted, of any ballast water exchanged or otherwise managed.
    c. Specific records pertaining to treated ballast water (see Part 2.2.3.5 of the permit).

d. The expected date, location, volume, and salinity of any ballast water to be discharged into the waters of the United States or a reception facility.

4. Discharge of sediment. If sediment is to be discharged into a facility within the jurisdiction of the United States, include the location of the facility where the disposal will take place.

The ballast water reporting forms must be kept on board the vessel and must be submitted to the National Ballast Information Clearinghouse (NBIC) before arriving to U.S. ports as required by the U.S. Coast Guard. In addition, crude oil tankers engaged in the Coast Wise trade are also required to submit their ballast water reporting forms to the NBIC as a requirement of this permit. In addition, all vessels which conduct saltwater flushing as required by Part 2.2.3.6.3 and Part 2.2.3.6.4 of the permit, but do not report saltwater flushing to the NBIC, must instead keep a record of saltwater flushing to meet the requirements of this permit.

4.4 Reporting

4.4.1 Annual Report

For each vessel, owners/operators are required to submit an Annual Report for each year that they have active permit coverage. For vessels which must file NOIs, this means for as long as they have an active NOI. For vessels which need not file an NOI, they maintain active coverage as long as they are operating in waters subject to this permit, provided they have signed and maintain a copy of the PARI form. Annual Reports must be completed each calendar year and submitted by February 28 of the following year (e.g., the 2014 annual report will be due by February 28, 2015). A separate 2013 annual report will not be required; instead, any relevant information from December 19, 2013 – December 31, 2013 (if applicable) must be included in the annual report for the 2014 calendar year. Permittees covered under the 2008 VGP must submit reports of all instances of noncompliance which occur before December 18, 2013 to EPA consistent with the terms of that permit.

All analytical monitoring results must be submitted to EPA as part of the Annual Report.

The vessel owner/operator shall complete the Annual Report form provided in Appendix H of this permit and submit it to EPA electronically. It can be completed online by accessing EPA's main NPDES vessel webpage (available via www.epa.gov/npdes/vessels or through EPA's eNOI system (www.epa.gov/npdes/vessels/eNOI).

The vessel owner/operator shall respond to all questions accurately and completely, and provide the necessary information and/or data to support each response. Unless one of the exceptions in Part 1.14 is met, the vessel owner/operator must submit each Annual Report electronically in accordance with the procedures described in Part 1.14 of this permit.

If you are eligible to submit a hard copy of the Annual Report, you must send your completed annual report to EPA HQ (Attn: Vessel Annual Report, Mail Code 4203M, 1200 Pennsylvania Ave. NW, Washington, DC 20460). Hard copy reports must be postmarked by February 21 of the following calendar year (i.e., the 2014 annual report must be postmarked by February 21, 2015).

The Annual Report replaces the annual noncompliance report and one-time report requirements found in the 2008 VGP. All instances of noncompliance must be reported as part of the Annual Report.

4.4.2 Combined Annual Reports for Unmanned, Unpowered Barges or Vessels less than 300 Gross Tons

Operators of unmanned, unpowered barges or other vessels less than 300 gross tons (e.g., small tug boats) may submit a single annual report (referred to as the Combined Annual Report) for multiple vessels and/or barges, provided all of the following conditions are met:

- The answers for each barge or vessel for which the report is to be submitted are the same;
- Each barge or vessel was not required to conduct any analytical monitoring;
- The Combined Annual Report is submitted electronically;
- There were no instances of noncompliance for any barge or vessel and no instances of identified deficiencies by EPA or its authorized representatives during any inspections during the previous 12 months; and
- Each barge or vessel has an NOI permit number or, if not required to submit an NOI, a commonly used unique identifier (e.g., registration number) so EPA can identify the vessel. For vessels less than 300 gross tons which have not submitted an NOI, the unique identifier numbers must be entered on the combined annual report.

Vessel owners/operators of unmanned, unpowered barges or vessels less than 300 gross tons may submit a Combined Annual Report for some or most of their fleet, or submit individual Annual Reports if they prefer. Individual Annual Reports are required for any barges or other vessels which are not eligible for the Combined Annual Report, as specified above.

4.4.3 Reportable Quantities of Hazardous Substances or Oil

Although not a requirement of this permit, if a discharge contains oil or a hazardous substance in an amount equal to or in excess of a harmful or reportable quantity established under 40 CFR Part 110, 40 CFR Part 117, or 40 CFR Part 302, during a 24-hour period, the National Response Center (NRC) must be notified (dial 800-424-8802 or 202-426-2675 in the Washington, DC area). Also, within 14 calendar days of knowledge of the release, the date and description of the release, the circumstances leading to the release, responses to be employed for such releases, and measures to prevent recurrences of such releases must be recorded in your recordkeeping documentation consistent with Part 4.2 of this permit.

Where a discharge of hazardous substances or oil in excess of reportable or harmful quantities occurs, such discharge is not authorized by this permit and may also be a violation of section 311 of the CWA, 33 USC §1321. Note that these spills must be reported as described above. Also applicable are of the CWA and certain provisions of sections 301 and 402 of the CWA.

4.4.4 Additional Reporting

In addition to the reporting requirements stipulated in Part 4 of this permit, you are also subject to the standard permit reporting provisions referenced in Part 1.13.

Where applicable, you must submit the following information to the appropriate EPA Regional Office listed in Appendix B for the location in which the instance(s) of noncompliance occurred:

- 24-hour reporting – You must report any noncompliance which may endanger health or the environment. Any information must be provided orally within 24 hours from the time you become aware of the circumstances.
- 5-day follow-up reporting to the 24-hour reporting – A written submission must also be provided within five days of the time you become aware of the circumstances.

If you report to the NRC as referenced in Part 4.4.3 of the permit, you do not need to complete reporting under this part.

5. VESSEL-CLASS-SPECIFIC REQUIREMENTS

You must comply with the requirements of Part 5 of this permit, Vessel-Class-Specific Requirements, associated with your vessel class in addition to any applicable requirements that apply to all vessels specified elsewhere in this permit.

5.1 Large Cruise Ships (authorized to carry 500 people or more for hire)

The requirements in Part 5.1 apply to vessel discharges from cruise ships providing overnight accommodations (i.e., cruise ships with onboard sleeping facilities) to passengers and authorized to carry 500 people or more for hire.

5.1.1 Additional Effluent Limits

5.1.1.1 Graywater Management

5.1.1.1.1 Graywater Discharge Location and Rate

Pierside Limits – While pierside, appropriate onshore reception facilities for graywater must be used unless the vessel treats graywater with a device to meet the standards in Part 5.1.1.1.2. If such facilities are not reasonably available and you do not have the capacity to treat graywater to meet the standards in Part 5.1.1.1.2, you must hold the graywater until the vessel is underway and not in waters subject to this permit. Appropriate reception facilities are those authorized for use by the port authority or local municipality and that treat the discharge in accordance with its NPDES permit.

Operational Limits – You must meet the following restriction:

- While operating within 3 nm from shore, discharges of graywater are prohibited unless they meet the effluent standards in Part 5.1.1.1.2.

Limits Applicable to Operation in Nutrient Impaired Waters – If you operate in nutrient-impaired waters including, but not limited to, the Chesapeake Bay or the territorial sea surrounding the mouth of the Mississippi River in the Gulf of Mexico, you must:

- Not discharge any graywater in nutrient-impaired waters subject to this permit unless the length of voyage in that water exceeds the vessel's holding capacity for graywater; and
- Minimize the discharge of any graywater into nutrient-impaired waters subject to this permit, which may require minimizing the production of graywater; and
- If your vessel's holding capacity for graywater is exceeded, treat such excess graywater (above the vessel holding capacity) by a device meeting the standards in Part 5.1.1.1.2 prior to discharge into nutrient-impaired waters subject to this permit; or
- Dispose of the graywater at an onshore facility which will discharge the effluent under a valid NPDES permit.

A list of nutrient impaired waters is available at www.epa.gov/npdes/vessels.

5.1.1.1.2 Graywater Treatment Standards

The discharge of treated graywater must meet the following standards:

1. The discharge must satisfy the minimum level of effluent quality specified in 40 CFR §133.102;

2. The geometric mean of the samples from the discharge during any 30-day period may not exceed 20 fecal coliform/100 milliliters (ml) and not more than 10 percent of the samples may exceed 40 fecal coliform/100 ml; and

3. Concentrations of total residual chlorine may not exceed 10.0 micrograms per liter (µg/l).

5.1.1.1.3 Sculleries and Galleys

Cruise ship owners/operators must use soaps and detergents that are phosphate-free, minimally-toxic, and biodegradable. Degreasers must be minimally-toxic if they will be discharged as part of any waste stream.

5.1.1.1.4 Other Materials

Waste from mercury-containing products, dry cleaners or dry cleaner condensate, photo processing labs, medical sinks or floor drains, chemical storage areas, and print shops using traditional or non-soy-based inks and chlorinated solvents must be prevented from entering the ship's graywater, blackwater, or bilgewater systems if water from these systems will be discharged into waters subject to this permit. Preventing these wastes from entering these systems can be accomplished by plugging all drains that flow to the graywater, blackwater, or bilge systems in areas where these wastes are produced and creating alternate waste receptacles or replumbing drains to appropriate holding tanks.

Vessel owners/operators must not discharge any toxic materials, including products containing acetone, benzene, or formaldehyde into salon and day spa sinks or floor drains if those sinks or floor drains lead to any system which will be discharged into waters subject to this permit. This includes using these materials on passengers (or crew) and rinsing residuals into these sinks. Alternate waste receptacles or holding tanks must be used for these materials. Addition of these materials to any systems which will discharge into waters subject to this permit is a permit violation.

5.1.1.2 Pool and Spa Discharges

Discharges of pool or spa water to waters listed in Appendix G are not authorized under this permit. Discharges from pools and spas are authorized into non-Appendix G waters subject to this permit, provided pool and spa water to be discharged is dechlorinated and/or debrominated, and discharge occurs while the vessel is underway. To be considered dechlorinated, the total residual chlorine in the pool or spa effluent must be less than 100 µg/l if the pool or spa water is discharged without going through an Advanced Wastewater Treatment System (AWTS). To be considered debrominated, the total residual oxidant in the pool or spa effluent must be below 25 µg/l if the pool or spa water is discharged without going through an AWTS. Pool and spa water may be added to the graywater treatment systems; however, any resultant discharge must meet all standards and requirements found in Part 5.1.1.1 and must be dechlorinated and/or debrominated as applicable.

5.1.2 Monitoring Requirements

5.1.2.1 Untreated Graywater

The discharge of untreated graywater by large cruise ships is not authorized in waters subject to this permit. Any discharge of untreated graywater within waters subject to this permit must be reported to EPA as an incidence of noncompliance on the vessel's Annual Report.

5.1.2.2 Treated Graywater

Prior to entering waters of the United States, vessel operators must demonstrate that they have an effective treatment system that complies with the standards in Part 5.1.1.1.2 if they will discharge graywater within 3 nm of shore.

5.1.2.2.1 Initial Monitoring

In order to demonstrate the effectiveness of the treatment system, the vessel operator must take at least five (5) samples from the vessel on different days over a 30-day period that are representative of the treated effluent to be discharged. A vessel owner/operator that submitted data to EPA for a vessel's discharge from an AWTS under the 2008 VGP requirements or has already received certification for continuous discharges from an AWTS and submitted data to the U.S. Coast Guard to meet the requirements of Section 1411(b) of Title XIV, Pub. L. 106-554 (Dec. 31, 2000, 114 Stat. 2763) [Certain Alaska Cruise Ship Operations] (codified at 33 USC 1901 note) does not need to conduct initial monitoring, and may instead immediately commence maintenance monitoring consistent with Part 5.1.2.2.2 of this permit.

Initial monitoring must be done within the first 90 days of permit coverage, within 90 days of AWTS installation onboard the vessel, or before vessels discharge into waters subject to this permit, whichever is later. Samples must be taken for BOD, fecal coliform, suspended solids, pH, and total residual chlorine. Furthermore, samples must be taken for *E. coli*, total phosphorus (TP), ammonia, nitrate/nitrite, and Total Kjeldahl Nitrogen (TKN). Sampling and testing shall be conducted according to 40 CFR Part 136. If the measured samples meet the standards specified in Part 5.1.1.1.2, then the owner/operator has demonstrated the effectiveness of their treatment system for controlling their graywater discharge. Records of the sampling and testing results must be retained onboard for a period of 3 years in the vessel's recordkeeping documentation. Records of monitoring information shall include:

- The date, exact place, time, and sampling port location(s) of sampling or measurements;
- The individual(s) who performed the sampling or measurements;

- The date(s) analyses were performed;
- The individual(s) who performed the analyses;
- The analytical techniques or methods used;
- The results of such analyses; and
- Proportions of wastestreams being treated and sampled (such as mixed graywater, mixed graywater and blackwater, and galley. If actual amounts are not available, the estimated proportions should be provided).

Analytical results for total residual chlorine below the method detection limit shall be deemed compliant with the effluent limits, provided the permittee uses a testing method with a detection limit no higher than 10.0 µg/L under ideal conditions. EPA recommends Method SM4500-CL G (DPD Colorimetric Method) for these purposes as it is able to reach 10 µg/L under ideal conditions and so meets these requirements. SM4500-Cl G is typically the method that Alaska Department of Environmental Conservation (ADEC)/U.S. Coast Guard uses for compliance monitoring.

Testing and reporting for total residual chlorine is not required if chlorine is not used as disinfectant in the wastewater treatment works process and no water is drained to the graywater system from water with onboard chlorine additions (e.g., swimming pools, spas).

5.1.2.2.2 Maintenance Monitoring

After demonstrating the effectiveness of their system, vessel owners/operators must collect and analyze one sample per quarter for each of the constituents listed in Part 5.1.2.2.1 to demonstrate treatment equipment maintenance and compliance with this permit for any quarter the vessel discharges graywater into waters subject to this permit. Furthermore, samples must be taken for *E. coli*, total phosphorus (TP), ammonia, nitrate/nitrite, and Total Kjeldahl Nitrogen (TKN). Regardless of whether a vessel has discharged into waters subject to this permit, maintenance monitoring must be conducted at least once per year or vessels must re-conduct initial monitoring in accordance with Part 5.1.2.2.1 before discharging into waters subject to this permit. Records of the sampling and testing results must be retained onboard for a period of 3 years in the vessel's recordkeeping documentation.

5.1.2.2.3 Monitoring Reporting

The owner/operator must submit data showing that the graywater standards are achieved by their treatment system to EPA electronically or to EPA, ATTN: VGP Cruise Ship Monitoring Results, 1200 Pennsylvania Ave., MC 4203M, Washington, DC 20460 if they are eligible for a waiver under part 1.14 of this permit. Initial sampling data must be submitted at least 7 days before entering waters subject to this permit, within 90 days of obtaining permit coverage, or within 90 days of AWTS installation onboard the vessel, whichever is later. Maintenance monitoring data must be submitted at least once per calendar year no later than February 28 of the following year (e.g., 2014 data must be submitted by February 28, 2015). Data must be submitted on DMRs available in Appendix H and/or Appendix I of this permit or submitted to EPA electronically: the system is scheduled to be available at www.epa.gov/vessels/eNOI. Maintenance monitoring data may be submitted as part of the vessel's annual report (Appendix H) .

5.1.2.2.4 Reserved Authority

Even if owners/operators have demonstrated their systems meet the standards in Part 5.1.1.1.2, if EPA, its authorized representative, or the U.S. Coast Guard sample their graywater effluent and find that they are not meeting these standards, the cruise ship owners/operators are liable for violating their effluent limits.

5.1.2.2.5 Treated Graywater Records

The owner/operator must maintain records estimating the quantity and quality of all discharges of treated graywater into waters subject to this permit, including date, location and volume discharged, and pollutant concentrations monitored in their recordkeeping documentation. These records shall be maintained as part of or in combination with the vessel's sewage and graywater discharge record book required under 33 CFR §159.315.

5.1.2.3 Treated Pool and Spa Discharges

Vessel owners/operators must monitor chlorine or bromine concentrations (as applicable) in pool or spa water before every discharge event using sufficiently sensitive 40 CFR Part 136 methods if they will discharge these streams directly into waters subject to this permit to ensure that the dechlorination/debromination process is complete. If vessel owners/operators are monitoring bromine concentrations, they may use a field test kit which uses the colorimetric method in lieu of 40 CFR Part 136 methods to ensure waters have been debrominated, provided that test kit has a method detection limit no higher than 50 µg/l. You must record the location of the discharge, the estimated volume of the discharge, and the concentration of chlorine or bromine (as applicable). Records of this monitoring must be kept with other graywater monitoring records.

For chlorine, analytical results below the method detection limit shall be deemed compliant with the effluent limits, provided the permittee uses a testing method with a detection limit no higher than 10.0 µg/L under ideal conditions. EPA recommends Method SM4500-CL G (DPD Colorimetric Method) for these purposes as it is able to reach 10 µg/L under ideal conditions and so meets these requirements. SM4500-Cl G is typically the method that ADEC/USCG uses for compliance monitoring. For bromine, analytical results below the method detection limit shall be deemed compliant with the effluent limits, provided the permittee uses a testing method with a detection limit no higher than 50.0 µg/l.

5.1.3 Educational and Training Requirements

The crews of cruise ships play a key role in minimizing the discharge of pollutants from cruise ship operations and passengers. Therefore, cruise ship operators must provide the following educational and training requirements to ship personnel:

- The ship's crew members who actively take part in the management of a discharge or who may affect any discharge must receive training regarding shipboard environmental procedures and must be able to demonstrate proficiency in implementing these procedures;
- Advanced training in shipboard environmental management procedures must be provided for those directly involved in managing specific discharge types or areas

of the ship and these crew members must be able to demonstrate proficiency in implementing these procedures; and

- Appropriate reprimand procedures must be developed for crew whose actions lead to violations of any effluent limit set forth in this permit or procedures established by the cruise ship operator to minimize the discharge of pollutants.

Cruise ships must also educate passengers on their potential environmental impacts. The goals of these education efforts must include preventing trash from entering any waste stream, eliminating the addition of unused soaps, detergents, and pharmaceuticals to the graywater or blackwater systems, and minimizing production of graywater. This can be accomplished in a variety of ways including, but not limited to, posting signage and informational material in guestrooms and common areas, incorporating environmental information passenger orientation presentations or packages at the start of cruises, incorporating this information into additional lectures and seminars, or broadcasting information via loudspeakers.

Vessel owners/operators must also meet all training-related recordkeeping requirements of Part 4.2 of this permit.

5.2 Medium Cruise Ships (authorized to carry 100 to 499 people for hire)

The requirements in Part 5.2 apply to vessel discharges from cruise ships providing overnight accommodations (i.e., cruise ships with onboard sleeping facilities) to passengers and authorized to carry between 100 and 499 people for hire.

5.2.1 Additional Effluent Limits

5.2.1.1 Graywater Management

All medium cruise ships must meet all requirements of this part, including the requirements of Parts 5.2.1.1.1, unless they are a vessel unable to voyage more than 1 nm from shore and were constructed before December 19, 2008. Medium cruise ships unable to voyage 1 nm from shore and constructed before December 19, 2008 must meet the requirements in Parts 5.2.1.1.3, 5.2.1.1.4, 5.2.1.1.5, 0, 5.2.2.1, 5.2.2.3, and 5.2.3.

5.2.1.1.1 Graywater Discharge Location and Rate

Pierside Limits – While pierside, appropriate onshore reception facilities for graywater must be used, unless the vessel treats graywater with a device to meet the standards in Part 5.2.1.1.2. If such facilities are not reasonably available and you do not have the capacity to treat graywater to meet the standards in Part 5.2.1.1.2, you must hold the graywater until the vessel is underway and not in waters subject to this permit. Appropriate reception facilities are those authorized for use by the port authority or local municipality and that treat graywater in accordance with its NPDES permit.

Operational Limits – You must meet the following restrictions: while operating within 3 nm from shore, discharges of graywater are prohibited unless they meet the effluent standards in Part 5.2.1.1.2.

Limits Applicable to Operation in Nutrient Impaired Waters – If you operate in nutrient-impaired waters including, but not limited to, the Chesapeake Bay or the territorial sea surrounding the mouth of the Mississippi River in the Gulf of Mexico, you must:

- Not discharge any graywater in nutrient-impaired waters subject to this permit unless the length of voyage in that water exceeds the vessel's holding capacity for graywater; and
- Minimize the discharge of any graywater into nutrient-impaired waters subject to this permit, which may require minimizing the production of graywater; and
- If your vessel's holding capacity for graywater is exceeded, treat such excess graywater (above the vessel-holding capacity) by a device meeting the standards in Part 5.2.1.1.2 prior to discharge into nutrient-impaired waters subject to this permit; or
- Dispose of the graywater at an onshore facility which will discharge the effluent under a valid NPDES permit.

A list of nutrient-impaired waters is available at www.epa.gov/npdes/vessels.

5.2.1.1.2 Graywater Treatment Standards

The discharge of treated graywater must meet the following standards:

1. The discharge must satisfy the minimum level of effluent quality specified in 40 CFR §133.102;

2. The geometric mean of the samples from the discharge during any 30-day period may not exceed 20 fecal coliform/100 milliliters (ml) and not more than 10 percent of the samples exceed 40 fecal coliform/100 ml; and

3. Concentrations of total residual chlorine may not exceed 10.0 micrograms per liter (µg/l).

5.2.1.1.3 Sculleries and Galleys

Cruise ship owners/operators must use soaps and detergents that are minimally-toxic, phosphate free, and biodegradable. Degreasers must be minimally-toxic if they will be discharged as part of any waste stream.

5.2.1.1.4 Other Materials

Waste from mercury-containing products, dry cleaners or dry cleaner condensate, photo processing labs, medical sinks or floor drains, chemical storage areas, and print shops using traditional or non-soy based inks and chlorinated solvents must be prevented from entering the ship's graywater, blackwater, or bilgewater systems if water from these systems will ever be discharged into waters subject to this permit. Preventing these wastes from entering these systems can be accomplished by plugging all drains that flow to the graywater, blackwater, or bilge systems in areas where these wastes are produced and creating alternate waste receptacles or replumbing drains to appropriate holding tanks.

Vessel owners/operators must not discharge any toxic materials, including products containing acetone, benzene, or formaldehyde into salon and day spa sinks or floor drains if those sinks or floor drains lead to any system which will be discharged into waters subject to this permit. This includes using these materials on passengers (or crew) and rinsing residuals into these sinks. Alternate waste receptacles or holding tanks must be used for these materials. Addition of these materials to any systems which will discharge into waters subject to this permit is a permit violation.

5.2.1.1.5 Graywater Discharge Location and Rate for Vessels Built before December 19, 2008 unable to voyage 1 nm from shore

While pierside, appropriate onshore reception facilities for graywater must be used if available and their use is economically achievable (unless the vessel treats graywater with a device to meet the standards in Part 5.2.1.1.2). Appropriate reception facilities are those authorized for use by the port authority or local municipality and that treat the discharge in accordance with its NPDES permit.

If such facilities are not available and you do not have the capacity to treat graywater to meet the standards in Part 5.2.1.1.2, you must hold the graywater unless the vessel is underway and sailing at a speed of at least 6 knots in a water that is not listed in Appendix G. When operating in nutrient impaired waters subject to this permit, you must not discharge any graywater into those waters subject unless the length of voyage in that water exceeds the vessel's holding capacity for graywater, and minimize the discharge of any graywater into nutrient-impaired waters subject to this permit, which may require minimizing the production of graywater.

5.2.1.2 Pool and Spa Discharges

Discharges of pool or spa water to waters listed in Appendix G are not authorized under this permit. Discharges from pools and spas are authorized into non-Appendix G waters subject to this permit, provided pool and spa water to be discharged is dechlorinated and/or debrominated, and discharge occurs while the vessel is underway. To be considered dechlorinated, the total residual chlorine in the pool or spa effluent must be less than 100 µg/l if the pool or spa water is discharged without treatment through an AWTS. To be considered debrominated, the total residual oxidant in the pool or spa effluent must be below 25 µg/l if the pool or spa water is discharged without going through an AWTS. Pool and spa water may be added to the graywater treatment systems; however, any resultant discharge must meet all standards and requirements found in Part 5.2.1.1 and must be dechlorinated and/or debrominated as applicable.

5.2.2 Monitoring Requirements

5.2.2.1 Untreated Graywater

The owner/operator must maintain records estimating all discharges of untreated graywater into waters subject to this permit, including date, location, and volume discharged in their recordkeeping documentation. These records can be maintained as part of the vessel's sewage and graywater discharge record book required under 33 CFR §159.315.

5.2.2.2 Treated Graywater

Prior to entering waters of the United States, vessel operators must demonstrate that they have an effective treatment system that complies with the standards in Part 5.2.1.1.2 if they will discharge graywater within 1 nm of shore.

5.2.2.2.1 Initial Monitoring

In order to demonstrate the effectiveness of the treatment system, the vessel operator must take at least five (5) samples taken from the vessel on different days over a 30-day period that are representative of the treated effluent to be discharged. A vessel owner/operator that submitted data to EPA for a vessel's discharge from an AWTS under the 2008 VGP requirements or submitted such data to the U.S. Coast Guard to meet the requirements of Section 1411(b) of Title XIV, Pub. L. 106-554 (Dec. 31, 2000, 114 Stat. 2763) [Certain Alaska Cruise Ship Operations] (codified at 33 USC 1901 note) does not need to conduct initial monitoring, and may instead immediately commence maintenance monitoring consistent with Part 5.2.2.2.2 of this permit.

Initial monitoring must be done within the first 90 days of permit coverage, within 90 days of AWTS installation onboard the vessel, or before vessels discharge into waters subject to this permit, whichever is later. Samples must be taken for BOD, fecal coliform, suspended solids, pH, and total residual chlorine. Furthermore, samples must be taken for *E. coli*, TP, ammonia, nitrate/nitrite, and TKN. Sampling and testing shall be conducted according to 40 CFR Part 136. If the measured samples meet the standards specified in Part 5.2.1.1.2, then the owner/operator has demonstrated the effectiveness of their treatment system for controlling their graywater discharge. Records of the sampling and testing results must be retained onboard for a period of 3 years in the vessel's recordkeeping documentation.
Records of monitoring information shall include:

- The date, exact place, time, and sampling port location(s) of sampling or measurements;
- The individual(s) who performed the sampling or measurements;
- The date(s) analyses were performed;
- The individual(s) who performed the analyses;
- The analytical techniques or methods used;
- The results of such analyses; and
- Proportions of wastestreams being treated and sampled (such as mixed graywater, mixed graywater and blackwater, and galley. If actual amounts are not available, the estimated proportions should be provided).

Analytical results for total residual chlorine below the method detection limit shall be deemed compliant with the effluent limits, provided the permittee uses a testing method with a detection limit no higher than 10.0 µg/L under ideal conditions. EPA recommends Method SM4500-CL G (DPD Colorimetric Method) for these purposes as it is able to reach 10 µg/L under ideal conditions and so meets these requirements. SM4500-Cl G is typically the method that ADEC/U.S. Coast Guard uses for compliance monitoring.

Testing and reporting for total residual chlorine is not required if chlorine is not used as disinfectant in the wastewater treatment works process and no water is drained to the graywater system from water with onboard chlorine additions (e.g., swimming pools, spas).

5.2.2.2.2 Maintenance Monitoring

After demonstrating the effectiveness of their system, vessel owners/operators must collect and analyze one sample per quarter for each of the constituents listed in Part 5.2.2.2.1 to demonstrate treatment equipment maintenance and compliance with this permit. Records of the sampling and testing results must be retained onboard for a period of 3 years in the vessel's recordkeeping documentation.

5.2.2.2.3 Monitoring Reporting

The owner/operator must submit data showing that the graywater standards are achieved by their treatment system to EPA electronically or to EPA, ATTN: VGP Cruise Ship Monitoring Results, 1200 Pennsylvania Ave., MC 4203M, Washington, DC 20460 if the vessel owner/operator is eligible for waiver under part 1.14 of this permit. Initial sampling data must be submitted at least 7 days before entering waters subject to this permit, within 90 days of obtaining permit coverage, or within 90 days of AWTS installation onboard the vessel, whichever is later. Maintenance monitoring data must be submitted at least once per calendar year no later than February 28 of the following year (e.g., 2014 data must be submitted by February 28, 2015). Data must be submitted on DMRs available in Appendix H and/or Appendix I of this permit or submitted to EPA electronically. The system is scheduled to be available at www.epa.gov/vessels/eNOI. Maintenance monitoring data may be submitted as part of the vessel's Annual Report.

5.2.2.2.4 Reserved Authority

Even if owners/operators have demonstrated their system meets the standards in Part 5.2.1.1.2, if EPA, its authorized representative, or the U.S. Coast Guard sample their graywater effluent and find that they are not meeting these standards, the cruise ship owners/operators are liable for violating their effluent limits.

5.2.2.2.5 Treated Graywater Records

The owner/operator shall maintain records estimating the quantity and quality of all discharges of treated graywater into waters subject to this permit, including date, location, and volume discharged, and pollutant concentrations monitored in their recordkeeping documentation. These records shall be maintained as part of or in combination with the vessel's sewage and graywater discharge record book required under 33 CFR §159.315.

5.2.2.3 Treated Pool and Spa Discharges

Vessel owners/operators must monitor chlorine or bromine concentrations (as applicable) in pool or spa water before every discharge event using sufficiently sensitive 40 CFR Part 136 methods if they will discharge these streams directly into waters subject to this permit to ensure that the dechlorination/debromination process is complete. If vessel owners/operators are monitoring bromine concentrations, they may use a field test kit which uses the colorimetric method in lieu of 40 CFR Part 136 methods to ensure waters have been debrominated, provided that test kit has a method detection limit no higher than 50 µg/l. You must record the location of the discharge, the estimated volume of the discharge, and the concentration of chlorine or bromine (as applicable). Records of this monitoring must be kept with other graywater monitoring records.

For chlorine, analytical results below the method detection limit shall be deemed compliant with the effluent limits, provided the permittee uses a testing method with a detection limit no higher than 10.0 µg/L under ideal conditions. EPA recommends Method SM4500-CL G (DPD Colorimetric Method) for these purposes as it is able to reach 10 µg/l under ideal conditions and so meets these requirements. SM4500-Cl G is typically the method that ADEC/U.S. Coast Guard uses for compliance monitoring. For bromine, analytical results below the method detection limit shall be deemed compliant with the effluent limits, provided the permittee uses a testing method with a detection limit no higher than 50.0 µg/l.

5.2.3 Educational and Training Requirements

The crews of cruise ships play a key role in minimizing the discharge of pollutants from cruise ship operations and passengers. Therefore, cruise ship operators are responsible for providing the following educational and training requirements to ship personnel:

- The ship's crew members who actively take part in the management of the discharge or who may affect the discharge must receive training regarding shipboard environmental procedures and must be able to demonstrate proficiency in implementing these procedures;
- Advanced training in shipboard environmental management procedures must be provided for those directly involved in managing specific discharge types or areas of the ship and these crew members must be able to demonstrate proficiency in implementing these procedures; and
- Appropriate reprimand procedures must be developed for crew whose actions lead to violations of any effluent limit set forth in this permit or procedures established by the cruise ship operator to minimize the discharge of pollutants.

Cruise ships must also educate passengers on their potential environmental impacts. The goals of these education efforts must include preventing trash from entering any waste stream, eliminating the addition of unused soaps, detergents, and pharmaceuticals to the graywater or blackwater systems, and minimizing production of graywater. This can be accomplished in a variety of ways including, but not limited to, posting signage and informational material in guestrooms and common areas, incorporating environmental information passenger orientation presentations or packages at the start of cruises, incorporating this information into additional lectures and seminars, or broadcasting information via loudspeakers.

Vessel owner/operators must also meet all training-related recordkeeping requirements of Part 4.2 of this permit.

5.3 Large Ferries

Ferries are vessels for hire that are designed to carry passengers and/or vehicles between two ports, usually in inland, coastal, or near-shore waters. "Large Ferry" means a "ferry" that: a) has a capacity greater than or equal to 100 tons of cargo (e.g., for cars, trucks, trains, or other land-based transportation); or b) is authorized by the U.S. Coast Guard to carry 250 or more people. All large ferries authorized to carry 100 or more tons of cars, trucks, trains, or other land-based transportation must meet the requirements in Part 5.3.1.1 (Deck Water) and Part 5.3.2 (Education and Training). Large ferries authorized by the Coast Guard to carry 250 or more people must also meet the requirements of Part 5.3.1.2 (Graywater Management) and Part 5.3.2 (Education and Training Requirements).

5.3.1 Additional Effluent Limits

5.3.1.1 Deck Water

Large ferries may not discharge untreated below deck water from parking areas or other storage areas for motor vehicles or other motorized equipment into waters subject to this permit without first treating the effluent with an oily water separator or other appropriate wastewater treatment system. Large ferry operators must use oil absorbent cloths or other appropriate spill response resources to clean oily spills or substances from deck surfaces. Any effluent created by washing the decks may not be discharged into the waters subject to this permit listed in Appendix G.

5.3.1.2 Graywater Management

5.3.1.2.1 Graywater Discharge Location and Rate

Pierside Limits – While pierside, appropriate onshore reception facilities for graywater must be used, if available and their use is economically achievable, unless the vessel treats graywater to the limits found in Part 5.1.1.1.2 of the permit. If such facilities are not available, you must hold the graywater if the vessel has the holding capacity and discharge the effluent while the vessel is underway. Appropriate reception facilities are those authorized for use by the port authority or municipality and that treat the discharge in accordance with its NPDES permit.

Operational Limits – You must also meet the following restriction: if you operate within 3 nm from shore, discharges of graywater may only be released while the ferry is sailing at a speed of at least 6 knots if feasible. If not feasible, you must document why in your recordkeeping documentation.

5.3.2 Educational and Training Requirements

The crews of ferries play a key role in minimizing the discharge of pollutants from ferry operations and its passengers. Therefore, ferry operators are subject to the following requirements:

- The ship's crew members who actively take part in the management of the discharge or who may affect the discharge must receive training regarding shipboard environmental procedures and must be able to demonstrate proficiency in implementing these procedures;

- Advanced training in shipboard environmental management procedures must be provided for those directly involved in managing specific discharge types or areas of the ship and these crew must be able to demonstrate proficiency in implementing these procedures; and
- Appropriate reprimand procedures must be developed for crew whose actions lead to violations of any effluent limit set forth in this permit or procedures established by the ferry operator to minimize the discharge of pollutants.

Ferry operators must also educate passengers on their potential environmental impacts. The goals of these education efforts should include eliminating the discharge of trash overboard, minimizing the production of trash from parking areas or other storage areas, eliminating the addition of unused soaps, detergents, and pharmaceuticals to the graywater or blackwater systems, and minimizing production of graywater. This can be accomplished in a variety of ways including, but not limited to, posting signage and informational material in common areas, incorporating environmental information into orientation presentations, or broadcasting information via loudspeakers.

Vessel owners/operators of large ferries must also meet all training-related recordkeeping requirements of Part 4.2 of this permit.

5.4 Barges (such as Hopper Barges, Chemical Barges, Tank Barges, Fuel Barges, Crane Barges, Dry Bulk Cargo Barges)

The requirements in Part 5.4 apply to vessel discharges from barges. Barges engaged in the transportation of oil or other petroleum products must also comply with Part 5.5 of this permit.

5.4.1 Additional Effluent Limits

Barges must minimize the contact of below deck condensation with oily or toxic materials and any materials containing hydrocarbon. Whenever barges are pumping water from below deck, the discharge shall not contain oil in quantities that may be harmful as defined in 40 CFR Part 110. If a visible sheen, as defined in Appendix A of this permit, is noted, vessel operators must initiate corrective action in accordance with Part 3 and meet recordkeeping requirements in Part 4.2 of this permit.

All tank barges must have spill rails and must mechanically plug their scuppers before any cargo operations if required by vessel class society and/or 33 CFR Parts 155 and/or 156. Additionally, scuppers, when available, must be mechanically plugged during fueling of ancillary equipment (e.g., generators and compressors) located on the deck of the barge. If scuppers are unavailable, other types of secondary containment should be employed. If any spills result during loading or unloading of cargo, or other ancillary equipment fueling operations, vessel owners/operators must completely clean up spills or residue before scuppers are unplugged.

Vessel owners/operators must clean out cargo residues (i.e., broom clean or equivalent) such that any remaining residue is minimized before washing the cargo compartment or tank and discharging washwater overboard.

5.4.2 Supplemental Inspection Requirements

After every instance of pumping water from areas below decks, or immediately following washing down the decks, you must conduct a visual sheen test. The visual sheen test is used to detect free oil by observing the surface of the receiving water for the presence of an oily sheen. The operator should focus the inspection on the area surrounding the vessel where discharges from below deck or deck washings are discharges into the receiving water. A visible sheen is defined in Appendix A of this permit. If a visible sheen is observed, you must initiate corrective actions required in Part 3 of this permit and meet recordkeeping and notification (reporting) requirements in Part 4.2 of this permit.

5.5 Oil Tankers, Petroleum Tankers, and Bulk Chemical Carriers

The requirements in Part 5.5 apply to vessel discharges from oil tankers, petroleum tankers, and bulk chemical carriers, as well as barges engaged in transportation of oil or petroleum products.

5.5.1 Additional Authorized Discharges

For vessels which have an inert gas system, the effluent produced from inert gas scrubbers (IGS) may be discharged into waters subject to this permit.

The discharges of water from deck seals are authorized when such seals are installed as an integral part of an IGS system.

5.5.2 Additional Effluent Limits

Owners/operators of oil tankers must plug scuppers during cargo loading and unloading operations to prevent the discharge of oil into waters subject to this permit. Any oil spilled must be cleaned with oil absorbent cloths or another appropriate approach. Additionally, owners/operators of oil tankers must comply with applicable requirements of 33 CFR §155.310 and 33 CFR Part 156, Subpart A.

Vessel owners/operators must minimize the discharge of effluent produced from inert gas scrubbers if feasible for their vessel design.

5.5.3 Supplemental Inspection Requirements

After every instance of loading or unloading operations or immediately following washing down the decks, you must conduct a visual sheen test. The visual sheen test is used to detect free oil by observing the surface of the receiving water for the presence of an oily sheen. The owner/operator should focus the inspection on the area surrounding the vessel where effluent from loading operations or deck washings discharge into the receiving water. A visible sheen is defined in Appendix A of this permit. If a visible sheen is observed, you must comply with all requirements contained in Part 4.4 of this permit, initiate corrective actions required in Part 3 of this permit, and meet recordkeeping and notification (reporting) requirements in Part 4.2 of this permit.

5.5.4 Educational and Training Requirements

The crews of oil tankers play a key role in minimizing the discharge of pollutants from vessel operations. Therefore, oil tanker operators are subject to the following requirements:

- The ship's crew members who actively take part in the management of the discharge or who may affect the discharge must receive training regarding shipboard environmental procedures and must be able to demonstrate proficiency in implementing these procedures;
- Advanced training in shipboard environmental management procedures must be provided for those directly involved in managing specific discharge types or areas of the ship and these crew must be able to demonstrate proficiency in implementing these procedures; and
- Appropriate reprimand procedures must be developed for crew actions that lead to violations of any effluent limit set forth in this permit or procedures established by the vessel operator to minimize the discharge of pollutants.

Vessel owners/operators of tankers must also meet all training-related recordkeeping requirements of Part 4.2 of this permit.

5.6 Research Vessels

The requirements in Part 5.6 apply to vessel discharges from research vessels. Research vessels are those that are engaged in investigation or experimentation aimed at discovery and interpretation of facts, revision of accepted theories or laws in the light of new facts, or practical application of such new or revised theories or laws.

5.6.1 Supplemental Authorized Discharges

In addition to the discharges incidental to the normal operation of a vessel authorized elsewhere in this permit, owners/operators of research vessels are authorized to discharge tracers (dyes, fluorescent beads, SF6), drifters, tracking devices and the like, and expendable bathythermograph (XBT) probes, into waters subject to this permit, provided such discharges are for the sole purpose of conducting research on the aquatic environment or its natural resources in accordance with generally recognized scientific methods, principles, or techniques.

5.6.2 Additional Effluent Limits

Owners/operators of research vessels must discharge only the minimal amount of materials referenced in Part 5.6.1 necessary to conduct research on the aquatic environment or its natural resources in accordance with generally recognized scientific methods, principles, or techniques.

5.7 Emergency and Rescue Vessels (Fire Boats, Police Boats)

The requirements in Part 5.7 apply to vessel discharges from emergency and rescue boats.

5.7.1 Supplemental Authorized Discharges

In addition to the discharges incidental to the normal operation of a vessel authorized elsewhere in this permit, owners/operators of emergency and rescue vessels are authorized to discharge waste streams in conjunction with training, testing, and maintenance operations, provided that they comply with all additional requirements of the CWA (e.g., section 311) and the National Contingency Plan (40 CFR Part 300). This part does not relieve vessel operators of any additional responsibilities under the CWA and the National Contingency Plan which prohibits the discharge of oil for research or demonstration purposes without Administrator approval. The use of foaming agents for oil or chemical fire response must be implemented in accordance with the National Contingency Plan (40 CFR Part 300).

5.7.2 Additional Effluent Limits

Owners/operators are strongly encouraged to seek alternative formulations of AFFF that are less harmful to the aquatic environment, such as non-fluorinated foam, while maintaining their effectiveness in emergency operations. Furthermore, operators are encouraged to not use AFFF or discharge toxic substances in areas near active commercial or recreational fisheries, near swimmable waters, or in high traffic areas for maintenance or training purposes. Emergency vessel owners/operators are also encouraged to perform training, testing, and maintenance operations outside of port and as far from shore as possible. The use of foaming agents for oil or chemical fire response, and the control of their discharge from a vessel, must be implemented in accordance with the National Contingency Plan (40 CFR Part 300).

6. Specific Requirements for Individual States or Indian Country Lands

Section 401(d) of the CWA provides that any certification under the Act "shall set forth any effluent limitations and other limitations, and monitoring requirements" necessary to assure that any applicant for a federal license or permit will comply with any applicable CWA-based effluent limitations and other limitations, standards of performance, prohibitions, effluent standards, or pretreatment standards, and with any other appropriate requirements of State and Tribal law. Section 401(d) further provides that such additional limitations and monitoring requirements "shall become a condition on any Federal license or permit subject to the provisions of this section." Pursuant to section 401(d), EPA has attached those provisions provided by States and Tribes in their CWA § 401 certifications that constitute effluent or other limitations or monitoring requirements as enforceable conditions of this permit[3].

The VGP is effective in every State and Indian Country Land except in the waters of The Bad River Band of Lake Superior Tribe of Chippewa Indians and Oklahoma Outstanding Resource Waters listed[4]. States and Indian Tribes which are not listed below have either certified without conditions or waived.

The following States or Tribes included additional permit requirements in their CWA § 401 certification:

6.1 Alaska

Alaska certified the VGP with the following additional permit conditions:

Terms

6.1.1 This Section 401 certification shall become effective on the date when EPA's final VGP becomes effective.

6.1.2 For violations that occur within State waters, permittees shall notify and provide DEC electronic copies of any noncompliance reports required under 40 CFR 122.44(i)(5).

6.1.3 Owners or operators of large and small commercial passenger vessels are responsible for complying with all Alaska statutes, regulations, and wastewater discharge requirements.

Conditions

6.1.4 All discharges authorized by the VGP to waters of the United States extending to the three-mile demarcation of the territorial seas and inland or coastal waters of the State of Alaska shall not result in a violation of Alaska water quality criteria, found in 18 AAC 70, in the water body.
Rationale: Vessel operators must treat wastewater and/or implement the BMPs in the VGP and ensure discharges comply with the applicable water quality criteria for the subject water body.

[3] State 401 certification letters are available in the docket for today's permit which are available as PDFs by linking to EPA's website at: www.epa.gov/npdes/vessels.

[4] Oklahoma's list of Outstanding Resource Waters are attached to their 401 certification letter which is available as a PDF file by linking to EPA's website at: www.epa.gov/npdes/vessels.

6.1.5 Permittees covered under the VGP shall undertake immediate corrective actions to mitigate noncompliance or violations with any terms or conditions specified in this Section 401 certification. EPA's regulation of vessels under the VGP shall not preclude DEC from regulating vessels or taking enforcement action authorized by Alaska law.
Rationale: EPA is the primary authority responsible for ensuring compliance with the EPA-issued VGP. However, the Department does not waive its rights to regulate vessels and or take enforcement action in accordance with Alaska law.

6.1.6 Permittees must be aware of the status of the water bodies they are traveling through, specifically whether the water bodies are impaired and have, or do not have, an EPA-approved Total Maximum Daily Load implementation plan prepared under CWA 303(d).
Rationale: The location of impaired waters of the United States must be known prior to the discharge activity. The permittees are responsible for identifying areas where discharges are prohibited, including accessing CWA 303(d) list of impaired waters or the State's most current Integrated Water Quality Monitoring and Assessment Report.

6.2 Arizona

Arizona certified the VGP with the following additional permit conditions:

6.2.1 Discharges authorized by these general permits shall not:

a. Violate Arizona's Surface Water Quality Standards (A.A.C. Title 18, Chapter 11, Article 1).
b. Contain a hazardous substance as defined in A.R.S. §49-201(19). Additionally, the following wastes are prohibited from being discharged into waters of the state under this permit: sewage sludge, wastewater, used or spent oil, garbage or trash. In addition, A.A.C. R18-11-123(B) prohibits the discharge of human body wastes and the wastes from toilets and other receptacles intended to receive or retain wastes from a vessel to Lake Powell.
c. Contain oil, grease, or any other pollutant that floats as debris, foam, or scum; or that causes a film or iridescent appearance on the surface of the water; or that causes a deposit on a shoreline, bank, or aquatic vegetation. The discharge of lubricating oil or gasoline associated with the normal operation of a recreational watercraft is not a violation of this narrative standard (A.A.C. R1 8-11-108(B)).
d. Contain suspended solids in quantities or concentrations that interfere with the treatment processes at the nearest downstream potable water treatment plant or substantially increase the cost of handling solids produced at the nearest downstream potable water treatment plant (A.A.C. R18-11-108(C)).

6.2.2 If ballast water receives chlorination treatment prior to discharge, the discharge must not exceed a maximum level of 19 µg/L of total residual chlorine (A.A.C. Title 18, Chapter 11, Article 1, Appendix A, Table 1).

6.2.3 This certification does not relieve the authorized permittee of the responsibility of obtaining any other permits or authorizations that may be required for this project or related activities from ADEQ or any other agency.

6.2.4 To prevent the propagation and spread of invasive species to waters of the state, before transporting any watercraft or vessel to any waters located within or bordering this State from waters or locations where aquatic invasive species are suspected or known to be present, permittees shall comply with the Vessel Decontamination Best Management Practices that follow (A.R.S. § 49-203(A)(7)).

Vessel Decontamination Best Management Practices

a. Short-term Day-use Boaters- One to five (1-5) days on the water:

    i. CLEAN the hull and remove any clinging materials.

    ii. DRAIN (remove the bilge plug) the water from the engine, bilge, livewell(s), etc.

    iii. DRY the whole boat and equipment.

    iv. If possible, treat any standing water (in bilge, bottom of boat) or other boat surfaces with vinegar.

b. Long-term Moored Boats (e.g. in marinas)- more than five (5) days on the water:

    v. CLEAN, DRAIN (remove the bilge plug) and DRY

    vi. REMOVE all attached mussels

    vii. DESICCATE the boat. Keep the boat out of the water for a minimum of seven (7) days in the spring, summer, and fall, and a minimum of 18 days in the winter to kill all hidden quagga mussels.

Additional information regarding these Best Management Practices related to the control of invasive aquatic species can be found at: www.azgfd.gov/mussels, or by contacting the Arizona Game and Fish Department

6.3 Arkansas

Arkansas certified the VGP with the following additional permit conditions:

6.3.1 If a discharger has any violation of any effluent limit in the VGP or sVGP, they must document the violation and notify the Department by telephone within 24 hours (501-682-0640) and by written notice within three days of identification of the violation. They must report the following items to the Department:

a. A description of the violation,
b. Date of the violation,
c. Estimated volume of discharge involved in violation,
d. Location at time of violation,
e. Description of any corrective actions that are planned,
f. Identification of any hazardous substances, if known to be present.

6.3.2 All uncontained spills not covered by the VGP or sVGP of more than one gallon liquid or four pounds dry weight must be reported to the Water Division Enforcement Branch of ADEQ within 24 hours by Telephone (501-682-0640) and by written notice within three days. Dischargers are responsible for the cost of cleanups resulting from spills by their operations.

6.3.3 This Department does not support coverage under the VGP or sVGP in Ecologically Sensitive Waters (ESWs) and Natural and Scenic Waterways (NSWs), as designated in Arkansas Pollution Control and Ecology Commission (APC&EC) Regulation No. 2.

6.4 California

California certified the VGP with the following additional permit conditions:

This Order includes Attachments 1-3.[5] Following is a description of these attachments:

- Attachment 1 – Signatory Requirements
- Attachment 2 – List of Chemical Names and Common Names for Hazardous Wastes and Hazardous Materials from title 22, chapter 11, appendix X of the California Code of Regulations
- Attachment 3 – Effluent Limitations Based on Narrative Objectives in the California Ocean Plan and Regional Water Quality Control Plans (Basin Plans)

6.4.1 All discharges are prohibited in state Water Quality Protection Areas as defined in the Public Resources Code sections 36700- 36900 inclusive, and the California Ocean Plan, except for those discharges that occur in transit associated with vessel traffic separation lanes. (Auth: 33 U.S.C. § 1313; Pub. Resources Code,§ 36710; Wat. Code,§ 13140. This condition cannot be made less stringent without violating the requirements of state law, including water quality standards.)

6.4.2 Large passenger vessel and cruise ship graywater discharges are prohibited in state waters. Graywater discharges from oceangoing vessels that weigh 300 gross tons or more are also prohibited if such vessels have sufficient holding capacity. Any co-mingling of black water (sewage) and graywater waste streams will be considered graywater for purposes of these conditions as stated in section 2.2.25 of the 2013 VGP. (Auth: Pub. Resources Code,§ 72400 et seq. This condition cannot be made less stringent without violating the requirements of state law, including water quality standards.)

6.4.3 Vessel discharges shall comply with all requirements and discharge prohibitions set forth in the California Clean Coast Act of 2005. (Auth: Pub. Resources Code, § 72400 et seq. This condition cannot be made less stringent without violating the requirements of state law, including water quality standards.)

6.4.4 A monitoring study shall be conducted in order to provide the State Water Board an adequate representative characterization of the discharges from vessels. The representative monitoring study requirement is designed to efficiently gather and present representative water quality data on the impacts of these discharges. The data will be used to determine if any future changes to the conditions are necessary for compliance with the California Ocean Plan numeric objectives, Basin Plans numeric objectives, and the California Toxics Rule criteria. Additionally, a collaborative, representative monitoring program is designed to minimize the costs for individual dischargers and the aggregate costs for individual vessel owners and operators as a whole.

[5] These attachments are available as a PDF file with California's 401 certification letter. This information is available by linking to EPA's website at: www.epa.gov/npdes/vessels.

Vessels that do not discharge any waste streams into waters of the state during the 2013 VGP cycle are not subject to this requirement. However, a copy of the USEPA NOI (or when applicable, PARI form), USEPA Acknowledgement Letter, and applicable fee shall be submitted.

Any vessels that do not make their first port of call in California until the last calendar year of the 2013 VGP cycle shall be exempt from participating in this monitoring study.

The representative regional/group monitoring program (Representative Monitoring Study) shall be developed in consultation with State Water Board staff. The monitoring study shall include representative sampling for each vessel class. A draft study design will be developed by no later than December 1, 2013, and is subject to the approval by the Executive Director of the State Water Board.

The Final Report for the Representative Monitoring Study must be submitted to the Executive Director of the State Water Board by the end of the 2013 VGP cycle. (Auth: Wat. Code, §§ 13260.1, 13267, 13383. This condition cannot be made less stringent without violating the requirements of state law, including water quality standards.)

6.4.5 None of the 27 discharges covered by the VGP may contain hazardous waste as defined in the California Code of Regulations, title 22, section 66261 and Water Code section 13173, as well as hazardous substances listed in Attachment 2 of this Order, which includes bilgewater. Additionally, the following wastes are prohibited from being discharged: noxious liquid substance residues, used or spent oil, garbage or trash/plastic (In compliance with the applicable California Basin Plans), sewage sludge, photo-developing wastes, dry cleaning wastes, and medical wastes. By signing USEPA's NOI (or when applicable, the PARI form), the vessel owner/operator certifies that hazardous and prohibited wastes as defined under California law, will not be discharged from a covered vessel or vessels. Upon receipt of USEPA's NOI (or when applicable, PARI form) Acknowledgement Letter, the vessel owner/operator shall submit a copy of the letter along with the fee required per Cal. Code Regs., tit. 23, § 2200.

The vessel owner/operator shall submit the fee and a copy of USEPA's NOI (or when applicable, PARI form) Acknowledgment Letter to:

NPDES Unit
Division of Water Quality
State Water Resources Control Board
1001 I Street, 15th Floor
Sacramento, CA 95814

(Auth: See generally, statewide and regional water quality control plans; 33 U.S.C.§ 1313; Pub. Resources Code, § 72420.2; Wat. Code, §§ 13140, 13173, 13240, 13260.1, 13267, 13383; Cal. Code Regs., tit. 22, § 66261. This condition cannot be made less stringent without violating the requirements of state law, including water quality standards.)

6.4.6 There shall be no oily sheen from any discharge, and oil and grease shall not exceed 15 milligrams per liter (mg/L) from any discharge as stated in section 2.1.4 of the VGP. (Auth: See generally, statewide and regional water quality control plans; 33 U.S.C. § 1313; Wat. Code,§§ 13140, 13240. This condition cannot be made less stringent without violating the requirements of state law, including water quality standards.)

6.4.7 Detergents shall not be used to disperse hydrocarbon sheens in any waste streams. To ensure this practice is implemented for all state waters, and additionally to protect drinking water sources, such as sources in the Sacramento and San Joaquin Delta, methylene blue active substances (MBAS) are not to exceed 0.5 mg/L in any waste streams being discharged, applicable to all water bodies. (Auth: See generally, statewide and regional water quality control plans; 33 U.S.C. § 1313; Wat. Code,§§ 13140, 13240. This condition cannot be made less stringent without violating the requirements of state law, including water quality standards.)

6.4.8 Vessel discharges shall comply with California State Lands Commission (SLC) requirements for ballast water discharges and hull fouling to control and prevent the introduction of nonindigenous species, found in Public Resources Code, section 71200 et seq. and California Code of Regulations, title 2, division 3, chapter 1, articles 4.5 through 4.8, inclusive. (Auth: Pub. Resources Code,§ 71200 et seq. and Cal. Code Regs, tit. 2, div. 3, ch. 1, arts. 4.5 through 4.8. This condition cannot be made less stringent without violating the requirements of state law, including water quality standards.)

6.4.9 The SLC has jurisdiction over vessels that are 300 gross registered tons and above that carry or are capable of carrying ballast water. Vessels entering state waters that fall within this description shall complete the SLC forms found in the following Marine Invasive Species Program (MISP) Compliance and Reporting Documents page:

http://www.slc.ca.gov/spec_pub/mfd/ballast_water/Compliance_Rptng_Docs.html

Forms are subject to change. Please use the most updated forms.
(Auth: Pub. Resources Code,§ 71200 et seq. and Cal. Code Regs, tit. 2, div. 3, ch. 1, arts. 4.5 through 4.8. This condition cannot be made less stringent without violating the requirements of state law, including water quality standards.)

6.4.10 Propeller cleaning is allowed until the biofouling management regulations for vessels are adopted by the SLC and become effective. After the SLC biofouling management regulations become effective, propeller cleaning is allowed as specified in those regulations. All other in-water hull cleaning is prohibited unless conducted using the best available technologies economically feasible, as determined by State Water Board staff in consultation with SLC staff. This prohibition includes underwater ship husbandry discharges (VGP Discharge No. 23). (Auth: Pub. Resources Code,§ 71200 et seq. and Cal. Code Regs, tit. 2, div. 3, ch. 1, arts. 4.5 through 4.8. This condition cannot be made less stringent without violating the requirements of state law, including water quality standards.)

6.4.11 If the ballast water receives chlorination treatment, the discharge to the ocean shall not exceed a maximum level of 60 micrograms per liter (μg/L) of total residual chlorine, and the discharge to inland waters, enclosed bays, and freshwaters shall not exceed a maximum level of 19 μg/L of total residual chlorine. (The Gold Book, U.S. EPA 440/5-86-001, May 1986.) (Auth: See generally, statewide and regional water quality control plans; 33 U.S.C. § 1313; Wat. Code,§§ 13140, 13240, 13377; Cal. Code Regs., tit. 23, § 2235.2. This condition cannot be made less stringent without violating the requirements of state law, including water quality standards.)

6.4.12 Vessel discharges must comply with the applicable statewide water quality control plans and Basin Plans. Attachment 3 lists the effluent limitations based on the narrative water quality objectives cited in these plans that shall be met in the receiving water. (Auth: See generally, statewide and regional water quality control plans; 33 U.S.C. § 1313; Wat. Code, §§ 13140, 13240. This condition cannot be made less stringent without violating the requirements of state law, including water quality standards.)

6.4.13 Allowance for emergency conditions: In the case of a sudden unexpected situation which involves a clear and imminent danger to life, health, or property, the requirements of this Certification are suspended to the extent that those requirements would otherwise be violated. Any suspension of the requirements of this Certification is only permitted as long as the emergency conditions persist. In such cases the vessel owner/operator shall report to State Water Board staff the emergency conditions requiring the violation of Certification conditions, the specific conditions that were violated, the duration of the violation, and nature of discharges during that emergency period and the location of the emergency discharge. This report shall be transmitted to the State Water Board staff within 24 hours after the emergency conditions cease. In the event that the State Water Board staff determines that the circumstances do not constitute an emergency, the State Water Board may seek appropriate investigatory or enforcement action pursuant to Administrative Condition No.6.4.15. (Auth: Pub. Resources Code, § 21080; Wat. Code, § 1058; Cal. Code Regs., tit. 14, § 15359. This condition cannot be made less stringent without violating the requirements of state law, including water quality standards.)
Submit report electronically to: calvgp cert@waterboards.ca.gov

6.4.14 The owner or operator of a large passenger vessel shall notify the California Emergency Management Agency (Cal EMA) immediately, but not longer than 30 minutes, after the discovery of a release of graywater or sewage into the marine waters of the state or a marine sanctuary. The owner or operator of an oceangoing ship with sufficient holding tank capacity shall notify Cal EMA immediately, but not longer than 30 minutes, after the discovery of a release of graywater or sewage into the marine waters of the state or a marine sanctuary. The owner or operator of a large passenger vessel or an oceangoing ship shall notify Cal EMA immediately, but not longer than 30 minutes, after the discovery of a release of hazardous waste, other waste, sewage sludge, or oily bilgewater into the marine waters of the state or a marine sanctuary.

Cal-EMA Office of Emergency Services hotline: (800) 852-7550

(Auth: Pub. Resources Code, § 72400 et seq. This condition cannot be made less stringent without violating the requirements of state law, including water quality standards.)

ADMINISTRATIVE CONDITIONS:

6.4.15 In response to a suspected violation of any condition of this Certification, the State Water Board may require a vessel owner/operator to furnish, under penalty of perjury, any technical or monitoring reports the State Water Board deems appropriate, provided that the burden, including costs, of the reports shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports. (Auth: Wat. Code, §§ 13267, 13383. This condition cannot be made less stringent without violating the requirements of state law, including water quality standards.)

6.5 Connecticut

Connecticut certified the VGP with the following additional permit conditions:

GENERAL CONDITIONS

6.5.1 Any vessel that discharges or intends to discharge into Connecticut waters under the VGP must submit to DEEP a copy of the Notice of Intent (NOI) or the Permit Authorization and Record of Inspection Form (PARI) submitted to EPA. Additionally, all reports required to be submitted to EPA under Appendices F through J of the VGP must also be submitted to DEEP. This condition is necessary for compliance with CGS sections 22a-430, 22a-430b, and 22a-430c. The preferred method of submission is via electronic mail to dep.webmaster@ct.gov sent to the attention of the Director of Water Permitting and Enforcement. Submissions made via standard mail shall be directed to:

The Director of Water Permitting and Enforcement
Bureau of Materials Management and Compliance Assurance
Department of Energy and Environmental Protection
79 Elm Street
Hartford, Connecticut 06106-5127

6.5.2 The operator of any vessel covered under the VGP or sVGP who by accident, negligence, or otherwise causes the discharge, spillage, uncontrolled loss, seepage or filtration of oil or petroleum or chemical liquids or solid, liquid or gaseous products, or hazardous wastes which poses a potential threat to human health or the environment, shall immediately report to DEEP by telephone at 860-424-3338 or 866-337-7745. This condition is necessary for compliance with CGS section 22a-450.[6]

6.5.3 All work and activities conducted by the permittee in accordance with the VGP or sVGP shall be consistent with the terms and conditions of this certification. Any regulated activities carried out in a manner inconsistent with the conditions set forth herein or inconsistent with the requirements specified in the VGP or sVGP, which are not more stringently conditioned under this certification, constitute a violation of this certification pursuant to 40 CFR §124.53(e)(1), and all instances of non-compliance with this certification must be immediately reported to DEEP pursuant to CGS section 22a-450 as set forth in General Condition No. 6.5.2, above.

6.5.4 All vessels covered by the VGP or sVGP shall minimize point and non-point sources of phosphorus, nitrogen, and alkylphenol ethoxylates, which have the potential to contribute to the impairment of any Connecticut surface water. The loading of nutrients, principally phosphorus and nitrogen, to any surface water body shall not exceed that which supports maintenance or attainment of designated uses. This condition is necessary to restore impaired waters, and prevent excessive anthropogenic inputs of nutrients or impairment of downstream waters in compliance with Standards 1, 2, and 19 of the CT WQS.[7]

[6] For additional information see the webpage to Report an Environmental Concern or Problem at www.ct.gov/dep.

[7] As identified in Part 2 of the VGP the term "minimize" means reduce and/or eliminate to the extent achievable using control measures (including best management practices) that are technologically available and economically practicable and achievable in light of best marine practice.

6.5.5 Use of Best Management Practices and other reasonable controls are preferable to the use of biocides. This condition is necessary for compliance with Standards 1, 2, and 20 of the CT WQS.

SPECIFIC CONDITIONS

6.5.6 Discharge of treated or untreated bilgewater into Connecticut waters from any vessel covered under the VGP or sVGP is prohibited. This condition is necessary for compliance with CGS section 22a-427, Standards No. 1, 2, 9, 12, 14, 15, and 24 of the CT WQS, and EPA designation of Connecticut coastal waters as No Discharge Areas (NDAs) pursuant to 33 USC§ 1322(f)(3).[8] This condition does not apply to the discharge of bilgewater if the master of the vessel determines that compliance with this condition would threaten the safety or stability of the vessel, its crew, or its passengers because of adverse weather, equipment failure, or any other relevant condition.

6.5.7 Discharge of treated or untreated graywater into Connecticut waters from any vessel covered under the VGP or sVGP is prohibited. This condition is necessary for compliance with CGS section 22a-427, Standards No. 1, 2, 9, 12, 14, 15, and 24 of the CT WQS, and EPA designation of Connecticut coastal waters as No Discharge Areas (NDAs) pursuant to 33 USC§ 1322(f)(3).[9]

6.5.8 The discharge of wastewaters from pressure washing the bottom of vessels and any point source or non- point source pollution from spillage, sanding, sand blasting, or scraping vessels into Connecticut waters from any vessel covered under the VGP or sVGP is prohibited. This condition is necessary for compliance with CGS section 22a-430 or 22a-430b and Standards No. 1 , 2, 12, 14, and 15 of the CT WQS.[10]

6.5.9 Discharge of exhaust gas scrubber washwater into Connecticut waters from any vessel covered under the VGP or sVGP is prohibited. This condition is necessary for compliance with CGS section 22a-427, StandardsNo.1, 2, 9, 12, 14, 15, and 24 of the CT WQS.

6.5.10 Discharges containing polychlorinated biphenyls (PCBs) into Connecticut waters from any vessel covered under the VGP or sVGP are prohibited. This condition is necessary for compliance with CGS section 22a-427, Standards No. 1, 2, 9, 12, 14, and 15 of the CT WQS.

6.5.11 Discharge of fish hold effluent from any vessel covered under the VGP or sVGP is prohibited in open waters of Connecticut's Long Island Sound. This condition is necessary for compliance with CGS section 22a-430 or 22a-430b and Standards No. 1, 2, 9 12, and 15 of the CT WQS.

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8 Standard No. 24 of the CT WQS specifies the discharge of sewage from any vessel to any water is prohibited. "Sewage" as defined in CGS section 22a-423 includes bilgewater, which is a domestic or manufacturing waste that may tend to be detrimental to the public health. The term "bilgewater" is defined in Appendix A of the VGP and Part 6 of the sVGP.

9 Standard No. 24 of the CT WQS specifies the discharge of sewage from any vessel to any water is prohibited. Sewage as defined in CGS section 22a-423 includes graywater, which is a domestic or manufacturing waste that may tend to be detrimental to the public health. The term "graywater" is defined in Appendix A of the VGP and Part 6 of the sVGP.

10 Point Source" and "Non-point Source" pollution are defined in Appendix A of the CT WQS

6.5.12 Any discharge from any vessel covered under the VGP or sVGP that results in the further degradation of the chemical, physical, or biological integrity of Connecticut waters classified as Impaired Waters in the most recent State of Connecticut Integrated Water Quality Report to Congress is prohibited. This condition is necessary for compliance with Standard 1 of the CT WQS.[11]

6.5.13 Discharges to impaired waters in Connecticut shall be consistent with the requirements of the VGP and sVGP and with the following to comply with Standard 1 of the CT WQS:

Waterbody	Contaminant	Requirement
Long Island Sound, connected harbors, embayments and tidal rivers and waterbodies	Nitrogen and other substances with a high biological or chemical oxygen demand which when discharged could result in a decrease in the amount of dissolved oxygen in the receiving water body	Eliminate the discharge of such substances or minimize discharge of these substances to the greatest extent practicable if discharge is unavoidable
Within LIS, waters between the 50ft bathymetric contour and the Connecticut coastline	Bacteria	Fecal coliform: Geometric Mean less than 14 CFU/100 ml with 90% of samples less than 31 CFU/100 ml
		Enterococci: Geometric Mean less than 35 CFU/100 ml with no single sample exceeding 104 CFU/100 ml

6.5.14 All vessels entering Connecticut waters must maintain the ability to measure salinity levels in each ballast water tank onboard the vessel so that salinities between 20 and 25 parts per thousand ("ppt") can be ensured for ballast exchange in marine waters and salinities between 0 and 5 ppt can be ensured for ballast exchange in fresh waters. This condition is necessary to meet Standards No. 1, 2, and 12 of the CT WQS.

6.6 Georgia

Georgia certified the VGP with the following additional permit conditions:

6.6.1 All discharges from vessels covered by these permits will be conducted in a manner so as not to violate Georgia's water quality standards.

6.6.2 Except for ocean going vessels of 20 tons displacement or more, the discharge of graywater shall be through a marine sanitation device that is in compliance with the Federal standards of performance and regulations for marine sanitation devices promulgated pursuant to Section 312 of the Clean Water Act. Georgia DNR or EPD personnel, or other duly authorized agents, shall have access to any vessel at reasonable times for the purposes of determining compliance with these rules. Georgia Rules for Water Quality Control, 391-3-6-.04.

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11 The most recent State of Connecticut Integrated Water Quality Report containing the updated Connecticut Impaired Waters List may be obtained at the Water Quality Monitoring Program webpage at www.ct.gov/dep.

6.7 Hawaii

6.7.1 Coverage of this Conditional WQC

a) This conditional Section 401 WQC covers the discharge from an applicable vessel of one or more of the following 27 categories of effluent that have received the best control or treatment into waters of the State of Hawaii incidental to the normal operation of the applicable vessels (operated in a capacity as a means of transportation) that are eligible for permit coverage under Part 1.2 of the proposed 2013 VGP and subject to comply with "Technology-Based Effluent Limits and Related Requirements Applicable to all Vessels," "Effluent Limits and Related Requirements for Specific Discharge Categories," "Additional Water Quality-Based Effluent Limits," and "Vessel-Class-Specific Requirements" as specified in §§2.1, 2.2, 2.3 and 5, respectively, of the proposed 2013 VGP:

(1) Deck Washdown and Runoff and Above Water Line Hull Cleaning. (proposed 2013 VGP, §1.2.2.1)
(2) Bilgewater/Oily Water Separator Effluent. (proposed 2013 VGP, §1.2.2.2)
(3) Ballast Water. (proposed 2013 VGP, §1.2.2.3)
(4) Anti-fouling Hull Coatings/Hull Coating Leachate. (proposed 2013 VGP, §1.2.2.4)
(5) Aqueous Film Forming Foam (AFFF). (proposed 2013 VGP, §1.2.2.5)
(6) Boiler/Economizer Blowdown. (proposed 2013 VGP, §1.2.2.6)
(7) Cathodic Protection. (proposed 2013 VGP, §1.2.2.7)
(8) Chain Locker Effluent. (proposed 2013 VGP, §1.2.2.8)
(9) Controllable Pitch Propeller and Thruster Hydraulic Fluid and other Oil Sea Interfaces including Lubrication Discharges from Paddle Wheel Propulsion, Stern Tubes, Thruster Bearings, Stabilizers, Rudder Bearings, Azimuth Thrusters, and Propulsion Pod Lubrication, and Wire Rope and Mechanical Equipment Subject to Immersion. (proposed 2013 VGP, §1.2.2.9)
(10) Distillation and Reverse Osmosis Brine (proposed 2013 VGP, §1.2.2.10)
(11) Elevator Pit Effluent. (proposed 2013 VGP, §1.2.2.11)
(12) Firemain Systems. (proposed 2013 VGP, §1.2.2.12)
(13) Freshwater Layup. (proposed 2013 VGP, §1.2.2.13)
(14) Gas Turbine Wash Water. (proposed 2013 VGP, §1.2.2.14)
(15) Graywater.
Except that Graywater from commercial vessels within the meaning of CWA section 312 that are operating in the Great Lakes is excluded from the requirement to obtain an NPDES permit (see CWA section 502(6)), and thus is not within the scope of this permit. (proposed 2013 VGP, §1.2.2.15)
(16) Motor Gasoline and Compensating Discharge. (proposed 2013 VGP, §1.2.2.16)
(17) Non-Oily Machinery Wastewater (proposed 2013 VGP, §1.2.2.17)
(18) Refrigeration and Air Condensate Discharge. (proposed 2013 VGP,§1.2.2.18)
(19) Seawater Cooling Overboard Discharge (Including Non-Contact Engine Cooling Water; Hydraulic System Cooling Water, Refrigeration Cooling Water). (proposed 2013 VGP, 1.2.2.19)
(20) Seawater Piping Bìofouling Prevention. (proposed 2013 VGP, §1.2.2.20)
(21) Boat Engine Wet Exhaust. (proposed 2013 VGP, §1.2.2.21)
(22) Sonar Dome Discharge. (proposed 2013 VGP, §1.2.2.22)
(23) Underwater Ship Husbandry. (proposed 2013 VGP, §1.2.2.23)
(24) Welldeck Discharges. (proposed 2013 VGP, §1.2.2.24)
(25) Graywater Mixed with Sewage from Vessels. (proposed 2013 VGP,§1.2.2.25)
(26) Exhaust Gas Scrubber Washwater Discharge. (proposed 2013 VGP,§1.2.2.26)

(27) Fish Hold Effluent. (proposed 2013 VGP, §1.2.2.27)

b) Geographical Area Exclusions:

In addition to water bodies specified in Appendix G of EPA proposed 2013 VGP, discharges into following State waters are also excluded from coverage under this conditional Section 401 WQC. "Owner" or "operator" of a vessel seeking coverage under the proposed 2013 VGP may submit an individual Application to the Clean Water Branch (CWB), DOH, for review and consideration for the processing for an individual Section 401 WQC:

(1) (A)Natural freshwater lakes, saline lakes, and anchialine pools will be maintained in the natural state through Hawaii's "no discharge" policy for these waters. Waste discharge into these waters is prohibited. (see HAR, paragraph 11-54-3 (b) (1)). [HAR, Paragraph 11-54-5.2]

(B)It is the objective of Inland Class 1 waters that these waters remain in their natural state as nearly as possible with an absolute minimum of pollution from any human-caused source. To the extent possible, the wilderness character of these areas shall be protected. Waste discharge into these waters is prohibited. Any conduct which results in a demonstrable increase in levels of point or nonpoint source contamination in class 1 waters is prohibited. [HAR, Paragraph 11-54-3(b)(1)]

"Waste" means sewage, industrial and agricultural matter, and all other liquid, gaseous, or solid substance, including radioactive substance, whether treated or not, which may pollute or tend to pollute the waters of the State. [HRS, §342 D-1]

(2) Sewage, whether commingled with graywater or not, shall be disposed at pier side collection or treatment system or outside of estuaries or embayments. No new treated sewage discharges shall be permitted within estuaries. [HAR, Paragraph 11-54-3(b)(2)] No new sewage discharges will be permitted within embayments. [HAR, Paragraph 11-54-3(c)(2)]

(3) No new industrial discharges shall be permitted within estuaries. [HAR, Paragraph 11-54-3(b)(2)] No new industrial discharges shall be permitted within embayments. [HAR, Paragraph 11-54-3(c)(2)]

(4) This conditional Section 401 WQC does not cover any discharges identified in 1.2.3 (§§1.2.3.1 through 1.2.3.10) as "not eligible" for coverage under the proposed 2013 VGP.

6.7.2 Terms of this conditional Section 401 WQC:

a) This conditional Section 401 WQC for each of the 27 categories of the effluent discharges listed Item No. 6.7.1(a), above, shall become effective on December 19, 2013.

These actions shall not preclude the DOH from taking appropriate enforcement action authorized by law.

Written notification by the Director under this section is complete upon mailing or sending a facsimile or an email transmission of the document or actual receipt of the document by the “owner” or “operator” of the vessel.

b) The “owner” or “operator” of a vessel shall comply with all conditions and requirements specified in the proposed 2013 VGP. All terms, requirements, limitations, and restrictions specified in this conditional Section 401 shall constitute as Part 6 of the proposed 2013 VGP conditions and shall be primarily enforced by the EPA, Region 9, through the compliance of the proposed 2013 VGP. DOH reserves the right to take appropriate enforcement action authorized by law.

6.7.3 Validation of this conditional Section 401 WQC coverage for each category of treated effluent discharges from a vessel into waters of the State of Hawaii shall become effective when the “owner” or “operator” of a vessel submits to the DOH-CWB the notification information as required in Item 6.7.4, below, except otherwise notified by the Director in writing or through an email that an individual Section 401 is required for the proposed effluent discharges from the vessel. Coverage under this conditional Section 401 shall remain valid during the period the Director processing the individual Application until such time the Director renders its final determination on an individual Application for a Section 401 WQC.

6.7.4 Notification Requirements:

The “owner” or “operator” of a vessel seeking coverage for treated effluent discharges to be authorized under this conditional Section 401 WQC shall submit the following information through DOH-CWB website at:
http://hawaii.gov/health/environmental/water/cleanwater/forms/wqc-index.html.

a) Vessel “Owner” or “Operator” Information:

Provide the full legal name(s), street address, contact person's name and position title, telephone and fax numbers, and email address of the owner(s) and, if applicable, its duly authorized representative. When the notification is prepared and submitted by the owner's duly authorized representative, an authorization statement with the owner's original signature shall also be submitted. Any signatures required in this conditional Section 401 WQC shall be provided as described in 40 CFR, §122.22(a).

b) Vessel Information

Provide:
(1) Vessel Name
(2) EPA VGP tracking number (or permit number or both, if applicable)
(3) Vessel Registered Number
(4) Vessel International Maritime Organization (IMO) number, if applicable
(5) Vessel Call Sign
(6) Flag State/Port of Registry (Complete spellings of state and port city names required)
(7) Type of Vessel (list one primary vessel type, and secondary vessel type where appropriate)

c) Vessel Discharge Information

List all applicable discharges, from the 27 applicable categories specified in Item 6.7.1(a), above, vessel may generate.

d) Industrial Effluent Discharge Information

lf the vessel ever engage in or have capacity to engage in industrial operations, provide the type of industrial operation that will generate effluent discharges, i.e., (1) Seafood processing (2) Energy Exploration (3) Mining or (4) other.

As specified in §1.2.3.1 of the proposed 2013 VGP, for any discharges identified in the proposed 2013 VGP, discharges are not eligible if they contain materials resulting from industrial or manufacturing processes onboard or other materials not derived from the normal operations of a vessel.

e) Vessel Onboard Treatment Systems and/or Best Control or Best Management Practices (BMPs) Measures Information
Provide onboard treatment system is or to be used for any waste stream(s) covered by the proposed 2013 VGP such as Ballast Water, Bilgewater, Exhaust Gas Scrubber Effluent, Graywater, Graywater mixed with Sewage, and any other treatment system and/or control measures, etc., to be used for the category of the proposed effluent discharges:
   (1) Specify Discharge stream(s) treated.
   (2) Treatment system type/design and manufacturer.
   (3) Treatment System Capacity.
   (4) Normal Treatment System Flow Rate (gallons/day or liters/day).
   (5) Residuals (wastes) generated by this treatment system.
   (6) How they are disposed.

f) Ballast Water Information

   (1) lf the vessel is or will be using an experimental ballast water treatment system which discharges residual biocides:
      (A) Are residual biocide concentrations expected to be below those listed in Part 2.2.3.5.1.1.5 of the proposed 2013 VGP or this Section 401 WQC, whichever is more stringent.
      (B) List the biocide residuals or derivatives that may be discharged by the ballast water treatment system.

   (2) Ballast Water and Invasive Species Management

   Specify:
      (A) How often is the ballast tank cleaned and sediment disposed of?
      (B) How and where do you typically dispose of ballast tank sediment?
      (C) Does vessel have an existing ballast water management plan? If yes, please provide a pdf copy of the ballast water management plan.

g) Hull Anti-fouling Information

Provide:
   (1) Type of anti-fouling hull coating on the vessel and list specific product: Copper Based or Non-Copper Based.
   (2) When was anti-fouling hull coating last applied.

(3) Describe hull husbandry practices, such as frequency of hull cleaning, method used, how niches and propellers are cleaned, etc.
(4) Date of last hull cleaning.
(5) Date of next scheduled/anticipated hull cleaning.

6.7.5 Discharge Limitations and Reporting Requirements

a) Pursuant to HAR, §11-54-4(a), all waters shall be free of substances attributable to the discharge activities authorized under this conditional Section 401 WQC and EPA 2013 VGP, including:

(1) Materials that will settle to form objectionable sludge or bottom deposits.

(2) Floating debris, oil, grease, scum, or other floating materials.

(3) Substances in amounts sufficient to produce taste in the water or detectable off flavor in the flesh of fish, or in amounts sufficient to produce objectionable color, turbidity or other conditions in the receiving waters.

(4) High or low temperatures; biocides; pathogenic organisms; toxic, radioactive, corrosive, or other deleterious substances at levels or in combinations sufficient to be toxic or harmful to human, animal, plant, or aquatic life, or in amounts sufficient to interfere with any beneficial use of the water.

(5) Substances or conditions or combinations thereof in concentrations which produce undesirable aquatic life.

(6) Soil particles resulting from erosion on land involved in earthwork, such as the construction of public works; highways; subdivisions; recreational, commercial, or industrial developments; or the cultivation and management of agricultural lands.

An electronic copy of the HAR, Chapter 11-54 is available at: http://hawaii.gov/health/environmental/water/cleanwater/forms/wqc-index.html or http://gen.doh.hawaii.gov/sites/har/admrules/default.aspx.

b) Discharges authorized under EPA proposed 2013 VGP shall be monitored and effluent quality shall comply with effluent limits specified in “Effluent Limits and Related Requirements” of the proposed 2013 VGP. Discharges authorized under EPA proposed 2013 VGP shall not cause the applicable specific water quality criteria to be violated in the receiving waters of the State of Hawaii. When conflict occurs, the most stringent limitation applies. Applicable specific water quality criteria are:

(1)	HAR, §11-54-5	Uses and specific criteria applicable to inland waters; definitions;
(2)	HAR, §11-54-5.1	Inland water areas to be protected;
(3)	HAR, §11-54-52	Inland water criteria;
(4)	HAR, §11-54-6	Uses and specific criteria applicable to marine waters;
(5)	HAR, §11-54-7	Uses and specific criteria applicable to marine bottom types; and
(6)	HAR, §11-54-8	Specific criteria for recreational.

c) Parameter and Limitation contained in Table 6.7.1, below, applicable to all discharges from a vessel:

Table 6.7.1

Parameter	Limitation in Fresh waters	Limitation in Salt waters	Units
Chlorine, Total Residual Chlorine (TRC)	19.0	13.0	µg/l
pH	Shall not deviate more than 0.5 units from ambient conditions and shall not be lower than 5.5 nor higher than 8.0	Shall not deviate more than 0.5 units from a value of 8.1, except at coastal locations where and when freshwater form stream, storm drain or groundwater discharge may depress the pH to a minimum level of 7.0	pH Unit
Turbidity	25.0	5.0	NTU
Temperature	Shall not vary more than one degree Celsius from ambient conditions.	Shall not vary more than one degree Celsius from ambient conditions.	°C
Enterococcus	Enterococcus content shall not exceed a geometric mean of 33 per one hundred milliliters in not less than five samples which shall be spaced to cover a period between 25 and 30 days. No single sample shall exceed the single sample maximum of 89 CFU per 100 milliliters or the site-specific one-sided 82 per cent confidence limit.	Within 300 meters (one thousand feet) of the shoreline, including natural public bathing or wading areas, enterococcus content shall not exceed a geometric mean of 35 CFU per 100 milliliters in not less than five samples which shall be spaced to cover a period between twenty-five and thirty days. No single sample shall exceed the single sample maximum of 104 CFU per 100 milliliters or the site-specific one-sided 75 per cent confidence limit. Marine recreational waters along sections of coastline where enterococcus content does not exceed the standard, as shown by the geometric mean test described above, shall not be lowered in quality.	CFU

d) Ballast water discharges from "Qualifying Vessels" shall also comply with the provisions of HAR, Chapter 13-76. An electronic copy of HAR, Chapter 13-76 is available at: https://hawaii.gov/dlnr/dar/rules/ch76pqf.

The term "Qualifying Vessels," as defined in HAR, Section 13-76-12, means all vessels, United States or foreign flagged, carrying ballast water into state marine waters after operating outside the EEZ.

The term "EEZ," as defined in HAR, Section 13-76-12, means the United States exclusive economic zone established by Presidential Proclamation No. 5030, dated March 10, 1983, which extends from the baseline of the territorial sea of the United States seaward 200 nautical miles, substantially as defined in federal law 33 CFR 151.2025, dated July 1, 2005.

e) Discharges from "Commercial Passenger Vessels" shall comply with requirements specified in HRS, Sections 342D-102, 342D-103, 342D-104, 342D-105 and 342-106 of PART Vl of HRS, Chapter 3420 titled "DISCHARGES FROM COMMERCIAL PASSENGER VESSELS."

"Commercial passenger vessel," as defined in HRS, Section 342D-101, means a vessel that carries passengers for hire. The term does not include a vessel:

(1) Authorized to carry fewer than passengers;
(2) That does not provide overnight accommodations for at least 50 passengers for hire, determined with reference to the number of lower berths and based on an average of two persons per cabin; or
(3) Operated by the United States or a foreign government.

f) There shall be no net increase in loadings of pollutant of concerns (POC) attributable to vessel's effluent discharges into water quality-limited segments as listed by the DOH under CWA, 303(d). POC information for each water body is included in 2008/2010 State of Hawaii Water Quality Monitoring and Assessment Report which is available at: http://hawaii.qov/heaith/environmentaI/water/cleanwater/integrated/index.html.
g) The discharge incidental to normal operation of commercial vessels and commercial fishing vessels permitted under the authorization of the proposed 2013 VGP shall not interfere with or become injurious to any assigned uses made of (designated uses, as defined in HAR, Section 11-54-1, and specified in HAR, Section 11-54-3), or presently in (existing uses, as defined in HAR, Section 11-54-1, and specified in HAR, Subsection 11-54-1.1), those waters
h) Except for non-compliance to Part 2 of the proposed 2013 VGP effluent limits or non-compliance to HAR, Chapter 11-54 requirements, Permittee of the proposed 2013 VGP shall retain on board all records, inspection reports, monitoring data, including analytical monitoring results from specific discharge types as identified in Parts 2.2.3, 2.2.15, and 2.2.26 of the proposed 2013 VGP and for specific vessel types in Part 5 of the proposed 2013 VGP. EPA proposed 2013 VGP Permittee shall submit all records, inspection reports, monitoring data to DOH-CWB upon request by the Director.

EPA proposed 2013 VGP permittee shall report all non-compliance to basic water quality criteria applicable to all State waters and analytical monitoring data that exceeds the numerical criteria of the State WQS to the DOH-CWB as soon as the Permittee becomes aware of such non-compliance or exceedance. All report(s) shall be submitted on a non-compliance reporting form provided by the director in website at https:://eha-cloud.doh.hawaii.gov/epermit/View/default.aspx.

6.7.6 Pursuant to HRS, Section 342D-8, the DOH-CWB may conduct routine inspection of vessel covered under this conditional Section 401 WQC, taking color photographs, and to sample any effluent discharges.

6.7.7 EPA 2013 VGP Permittee (the “owner” or “operator” of the vessel) shall undertake immediate corrective measure(s) to mitigate the noncompliance or violations of HAR, Chapter 11-54 or any terms, requirements, limitations, or restrictions specified in this conditional Section 401 WQC.

6.7.8 It shall constitute a violation under HRS, Chapter 342D; HAR, Chapter 11-54; and this WQC if any discharges resulting from the activities authorized under the EPA VGP, resulting in any noncompliance to terms, requirements, restrictions, or limitations as specified in this WQC. The DOH reserves the right to take enforcement actions authorized by law.

6.8 Idaho

Idaho certified the VGP with the following additional permit conditions:

6.8.1 Receiving Water Body Level of Protection

All waters in Idaho that receive discharges from vessels will receive, at minimum, Tier 1 antidegradation protection because Idaho's antidegradation policy applies to all state waters. Water bodies that fully support their aquatic life or recreational uses are considered to be "high quality waters" and will receive Tier 2 antidegradation protection. For waters which have not yet been assessed, DEQ must evaluate on a case-by-case basis whether to apply tier 2 protections, in addition to tier 1 protections. Although Idaho does not currently have any outstanding resource waters (ORWs) designated, it is possible that a water body could be designated as an ORW during the life of this permit. Because of this potential, this antidegradation review will also assess whether the permit complies with the outstanding resource water requirements (Tier 3) of Idaho's antidegradation policy.

6.8.2 Protection and Maintenance of Existing Uses (Tier 1 Protection)

As noted above, a Tier 1 review is performed for all new or reissued permits or licenses, applies to all waters subject to the jurisdiction of the CWA, and requires a showing that existing uses and the level of water quality necessary to protect existing uses shall be maintained and protected. In order to protect and maintain designated and existing beneficial uses, a permitted discharge must comply with narrative and numeric criteria of the Idaho WQS, as well as other provisions of the WQS such as Section 055, which addresses water quality limited waters.

Water bodies not supporting existing or designated beneficial uses must be identified as water quality limited, and a total maximum daily load (TMDL) must be prepared for those pollutants causing impairment. A central purpose of TMDLs is to establish wasteload allocations for point source discharges, which are set at levels designed to help restore the water body to a condition that supports existing and designated beneficial uses. Discharge permits must contain limitations that are consistent with wasteload allocations in the approved TMDL. A permit with effluent limitations consistent with TMDL wasteload allocations will provide the level of water quality necessary to support existing and designated uses and therefore satisfies Tier 1 antidegradation requirements.

Currently, there are no TMDLs in the state of Idaho that contain WLAs for discharges from vessels. Furthermore, EPA has determined that numeric effluent limits for discharges authorized under the VGP and sVGP are impracticable to calculate due to the varied nature of discharges from vessels, therefore non-numeric effluent limits contained in both permits speak to best management practices (BMPs) for dischargers to comply with. DEQ has reviewed the BMPs and has added further conditions on discharges to water bodies which are expected to receive discharges from vessels and are currently not meeting Idaho WQS.

Owners or operators of large vessels, covered under the VGP, are required to know whether they are discharging to impaired waters. Under the High Priority Provision of Section 055 of Idaho's WQS, in absence of a TMDL, there must not be additional loading of a pollutant where an impairment caused by that pollutant exists (IDAPA 58.01.02.055.04). Therefore, special considerations will need to be taken when discharging to these waters to ensure that discharges will not contribute to the impairment. For example, where a water body is impaired by metals, the discharger must not engage in activities (i.e. releasing contaminated bilgewater) where those pollutants are discharged to the water body, thereby contributing to the existing impairment (see Table 6.8.1).

Idaho state law prohibits discharges of graywater and/or sewage/graywater mixtures in certain regions, which are otherwise authorized under this general permit (see "Conditions" section).

The limitations and associated requirements in the 2013 VGP, coupled with other applicable state laws, and the conditions set forth in this certification provide DEQ reasonable assurance of compliance with IDAPA 58.01.02.051.01 and 58.01.02.052.07.

6.8.3 Protection of High-Quality Waters (Tier 2 Protection)

As indicated previously, water bodies that fully support their beneficial uses will be provided Tier 2 protection. As such, the quality of these waters must be maintained and protected, unless it is deemed necessary to accommodate important economic or social development. For a reissued permit or license, the effect on water quality is determined by looking at the difference in water quality that would result from the activity or discharge as authorized in the current permit and the water quality that would result from the activity or discharge as proposed in the reissued permit or license (IDAPA 58.01.02.052.06.a). For a new permit or license, the effect on water quality is determined by reviewing the difference between the existing receiving water quality and the water quality that would result from the activity or discharge as proposed in the new permit or license (IDAPA 58.01.02.052.06.a).

With respect to vessels currently operating in Idaho and discharging to waters of the State, DEQ believes that as long as discharges are not increasing, there will be no degradation or adverse change in water quality because the new permits are more stringent than the previous permits. New or increased discharges however, must be evaluated on a case-by-case basis.

As a condition of this certification, DEQ is requiring that owners/operators of vessels proposing to increase their discharges or number of vessels in their fleet, or those who are seeking coverage under the VGP for the first time, contact the appropriate DEQ Regional Office (6.8.2) to determine whether additional controls are necessary in order to ensure that high quality waters are not degraded. This condition shall ensure compliance with Idaho's tier 2 antidegradation requirements.

In sum, as long as the vessel operators comply with the terms of the NPDES permit and §401 certification then there is reasonable assurance that existing and designated beneficial uses will be protected and maintained and there will be no degradation or adverse change in water quality as required under IDAPA 58.01.02.051.02 and IDAPA 58.01.02.052.06.

Protection of Outstanding Resource Waters (Tier 3 Protection)

Idaho's antidegradation policy requires that the quality of outstanding resource waters be maintained and protected from the impacts of point source discharges. No water bodies in Idaho have been designated as outstanding resource waters to date; however, it is possible that waters may become designated during the term of these permits. Because of this possibility, DEQ has evaluated whether the proposed draft VGP and sVGP comply with the ORW antidegradation provision.

As a condition of this certification, DEQ is requiring any applicant proposing to discharge to an ORW, under either permit, to obtain an individual NPDES permit from EPA. This requirement complies with Idaho's antidegradation provisions concerning ORWs (IDAPA 58.01.02.052.09).

6.8.4 *Permittee Responsibility*

Owners and operators of vessels covered by the Vessel General Permit (VGP) and/or the Small Vessel General Permit are responsible for knowing the current support status of the waters in which they operate on and may discharge to. The most current EPA-approved IR must be used to determine the support status of the affected water body and can be found online: http://www.deq.idaho.gov/water-quality/surface-water/monitoring-assessment/integrated-report.aspx.
DEQ's webpage also has a link to the state's map-based Integrated Report which presents information from the Integrated Report in a searchable, map-based format: http://mapcase.deq.idaho.gov/wq2010/.
The information provided in Table 6.8.1 (below) is based on the 2010 Integrated Report and is subject to change. As previously stated, discharges must not contain pollutants where the receiving water body is identified as "impaired" due to those pollutants (IDAPA 58.01.02.055.04).

Table 6.8.1. Water bodies expected to receive discharges from vessels, current support status *(Integrated Report, 2010)*

Region	*Water Body*	*HUC*	*Support Status*	*Pollutants of Concern*
Coeur d'Alene	Clark Fork River	17010213	Impaired	Cadmium, Copper, Zinc, Dissolved Gas Supersaturation, Temperature
	Coeur d'Alene Lake	17010303	Impaired	Cadmium, Lead, Zinc
	Kootenai River	17010104	Impaired	Temperature
	Lake Pend Oreille	17010214	Impaired	Mercury, Temperature, Dissolved Gas Supersaturation
	Pend Oreille River	17010214 17010216	Impaired	Temperature, Dissolved Gas, Supersaturation
	Priest Lake	17010215	Unassessed	N/A
	Spokane River	17010305	Impaired	Cadmium, Lead, Zinc, Phosphorus
Lewiston	Clearwater River	17060304 17060306 17060308	Multiple Categories	Dissolved Gas Supersaturation, Sedimentation, Temperature
	Dworshak Reservoir	17060308	Unassessed	N/A

6.8.5 *Reporting New or Increased Discharges, or Increased Fleet Size, to Tier 2 (High- Quality) Waters*

As a condition of this certification, DEQ is requiring that owners/operators of vessels proposing to increase their discharges or number of vessels in their fleet, or those who are seeking coverage under the VGP for the first time, contact the appropriate DEQ Regional Office (Table 6.8.5) to determine whether additional controls are necessary in order to ensure that high quality waters are not degraded.

6.8.6 *Rules Prohibiting Discharges on Certain Water Bodies*

Owners and operators of vessels covered by these general permits must be aware of and comply with the Panhandle Health District Rules governing discharges from vessels. The discharge of graywater or a sewage/graywater mixture otherwise authorized under this general permit is prohibited in certain regions of the state pursuant to IDAPA 41.01.01.200.01(c). Those areas include Boundary, Bonner, Kootenai, Benewah, and Shoshone counties in Northern Idaho (IDAPA 41.01.01.200.01 *et seq.).*

6.8.7 Reporting of Discharges Containing Hazardous Materials or Petroleum Products

Any spill of hazardous materials must be immediately reported to the appropriate DEQ Regional Office (Table 6.8.2). Spills of petroleum products that exceed 25 gallons or that cause a visible sheen on nearby surface waters should be reported to DEQ within 24- hours. Petroleum product spills of less than 25 gallons or spills that do not cause a sheen on nearby surface waters shall be reported to DEQ if clean-up cannot be accomplished within 24-hours (IDAPA 58.01.02.850, 58.01.02.851, 58.01.02.852).

Table 6.8.2. DEQ Regional Office contact information

Regional Office	*Contact Name*	*Phone Number*	*Email*
Coeur d'Alene	June Bergquist	208-769-1422	june.bergquist@deq.idaho.gov
Lewiston	John Cardwell	208-799-4370	john.cardwell@ deq.idaho.gov

Outside of regular business hours, qualified spills should be reported to the State Communications Center (1-800-632-8000 or 208-846-7610).

6.8.8 Invasive Species

Owners and operators of vessels covered by these general permits must be aware of and comply with the Idaho State Department of Agriculture Rules Governing Invasive Species (IDAPA 02.06.09).

6.9 <u>Illinois</u>

Illinois certified the VGP with the following additional permit conditions:

6.9.1 Discharges of wastestreams containing Bioaccumulative Chemicals of Concern (BCC's) from vessel covered by the Vessel General Permit shall be consistent with the provisions of 35 Ill. Adm. Code 302.520, 302.521, and 302.530.

6.9.2 All discharges to Waters of the State from vessels covered by the Vessel General Permit shall not cause a violation of Illinois Water Quality Standards, as found at 35 Ill. Adm. Code Part 302 or effluent standards, as found at 35 Ill. Adm. Code Part 304.

6.9.3 No effluent from any vessel covered by the Vessel General Permit shall contain settleable solids, floating debris, visible oil, grease, scum, or sludge solids pursuant to 35 Ill. Adm. Code 304.106. Color, odor, and turbidity must be reduced to below obvious levels, pursuant to 35 Ill. Adm. Code 304.106.

6.9.4 Any vessel covered by the Vessel General Permit employing ballast water treatment systems using chlorine in any of its forms, shall not exceed the acute water quality standard for Total Residual Chlorine of 0.019 mg/1 or the chronic water quality standard for Total Residual Chlorine of 0.011 mg/1, pursuant to 35 Ill. Adm. Code 302.208. In order to demonstrate compliance with the water quality standards above, the discharge of Total Residual Chlorine shall not exceed the laboratory quantification level of 0.05 mg/1 using test methods equivalent in accuracy to amperometric titration. The usage of other biocides shall not cause a violation of applicable water quality standards and shall not be discharged in concentrations considered toxic or harmful to aquatic life, pursuant to 35 Ill. Adm. Code 302.210, 302.410 and 302.540.

6.9.5 The discharge from any vessel covered by the Vessel General Permit shall be free from any substances or combination of substances in concentrations toxic or harmful to human health, or to animal, plant or aquatic life, pursuant to 35 Ill. Adm. Code 302.210, 302.410, and 302.540.

6.9.6 No bilge or ballast water from vessels covered by the Vessel General Permit which fails to meet the effluent standards of 35 Ill. Adm. Code Part 304 shall be discharged to waters of the State pursuant to 35 Ill. Adm. Code 308.103.

6.9.7 Any discharge of sewage from a vessel shall comply with 35 Ill. Adm. Code Part 308 - Disposal of Wastes from Watercraft.

6.9.8 The issuance of this certification pursuant to Section 401 of the Clean Water Act does not release any dischargers from responsibilities or liabilities for past or future violations of federal, state or local laws or regulations, nor does it release any potential dischargers from the responsibility of obtaining permits, including any from the IEPA, or other approvals from other units of government as may be required by law.

6.10 Indiana

Indiana certified the VGP with the following additional permit conditions:

6.10.1 Permittee shall allow the commissioner or an authorized representative of the commissioner (including an authorized contractor), upon the presentation of credentials:

a. to enter and inspect covered vessels;
b. to have access to and copy at reasonable times any records that must be kept under the conditions of this certification;
c. to inspect, at reasonable times, any monitoring or operational equipment or method; collection, treatment, pollution management or discharge facility or device; practices required by this certification; and
d. to sample or monitor any discharge of pollutants from covered vessels.

6.10.2 This granting of WQC does not relieve the permittee from the responsibility of obtaining any other permits or authorizations that may be required for this project or related activities from the IDEM or any other agency or person.

6.10.3 This certification does not:

a. Authorize impacts or activities outside the scope of this certification;
b. Authorize any injury to permittees or private property or invasion of other private rights, or any infringement of federal, state or local laws or regulations;
c. Convey any property rights of any sort, or any exclusive privileges; or

d. Preempt any duty to obtain federal, state or local permits or authorizations required by law.

6.10.4 The IDEM, for any vessel that qualifies under the terms and conditions of this certification, may choose to require an individual WQC if it determines that the vessel would have more than minimal impacts to water quality, either viewed individually or collectively with other activities that may affect the same waterbody.

6.10.5 Activities authorized by this general permit shall not violate or exceed Indiana's Water Quality Standards at 327 IAC 2.

6.10.6 Oceangoing vessels eligible for coverage under the EPA VGP that enter the great Lakes-St. Lawrence Seaway system and are transiting from beyond the 200- nautical-mile Exclusive Economic Zone (EEZ) shall perform open ocean ballast water exchange or saltwater flushing before entering the Great Lakes-St. Lawrence Seaway system in order to ensure water quality standards are met.

6.10.7 Oceangoing Vessels covered by the EPA VGP shall comply with the following ballast water discharge requirements:

a. For vessels constructed prior to December 1, 2013, and meeting the applicability criteria in the federal NPDES permit, treatment shall be installed and operational to meet the performance standards for organisms included in EPA VGP by the vessel's first scheduled drydocking after January 1, 2016.

b. For vessels constructed after December 1, 2013, and meeting the applicability criteria in the federal NPDES permit, treatment shall be installed and operational to meet the performance standards for organisms included in EPA VGP prior to commencement of vessel operation in Indiana State waters.

6.10.8 Any vessel discharging ballast water employing ballast water treatment systems using chlorine, shall not exceed a maximum total residual chlorine limit of 0.02 mg/1. The usage of other biocides shall not cause a violation of applicable water quality standards, and shall not be discharged in concentrations considered to be toxic or harmful to aquatic life.

6.11 Iowa

Iowa certified the VGP with the following additional permit conditions:

6.11.1 Permittee is responsible for securing and for compliance with such other permits or approvals as may be required by the IDNR, federal, state, or local governmental agencies for the project activities described.

6.11.2 All discharges to waters of the state of Iowa from vessels covered by the VGP shall not cause a violation of Iowa Water Quality Standards, as found at Iowa Administrative Code 567 Chapter 61. http:/ /www.iowadnr.gov/InsideDNR/RegulatoryWater/WetlandsPermitting.aspx

6.11.3 If the vessel discharges oil or hazardous substances in the water, immediately call the National Response Center at 1-800-424-8802 (or contact them through their website at: www.nrc.uscg.mil) and the IDNR Emergency Response Unit at 1-515-281-8694.

6.12 Kansas

Kansas certified the VGP with the following additional permit conditions:

The Permittee shall not cause or contribute to a violation of the following narrative Kansas Surface Water Quality Standards [KAR28-16-28E(B)]:

6.12.1 Surface waters shall be free, at all times, from the harmful effects of substances that originate from artificial sources of pollution and that produce any public health hazard, nuisance condition, or impairment of a designated use.

6.12.2 Hazardous materials derived from artificial sources, including toxic substances, radioactive isotopes, and infections microorganisms derived directly or indirectly from point or nonpoint sources, shall not occur in surface waters at concentrations or in combinations that jeopardize the public health or the survival or well-being of livestock, domestic animals, terrestrial wildlife, or aquatic or semiaquatic life.

6.12.3 Surface waters shall be free of all discarded solid materials, including trash, garbage, rubbish, offal, grass clippings, discarded building or construction materials, car bodies, tires, wire, and other unwanted or discarded materials. The placement of stone and concrete rubble for bank stabilization shall be acceptable to the Department, if all other required permits are obtained before placement.

6.12.4 Surface waters shall be free of floating debris, scum, foam, froth, and other floating materials directly or indirectly attributable to artificial sources of pollution.

6.12.5 Oil and grease from artificial sources shall not cause any visible film or sheen to form upon the surface of the water or upon submerged substrate or adjoining shorelines, nor shall these materials cause a sludge or emulsion to be deposited beneath the surface of the water or upon the adjoining shorelines.

6.12.6 Surface waters shall be free of deposits of sludge or fine solids attributable to artificial sources of pollution.

6.12.7 Taste-producing and odor-producing substances or artificial origin shall not occur in surface waters at concentrations that interfere with the production of potable water by conventional water treatment process, that impart an unpalatable flavor to edible aquatic or semiaquatic life or terrestrial wildlife, or that result in noticeable odors in the vicinity of surface waters.

6.12.8 The natural appearance of surface waters shall not be altered by the addition of color-producing or turbidity-producing substances of artificial origin.

6.13 Maine

Maine certified the VGP with the following additional permit conditions:

6.13.1 Draft permit generally. All the conditions set forth in the draft VGP cannot be made less stringent without impairing Maine waters for their best usage. These conditions, or equally protective conditions, are needed to comply with the Maine State statutes and regulations indicated above. In accordance with 40 CFR 124.53(e)(3), this condition cannot be made less stringent and still comply with State water quality standards.

Exchange and flushing for voyages beyond the Exclusive Economic Zone. The operator of any vessel covered under the VGP whose voyage originates outside the exclusive economic zone and enters Maine waters shall conduct ballast water exchange or flushing beyond the EEZ, at least 200 nautical miles from any shore, and in water at least 2,000 meters in depth, resulting in salinity levels of at least 30 ppt. These requirements remain in effect regardless of whether the vessel is equipped with a ballast water treatment system.

No vessel which operates a treatment system in accordance with Section 2.2.3.5 of the draft VGP shall bring ballast water into Maine waters unless its ballast tanks have been exchanged or flushed at an ocean location in accordance with the above requirements, and unless any water reintroduced into the vessel's tanks is ocean water from that same general location which has been treated by the vessel's treatment system prior to entry into Maine waters.

All vessels entering Maine waters must maintain the ability to measure salinity levels in each tank onboard the vessel so that salinities of at least 30 ppt can be ensured.

This condition adds no new requirement or deadline for ballast water treatment. The requirements and deadlines for ballast water treatment are those specified in the draft VGP, Section 2.2.3.5 and Table 6. However, in addition to meeting those requirements, vessel operators will need to continue performing exchange or flushing.

This condition does not apply to vessels:

a. that either have no ballast tanks or that carry only permanent ballast water, all of which is in sealed tanks that are not subject to discharge, or

b. that carry only potable water that meets the requirements of section 2.2.3.5.1.3 of the draft VGP in their ballast tanks.

This condition does not apply if the master of the vessel determines that compliance with this condition would threaten the safety or stability of the vessel, its crew, or its passengers because of adverse weather, equipment failure, or any other relevant condition. If a vessel is unable to conduct ballast water exchange or flushing due to serious safety concerns as specified above, the operator of any vessel with ballast on board shall take reasonable measures to avoid discharge of organisms in ballast water.

6.13.2 Large Commercial Passenger Vessel Specific Conditions.

a. Large Commercial Passengers Vessels[12] are prohibited from discharging graywater into No Discharge Areas designated pursuant to section 312 of the Act, 33 CFR Part 159 and 40 CFR Part 140.

b. Large Commercial Passenger Vessels must report discharges of all blackwater, a mixture of blackwater and graywater, or graywater to No Discharge Areas to the Department.[13]

6.13.3 No vessel covered by the VGP may discharge pollutants to Class GPA or class SA waters.[14]

[12] Large Commercial Passenger Vessels means vessels that provide overnight accommodations for 250 or more passengers for hire. 38 M.R.S.A §423-D(l)(E)

[13] 38 MRSA §423-D(3)

6.13.4 No vessel covered by the VGP may conduct underwater hull cleaning except as part of emergency hull repairs necessary to secure the vessel or saving a life at sea. The Maine Department of Environmental Protection has determined that removal of biological growth, debris, or scrubbing the hull to reveal fresh antifouling coatings will invariably release pollutants at levels potentially toxic to the marine environment and cause violations of water quality standards.[15]

6.14 Michigan

Michigan certified the VGP with the following additional permit conditions:

6.14.1 Oceangoing vessels (a vessel that operates on the Great Lakes or the St. Lawrence waterway after operating in waters outside the Great Lakes or the St. Lawrence waterway) covered by the VGP are prohibited from discharging ballast water in Michigan's waters unless the vessel has obtained a Certificate of Coverage under the Ballast Water Control General Permit (Permit No. MIG140000) or an Individual Permit from the MDEQ and is in full compliance with the discharge limitations, monitoring requirements, and other conditions set forth in that General Permit or Individual Permit. (Section 3112[6] of Part 31, Water Resources Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended [NREPA])

6.14.2 Ballast Water Exchange and Saltwater Flushing:

a. All vessels covered by the VGP whose voyages originate from outside the exclusive economic zone (EEZ) and enter Michigan waters with ballast onboard, shall conduct ballast water exchange at least 200 nautical miles (nm) from any shore and in waters beyond the EEZ. Such vessels that carry only residual amounts of ballast water and/or sediments shall conduct saltwater flushing of their ballast tanks, at least 200 nm from any shore and in waters beyond the EEZ. (Section 3103a of Part 31 of the NREPA)

Ballast water exchange is defined as at least 1 empty and refill cycle of each ballast tank that contains ballast water, resulting in a salinity level of at least 30 parts per thousand (ppt). If the master of the vessel determines that such exchange is impracticable, a sufficient number of flow-through exchanges of ballast water may be conducted to achieve replacement of at least 95 percent of ballast water in ballast tanks of the vessel, resulting in a salinity level of at least 30 ppt.

Saltwater flushing is defined as the addition of ocean water to ballast water tanks, the mixing of the flushwater with residual water and sediment through the motion of the vessel, and the discharge of the mixed water, such that the resulting residual water has a salinity level of at least 30 ppt.

All vessels entering Michigan waters must maintain the ability to measure salinity levels in each ballast tank onboard the vessel so that salinities of at least 30 ppt can be ensured.

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[14] 38 MRSA §465-A (1) and 38 MRSA §465-B(l)

[15] 38 MRSA §420(2) and 38 MRSA §465-B

b. Condition 6.14.2(a) does not apply to vessels that:

   i. Carry only permanent ballast water, all of which is in sealed tanks that are not subject to discharge, or

   ii. Use only water from a United States public water system or Canadian drinking water system as ballast water.

c. Condition 6.14.2(a) does not apply if the master of the vessel determines that compliance with this condition would threaten the safety or stability of the vessel, its crew, or its passengers because of adverse weather, equipment failure, or any other relevant condition. If a vessel is unable to conduct ballast water exchange or flushing due to serious safety concerns as specified above, the operator of a vessel shall take reasonable measures to avoid discharge of organisms in ballast water and shall inform the MDEQ in writing of the measures taken.

6.14.3 Discharge limitations for living organisms for vessels whose voyage originates outside the EEZ (Sections 3103a and 3109 of Part 31 of the NREPA):

a. Ballast water discharges from vessels whose voyage originates outside the EEZ may contain biological pollutants in the form of aquatic invasive species. Ballast water discharges to Michigan waters must be controlled to a level sufficient to prevent aquatic invasive species. These pollutants must not be discharged at a level that is, or may become, injurious to any of the following: to the public health, safety, or welfare; to domestic, commercial, industrial, agricultural, recreational, or other uses that are being made, or may be made, of such waters; to the value or utility of riparian lands; to livestock, wild animals, birds, fish, aquatic life, or plants or to their growth or propagation; or to the value of fish and game.

b. Any vessel utilizing a ballast water treatment system by December 31, 2014, consistent with the technologies identified in Michigan's Ballast Water Control General Permit (Permit No. MIG140000) or an alternative technology approved by the MDEQ, will not be required to meet any future numeric water quality-based effluent limits (WQBEL) for living organisms that may be set forth in a subsequent Section 401 certification until the functional life of that ballast water treatment system has expired or the life of the vessel has expired, whichever is earlier. These vessels must continue ballast water exchange and saltwater flushing as described in Condition 6.14.2 unless it is demonstrated to the MDEQ that numeric WQBELs adopted after the date of this certification for living organisms are met.

6.14.4 Live Organism Monitoring (R 323.2154(2)(c) of the Part 21 Rules, Wastewater Discharge Permits, promulgated under Part 31 of the NREPA):

a. The owner/operator of any vessel covered by the VGP whose voyages originate from outside the EEZ that discharges ballast water to Michigan waters, shall monitor ballast water discharged from their vessel at least once each year for living organisms greater than 50 micrometers in minimum dimension, and living organisms equal to or less than 50 micrometers in minimum dimension and equal to or greater than 10 micrometers in minimum dimension; and submit a report summarizing the discharge monitoring results collected for the above live organism size categories to the MDEQ no later than December 31 of each year. The ballast water discharge samples shall be collected and analyzed consistent with protocols established by the MDEQ. If the MDEQ fails to establish protocols, then the requirements set forth in this condition will be waived.

6.14.5 The owners/operators of vessels required to utilize a ballast water treatment system shall allow the MDEQ reasonable entry onto the vessel for inspection, access to records, and collection of a ballast water discharge sample(s) for determining compliance with this certification and applicable laws. (R 323.2149(1)(c) and R 323.2189 of the Part 21 Rules of the NREPA)

6.14.6 Nonoceangoing vessels covered by the VGP operating ballast water treatment systems are prohibited from discharging ballast water in Michigan waters with total residual chlorine concentrations above 38 micrograms per liter (µg/L) when the ballast water discharge duration exceeds 160 minutes, or above 200 µg/L when the ballast water discharge duration is less than or equal to 160 minutes. (R 323.1057 of the Part 4 Rules, Water Quality Standards, promulgated under Part 31 of the NREPA)

6.14.7 Discharges of blackwater and graywater from vessels covered by the VGP or sVGP are prohibited to Michigan waters. (Part 95, Watercraft Pollution Control, of the NREPA)

6.14.8 Vessel owners/operators shall immediately notify the MDEQ whenever they become aware that a discharge from their vessel causes or contributes to an exceedance of an applicable state water quality standard. (R 323.2189 of the Part 21 Rules of the NREPA)

6.14.9 Each condition in the proposed VGP and sVGP cannot be made less stringent without potentially violating the requirements of state law, including water quality standards. (Part 31 of the NREPA)

6.14.10 All discharges to Michigan waters from vessels covered by the USEPA's VGP are prohibited from causing or contributing to exceedances of the Michigan Water Quality Standards (Part 4 Rules, Water Quality Standards, promulgated under Part 31 of the NREPA).

The contact point for consultation, submittals, and approvals as referred to in this certification is:

Chief, Water Resources Division
Michigan Department of Environmental Quality
P.O. Box 30458
Lansing, Michigan 48909-7958
Phone: 517-335-4176

6.15 <u>Minnesota</u>

Minnesota certified the VGP with the following additional permit conditions:

6.15.1 Compliance with Minnesota State Disposal System (SDS) permit for ballast water;

<u>Requirement</u>
The applicability of International Maritime Organization (IMO) D-2 ballast water discharge limits for vessels in the 2013 must not relieve any person from the duty to obtain and comply with the existing Minnesota ballast water general permit MNG300000, or subsequent modifications of that permit issued by the MPCA. Obtaining coverage under the 2013 VGP does not release any person from the duty to obtain a permit required by state law. Vessels

covered by the EPA's 2013 VGP must obtain any permits required by the state of Minnesota for vessel discharges and comply with all requirements in the applicable permit at the time of compliance review.

6.15.2 Exchange and flushing for voyages originating beyond the Exclusive Economic Zone (EEZ).

Requirement

The operator of any vessel covered under the 2013 VGP whose voyage originates outside the exclusive economic zone and enters Minnesota waters shall not discharge ballast unless the following conditions are met: the vessel has conducted ballast water exchange or flushing beyond the EEZ, at least 200 nautical miles from any shore, and in water at least 2,000 meters in depth, while in oceanic waters, resulting in a salinity level of at least 30 parts per thousand (ppt) prior to the time the vessel enters Minnesota waters. This requirement remains in effect regardless of whether the vessel is equipped with a ballast water treatment system. This requirement is in addition to treatment requirements required under the proposed 2013 VGP.

All vessels entering Minnesota waters must maintain the ability to measure salinity levels in each tank onboard the vessel so that salinities of at least 30 ppt can be ensured prior to discharge in Minnesota waters.

For vessels entering the Great Lakes from outside the EEZ and carrying only residual amounts of ballast water and/or sediment, the flushing requirements are equivalent to those set forth in the July 1, 2012, edition of the 51. Lawrence Seaway regulations, 33 CFR §401.30(f).

This requirement does not apply to:

a. Vessels that either have no ballast tanks or that carry only permanent ballast water, all of which is in sealed tanks that are not subject to discharge, or

b. Vessels that carry only potable water that meets the requirements of section 2.2.3.5.1.3 of the draft 2013 VGP in their ballast tanks.

This requirement does not apply if the master of the vessel determines that compliance with this condition would threaten the safety or stability of the vessel, its crew, or its passengers because of adverse weather, equipment failure, or any other relevant condition. If a vessel is unable to conduct ballast water exchange or flushing due to serious safety concerns as specified above, the operator of such vessel shall inform the MPCA and DNR prior to discharging ballast in state waters to allow a determination of whether the discharge of the ballast presents a "high risk" as described below. No ballast shall be discharged that does not meet the conditions in this part if the MPCA determines that the ballast is "high risk" and that additional treatment is necessary to protect aquatic resources.

6.15.3 Emergency Control of Ballast Water discharge

Requirement

a. The MPCA, in coordination with the DNR, may prohibit discharge, require a discharge to occur in a particular area, or require emergency treatment of any "high risk" ballast water proposed to be discharged in Minnesota waters pursuant to its authority under Minn. Stat. §116.11 and Minn. R. 7000.5000.

b. A “high risk" ballast water is one that, in the opinion of the MPCA in consultation with the DNR, poses an imminent and substantial danger to the health and welfare of the people of the state related to the introduction of a nonnative species into Minnesota waters.

c. If relocation of a high risk ballast discharge is required, the MPCA, coordinating with the U.S. Coast Guard (USCG), the DNR, and the States of Michigan and Wisconsin, as needed, will identify alternative locations for the discharge of the high risk ballast water.

d. Nothing in this section relieves the vessel owner or operator of the responsibility for ensuring the vessel's safety and stability or the safety of the crew and passengers.

e. As an alternative to discharging high-risk ballast water, the MPCA may authorize the use of Ballast Water Treatment Systems (BWTS) identified as promising technology by EPA, USCG, neighboring states or a U.S. ballast water testing research facility. U.S. ballast water testing research facilities include, but may not be limited to the Golden Bear, Great Ships Initiative and Maritime Environmental Resource Center.

6.15.4 Coverage of Lakers that operate exclusively in the Great Lakes

<u>Requirement</u>

For vessels that operate exclusively in the Great Lakes, the following Best Management Practices (BMPs) are required to be incorporated into the vessel's ballast management plan and implemented prior to discharge of ballast in Minnesota waters):

a. Annually inspect and replace, as necessary, ballast sea chest screens. Replace screens with the smallest openings allowed by good engineering practice. Inspections must be documented by log entry, diver's report, video report, dry-docking report, marine inspection note, or surveyor's report.

b. During cargo operations (while accounting for boom list, hull stress, and bending moments), lighten the ship as much as practical to elevate water intakes before ballasting to minimize sediment uptake and increase water flow.

c. Ballast water taken aboard shall be the minimum needed to ensure the safety of the crew and vessel. Additional ballast water can be taken aboard, once deeper water is reached.

d. Ballast water shall always be taken aboard or discharged via the pumps and never "gravity fed or drained." This ensures an organism that somehow makes it past the screen is pulverized by the high speed, high pressure, and tight tolerance pump.

6.15.5 Monitoring Requirements

<u>Requirements:</u>

a. *Monitoring for vessels required to meet the 2013 VGP(numeric limits equivalent to IMO 0-2) ballast water discharge limits*: In addition to meeting the draft 2013 VGP monitoring requirements in section 2.2.3.S., all vessels covered under the2013 VGP and operating in Minnesota waters after a Ballast Water Treatment System is installed must sample and analyze the ballast water discharge at least once a year (provided appropriate facilities are available) using the shipboard Environmental Technology Verification (ETV) sampling protocol, a protocol consistent with IMO G8/G9 protocols, or a compliance monitoring protocol developed by the USCG, whichever is most advanced and available. The MPCA will be available to interpret which method(s) are most advanced and available. This monitoring shall include sampling, identification and enumeration of live organisms >50 µm and between 10-50 µm in size. The monitoring results shall be submitted to EPA and the MPCA on an annual basis, consistent with the mechanisms used in the 2013 VGP for all other submissions, provided such electronic tools are made available by EPA. In the absence of available submittal tools by EPA, monitoring data must be directly submitted to the MPCA. The MPCA's point of contact is provided at the close of this letter. Such live organism monitoring shall include the collection of representative discharge samples and the testing (counting) of live organisms in such samples by qualified personnel in accordance with standard and/or best available sampling and analytical methods.

b. *Monitoring for vessels not required to meet numeric ballast treatment limits because of 2013 VGP condition* 2.2.3.5.3.3 *(currently addressing vessels operating exclusively upstream of the Welland Canal)* or *similar condition:* Within 24 months of final issuance of the 2013 VGP, all vessels not required to meet numeric ballast treatment standards, and that discharge ballast in Minnesota waters, shall have the capacity to collect at the request of the MPCA, EPA or other regulatory authority representative samples of organisms in ballast water discharges. Beginning 24 months after final issuance of the 2013 VGP, all vessel*s* not required to meet numeric ballast treatment limits shall complete the following ballast discharge monitoring:

   i. A minimum of once annually, sample and analyze for organism density and composition (based on broad taxonomic categories). Sampling and analysis methods shall be consistent with protocols described above. Samples must be analyzed for total organisms (live or dead) greater than or equal to 10 micrometers in size. The ballast discharge subject to sampling must be taken on the ship in a Great Lakes port for discharge into Minnesota waters. You must report the uptake locations and volumes subject to sampling, as well as the volume you plan to discharge in Minnesota's waters, best management practices employed, and other factors affecting the composition of the sample.; <u>or</u>

   ii. Complete, individually or in partnership with other permittees, a ballast discharge biological study approved by the MPCA. The study must include actual discharge data representing designated vessels that may discharge native and non-native organisms into Minnesota waters. The purposes of the study must include an evaluation of the risk that ballast discharges pose to Minnesota waters.

6.15.6 Biocide Usage

<u>Requirement:</u>

Discharges of residual biocides are authorized as defined by the September 24, 2008, Minnesota General Ballast Water Permit or subsequent reissuances, whichever is most recent. Discharge limitations for residual oxidants, and procedures for obtaining authorization to use other chemical additives are established by the permit. Obtaining coverage under the 2013 VGP does not release any person from the duty to obtain a permit required by state law.

Vessels covered by the EPA's 2013 VGP must obtain any permits required by the state of Minnesota for vessel discharges and comply with all requirements in the applicable permit at the time of compliance review.

6.15.7 Other State Regulations

Requirement:

All vessels must comply with the requirements of Minn. Stat. 115.1703 and any other applicable state law, statute or rule.

6.16 Missouri

Missouri certified the VGP with the following additional permit conditions:

6.16.1 The permittee shall not cause or contribute to the general or numeric criteria to be exceeded nor impair beneficial uses established in the Water Quality Standards, 10 CSR 20-7.031.

6.16.2 Representatives from the Department shall be allowed to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the letters and conditions of the permit.

6.16.3 This certification shall not be construed or interpreted to imply the requirements for other permits are replaced or superseded. Any National Pollutant Discharge Elimination System Permits, Land Disturbance General Permits, or other requirements shall be complied with.

6.17 Nebraska

Nebraska certified the VGP with the following additional permit conditions:

Chapter 6, § 004 of Title 117- Nebraska's Surface Water Quality Standards, states that:

“No discharge of wastewater from domestic, municipal, or industrial sources shall be allowed directly into lakes or impounded waters except:

> “004.01 Wastewater from sources authorized by NPDES permits to discharge to these waters prior to May 10, 1982 which have operated under active NPDES permits since then.
>
> “004.02 Noncontact cooling waters from sources authorized by NPDES permits to discharge to these waters.
>
> “004.03 Stormwater from sources authorized by NPDES permits to discharge to these waters.”

This precludes allowing discharges into lakes and reservoirs of greywater; bilge water, or any sewage commingled with any other discharge as described in the permits and in Federal Register Vol. 76, No. 236, pp 76716 through 76725. Vessels on these waters will need to discharge these wastewaters into sanitary dump stations that do not result in a discharge to lakes or impounded waters. Cooling water discharges are allowed. Use of these General Permits for vessels operating on streams of the State of Nebraska is acceptable.

6.18 New Hampshire

New Hampshire certified the VGP with the following additional permit conditions:

6.18.1 Conditions Applicable to Coastal (Tidal) Waters

a. In a Notice of Determination in the Federal Register dated September 27, 2005, the State of New Hampshire was granted permission by EPA for a No Discharge Area. The No Discharge Area consists of all tidal and estuarine waters, including all bays and rivers to the tidal dams, and all ocean waters within three nautical miles of the New Hampshire shoreline and Isles of Shoals. In the No Discharge Area, all boat sewage discharge (including graywater containing sewage), whether treated or untreated, is prohibited. For a brochure on New Hampshire's Coastal Pumpout Program see http://des.n.h.gov/organization/commissioner/pip/publications/wd/documents/no_discharge area.pdf

b. Graywater without sewage should be discharged at pumpout facilities or beyond three nautical miles of the New Hampshire shoreline and the Isles of Shoals wherever feasible. This is infeasible at this time for vessels without holding tanks for graywater, but these vessels should plan to install such holding tanks during one of the next two scheduled dry docking events if such installation is technically feasible and would not jeopardize the safety of the vessel.

c. Part 2.2.15 of the draft Vessel General Permit prohibits the discharge of graywater from vessels with graywater holding tanks to nutrient impaired waters. For all practical purposes for this part, nutrient impaired tidal waters in New Hampshire include tidal waters west of the Interstate 95 Bridge over the Piscataqua River. For a more detailed delineation of nutrient impaired waters see the DES' Watershed Report Cards at http://des.nl1.gov/organization/divisions/water/W!nb/swga/report_cards.htm.

d. Bilgewater may contain fuel, oil, paint chips and other pollutants associated with the cargo or processes occurring on the vessel. Part 2.3.1 requires among other things that your discharges be controlled as necessary to meet applicable water quality standards. The applicable water quality standards in New Hampshire are found in RSA 485-A:8 and the Surface Water Quality Regulations Env-Wq 1700, which are available at http://des.nh.gov/organization/commissioner/legal/rules/documents/env-wg l 700.pdf. Vessel operators should pay particular attention to using all necessary management practices, treatment and discharge methods to ensure that the surface waters near the vessel remain free from substances that would settle to form harmful deposits or float as foam, debris, scum or other visible pollutants or otherwise violate the General Water Quality Criteria (see Env-Wq 1703.03) or the Minimum Criteria for Mixing Zones (see Env-Wq 1707.02). For discharges such as bilgewater that are likely to contain pollutants that are toxic to aquatic life, the management practices, treatment and discharge methods must also ensure that the discharge does not cause the surface water in the vicinity of the discharge to contain "toxics in toxic amounts" (see Env-Wq 1703.21).

6.18.2 Conditions Applicable to Inland (Freshwater) Surface Waters

a. The inland lakes of New Hampshire are No Discharge Areas for both sewage and graywater. See RSA 487:1-14 at http://www.gencourt.state.nh.us/rsa/html/NHTOC/NHTOC-L-487.btm. Information on pumpout facilities on Lake Winnipesaukee, Lake Sunapee and Squam lake can be found at http://des.nh.gov/organization/commissioner/pip/publications/wd/documents/lakes_region_pumpout.pdfl

b. Bilgewater may contain fuel, oil, paint chips and other pollutants associated with the cargo or processes occurring on the vessel. Part 2.3.1 requires among other things that your discharges be controlled as necessary to meet applicable water quality standards. The applicable water quality standards in New Hampshire are found in RSA 485-A:8 and the Surface Water Quality Regulations Env-Wq 1700, which are available at http://des.nh.gov/organization/comrnissioner/legal/rules/documents/envwq1700.pdf. Vessel operators should pay particular attention to using all necessary management practices, treatment and discharge methods to ensure that the surface waters near the vessel remain free from substances that would settle to form harmful deposits or float as foam, debris, scum or other visible pollutants or otherwise violate the General Water Quality Criteria (see Env-Wq 1703.03) or the Minimum Criteria for Mixing Zones (see Env·Wq 1707.02). For discharges such as bilgewater that are likely to contain pollutants that are toxic to aquatic life, the management practices, treatment and discharge methods must also ensure that the discharge does not cause the surface water in the vicinity of the discharge to contain "'toxics in toxic amounts"(see Env-Wq 1703.21).

6.19 New York

New York certified the VGP with the following additional permit conditions:

Vessel General Permit Certification Conditions

The Department finds *that the conditions in the draft VGP* cannot be made less stringent without violating water quality standards and other requirements of State law, and also establishes *other conditions more stringent than those contained in the draft VGP* that are needed to meet the requirements of either the CWA or New York State law. As further explained herein and in the Department's Fact Sheet dated 2012, each such condition is needed to assure compliance with the relevant provisions of law and regulation which are set forth in the Department's Fact Sheet dated 2012. In accordance with 40 CFR §§ 124.53(e)(2) and (3), those provisions of the CWA and New York State law form the basis for the conditions of this Certification. In accordance with 40 CFR § 124.53 (e)(2) and (3), each such condition cannot be made less stringent and still comply with the requirements of State law and regulation, including State water quality standards. Since the requirements of New York State law and regulation, including water quality standards, are more stringent than the protections the VGP would otherwise provide, this water quality certification is necessary.

In accordance with 40 CFR § 122.44(d)(1), numeric Water Quality-Based Effluent Limitations (WQBEL) for living organisms in ballast water discharges can be set for vessels covered under the VGP. The WQBEL is set at a level which will neither cause nor contribute to an excursion above New York State water quality standards, including State narrative criteria for water quality. While this Certification does not set a WQBEL, it does specify interim measures to ensure compliance with State water quality standards, including State narrative criteria for water quality, until such time as the WQBEL is developed and fully attainable. The Certification also sets conditions for other vessel discharges such as bilge water. All studies, reports, authorities and other documents cited herein, including the Department's Fact Sheet dated 2012, are incorporated into this Certification by reference.

Conditions set forth in the draft VGP cannot be made less stringent:

6.19.1 ***Draft permit generally***. The conditions set forth in the draft VGP, including Section 2.2.3.5 (discharge limitations), Section 2.2.3.7 (Great Lakes exchange and flushing), and Section 2.2.15 (graywater), cannot be made less stringent without impairing New York waters for their best usage. These conditions, or equally protective conditions, are needed to comply with the New York State statutes and regulations indicated in the Department's Fact Sheet dated 2012. In accordance with 40 CFR 124.53 (e)(3), this condition cannot be made less stringent and still comply with State water quality standards.

For example, permittees must meet the following discharge limits consistent with Section 2.2.3.5 and Table 6: Ballast Water Treatment to BAT(Best Available Technology) Schedule found in the VGP, unless excluded from these requirements by Parts 2.2.3.5.3 or 2.2.3.8 of the VGP:

a. 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.

b. 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.

c. 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

Conditions more stringent than those contained in the draft VGP:

6.19.2 ***Exchange and flushing for voyages originating beyond the exclusive economic zone (EEZ).*** The operator of any vessel covered under the VGP whose voyage originates outside the exclusive economic zone and enters New York waters shall conduct ballast water exchange or flushing beyond the EEZ, at least 200 nautical miles from any shore, and in water at least 2,000 meters in depth, resulting in a salinity level of at least 30 parts per thousand (ppt). These requirements remain in effect regardless of whether the vessel is equipped with a ballast water treatment system.

No vessel subject to this condition which operates a treatment system in accordance with Section 2.2.3.5 of the draft VGP shall bring ballast water into New York waters unless its ballast tanks have been exchanged or flushed at a location at least 200 nautical miles from shore in accordance with the above requirements, and unless any water reintroduced into the vessel’s tanks is ocean water from that same general location which has been treated by the vessel’s treatment system prior to entry into New York waters.

All vessels entering New York waters must maintain the ability to measure salinity levels in each tank onboard the vessel so that salinities of at least 30 ppt can be ensured.

This condition adds no new requirement or deadline for ballast water treatment. The requirements and deadlines for ballast water treatment are those specified in the draft VGP, Section 2.2.3.5 and Table 6. However, in addition to meeting those requirements, vessel operators will need to continue performing exchange or flushing.

This condition does not apply to vessels:

a. that either have no operable ballast tanks or that carry only permanent ballast water, all of which is in sealed tanks that are not subject to discharge, or

b. that carry only potable water that meets the requirements of section 2.2.3.5.1.3 of the draft VGP in their ballast tanks.

This condition does not apply if the master of the vessel determines that compliance with this condition would threaten the safety or stability of the vessel, its crew, or its passengers because of adverse weather, equipment failure, or any other relevant condition. If a vessel is unable to conduct ballast water exchange or flushing due to serious safety concerns as specified above, the operator of any vessel with ballast on board shall take reasonable measures to avoid discharge of organisms in ballast water and shall inform the Department in writing of the measures taken.

For vessels entering the Great Lakes from outside the EEZ and carrying only residual amounts of ballast water and/or sediment, the flushing requirements are equivalent to those set forth in the May 4, 2012 edition of the Seaway Regulations and Rules, 33 CFR 401.30(f).

New York finds that the exchange/flushing requirements set forth in this condition, including the combination of treatment with exchange or flushing, are needed to prevent impairment of waters for their best usage and are thus needed to comply with the New York State statutes and regulations indicated in the Department's Fact Sheet dated 2012. In accordance with 40 CFR 124.53 (e)(2), this condition cannot be made less stringent and still comply with State water quality standards.

6.19.3 ***WQBEL.*** The discharge of ballast water from vessels covered under the EPA VGP contains biological pollutants in the form of aquatic invasive species (AIS). These pollutants must not be discharged at a level which will cause, or have the potential to cause, or contribute to an excursion above the State narrative water quality standards in 6 NYCRR Part 703.2. Vessels discharging ballast water in New York's waters must control the level of these biological pollutants to a level to achieve the State narrative water quality standards. A numeric effluent limitation for this condition is deferred until the next VGP.

6.19.4 ***Confined Laker vessels.*** Requirements and recommendations for vessels that operate exclusively in the Great Lakes are the following Best Management Practices ***(BMPs).*** New York requires the use of reasonable and effective management practices to limit the introduction and spread of aquatic invasive species, until at least the WQBEL is fully implemented.

The following ***BMPs*** are *required* to be implemented in the Great Lakes:

a. In lieu of the normal 5-year inspection, annually inspect and replace, as necessary, ballast sea chest screens. Replace screens with the smallest openings allowed by good engineering practice. Inspections will be documented by log entry, diver's report, video report, dry-docking report, marine inspection note, or surveyor's report.

b. During cargo operations while accounting for boom list, hull stress, and bending moments, lighten the ship as much as practical to elevate water intakes before ballasting to minimize sediment uptake and increase water flow.

c. Ballast water taken aboard in Viral Hemorrhagic Septicemia (VHS) affected waters shall be the minimum needed to ensure the safety of the crew and vessel. Additional ballast water can be taken aboard, once deeper water is reached.

d. Ballast water shall always be taken aboard or discharged via the pumps and never "gravity fed or drained." This ensures an organism that somehow makes it past the screen is pulverized by the high speed, high pressure, and tight tolerance pump.

The following ***BMPs*** are *recommended* to be implemented in the Great Lakes:

e. The temperature range in which the VHS virus is known to replicate, and in which fish kills have been detected, is quite broad (37ºF - 70ºF [3ºC - 21ºC]). Since this range encompasses the majority of water temperatures found in the Great Lakes throughout the year, New York State recommends following this supplemental BMP regardless of water temperatures.

i. In order for the VHS disease to spread, an uninfected, yet vulnerable fish must be exposed to an active virus, such as with exposure to the bodily fluids from an infected fish. The virus is most stable in a living fish. It can remain active in dead or macerated fish parts, but for a shorter time. Therefore New York State recommends its vessel operators take all appropriate actions to insure that fish or fish parts do not enter their ballast tanks. This is accomplished by inspecting the ½" openings screening the ballast water intakes and using pumps as macerators during uptake and discharge.

ii. Fish populations are denser near shore and significantly less dense more than 3 miles from shore; therefore, New York State recommends its vessel operators, when and where possible, minimize uptake of ballast water in near shore locations. To further reduce risk, when possible:

1. Conduct a ballast water exchange in the deepest, warmest water prior to entering Lake Superior (this practice would specifically preclude exchanging ballast water in Lake St. Clair and the western basin of Lake Erie).

2. If vessel operators are unable to conduct an exchange in the lower Great Lakes, consider doing an exchange in deep, remote waters of Lake Superior.

3. Although it is unlikely a live fish or larger fish particle could have entered the ballast system, consider exchanging ballast water within the ship or re-circulating it within a ballast tank (pumps act as a macerator to reduce the possibility of discharging fish or larger pieces of fish).

4. Continue working with the U.S. Coast Guard and Council of Lake Committees to evaluate additional risk reduction actions.

New York finds that the ***BMPs*** set forth in this condition are needed to prevent impairment of waters for their best usage and are thus needed to comply with the New York State statutes and regulations indicated in the Department's Fact Sheet dated 2012. In accordance with 40 CFR 124.53 (e)(2), this condition cannot be made less stringent and still comply with State water quality standards.

6.19.5 ***Live organism monitoring.*** In addition to meeting the draft VGP monitoring requirements in section 2.2.3.5.1.1.4, all vessels covered under the VGP and operating in New York waters, after a Ballast Water Treatment System is installed, must sample and analyze the ballast water discharge at least once a year (provided appropriate facilities are available) using the California shipboard sampling protocol, or a compliance monitoring protocol developed by the USCG, whichever is most advanced and available. This monitoring shall include sampling for >50 µm and for 10-50 µm organisms. The monitoring results shall be submitted to EPA and the Department on an annual basis, consistent with the mechanisms used in the VGP for all other submissions. The Department's point of contact is provided at the close of this letter. Such live organism monitoring shall include the collection of representative discharge samples and the testing (counting) of live organisms in such samples by qualified personnel in accordance with standard and/or best available sampling and analytical methods.

New York finds that the monitoring requirements set forth in this condition are needed to prevent impairment of waters for their best usage and are thus needed to comply with the New York State statutes and regulations indicated in the Department's Fact Sheet dated 2012. In accordance with 40 CFR 124.53 (e)(2), this condition cannot be made less stringent and still comply with State water quality standards.

6.19.6 ***Bilge water.*** Discharge of bilge water is prohibited in New York waters. This condition does not apply to the discharge of bilge water if the master of the vessel determines that compliance with this condition would threaten the safety or stability of the vessel, its crew, or its passengers because of adverse weather, equipment failure, or any other relevant condition.

New York finds that the discharge prohibition set forth in this condition, coupled with the narrowly defined safety exemption, is needed to prevent impairment of waters for their best usage and is thus needed to comply with the New York State statutes and regulations indicated in the Department's Fact Sheet dated 2012. In accordance with 40 CFR 124.53 (e)(2), this condition cannot be made less stringent and still comply with State water quality standards.

6.20 North Carolina

North Carolina certified the VGP with the following additional permit conditions:

6.20.1 This Certification is valid only for those activities that fully comply with all terms and conditions of the National Pollutant Discharge Elimination System (NPDES) Vessel General Permit for Discharges Incidental to the Normal Operation of Vessels (VGP) or the proposed NPDES Small Vessel General Permit for Discharges Incidental to the Normal Operation of Vessels less than 79 Feet (sVGP) and all other state laws applicable to such discharges.

6.20.2 Discharges that are not eligible for coverage under the VGP or sVGP that require an individual permit must also obtain an individual Water Quality Certification or waiver from the Division.

6.20.3 This General Certification does not relieve the applicant/permittee of the responsibility to obtain all other required Federal, State, or Local approvals.

6.20.4 The applicant/permittee and their authorized agents shall conduct all activities in a manner consistent with state water quality standards (including any requirements resulting from compliance with §303(d) of the Clean Water Act), the Oil Pollution and Hazardous Substances Control Act of 1978 (Chapter 143 Article 21A) and any other appropriate requirements of State and Federal Law.

6.21 Ohio

Ohio certified the VGP with the following additional permit conditions:

Water Quality Standards and Impacts

6.21.1 Ohio Narrative Water Quality Standards and Nuisance Species

Ohio Water Quality Standards (WQS) contain narrative conditions to prohibit nuisance conditions in waters of the state. The specific standard states that "To every extent practical and possible as determined by the director, these waters shall be . . . Free from materials entering the waters as a result of human activity producing color, odor or other conditions in such a degree as to create a nuisance;" [Ohio Administrative Code 3745-1-04(C)].

In this rule, the term materials is not defined or limited; Ohio considers that this condition applies to non-indigenous nuisance species. The federal NPDES permit may not adequately prevent the introduction of new non-indigenous species, depending on the conditions issued in the final NPDES permit.

6.21.2 Ohio Narrative Water Quality Standards for Toxicity

The narrative WQS also contain a provision prohibiting toxicity: "To every extent practical and possible as defined by the director, these waters shall be....Free from substances entering the waters as a result of human activity in concentrations that are toxic or harmful to human, animal or aquatic life and/or are rapidly lethal in the mixing zone;" [Ohio Administrative Code 3745-1-04(0)].

The federal NPDES permit requirement for salt water ballast exchange means that ballast water discharges to fresh water will contain large concentrations of dissolved solids; these solids have the potential to be toxic to fresh water aquatic life, and discharges must meet the narrative toxicity standard.

6.21.3 Biocide Limits and Experimental Ballast Water Treatment

The discharge limits for residual chlorine, peroxyacetic acid and hydrogen peroxide do not meet Ohio WQS for continuous discharges. The federal NPDES permit's total residual chlorine discharge standard is 100 µg/l for discharges from ballast water treatment systems. This limit meets Ohio WQS for short-term intermittent discharges, but does not meet WQS for continuous discharges.

Ohio has used its authority to establish site-specific WQS to establish a separate inside-mixing-zone maximum criterion for short-term exposures to chlorine. This criterion for is 200 µg/l; the otherwise applicable criterion is 38 µg/l. [OAC 3745-1-35 and -36].

Ohio EPA has developed water quality criteria applicable to bromine and combinations of bromine and chlorine. These criteria are based on data submitted by the Chemical Manufacturers Association to U.S. EPA Region V that shows bromine being approximately four times as toxic as chlorine. The water quality criteria for bromine are therefore set at1/4 of the chlorine standard.

Ohio EPA has also developed water quality criteria for peracetic acid using the criteria calculation rule OAC 3745-1-36. Similar procedures have been used by Michigan to develop water quality criteria for hydrogen peroxide and ozone (Michigan DEQ Rule 57).

Discharges of other biocides must meet the narrative water quality standard for toxicity noted above. [OAC 3745-1-04(0)].

Specific Conditions

6.21.4 Ballast Water Controls

Given the number of invasive species already in the Great Lakes, the number of recent introductions, and the likelihood of increased ship traffic, the existing program of ballast water control is not effective in preventing the introduction of invasive non-native organisms, and therefore does not meet Ohio's narrative WQS. An integrated system of ballast water treatment and management controls would reduce the number of live organisms in ballast water, and is the most effective approach to meeting the nuisance WQS. [OAC 3745-1-04(C)].

The draft VGP proposes treatment limits and practices to reduce the number of organisms discharged into U.S. waters. Ohio EPA believes that these controls are "practical and possible" means of controlling potentially invasive species, and is incorporating those requirements into this certification. These controls include the International Maritime Organization (IMO) treatment standards and ballast water management techniques in the draft permit.

Discharges must meet the IMO treatment standards in the VGP or 33 CFR 151.1511, whichever is more restrictive, according to the schedule in the VGP or 33 CFR 151.1512, whichever compliance date comes first.

Treatment systems to reduce the number of live organisms discharged in ballast water exist and are continuing to be developed. These treatment systems are intended to kill and/or filter all organisms from ballast water so that they are not discharged. Several of the treatment systems being designed to meet the discharge standards of the International Maritime Organization (IMO) can remove a large percentage, if not all, organisms. Ohio EPA is certifying IMO standards because they are the most widely accepted and tested standards in the world. These treatment systems shall be operated to maximize the destruction and/or removal of organisms in the ballast water, with the object of discharging no viable organisms.

The VGP contains additional management controls on ballast water discharges that can reduce the risk of organisms discharged in ballast water. These controls are currently in-use by many ships, and are therefore reasonable conditions. As they are capable of reducing the risk of nuisance organisms discharged, these conditions are required to meet OAC 3745-1-04(C):

Vessels that operate outside the U.S. Exclusive Economic Zone (EEZ) and more than 200 nautical miles from shore, and then enter the Great Lakes via the St. Lawrence Seaway System must conduct salt water flushing of ballast tanks. This condition applies both before and after treatment system deadlines in the VGP;

Vessels are prohibited from discharging ballast water sediment in Ohio waters.

Ohio EPA believes that the IMO certification combined with ballast water flushing and exchange is sufficient demonstration that these treatment standards are "practical and possible" methods for meeting ballast water treatment standards for ocean-going ships. U.S. EPA's fact sheet demonstrates that more restrictive treatment standards cannot be reliably attained or measured at this time.

Ohio EPA also believes that there are reasons to treat existing vessels that operate exclusively within the Great Lakes differently than those that operate outside the Lakes. The effluent flows of ballast water are larger than ocean-going vessels, are discharged more rapidly that the ballast water of ocean-going vessels, and space for treatment equipment is limited on existing lake vessels. These factors affect the practicability of treatment. Ohio EPA believes that IMO treatment standards are not "practical and possible" at this time for existing vessels operating exclusively within the Great Lakes, as defined in the VGP.

If the federal government adopts treatment standards more stringent than IMO, then those standards shall replace the above treatment standards for new treatment systems installed after the date those federal standards go into effect.

The Director will evaluate treatment standards equivalent to IMO or more restrictive standards for all vessel classes covered by the federal general permit (including both ocean-going vessels and vessels that operate only in the Great Lakes) when he issues the next certification on this permit. The decision to require IMO or more restrictive treatment standards will be based on treatment system availability and costs, and other considerations required by law.

6.21.5 Salt Water Discharges

It is likely that discharges of ballasted sea water will not meet the toxicity narrative water quality standard if discharged in the relatively shallow water of Ohio's Lake Erie ports, due to the dissolved solids levels in sea water. Discharges in the open waters of the Lake minimize the risk of toxicity, and will allow the standard to be met. In order to prevent toxicity to ambient organisms or rapidly lethal conditions, discharges of ballasted sea water within the breakwalls of Ohio's Lake Erie Ports is prohibited.

6.21.6 Ballast Treatment Chemical-Specific Discharge Limits

For ballast water treatment systems using chlorine, discharges must meet a maximum chlorine limit of 38 micrograms per liter (µg/l) if the discharge lasts for more than 160 minutes/day; the limit is 200 µg/l if the discharge is 160 minutes/day or less. [OAC 3745-1-07 (inside-mixing-zone maximum water quality standards, definition and applicability), OAC 3745-1-35, (site-specific WQS, exposure time-based criteria), OAC 3745-1-36 (aquatic life criteria calculation procedures, equivalency of IMZM with FAV criteria), OAC 3745-2-05(8)(3) (maximum limits for discharges to lakes)]. These standards apply to all ballast water treatments - both experimental and those treatments installed to meet IMO standards.

6.21.7 Ballast Treatment- Other Biocides

Biocides other than the biocides listed in c. above used in ballast water treatment must meet Ohio's narrative toxicity water quality standard. To meet the 'no rapidly lethal conditions' narrative, discharges of all biocides must meet inside-mixing-zone water quality standards

(Final Acute Values) as determined by the OAC Rule 3745-1-36 [Great Lakes Initiative rule procedures]. The discharge of organic quaternary ammonium compounds is prohibited.

6.22 Rhode Island

Rhode Island certified the VGP with the following additional permit conditions:

6.22.1 The operator of any vessel covered under the draft VGP whose voyage originates outside the exclusive economic zone (EEZ) and enters Rhode Island waters shall conduct ballast water exchange or flushing beyond the EEZ, at least 200 nautical miles from any shore, and in water at least 2,000 meters in depth. These requirements remain in effect *regardless of whether the vessel is equipped with a ballast water treatment system.* No vessel subject to this condition which operates a treatment system in accordance with Section 2.2.3.5 of the draft VGP shall bring ballast water into Rhode Island waters unless its ballast tanks have been exchanged or flushed at a location at least 200 nautical miles from shore and unless any water reintroduced into the vessel's tanks is ocean water from that same general location which has been treated by the vessel's treatment system prior to entry into Rhode Island waters.

This condition adds no new requirement or deadline for ballast water treatment. The requirements and deadlines for ballast water treatment are those specified in the draft VGP, Section 2.2.3.5 and Table 6. However, in addition to meeting the requirements in Section 2.2.3.5 and Table 6, vessel operators will need to continue performing exchange or flushing. This condition does not apply to vessels that either have no ballast tanks or that carry only permanent ballast water, all of which is contained in sealed tanks that are not subject to discharge, or that carry only potable water that meets the requirements of section 2.2.3.5.1.3 of the draft VGP in their ballast tanks.

This condition does not apply if the master of the vessel determines that compliance with this condition would threaten the safety or stability of the vessel, its crew, or its passengers because of adverse weather, equipment failure, or any other relevant condition. If a vessel is unable to conduct ballast water exchange or flushing due to serious safety concerns as specified above, the operator of any vessel with ballast on board shall take reasonable measures to avoid discharge of organisms in ballast water and shall inform the Department in writing of the measures taken.

The above condition combines water quality protection with operational flexibility. They provide flexibility to the industry by allowing further development of treatment technology and testing protocols. While not a mandatory requirement, the Department urges vessel permittees to voluntarily install currently available technologies that go beyond the IMO D-2 standard (e.g., systems that have demonstrated the ability to meet and exceed a 10X IMO level of treatment) as a means of gaining useful experience while contributing to the advancement of treatment technology.

6.22.2 The discharge of bilge water from any vessel covered under the draft VGP whose voyage originates outside the exclusive economic zone (EEZ) shall discharge all existing bilge water prior to entering Rhode Island waters. This condition does not apply to the discharge of bilge water if the master of the vessel determines that compliance with this condition would threaten the safety or stability of the vessel, its crew, or its passengers because of adverse weather, equipment failure, or any other relevant conditions. If the operator of the vessel (originating outside of the EEZ) is unable to discharge their bilge water prior to entering

Rhode Island waters, the operator is prohibited from discharging bilge water within Rhode Island waters.

The Department finds that this condition is necessary to protect the ecological integrity of RI waters from the discharge of invasive species within bilge water. The BMP's required within the draft VGP include prohibitions on releases of certain chemicals, including dispersants, detergents, emulsifiers, chemicals, and other substances; however it has been demonstrated[16] that bilge water is a significant vector for transporting invasive species. The Department has added this condition but isolated it to those vessels that originate outside of the EEZ since the prohibition is intended to restrict the discharge of invasive species to Rhode Island waters.

6.22.3 In addition to meeting the draft VGP monitoring requirements in Section 2.2.3.5.1.1.4, all vessels covered under the VGP and operating in Rhode Island waters, after a Ballast Water Treatment System is installed, must sample and analyze the ballast water discharge at least once a year (provided appropriate facilities are available), using the California shipboard sampling protocol, or a compliance monitoring protocol developed by the USCG, whichever is most advanced and available. The monitoring results shall be submitted to EPA and the Department on an annual basis, consistent with the mechanisms used in the VGP for all other submissions. Coordination of sampling/monitoring shall be directed to Kevin Cute of the RI Coastal Resources Management Council. Such live organism monitoring shall include the collection of representative discharge samples and the testing (counting) of live organisms in such samples by qualified personnel in accordance with standard and/or best available sampling and analytical methods. In addition to EPA submissions, the applicant must submit all sampling results to the Office of Water Resources, RI Department of Environmental Management.

6.22.4 Graywater discharges to nutrient and pathogen impaired waters from vessels subject to the VGP covered under this permit shall be managed in accordance with Section 2.2.15 of the VGP. All requirements applied to special waters listed in Appendix G of the VGP apply to Rhode Island waters that are impaired for nutrients and/or pathogens. A specific list identifying impaired waters within the State of Rhode Island is available at http://www.dem.ri.gov/pubs/305b/index.htm. This website contains the most recent Integrated Water Quality Monitoring and Assessment Report which shall be used to identify the impaired waterbodies. Specifically, appendixes Category 4A (Impaired but TMDL has been completed) and Category 5 (303{d} listed and impaired). This is necessary to comply with Rule 9b (no further degradation of low quality waters) of the State Water Quality Regulations. This condition shall also support the "No Discharge Area designation of state waters pursuant to Section 312-(f)(3) of Public Law (Federal Water Pollution Control Act) and 92-500 as amended.

6.23 Vermont

Vermont certified the VGP with the following additional permit conditions:

6.23.1 The Department certifies there is a reasonable assurance that discharges from vessels covered by EPA's VGP and sVGP will comply with the applicable provisions of 33 U.S.C §§ 1311,

[16] *Muir, Adrianna A. PhD,* California Research bureau, Managing Coastal Aquatic Invasive Species in California: Existing Policies and Policy Gaps: Requested by Senate Natural Resources and Water Committee; January 2011. CRB 11-001.

1312, 1313, 1316, 1317 and 1341 (CWA §§ 301, 302, 303, 306, 307 and 401), and that permittees and their activities will not contravene applicable limitations, standards and other appropriate requirements of State law, provided the following conditions set forth in this Certification are met.

6.23.2 The operator of any vessel covered under the VGP or sVGP who by accident, negligence, or otherwise causes the discharge, spillage, uncontrolled loss, seepage or filtration of oil or petroleum or chemical liquids or solid, liquid or gaseous products, or hazardous wastes which poses a potential threat to human health or the environment, shall immediately report to the Department by telephone at (802) 828-1535.

6.23.3 All work and activities conducted by the permittee in accordance with the VGP or sVGP shall be consistent with the terms and conditions of this certification. Any regulated activities carried out in a manner inconsistent with the conditions set forth herein or inconsistent with the requirements specified in the VGP or sVGP, which are not more stringently conditioned under this certification, constitute a violation of this certification pursuant to 40 CFR §124.53(e)(l), and all instances of non-compliance with this certification must be immediately reported to the Department at (802) 828-1535.

6.23.4 The discharge of wastewaters from pressure washing the bottom of vessels and any point source or non-point source pollution from spillage, sanding, sand blasting, or scraping vessels into Vermont waters from any vessel covered under the VGP or sVGP is prohibited.

6.23.5 Any discharge from any vessel covered under the VGP or sVGP that results in the further degradation of the chemical, physical, or biological integrity of Vermont waters listed on Vermont's Section 303(d) list is prohibited.

6.23.6 This certification is only valid for those activities that fully comply with all terms and conditions of EPA's final VGP and sVGP and all other state laws applicable to such discharges. The Department reserves the authority to enforce any violation of the Vermont Water Quality Standards that results from any discharge and to enforce all other state laws applicable to such discharges.

6.23.7 Discharges that are not eligible for coverage under the VGP and sVGP and that require an individual permit must obtain an individual water quality certification or waiver from the Department.

6.23.8 The issuance of this certification does not authorize violation of any federal, state or local laws or regulations, nor does it obviate the necessity of obtaining such permits, including any Department permits or approvals, or permits or approvals from other governmental entities.

6.24 Washington

Washington certified the VGP with the following additional permit conditions:

6.24.1 Conditions Related to Washington State Geography

The conditions and requirements of the Vessel General Permit (VGP) shall extend to all surface waters of the state. (Authority- Article XXIV of the Washington State Constitution and 43 USC§ 1312.)

6.24.2 Conditions Related to State Law

1. Except for discharges of firefighting foam conducted in accordance with VGP Part 2.2.5, discharges to state waters are prohibited which would cause a sheen, film, sludge, foam, turbidity, color, or odor. (Authority RCW 90.48.020, RCW 90.48.080, and WAC 173-201A-260(2)(b)).

2. Based upon experience in Washington State with vessel discharges violating RCW 90.48.080 and requirements that the Department of Ecology has routinely imposed since before issuance of the original VGP in 2008, the following instructions for vessels are conditions of the VGP:

   a. In order to minimize the generation and release of wastewater, vessel operators shall use best management practices which include mechanical methods to thoroughly clean bulk and break bulk cargo holds. Unless flammable or explosive vapor concentrations make the risk too great, hold cleanliness shall be documented photographically before washing with water. Solid wastes from hold cleaning must be transferred onshore for disposal in an approved landfill. This includes agricultural products such as grains.
   b. The discharge of wash down water from holds containing metal ores, prilled coal tar (pencil pitch), coal, and petroleum coke is prohibited.
   c. The discharge of tank cleaning and wash down water from petroleum and chemical tank ships is prohibited.
   d. Discharge of wash water from holds which contained concrete, sand, gravel and other similar inorganic products shall be allowed as long as it is managed to prevent violation of any provision of state law or WQS, especially creating a visible increase in turbidity or raising receiving water pH more than 0.5 units or above 8.5.
   e. The discharge of fish hold effluent while at a dock, pier, or mooring is prohibited.

3. No vessel meeting the VGP definition of a large or medium cruise ship may discharge graywater within 0.5 miles of a shellfish bed that is recreationally harvested or approved for commercial harvest. (Authority – RCW 69.30.130).

4. The release to state waters of a harmful animal or plant species meets the state's definition of pollution in RCW 90.48.020 and would be a violation of RCW 90.48.080, WAC 173-201A-260(2)(a), and the sVGP. VGP Part 3 requires corrective actions when a problem such as significant biofouling is known. VGP Part 2.2.23 requires vessel operators to minimize the transport of attached living organisms from overseas or between Captain of the Port (COTP) zones. Regular cleaning of hulls and niche areas is the only routinely available nontoxic method for minimizing transport of attached living organisms.

   The release of nonnative aquatic animal species from in-water cleaning of vessel hulls, niche areas, and running gear without approval from the Washington Department of Fish and Wildlife (WDFW) is forbidden by RCW 77.15.253. The state VGP/sVGP webpage described in Condition 6.24.5. contains contact information and instructions for seeking WDFW approval.

Allowing biofouling to accumulate and mature without hull cleaning can also be interpreted as an illegal release. Operators of vessels with hulls which have not been cleaned for months or that are involved in extended unmanned periods or other lay- ups as described in VGP Part 4.1.1.2 should conduct a hull inspection. A hull inspection under these circumstances is especially needed before leaving on a voyage to Washington State waters or a voyage between COTP zones within the state. In accordance with VGP Part 3, hull cleaning must be conducted when needed.

5. Vessel operators must meet all applicable ballast water requirements in place as of July 2, 2012 in Chapter 77.120 RCW and Chapter 220-150 WAC.

6. Any discharge from emergency treatment of ballast water must meet the requirements in Part 2.2.3.5.1.1.5.1 of the VGP.

6.24.3 Notification Condition

The following incidents must be reported as soon as possible but no more than 24 hours after first becoming aware of their occurrence to the Washington State Department of Health (WDOH) at 360-236-3330 or 360-789-8962 (after hours). Information provided should include the discharge location (latitude and longitude), discharge volume, discharge type, date and time, and duration of discharge. WDOH need not be notified of any incident not occurring in state waters. (Authority - RCW 69.30.130.)

1. A discharge of graywater in violation of VGP Parts 2.2.15, 5.1.1, or 5.2.1.
2. Any vessel discharge containing sewage if the discharge exceeds the bacterial or suspended solids standards in 40 CFR § 140.3(d).
3. Any upset in a disinfection system.

6.24.4 State Inspection Authority

1. In accordance with RCW 90.48.090, Department of Ecology inspectors shall have access to the ship at reasonable times and locations for the purpose of sampling discharges covered by the VGP, interviewing crew members, and inspecting log books and other relevant records.
2. In accordance with WAC 220-150-033, WDFW inspectors shall have access at any time to any vessel carrying or capable of carrying ballast water in order to provide technical assistance, assess compliance, and enforce the requirements of Chapter 220-150 WAC.

6.24.5 State VGP/sVGP Webpage

In order to assist the public and shipping industry with sVGP requirements and related information, the Department of Ecology maintains a VGP/sVGP webpage at: http://www.ecy.wa.gov/programs/wq/permits/VGP/. The webpage describes the legal history of the vessel permits and provides links to important state and federal documents. The webpage has guidance for graywater discharges, oily water separator discharges, and in-water load line painting. Hull cleaning guidance will be developed and added. Information will be added on no discharge zones when they are granted. Guidance on pumpout facilities will be included.

6.25 Wisconsin

Wisconsin certified the VGP with the following additional permit conditions:

General Conditions:

6.25.1 The permittee shall allow WDNR reasonable entry onto the vessel for inspection, access to records, and collection of a discharge sample for determining compliance with the water quality certification and applicable laws [s. NR 205.07(1)(d), Wis. Adm. Code].

6.25.2 Activities not eligible for authorization under this state water quality certification include:

a) Fills or deposition of material in navigable waters (s. 30.12, Wis. Stats.).

b) Activities likely to jeopardize the continued existence of a state designated threatened or endangered species or a species proposed for such designation, or which is likely to destroy or adversely modify the habitat of such species [s. 29.604, Wis. Stats.; s. NR 1.015(l)(a), Wis. Adm. Code].

c) Activities that would result, overall, in adverse impacts to fishery spawning habitat or adversely affect avifauna breeding areas or substantially disrupt the movement of those species which normally migrate from open water to upland or vice versa (i.e., amphibians, reptiles and mammals) [s. NR 102.01(2), Wis. Adm. Code].

d) Activities detrimental to the public interest in waters of the state [s. NR 102.01(2), Wis. Adm. Code].

Specific Conditions

6.25.3 Oceangoing vessels eligible for coverage under the EPA VGP that enter the Great Lakes - St. Lawrence Seaway system and are transiting from beyond the 200- nautical-mile Exclusive Economic Zone (EEZ) shall perform open ocean ballast water exchange or saltwater flushing before entering the Great Lakes - St. Lawrence Seaway system in order to ensure water quality standards are met that protect the general public interest (s. NR 102.01(2), Wis. Adm. Code; s. 4.1.2, WPDES Permit No. WI-0063835-01-1).

6.25.4 Vessels covered by the EPA VGP shall comply with the ballast water discharge requirements in pars. (a) through (g) to meet water quality standards for protecting the general public interest (s. NR 102.01(2), Wis. Adm. Code).

a) Vessels must obtain any permits required by the State of Wisconsin for vessel discharges (s. 283.35(1m), Wis. Stats.). WDNR's ballast water discharge general permit WI-0063835-01-1 requires vessels meeting the permit's applicability criteria to comply with the biological treatment performance standards shown in Table 6.24.1 and implementation schedule in pars. (b) through (d). Any treatment system installed to comply with these performance standards shall be operated to maximize destruction or removal of organisms in ballast water, with the objective of discharging no viable organisms (s. 5.2, WPDES Permit No. WI-00063835-01-1).

Table 6.24.1

Parameter	Limit and Units	Limit Type	Sample Type
Organisms > 50 µm in minimum dimension	< 10 viable organisms per m^3	Daily Average	Composite
Organisms 10 - 50 µm in minimum dimension	< 10 viable organisms per ml	Daily Average	Composite
Escherichia coli	< 250 cfu per 100 ml	Daily Average	Composite
Intestinal enterococci	< 250 cfu per 100 ml	Daily Average	Composite

b) For oceangoing vessels constructed prior to December 1, 2013, treatment systems shall be installed and operational to meet the performance standards for organisms in Table 6.24.1 by the date provided in the EPA VGP.

c) For oceangoing vessels constructed on or after December 1, 2013, treatment systems shall be installed and operational to meet the performance standards for organisms in Table 6.24.1 prior to commencement of vessel operation in Wisconsin waters by the date provided in the EPA VGP.

d) In addition to the requirements in pars. (b) and (c), if ballast water treatment systems are approved and commercially available and compatible for a specific vessel, the vessel owner will make reasonable efforts to install a treatment system at the earliest practicable date.

e) Vessels that operate exclusively within the Great Lakes, and which meet the EPA VGP applicability requirements, will be addressed in Wisconsin's next ballast water discharge general permit. The requirements of that permit, to be issued in 2015, must be met [s. 283.35(lm)(e), Wis. Stats.].

f) Discharges of ballast water from vessels employing ballast water treatment systems (BWTS) using chlorine must meet a daily maximum total residual oxidants limit, measured as total residual chlorine, of 38 µg/L (chs. NR 105 and 106, Wis. Adm. Code).

g) Discharges of ballast water from vessels containing seawater in other than insignificant residual amounts that remain in tanks and that cannot be pumped out or drained (no ballast on board) is prohibited unless it can be demonstrated that the discharge will comply with Wisconsin chloride limits (Subchapter VII of ch. NR 106, Wis. Adm. Code).

h) Discharges of graywater or sewage by a cruise ship into Lake Michigan, a No Discharge Zone, are subject to penalties [s. 29.601(3), Wis. Stats.].

6.25.5 WDNR may require emergency treatment as part of a temporary compliance plan or temporary alternative strategy for vessels with unexchanged or untreated ballast water discharge of high-risk ballast water [s. NR 102.01(2), Wis. Adm. Code].

a) High-risk ballast water may not be discharged into waters of the state without WDNR review and authorization. WDNR will determine whether ballast water proposed for discharge represents a high-risk for introduction of nonindigenous species and whether feasible management alternatives are available to minimize that risk and protect waters of the state.

b) Vessel owners or operators with unexchanged or untreated ballast must submit a request, providing sufficient additional information for WDNR to evaluate the request and determine whether an emergency ballast water management alternative is warranted.

c) A vessel owner or operator shall not discharge untreated or unexchanged ballast water without WDNR authorization after the compliance dates have gone into effect, except in the following cases:

   i. Where discharging is necessary to prevent jeopardy to the vessel, crew or passengers, or
   ii. For discharges from tugs or unmanned barges.

d) WDNR may identify high-risk ballast water cases using factors including but not limited to the following:

   i. A nonindigenous species profile of source waters;
   ii. The volume and frequency of exchanged ballast water discharged;
   iii. Design limitations in vessels that prevent effective ballast exchanges;
   iv. Vessel owner or vessel operator compliance history; or
   v. Frequency of vessel claims for safety exemption.

e) WDNR, coordinating with the U.S. Coast Guard (USCG) and the States of Illinois, Iowa, Michigan and Minnesota as needed may identify alternative locations for the discharge of unexchanged or untreated ballast water.

f) Nothing in this section relieves the vessel owner or operator of the responsibility for ensuring the vessel's safety and stability or the safety of the crew and passengers.

g) As an alternative to discharging high-risk ballast water, WDNR may authorize the use of BWTS identified as promising technology by EPA, USCG, neighboring states or a US ballast water testing research facility. US ballast water testing research facilities include, but may not be limited to the Golden Bear, Great Ships Initiative and Maritime Environmental Resource Center.

6.25.6 BWTS used in Wisconsin waters must be specifically tested for use in freshwater (s. 4.1.2, WPDES Permit No. WI-0063835-01-1).

6.25.7 All instances of non-compliance with this certification must be reported to WDNR immediately [s. NR 205.07(1)(s), Wis. Adm. Code].

6.25.8 Proper operation and maintenance of treatment facilities, as required by s. NR 205.070), Wis. Adm. Code, shall include routine visual inspections of the BWTS, to be conducted at least on a monthly basis.

Appendix A– Definitions

The following definitions apply to this permit. Terms not defined in this Appendix have the meaning given by 40 CFR §122.2. When a defined term appears in a definition, the defined term is placed in quotation marks as an aid to readers.

"Active Substance" means a substance or organism, including a virus or a fungus, that has a general or specific action on or against harmful aquatic organisms and pathogens. *[source: BW Treaty Reg A-1(7)]*

"Alternative Management System" means the meaning given to ballast water treatment systems given by the U.S. Coast Guard under 33 CFR 151.2026.

"Appropriate Regional Office" means the regional office listed in Appendix B of the Permit responsible for the waters where the vessel spends the most time or is based in a home port.

"Aqueous Film-Forming Foam" means the firefighting foam and seawater mixture discharged during training, testing, or maintenance operations. *[source: 40 C.F.R 1700.4]*

"Ballast Tank" means any tank or hold on a vessel used for carrying "ballast water," whether or not the tank or hold was designed for that purpose *[source: 33 CFR §151.2025]*

"Ballast Water Exchange" see "Exchange."

"Ballast Water" means any water and suspended matter taken on board a vessel to control or maintain, trim, draught, stability, or stresses of the vessel, regardless of how it is carried. *[source: 33 C.F.R 151.1504]*

"Ballast Water Capacity" means the total volumetric capacity of any tanks, spaces, or compartments for carrying, loading, or discharging "ballast water," including any multi-use tanks, space or compartment designed to allow carriage of "ballast water."

"Bilgewater" means the wastewater from a variety of sources that accumulates in the lowest part of the vessel (the bilge).

"Bioaccumulative" means the opposite of "Not Bioaccumulative".

"Biocide" means a substance or organism, including a virus or a fungus, which is introduced or produced to kill or eliminate organisms to prevent biofouling, to prevent the transfer of invasive species, or to eliminate organisms as part of the ballast water treatment process.

"Biodegradable" means the following for purposes of the VGP:

- Regarding environmentally acceptable lubricants and greases, biodegradable means lubricant formulations that contain at least 90% (w/w (weight in weight concentration)) or grease formulations that contain at least 75% (w/w) of a constituent substance or constituent substances (only stated substances present above 0.10% shall be assessed) that each demonstrate either the removal of at least 70 percent of dissolved organic carbon, production of at least 60 percent of the theoretical carbon dioxide, or consumption of at least 60 percent of the theoretical oxygen demand within 28 days. Acceptable test methods include: Organization for Economic Co-operation and Development Test Guidelines 301 A-F, 306, and 310, ASTM 5864, ASTM D-7373, OCSPP Harmonized Guideline 835.3110, and International Organization for Standardization 14593:1999. For lubricant formulations, the 10% (w/w) of the formulation that need not meet the above biodegradability requirements, up to 5% (w/w) may be nonbiodegradable (but not bioaccumulative) while the remainder must be inherently biodegradable. For grease formulations, the 25% (w/w) of the formulation that need not meet the above biodegradability requirement, the constituent substances may be either inherently biodegradable or non-biodegradable, but may not be bioaccumulative. Acceptable test methods to demonstrate inherent biodegradability include: OECD Test Guidelines 302C (>70% biodegradation after 28 days) or OECD Test Guidelines 301 A-F (>20% but <60% biodegradation after 28 days).

- Regarding cleaning products, biodegradable means products that demonstrate either the removal of at least 70 percent of dissolved organic carbon, production of at least 60 percent of the theoretical carbon dioxide, or consumption of at least 60 percent of the theoretical oxygen demand within 28 days. Acceptable test methods include: Organization for Economic Co-operation and Development Test Guidelines 301 A-F, 306, and 310, and International Organization for Standardization 14593:1999.

- Regarding biocidal substances, biodegradable means a compound or mixture that yields 60 percent of theoretical maximum carbon dioxide and demonstrate a removal of at least 70 percent of dissolved organic carbon within 28 days as described in EPA 712-C-98-075 (OPPTS 835.3100 Aerobic Aquatic Biodegradation).

"Boat Engine Wet Exhaust" means the seawater that is mixed and discharged with small boat propulsion engine exhaust to cool the exhaust and quiet the engine. *[source: 40 C.F.R 1700.4]*

"Captain of the Port" (COTP) means the Coast Guard officer designated as the COTP, or a person designated by that officer, for the COTP zone covering the U.S. port of destination. These COTP zones are listed in 33 CFR Part 3. *[source: 33 CFR §151.2025]*

"Chain Locker Effluent" means the accumulated precipitation and seawater that is emptied from the compartment used to store the vessel's anchor chain. *[source: 40 CFR §1700.4]*

"Coastal Exchange Zone" means an area greater than 50 nm from shore and greater than 200 meters in depth.

"Commercial Fishing Vessel" means any vessel which is documented under the laws of the United States or, if under five net tons, registered under the laws of any state, and used for commercial fishing or activities directly related to commercial fishing. *(source: modified from 50 CFR §296.2)*

"Commercial Vessel" means any "vessel" other than a "recreational vessel" or a vessel of the U.S. armed forces.

“Constructed’ means a state of construction of a vessel at which—

- “the keel is laid;
- “construction identifiable with the specific vessel begins;
- “ assembly of the vessel has begun comprising at least 50 tons or 1 percent of the estimated mass of all structural material of the vessel, whichever is less; or
- “ the vessel undergoes a major conversion.” [patterned after the International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004, regulation A-1(4)]

"Control Measure" means any BMP or other method (including effluent limitations) used to prevent or reduce the discharge of pollutants to waters of the United States.

“Controllable Pitch Propeller Hydraulic Fluid” means the hydraulic fluid that discharges into the surrounding seawater from propeller seals as part of normal operation, and the hydraulic fluid released during routine maintenance of the propellers. *[source: 40 CFR §1700.4]*

“Cruise Ship” means a passenger ship used commercially for pleasure cruises that provides overnight accommodations to passengers.

“Darkness” means sunset to sunrise.

“Deck” means a horizontal surface or part thereof serving as a floor or structural support over the upper section of the hull and which is exposed to weather and sea such as freeboard and superstructure decks from which runoff may originate.

“Deck Runoff” means the precipitation, washdowns, and seawater falling on the weather deck of a vessel and discharged overboard through deck openings. *[source: 40 CFR §1700.4]*

“Delivered” means the date of the owner’s/operator’s formal acceptance of the ship from the builder or another seller or the point in time when custody or ownership of the vessel officially transfers from the shipbuilder or other seller to the owner/operator.

“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.

"Discharge Incidental to the Normal Operation of a Vessel" means those discharges that were excluded from the NPDES permitting program by operation of 40 CFR §122.3(a) as in effect on September 29, 2008.

"Distillation and Reverse Osmosis Brine" means the concentrated seawater (brine) produced as a by-product of the processes used to generate freshwater from seawater. *[source: 40 CFR §1700.4]*

"Drydocking" or "next drydocking" for purposes of the VGP, means the next scheduled drydocking, consistent with the requirements of 46 CFR 31.10-21 (typically, at least every five years or sooner). In the context of ballast water implementation schedule, it means hauling out of a vessel or placing a vessel in a drydock or slipway for an examination of all accessible parts of the vessel's underwater body and all through-hull fittings and does not include emergency drydocking and emergency hull repairs.

"Elevator Pit Effluent" means the liquid that accumulates in, and is discharged from, the sumps of elevator wells on vessels. *[source: 40 CFR §1700.4]*

"Environmentally Acceptable Lubricants" means lubricants that are "biodegradable" and "minimally-toxic," and are "not bioaccumulative" as defined in this permit. For purposes of the VGP, products meeting the permit's definitions of being an "Environmentally Acceptable Lubricant" include those labeled by the following labeling programs: Blue Angel, European Ecolabel, Nordic Swan, the Swedish Standards SS 155434 and 155470, Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR) requirements, and EPA's Design for the Environment (DfE).

"ETV Protocol" means EPA's final protocol for verification of ballast water treatment systems published in September 2010 and subsequent revisions.

"Exchange" means to replace the water in a ballast tank using one of the following methods:

- "Empty/refill exchange" means to pump out the "ballast water" taken on in ports, estuarine, or territorial waters until the tank is empty, then refilling it with water from the "mid-ocean" or "coastal exchange zone" (as applicable); masters/operators should pump out as close to 100 percent of the "ballast water" as is safe to do so. . *[modified from: 33 CFR §151.2025]*
- "Flow through exchange" means to flush out "ballast water" by pumping in water from the "mid-ocean" or "coastal exchange zone" (as applicable) into the bottom of the tank and continuously overflowing the tank from the top until three full volumes of water has been changed to minimize the number of original organisms remaining in the tank.

"Exclusive Economic Zone" (EEZ) means the area established by Presidential Proclamation Number 5030, dated March 10, 1983 (*48 FR 10605*) which extends from the base line of the territorial sea of the United States seaward 200 miles, and the equivalent zone of Canada. *[source: 33 CFR §151.2025]*

"Ferry" means a vessel having provisions for deck passengers and/or vehicles operating between two points over the most direct water route, operating on a frequent schedule, and offering a public service of a type normally attributed to a bridge or tunnel. *[modified from: 46 CFR §70.10-1]*

"Firemain Systems" means the seawater pumped through the firemain system for firemain testing, maintenance, and training, and to supply water for the operation of certain vessel systems. *[source: 40 CFR §1700.4]*

"Fish Hold" means the area where seafood or seafood products are kept once caught and kept fresh during the remainder of the voyage before being offloaded to shore or another tender vessel. The fish hold is typically a refrigerated seawater holding tank, where the seafood product is kept cool by mechanical refrigeration or ice. It can also include continuous flow systems needed to keep certain organisms such as lobster and crab alive until they are unloaded. Fish hold effluent is the water discharged from fish holds.

"Fouling Organisms" means any aquatic flora and/or fauna which attach to, associate with, and/or grow on or in the vessel.

"Freshwater Layup" means the potable water or freshwater taken from surrounding waters that is discharged from the water cooling system while the vessel is in port, and the cooling system is in lay-up mode (a standby mode where seawater in the system is replaced with potable water for corrosion protection). *[modified from: 40 CFR §1700.5(d)]*

"Gas Turbine Water Wash" means the water released from washing gas turbine components. *[source: 40 CFR §1700.4]*

"Graywater" means galley, bath, and shower water, as well as wastewater from lavatory sinks, laundry, and water fountains. *[modified from 40 CFR §1700.4 but removed shop sinks]*

"Gross Ton" means the size of the vessel as calculated using the formula set by the International Convention on Tonnage Measurement of Ships, 1969. $GT = K * V$ where V = total volume in m^3 and K = a figure from 0.22 up to 0.32, depending on the ship's size (calculated by: $K = 0.2 + 0.02 * \log_{10} V$).

"Hazardous materials" means, for purposes of the VGP, any hazardous material as defined in 49 CFR § 171.8.

"High quality data" see "Devices for which high quality data are available"

"Hull Coating Leachate" means the constituents that leach, dissolve, ablate, or erode from the paint on the hull into the surrounding seawater. *[source: 40 CFR §1700.4]*

"IMO Guidelines" mean the Guidelines for the Control and Management of Ships' Ballast Water to Minimize the Transfer of Harmful Aquatic Organisms and Pathogens (IMO Resolution A.868 (20), adopted November 1997). *[source: 33 CFR §151.2025]*

"In Port" means, for the purposes of this permit, anchored, moored, or otherwise secured while located in waters subject to this permit which are inside the baseline of the U.S. territorial sea.

"Laker" means Existing Bulk Carrier Vessels built before January 1, 2009, that operate exclusively in Lake Ontario, Lake Erie, Lake Huron (including Lake Saint Clair), Lake Michigan, Lake Superior, and the connecting channels (Saint Mary's River, Saint Clair River, Detroit River, Niagara River, and Saint Lawrence River to the Canadian border), including all other bodies of water within the drainage basin of such lakes and connecting channels).

"Large Cruise Ship" means a passenger ship, used commercially for pleasure cruises, that provides overnight accommodations to passengers, and is authorized by the U.S. Coast Guard to carry 500 or more passengers.

"Large Ferry" means a "ferry" that: a) has a capacity greater than or equal to 100 tons of cargo (e.g., for cars, trucks, trains, or other land-based transportation) or b) is authorized by the U.S. Coast Guard to carry 250 or more people.

"Length of Vessel" means the horizontal distance between the foremost part of a vessel's stem to the aftermost part of its stern, excluding fittings and attachments.

"Major Conversion" means a conversion of a vessel, that—

- substantially alters the dimensions or carrying capacity of the vessel;
- changes the type of the vessel; or
- the intent of which, in the opinion of the director, is substantially to prolong its life *[modified from 33 CFR §151.05 with the exception language specific to MARPOL removed].*

"MARPOL 73/78" means the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto. [*[source: modified from 40 CFR §110.1]*

"MARPOL vessel" means a ship subject to Annex I of the International Convention for the Prevention of Pollution from Ships as implemented by the Act to Prevent Pollution from Ships and the oil pollution provisions of U.S. Coast Guard regulations in 33 CFR Part 151, Subpart A.

"Master" means captain, person-in-charge, or other party responsible for operation of the vessel.

"Medium Cruise Ship" means a passenger ship, used commercially for pleasure cruises, that provides overnight accommodations to passengers, and is authorized by the U.S. Coast Guard to carry 100 to 499 passengers.

"Mid-Ocean" means waters greater than 200 nm from any shore.

"Mile" means nautical mile as used in this permit, or 6076.1 feet or 1.852 kilometers.

"Minimally-Toxic" means a substance must pass either OECD 201, 202, and 203 for acute toxicity testing, or OECD 210 and 211 for chronic toxicity testing. For purposes of the VGP, equivalent toxicity data for marine species, including methods ISO/DIS 10253 for algae, ISO TC147/SC5/W62 for crustacean, and OSPAR 2005 for fish, may be substituted for OECD 201, 202, and 203. If a substance is evaluated for the formulation and main constituents, the LC_{50} of fluids must be at least 100 mg/L and the LC_{50} of greases, two-stroke oils, and all other total loss lubricants must be at least 1000 mg/L. If a substance is evaluated for each constituent substance, rather than the complete formulation and main compounds, then constituents comprising less than 20 percent of fluids can have an LC_{50} between 10-100 mg/L or a no observed effect concentration (NOEC) between 1-10 mg/L, constituents comprising less than 5 percent of fluids can have an LC_{50} between 1-10 mg/L or a NOEC between 0.1-1 mg/L, and constituents comprising less than 1 percent of fluids can have an LC_{50} less than 1 mg/L or a NOEC between 0-0.1 mg/L.

"Minimally-Toxic Soaps, Cleaners, and Detergents" means any substance or mixture of substances which has an acute aquatic toxicity value (LE50) corresponding to a concentration greater than 10 ppm and does not produce "byproducts" with an acute aquatic toxicity value (LE50) less than 10 ppm. EPA expects that minimally-toxic soaps, cleaners, and detergents will contain little to no nonylphenols.

"Minimize" means to reduce and/or eliminate to the extent achievable using control measures (including best management practices) that are technologically available and economically practicable and achievable in light of best marine practice.

"Motor Gasoline and Compensating Discharge" means the seawater taken into, and discharged from, motor gasoline tanks to eliminate free space where vapors could accumulate. *[source: 40 C.F.R 1700.4]*

"NANPCA" means the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990. *[source: 33 CFR §151.2025]*

"NBIC" means the National Ballast Water Information Clearinghouse operated by the Coast Guard and the Smithsonian Environmental Research Center as mandated under "NISA". *[source: 33 CFR §151.2025]*

"New Build" means vessels "constructed" after a given date. This permit contains "New Build" dates of December 19, 2008 (See Part 5.2), January 1, 2009 (See Part 2.2.3.5.3.3), December 1, 2013 (See Part 2.2.3.5), and December 19, 2013 (See Parts 2.2.2, 2.2.9, 2.2.15.2)

"Niche Areas," for purposes of Parts 2.2.23, 4.1.3, and 4.1.4, means the areas identified in MEPC.207(62) found at 7.3 of that document. Thos areas include "propeller thrusters and propulsion units, sea chests, rudder stocks and hinges, stabilizer fin apertures, rope guards, stern tube seals, and propeller shafts, cathodic protection anodes, anchor chain and chain lockers, free flood spaces inherent to the ship's design, sea chest and thruster tunnel grates, echo sounders and velocity probes, overboard discharge outlets and sea inlets, and areas prone to anti-fouling coating system damage or grounding. . ." *[source, modified from MEPC.207(62)]*

"NISA" means the National Invasive Species Act of 1996, which reauthorized and amended "NANPCA". *[source: 33 CFR §151.2025]*

"Non-Oily Machinery Wastewater" means the combined wastewater from the operation of distilling plants, water chillers, valve packings, water piping, low- and high-pressure air compressors, propulsion engine jacket coolers, fire pumps, and seawater and potable water pumps. *[modified from: 40 CFR §1700.4]*

"Not Bioaccumulative" means -

- the partition coefficient in the marine environment is log KOW <3 or >7 using test methods OECD 117 and 107,
- molecular mass > 800 Daltons,
- molecular diameter >1.5 nanometer,
- BCF or BAF is <100 L/kg, using OECD 305, OCSPP 850.1710 or OCSPP 850.1730, or a field-measured BAF or
- polymer with MW fraction below 1,000 g/mol is <1%.

"Noxious Liquid Substance" ("NLS") has the same meaning given that term by 33 CFR Part 151, Subpart A.

"Oil" means oil of any kind or in any form, including but not limited to, petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil. *[modified from: 33 CFR §154.105]*

"Oil in Quantities that May be Harmful" means any discharge of oil having the effects identified in 40 CFR 110.3, provided that this term does not include those discharges specified in 40 CFR 110.5(a) – (c).

"Oily Mixture" means a mixture, in any form, with any oil content, including, but not limited to: (1) slops from bilges; (2) slops from oil cargoes (such as cargo tank washings, oily waste, and oily refuse); (3) oil residue; and (4) oily ballast water from cargo or fuel oil tanks. *[source: 33 CFR §151.05]*

"Owner or Operator" and "Owner/Operator" mean the owner or operator of any facility or activity subject to regulation under the NPDES program. For purposes of this permit, an "operator" means a party, including a charterer by demise, who:

- has operational control over vessel activities, including the ability to modify those activities; or

- has day-to-day operational control of those activities that are necessary to ensure compliance with the permit or to direct workers to carry out activities required to comply with the permit.

"Pacific Coastwise Trade" means vessels engaged in coastwise trade along the Pacific Coast of the United States, operating in and between ports in Alaska, California, Oregon, and Washington.

"Pacific Nearshore Voyages" means voyages by any 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, 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 of the West Coast of the continental United States.

"Permittee" means the "Owner or Operator" of a permitted vessel.

"Person" means an individual, association, partnership, corporation, municipality, state or federal agency, or an agent or employee thereof. *[source – 40 CFR §122.2]*

"Phosphate Free" soaps, cleaners, and detergents means these materials which contain, by weight, 0.5 percent or less of phosphates or derivatives of phosphates.

"Photographic Laboratory Drains" means the drains containing laboratory wastewater resulting from processing of photographic film. *[adapted from: 40 CFR §1700.4]*

"Port" see "In Port."

"Port or Place of Departure" means any port or place in which a vessel is anchored or moored. *[source: 33 CFR §151.2025]*

"Port or Place of Destination" means any port or place to which a vessel is bound to anchor or moor. *[source: 33 CFR §151.2025]*

"Recreational Vessel" means any "Vessel" that is manufactured or operated primarily for pleasure or leased, rented, or chartered to another for the pleasure of that person. This term does not include a vessel that is subject to Coast Guard inspection and that is engaged in commercial use or carries paying passengers. *[source: 33 U.S.C. 1362(25)]*

"Saltwater Flushing" means the addition of "Mid-Ocean" (in the case of 2.2.3.7) or "Coastal Exchange Zone" (in Part 2.2.3.8) 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 (ppt) or a salinity concentration equal to the ambient salinity of the location where the uptake of the added water took place.

"Seafood Processing" means the conversion of aquatic animals from a raw to marketable form which involves more than evisceration of fish or other seafood at sea.

"Seawater Cooling Overboard Discharge" means the discharge of seawater from a dedicated system that provides noncontact cooling water for other vessel systems. *[source: 40 CFR §1700.4]*

"Seawater Piping Biofouling Prevention" means the discharge of seawater containing additives used to prevent the growth and attachment of biofouling organisms in dedicated seawater cooling systems on selected vessels. *[source: 40 CFR §1700.4]*

"Sewage" means human body wastes and the wastes from toilets and other receptacles intended to receive or retain body wastes that are discharged from vessels, except that with respect to commercial vessels on the Great Lakes, this term includes galley, bath, and shower water.

"Sonar Dome Discharge" means the leaching of antifoulant materials into the surrounding seawater and the release of seawater or freshwater retained within the sonar dome. *[source: 40 CFR §1700.4]*

"Surface Vessel Bilgewater/Oily Water Separator Effluent" means the wastewater from a variety of sources that accumulates in the lowest part of the vessel (the bilge), and the effluent produced when the wastewater is processed by an oil water separator. *[source: 40 CFR §1700.4]*

"Technical Water" means water that is collected, generated or managed on board for uses other than potable water.

"Territorial sea" has the meaning assigned by section 502(8) of the Federal Water Pollution Control Act (33 USC 1362(8)).

"Treated Bilgewater" means bilgewater treated with an oily water separator and having oil concentrations less than 15 ppm and that does not result in a discharge of oil in quantities that may be harmful, pursuant to 40 CFR Part 110.

"Toxic Materials" means, for purposes of the VGP: any toxic pollutant identified in 40 CFR 401.15.

"United States" means the States, the District of Columbia, the Commonwealth of Puerto Rico, Guam, American Samoa, the Virgin Islands, the Commonwealth of the Northern Mariana Islands, and the Trust Territory of the Pacific Islands. *[modified from CWA section 502(3)]*

"Underwater Ship Husbandry Discharges" means the materials discharged during the inspection, maintenance, cleaning, and repair of hulls or hull appendages performed while the vessel is waterborne. *[modified from: 40 CFR §1700.4]*

"Untreated Bilgewater" means "Bilgewater" that is not treated or "Bilgewater" with a concentration of oil greater than 15 ppm.

"Untreated Graywater" means graywater that is not treated to the standards found in Part 5.1.2.2 of this permit for large and medium cruise ships and the standards found in part 2.2.15.1(ii) for all other vessels.

"Vessel" means every description of watercraft or other artificial contrivance being used as a means of transportation on "Waters Subject to this Permit." *[modified from CWA section 312(a)]*

"Vessels Unable to Voyage More than 1 mile from Shore" or "Vessels Unable to Voyage More than 3 miles from Shore" means vessels operating in waters which do not physically allow them to voyage more than 1 nm or 3 nm (as applicable) from shore (e.g., underway on inland river systems) or vessels which do not possess required certifications from the U.S. Coast Guard to operate more than 1 nm or 3 nm (as applicable) from shore.

"Visible Sheen" means a "silvery" or "metallic" sheen, gloss, or increased reflectivity; visual color; iridescence, or oil slick on the surface. *[Source: 58 FR 12507].*

"Voyage" means, for the purposes of VGP Part 4.1.1 (including its routine visual inspection provisions), that a voyage begins when the vessel departs a dock or other location at which it has loaded or unloaded (in whole or in part) cargo or passengers, and ends after it has tied-up at another dock or location in order to again conduct either of such activities. For example, for a barge on the Mississippi River, such voyage would begin when it departs a location at which it has cargo loaded onto it and end when cargo is unloaded at another location. For the purposes of the inspection provisions, an inspection can be conducted while the vessel is at the dock.

- For vessels such as mobile oil and gas rigs, which are in a mode of transportation only when relocating between drill sites, a voyage for purposes of VGP Part 4.1.1 begins when the rig departs one site and ends when it arrives at the new site to commence operations which are not transportation-oriented, such as drilling.
- For vessels such as harbor tugs, which may be in semi-continuous operation for up to a week within the same harbor and do not carry passengers or cargo, for purposes of VGP Part 4.1.1 a voyage begins when the crew or master takes charge of the vessel and ends when that crew or master are replaced by another crew or master, at which point a new voyage would begin due to the arrival of the new crew or master. For example, if crew changes occur every seven days on a harbor tug, the voyage begins with crew arrival, ends on day seven with departure of that crew, and a new voyage begins on day seven with arrival of the new crew.

"Waters Subject to this Permit" means "waters of the U.S." as defined in as 40 CFR 122.2 and extends to the outer reach of the 3-mile territorial sea as defined in section 502(8) of the CWA, unless otherwise excluded from coverage by Part 6 of the permit.

"Welldeck Discharges" means the water that accumulates from seawater flooding of the docking well (welldeck) of a vessel used to transport, load, and unload amphibious vessels, and from maintenance and freshwater washings of the welldeck and equipment and vessels stored in the welldeck. *[source: 40 CFR §1700.4]*

"You" means the "Owner" or "Operator**"** of a permitted vessel.

Appendix B – EPA Regional Contacts

An updated EPA regional contact list is maintained at www.epa.gov/npdes/vessels

Region 1 – CT, ME, MA, NH, RI, VT, and 10 Tribal Nations
5 Post Office Square - Suite 100
Boston, MA 02109-3912
New England States: (888) 372-7341
Outside New England: (617) 918-1111

Region 2 – NJ, NY, PR, VI, and 7 Tribal Nations
290 Broadway, 24th Floor
New York, NY 10007-1866
Phone: (212) 637-3660

Region 3 – DE, DC, MD, PA, VA, WV
1650 Arch St
Philadelphia, PA 19103
Phone: 215-814-5000
Toll Free w/in Region 3: (800) 438-2474

Region 4 – AL, FL, GA, KY, MS, NC, SC, TN, and 2 Tribes
Atlanta Federal Center
61 Forsyth St SW
Atlanta, GA 30303-8960
Phone: (404) 562-9756
Phone: (404) 562-9304
Toll Free: 1-800-241-1754

Region 5 – IL, IN, MI, MN, OH, WI, and 35 Tribes
Ralph Metcalfe Federal Building
77 W Jackson Blvd
Chicago, IL 60604-3507
Phone: (312) 353-2000

Region 6 – LA, AR, OK, NM, TX, and 65 Tribes
1445 Ross Ave
Dallas, TX 75202-2733
Phone: (214) 665-6444

Region 7 – IA, KS, MO, NE, and 9 Tribes
11201 Renner Boulevard
Lenexa, Kansas 66219
Phone: (913) 551-7003
Toll-Free: 1-800-223-0425

Region 8 - CO, MT, ND, SD, UT, WY, and 27 Tribal Nations
1595 Wynkoop St
Denver, CO 80202-1129
Phone: (303) 312-6312
Toll Free w/in Region 8: (800) 227-8917

Region 9 – AZ, CA, HI, NV, and Pacific Islands and Native Tribes
75 Hawthorne St
San Francisco, CA 94105-3901
Phone: (415) 947-8000
Toll Free: (866) EPA-WEST

Region 10 – AK, ID, OR, WA, and Native Tribes
1200 6th Ave, Suite 900
Seattle, WA 98101-1128
Phone: (206) 553-1200
Toll Free: (800) 424-4EPA

Appendix C – Areas Covered

This permit is effective in Waters of the United States for any state, territory, Indian Country, or the District of Columbia listed as covered under Part 6 of this permit. If states or tribes determine to seek authorization to issue vessel permits pursuant to the CWA, areas covered by this permit could change.

Appendix D – Reserved

Reserved.

Appendix E – Notice of Intent (NOI)

Draft NOI Instructions

Who Must File an NOI Form

Under the provisions of the CWA, as amended (33 USC 1251 et. seq.), federal law prohibits discharges incidental to the normal operation of a vessel unless that discharge is covered under an NPDES Permit. To obtain authorization under this permit, operators must meet the eligibility requirements found in Part 1.2 of the Permit and, if required by Part 1.5.1.1 of the Permit, submit a complete and accurate NOI according to the requirements in Appendix E. NOIs must be signed in accordance with 40 CFR §122.22.

An owner/operator is required to submit an NOI if the vessel meets either of the following two criteria:

- The vessel is greater or equal to 300 gross tons,

Or

- The vessel has the capacity to hold or discharge more than 8 cubic meters (2113 gallons) of Ballast Water.

Owner/Operators Required to Submit NOIs

Owners/operators required to submit an NOI for their vessel must submit an NOI in accordance with deadlines provided in the following table.

Table 1: NOI Submission Deadlines/Discharge Authorization Dates

Category	NOI Deadline	Discharge Authorization Date*
Vessels authorized to discharge under the 2008 Vessel General Permit (VGP)	No later than December 12, 2013 or 7 days prior to discharge into waters subject to this permit, whichever is later	For eNOIs: December 19, 2013 or, if not submitted by December 12, 2013, 7 days after complete NOI processed** by EPA For Paper NOIs: 30 days after complete NOI processed by EPA
New Owner/Operator of Vessel – transfer of ownership and/or operation of a vessel whose discharge is previously authorized under this permit	By date of transfer of ownership and/or operation	Date of transfer or date EPA processes NOI, whichever is later

Table 1: NOI Submission Deadlines/Discharge Authorization Dates

Category	NOI Deadline	Discharge Authorization Date*
New vessels delivered to owner or operator after December 19, 2013	For vessels submitting eNOIs: 7 days prior to discharge into waters subject to this permit For vessels submitting Paper NOIs: At least 30 days prior to discharge into waters subject to this permit	For eNOIs: 7 days after complete NOI processed by EPA For Paper NOIs: 30 days after complete NOI processed by EPA
Existing vessels delivered to owner or operator after December 19, 2013 that were not previously authorized under this permit	For vessels submitting eNOIs: 7 days prior to discharge into waters subject to this permit For vessels submitting Paper NOIs: At least 30 days prior to discharge into waters subject to this permit	For eNOIs: 7 days after complete NOI processed by EPA For Paper NOIs: 30 days after complete NOI processed by EPA

* Based on a review of your NOI or other information, EPA may delay the discharge authorization date for further review, or may deny coverage under this permit and require submission of an application for an individual NPDES permit, as detailed in Part 1.8 of the permit. In these instances, EPA will notify you in writing of the delay or the request for submission of an individual NPDES permit application. If EPA requires an individual permit for an existing vessel previously covered by this general permit, EPA will allow the permittee a reasonable amount of time to obtain individual permit coverage before their general permit coverage terminates.
** NOI processing means that a complete electronic NOI has been submitted and successfully signed and certified by the permittee, or in the case of a paper NOI, that EPA has received your NOI and input the information into its electronic system. Submitting a paper NOI may result in processing delays dependent upon the volume of NOIs received by EPA.

Owner/Operators Not Required to Submit NOIs

An operator of a vessel is not required to submit an NOI pursuant to Part 1.5.1.2 of the permit if the vessel is less than 300 gross tons and does not have the capacity to hold or discharge more than 8 cubic meters (2113 gallons) of ballast water. Owner/operators that are not required to submit an NOI must sign and maintain a copy of the PARI form onboard their vessel.

Where to File NOI Form

All NOIs must be completed and filed using the eNOI system at www.epa.gov/vessels/enoi. Alternatively, if you meet one of the exemptions from electronic reporting found in Part 1.14 of the VGP, you may send your completed NOI to the Notice Processing Center at EPA Headquarters, EPA Vessel Notice Processing Center, Mail Code 4203M, 1200 Pennsylvania Avenue, NW, Washington, DC 20460. If you have questions about whether you need to file an NOI or questions about completing the form, refer to www.epa.gov/vessels/enoi or contact the NOI center at 1-866-352-7755. Updated contact information will be maintained at www.epa.gov/npdes/vessels.

Completing the Form

Section A: Owner/Operator Information

Provide the full legal name of the person, firm, public organization, or other entity that is the owner/operator of the vessel, as well as the name of the certifying official. Include the complete contact information for the owner/operator. The mailing address, city, state/province and country, as well as zip code and phone number are required. The email address is required if the NOI is submitted electronically. The fax number is optional. Please do not use abbreviations for cities, and when using abbreviations for US states, please use only the official postal abbreviations which may be found at https://www.usps.com/send/official-abbreviations.htm.

Section B: Vessel Information

Provide the vessel name, previous VGP tracking number (if applicable), registered identification number (if applicable), vessel International Maritime Organization (IMO) number (if applicable), call sign, and port of registry. You must complete all of these fields if those data are available (failure to submit available information is a permit violation). Provide port of registry by spelling out entire name of location (e.g., New Orleans, Louisiana, United States). Select the type of vessel by checking the appropriate box. Enter the vessel tonnage in gross tons, the length in feet, and the ballast water capacity in gallons or m^3. Enter the year in which the vessel was built, as well as the date of last dry-dock and the date of the next scheduled or anticipated dry-dock. If the vessel is not required to have measurements in gross tons, gross registered tons may be used instead; however, you must indicate that the measurements are in gross registered tons. Indicate whether the vessel currently holds or has ever held an NPDES permit other than the VGP. Include the permit number, dates of permit coverage, and discharges covered. If the vessel is covered under this General Permit and this NOI is being submitted for a transfer of ownership to continue coverage, check the appropriate box, and include the date of transfer. Enter the NAICS code: a listing of NAICS codes can be found at http://www.census.gov/eos/www/naics/.

Section C: General Voyage Information

Enter the vessel home port, or if it does not have a home port, enter the U.S. port it most frequently visits. Provide the name of each US port the vessel may visit during the Permit term. Do not use abbreviations for cities, and when using abbreviations for US states, please use only the official postal abbreviations which may be found at: https://www.usps.com/send/official-abbreviations.htm. This list does not need to be exhaustive, but should be based on ports visited in the past and should be representative of the geographic area in which the vessel travels. Indicate the number of overnight berths for passengers and crew separately for each vessel, as well as maximum passenger and crew capacity typical of normal operation of the vessel. Also, select the appropriate box to indicate if the vessel will travel in ocean waters seaward of the US exclusive economic zone (EEZ) and more than 200 nautical miles from any shore during the period of permit coverage. Indicate whether the vessel engages in nearshore voyages.

Section D: Discharge Information

From the list provided, select each applicable discharge type that your vessel may create. All discharges incidental to the normal operation of a vessel are included in permit coverage; you do not have to select each discharge type for your vessel to receive coverage for all discharges you may have; however, when completing the NOI, vessel owner/operators should list all discharge types they expect from their vessels. Select the appropriate box to indicate whether the vessel ever engages or has the capacity to engage in industrial operations, such as seafood processing, energy exploration, or mining. If the vessel will be using a ballast water treatment system, check the appropriate box and answer the questions related to the discharge of residual biocides. The requirements for vessels using a ballast water treatment system can be found in Part 2.2.3 of the Permit. Indicate whether the vessel currently has any onboard treatment systems for any waste stream listed in the permit, such as an Advanced Wastewater Treatment System (AWTS) used for graywater, an exhaust gas washwater treatment system, or an Oily Water Separator (OWS) used for bilgewater. Describe the treatment system, including what waste stream it treats, the type and design of the system, and treatment capacity. Provide information on the frequency and method of ballast tank sediment disposal and whether the vessel currently has a ballast water management plan. Indicate whether the vessel has an anti-foulant coating applied to the hull, what type of coating, when it was last applied, and briefly describe the vessel hull husbandry practices, including frequency of hull cleaning and method usually used. Indicate if your vessel is required to collect samples for analytical monitoring and for which of the discharges you are required to sample.

Section E: Certification

Carefully read the certification language. For eNOIs, to indicate your acceptance of these terms, check the “accept” box. Checking this box acts as a virtual signature on the NOI and indicates the operators consent to adhere to all the applicable terms of the Permit. By completing and submitting the NOI, the owner/operator certifies that every applicable General Permit requirement will be met. Include the name and title of the person completing the eNOI. The person completing the eNOI will have a box to check for “accept” which will act as virtual signature.

NOI Form

NPDES Form _ _ _ _ - _

EPA United States Environmental Protection Agency
Washington, DC 20460 Form Approved OMB No. 2040-0004

Notice of Intent (NOI) for Discharges Incidental to the Normal Operation of a Vessel under the NPDES Vessel General Permit

Submission of this completed Notice of Intent (NOI) constitutes notice that the entity in Section A intends to be authorized to discharge pollutants to waters of the United States, from the vessel identified in Section B, under EPA's Vessel General Permit (VGP). Submission of the NOI also constitutes notice that the party identified in Section B of this form has read, understands, and meets the eligibility conditions of Part 1 of the VGP; agrees to comply with all applicable terms and conditions of the VGP; and understands that continued authorization under the VGP is contingent on maintaining eligibility for coverage. In order to be granted coverage, all information required on this form must be completed. Please read and make sure you comply with all permit requirements.

A. Vessel Owner/Operator Information

1. Name: ____________________

2a. IRS Employer Information Number: _ _ - _ _ _ _ _ _ _ (if applicable)

2b. Company IMO number ____________________(if applicable)

3. Name of Certifying Official ____________________

4. Mailing Address: a. Street: ____________________

b. City: ____________________ c. State/Province: _ _ d. Zip code: ____________________

e. Country: ____________________

f. Phone (include country code): ____________________g. Fax (Optional): ____________________

h. E-mail: ____________________

B. Vessel Information

1. Vessel Name: ____________________

2. Did your vessel previously have permit coverage under the 2008 VGP? □ Yes □ No

2a. If yes, 2008 VGP Permit Tracking Number(s): ____________________

3a. Registered Number: ____________________(if applicable)

3b. Vessel IMO number: ____________________(if applicable)

4. Vessel Call Sign ____________________

5. Flag State/Port of Registry (complete spellings of state and port city names required)____________________

6. Type of Vessel (select one primary vessel type, and secondary vessel type where appropriate)

□ Commercial Fishing Vessel
□ Medium Cruise Ship (100 to 499 passengers)
□ Large Cruise Ship (500+ passengers)
□ Large Ferry (250+ passengers or more than 100 tons of cargo, e.g., cars, trucks, trains, or other land- based transportation.)
□ Barge (□ Hopper Barge, □ Tank Barge, □ Other Barge)
□ Oil or Gas Tanker
□ Research/Survey Vessel
□ Emergency and Rescue Vessel
□ Bulk Carrier
□ Container Ship
□ General Cargo Ship
□ Roll-on Roll-Off
□ Utility Vessel, including Tug boats and Offshore supply vessels (□ Tug, □ Offshore supply vessel, □ Other Utility))
□ Reefer
□ Other: _

7. Vessel Dimensions: a. Tonnage: ____________________ □ gross tons or □ gross registered tons

b. Length: ____________________ □ feet or □ meters

8. Ballast Water Capacity: ____________________ □ gallons or □ meters^3

9. Date and Year Vessel Built (i.e., build date or date keel laid): ____________________

10. a. Date of last dry-dock: ____________________ .b. Date of next scheduled/anticipated dry-dock: ____________________

11. Does vessel currently have, or has vessel ever held, an NPDES permit, other than the VGP, for any part, discharge, or operation of the vessel?

□ Yes □ No

If yes, please provide the following:

11a. Permit Number: ___________________________
11b. Effective Date of Permit: ______________________ 11c. Expiration Date of Permit______________________
11d. Discharges permitted: ______________________
12. Is this a transfer of ownership? □ Yes □ No
12a. If Yes, provide date of transfer: ________________
12b. If yes, provide previous vessel permit tracking number(s): _
13. Identify the North American Industry Classification System (NAICS) code that best represents your vessel service for which you are seeking coverage (if applicable): _________

C. Vessel Voyage Information

1. Home Port/Most Frequented US Port: ____
2. US Ports Vessel Anticipates Visiting During Permit Term: ______________________________
3. Number of overnight berths: a. Passengers ____________________ b. Crew ______________________
a. Maximum passenger capacity ___________________________ b. Crew ______________________
4. Does vessel travel beyond the US EEZ **and** more than 200 nm from any shore? □ Yes □ No
5. Is the vessel engaged in Nearshore Voyages? □ Yes □ No

D. Discharge Information:

1. Select all applicable discharges vessel may generate:
□ Deck Washdown and Runoff
□ Bilgewater/Oily Water Separator Effluent
□ Ballast Water
□ Anti-fouling hull coatings
□ Aqueous Film Forming Foams (AFFF)
□ Boiler/Economizer Blowdown
□ Cathodic Protection
□ Chain Locker Effluent
□ Controllable Pitch Propeller Hydraulic Fluid and other Oil-to-Sea Interfaces
□ Distillation or Reverse Osmosis Brine
□ Elevator Pit Effluent
□ Firemain Systems
□ Freshwater layup
□ Gas Turbine Washwater
□ Graywater
□ Motor Gasoline and Compensating Discharge
□ Non-Oily Machinery Wastewater
□ Refrigeration and Air Condensate Discharge
□ Seawater Cooling Overboard Discharge
□ Seawater Piping Biofouling Prevention
□ Small Boat Engine Wet Exhaust
□ Sonar Dome Discharge
□ Underwater Ship Husbandry
□ Welldeck Discharges
□ Graywater Mixed with Sewage
□ Exhaust Gas Scrubber Washwater Discharge
□ Fish Hold/ Fish Hold Cleaning Effluent

2. Does the vessel ever engage in or have capacity to engage in industrial operations? □ Yes □ No
a. If yes, please select appropriate box:
□ Seafood processing
□ Energy exploration
□ Mining
□ Other: .

3. Will the vessel be using a ballast water treatment system which discharges residual biocides?
□ Yes □ No
b. If yes, are residual biocide concentrations expected to be below those listed in Part 2.2.3.5.1.1.5 of the Permit?
□ Yes □ No
c. List the biocide residuals or derivatives that may be discharged by the ballast water treatment system: ______________
____
____
____

4. Is your vessel required to collect analytical monitoring? If so, for which of the following discharges must you conduct monitoring:

□ Ballast Water
□ Bilgewater
□ Exhaust Gas Scrubber Effluent
□ Graywater If yes, please check the appropriate answer: □ I use or □ I do not use a treatment system for Graywater

5. Does the vessel have onboard treatment systems for any waste stream(s) covered by this permit?
□ Yes □ No

5.a. If yes, check all that apply and complete the following information for each treatment system: □ Ballast Water, □ Bilgewater, □ Exhaust Gas Scrubber Effluent, □ Graywater, □ Graywater mixed with Sewage, □ Other treatment system: _______________

5.b. Treatment system type/design and manufacturer: ______________________________

5.c. Treatment System Capacity: ______________________________

5.d. Residuals (wastes) generated by this treatment system: ______________________________

5.e. How they are disposed:______________________________

For ballast water, bilgewater, and graywater mixed with sewage, is the system type approved by the US Coast Guard: □ Yes □ No

For ballast water, has the system been determined by the US Coast Guard to be an alternate management system (AMS): □ Yes □ No

Average Treatment System Flow Rate: ______________________________□ gallons/hour □ m^3/hour

Peak Treatment System Flow Rate: ______________________________□ gallons/hour □ m^3/hour

Residuals (wastes) generated by this treatment system: ______________________________

How they are disposed:______________________________

6. Ballast Water and Invasive Species Management–

a. How often is the ballast tank cleaned and sediment disposed of? ______________________________

b. How and where do you typically dispose of ballast tank sediment? ______________________________

c. Does vessel have an existing ballast water management plan? □ Yes □ No

7. a. Type of anti-fouling hull coating on the vessel and list specific product:

□ Copper Based □ Non-Copper Based ______________________________

b. When and where was anti-fouling hull coating last applied: ______________________________

c. Describe hull husbandry practices, such as frequency of hull cleaning, method used, how niches and propellers are cleaned, etc:

____

____

d. Date of last hull cleaning: ______________________________

e. Method of last hull cleaning: ______________________________

f. Location of last hull cleaning:______________________________

g. Date of next scheduled/anticipated hull cleaning: ______________________________

h. Anticipated method of next cleaning: ______________________________

i. Planned location of next cleaning: ______________________________

E. Certifier Name and Title

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information contained therein. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information contained is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Print Name: ____

Title: ______________________________

Signature: ____

Email: ______________________________ Date: _ _ - _ _ - _ _

NOI Preparer (Complete if NOI was prepared by someone other than the certifier)

Prepared By: ____

Organization: ____

Phone: __ Ext: ____

Email: __

Date: _ _ - _ _ - _ _

Appendix F – Notice of Termination (NOT)

NOT Instructions

Who Must File a NOT Form

Any owner/operator who was required to submit an NOI under Part 1.5.1.1 and meets the conditions of Part 1.6.1.2 of the General Permit is required to submit a NOT to end coverage under this permit.

If you have questions about whether you need to file a NOT or questions about completing the form, refer to (website will be inserted after finalization of this permit) or contact the NOI center at 1-866-352-7755.

Where to File NOT Form

All NOTs must be completed and filed using the eNOI system at www.epa.gov/vessels/enoi or send your completed NOT to the Notice Processing Center at EPA Headquarters, EPA Vessel Notice Processing Center, Mail Code 4203M, U.S. EPA, 1200 Pennsylvania Avenue, NW, Washington, DC 20460.

Completing the Form

Section A: Owner/Operator Information

Provide the full legal name of the person, firm, public organization, or other entity that is the owner/operator of the vessel, as well as the name of the certifying official. Include the complete contact information for the owner/operator. The mailing address, city, state, and zip code, as well as phone number are required. The fax number and email address are optional. Provide the date permit coverage began under the applicable NOI. Select the appropriate box to indicate why you are submitting a NOT to end permit coverage. There are three options to choose from: because you have sold or transferred the vessel and are no longer the owner or operator, because the vessel is no longer traveling in or discharging to waters subject to this permit, or because you have obtained individual or alternative permit coverage. If you have sold or transferred the vessel, please provide the date of transfer as well as the name and contact information of the new owner. If you have obtained an individual or alternative permit, please provide the permit number and date permit coverage begins in the space given.

Section B: Vessel Information

Provide the vessel name, registered identification number, IMO number, call sign, and port of registry.

Section C: Certification

Carefully read the certification language. To indicate your acceptance of these terms, check the “accept” box. Checking this box acts as a virtual signature on the NOT and indicates that you understand these vessel discharges will no longer be authorized under the general permit, and that any discharge of these effluent streams without a permit is a violation of the CWA. Include the name and title of the person completing the NOT. The person completing the NOT will have a box to check for “accept” which will act as virtual signature.

NOT Form

NPDES FORM
_ _ _ _ - _

Form Approved. OMB No 2040-0004
Please See Instructions Before Completing This Form

EPA Notice of Termination (NOT) of Coverage under NPDES General Permit for Discharges Incidental to Normal Vessel Operation

Submission of this Notice of Termination constitutes notice that the party identified in Section B of this form is no longer authorized to discharge any discharge incidental to the normal operation of a vessel under the NPDES program for the vessel identified in Section III of this form. All necessary information must be included on this form. Refer to the instructions at the end of this form.

A. Permit Information

1. NPDES Permit Tracking Number: _ _ _ _ _ _ _ _ _
2. Reason for Termination (check one only):

a. □ You transferred operational control to another operator.
Date of transfer: ____________________

b. □ You terminated vessel operations in waters subject to the General Permit.

c. □ You obtained coverage under an individual or alternative NPDES permit.
Permit Number: ____________________
Effective Date: ____________________

B. Vessel Owner/Operator Information

1. Name: ____________________
2. IRS Employer Information Number: _ _ - _ _ _ _ _ _ _
3. Name of Certifying Official:
____
4. Mailing Address:

a. Street: ____________________
b. City: ____________________
c. State: _ _ d. Zip code: _ _ _ _ _ - _ _ _ _
e. Phone: _ _ _ - _ _ _ - _ _ _ _
f. Fax (Optional): _ _ _ - _ _ _ - _ _ _ _
g. E-mail: ____________________

C. Vessel Information

1. Vessel Name: ____________________
2. Vessel ID/Registered Number ____________________
3. Vessel Call Sign ____________________
4. Port of Registry ____________________

D. Certifier Name and Title:

I certify under penalty of law that the information contained in this form is, to the best of my knowledge and belief, true, accurate and complete. I understand that by submitting this Notice of Termination, I am no longer authorized to discharge any effluent associated with normal vessel operation under this general permit, and that discharging pollutants related to the normal operation of a vessel into waters of the United States is unlawful under the CWA where the discharge is not authorized by an NPDES permit. I also understand that the submittal of this Notice of Termination does not release an operator from liability for any violations of this permit or the CWA.

Furthermore, I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information contained therein. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information contained is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Print Name: ____________________

Title: ____________________

Signature: ____________________ Date: _ _ - _ _ - _ _

Appendix G – Waters Federally Protected Wholly or in Part for Conservation Purposes

The list provided in Appendix G is a complete list of marine sanctuaries, units of the National Park System, units of the National Wildlife Refuge System, National Wilderness areas, and national wild and scenic rivers system components. EPA notes that this list is gathered from sources maintained by the administrative agency and the EPA only removed areas that are clearly terrestrial and do not contain waters suitable for permitted vessels or are unlikely to be impacted by permitted vessel discharges (e.g. The Washington Monument). Inclusion in this list does not mean the area is suitable for operation for vessels greater than 79 feet.

You must comply with the specific effluent limits in Parts 2.2.2, 2.1.3, 2.2.6, , 2.2.15, 2.2.16 and 5.1.1.1.1 [etc.] affecting the following federally protected waters to the extent located in waters subject to this permit:

- Marine Sanctuaries designated under the National Marine Sanctuaries Act (16 USC 1431 et seq.) and implementing regulations found at 15 CFR Part 922 and 50 CFR Part 404 or Marine national monuments designated under the Antiquities Act of 1906 (see Part G.1 for a list of such areas);
- A unit of the National Park System, including National Preserves and National Monuments (see Part G.2 for a list of such areas);
- A unit of the National Wildlife Refuge System, including Wetland Management Districts, Waterfowl Production Areas, National Game Preserves, Wildlife Management Area, and National Fish and Wildlife Refuges (see Part G.3 for a list of such areas);
- National Wilderness Areas (see Part G.4 for a list of such areas); and
- Any component designated under the National Wild and Scenic Rivers System (see Part G.5 for a list of such areas).
- Any waterbody designated as an Outstanding National Resource Water (ONRW) by a State or Tribe (see Part G.6 for a description of such areas)

G.1 <u>Marine Sanctuaries under the National Marine Sanctuaries Act (16 USC 1431 et seq.) and National Marine Monuments Designated under the Antiquities Act of 1906</u>

- Channel Islands (California)
- Cordell Bank (California)
- Fagatele Bay (American Samoa)(U.S.)
- Florida Keys (Florida)
- Flower Garden Banks (Texas)
- Grays Reef (Georgia)
- Gulf of the Farallones (California)
- Hawaiian Islands Humpback Whales (Hawaii)
- Monitor (North Carolina)
- Monterey Bay (California)
- Olympic Coast (Washington)
- Papahanaumokuakea Marine National Monument (Hawaii)
- Stellwagen Bank (Massachusetts)
- Thunder Bay (Michigan)

G.2 National Parks and Refuges: National Park Service, Department of the Interior

Alabama
Horseshoe Bend National Military Park
Little River Canyon National Preserve
Russell Cave National Monument
Trail Of Tears National Historic Trail
Tuskegee Airmen National Historic Site
Alaska
Alagnak Wild River
Alaska Public Lands
Aleutian World War II National Historic Area
Aniakchak National Monument and Preserve
Bering Land Bridge National Preserve
Cape Krusenstern National Monument
Denali National Park and Preserve
Gates Of The Arctic National Park and Preserve
Glacier Bay National Park and Preserve
Katmai National Park and Preserve
Kenai Fjords National Park
Kobuk Valley National Park
Lake Clark National Park and Preserve
Noatak National Preserve
Sitka National historical Park
Wrangell - St Elias National Park and Preserve
Yukon - Charley Rivers National Preserve
American Samoa
National Park of American Samoa
Arizona
Casa Grande Ruins National Monument
Glen Canyon National Recreation Area
Grand Canyon National Park
Hohokam Pima National Monument
Lake Mead National Recreation Area
Montezuma Castle National Monument
Navajo National Monument
Organ Pipe Cactus National Monument
Parashant National Monument
Pipe Spring National Monument
Sunset Crater Volcano National Monument
Tonto National Monument
Tuzigoot National Monument
Walnut Canyon National Monument
Wupatki National Monument
Yuma Crossing National Heritage Area
Arkansas
Buffalo National River
Trail Of Tears National Historic Trail
California
Alcatraz Island
Cabrillo National Monument
Channel Islands National Park
Devils Postpile National Monument
Fort Point National Historic Site
Golden Gate National Recreation Area
John Muir National Historic Site
Joshua Tree National Park
Lava Beds National Monument
Muir Woods National Monument
Pinnacles National Monument
Point Reyes National Seashore
Rosie the Riveter WWII Home Front National Historical Park
Santa Monica Mountains National Recreation Area
Whiskeytown National Recreation Area
Yosemite National Park
Colorado
Bent's Old Fort National Historical Site
Black Canyon Of The Gunnison National Park
Colorado National Monument
Curecanti National Recreation Area
Dinosaur National Park
Rocky Mountain National Park
Santa Fe National Historic Trail
Yucca House National Monument
Connecticut
Quinebaug & Shetucket Rivers Valley National Heritage Corridor
Delaware
Captain John Smith Chesapeake National Historic Trail
District of Columbia
Anacostia Park
Capitol Hill Parks
Captain John Smith Chesapeake National Historic Trail
Chesapeake & Ohio Canal National Historical Park
Chesapeake Bay Gateways Network
Kenilworth Park & Aquatic Gardens
Meridian Hill Park
National Capital Parks-East
National Mall & Memorial Parks
Potomac Heritage National Scenic Trail
Florida
Big Cypress National Preserve
Biscayne National Park
Canaveral National Seashore
Castillo De San Marcos National Monument
De Soto National Memorial
Dry Tortugas National Park
Everglades National Park
Fort Caroline National Memorial
Fort Matanzas National Monument
Gulf Islands National Seashore
Timucuan Ecological and Historical Preserve
Georgia
Augusta Canal national Heritage Area
Chattahoochee River National Recreation Area
Chickamauga & Chattanooga National Military Seashore
Cumberland Island National Seashore
Fort Frederica National Monument
Fort Pulaski National Monument
Jimmy Carter National Historic Site
Ocmulgee National Monument
Guam
War In The Pacific National Historical Park
Hawaii

Haleakala National Park
Kalaupapa National Historical Park
Kaloko-Honokohau National Historical Park
Pu`uhonua O Honaunau National Historical Park
Puukohola Heiau National Historical Site
Idaho
Craters Of The Moon National Monument and Preserve
Hagerman Fossil Beds National Monument
Lewis & Clark National Historic Trail
Minidoka Internment National Monument
Nez Perce National Historical Park
Yellowstone National Park
Illinois
Lewis & Clark National Historic Trail
Trail Of Tears National Historic Trail
Indiana
George Rogers Clark National Historical Park
Indiana Dunes National Lakeshore
Lincoln Boyhood National Memorial
Iowa
Effigy Mounds National Monument
Lewis & Clark National Historic Trail
Kansas
Lewis & Clark National Historic Trail
Kentucky
Big South Fork National River and Recreation Area
Cumberland Gap National Historical Park
Mammoth Cave National Park
Trail Of Tears National Historic Trail
Louisiana
Cane River National Heritage Area
Cane River Creole National Historical Park
Jean Lafitte National Historical Park and Preserve
New Orleans Jazz National Historical Park
Poverty Point National Monument
Maine
Acadia National Park
Maine Acadian Culture
Saint Croix Island International Historic Site
Maryland
Antietam National Battlefield
Assateague Island National Seashore
Captain John Smith Chesapeake National Historic Trail
Catoctin Mountain Park
Chesapeake & Ohio Canal National Historical Park
Chesapeake Bay Gateways Network
Clara Barton National Historic Site
Fort McHenry National Monument and Historic Shrine
Fort Washington Park
Glen Echo Park
Harmony Hall
Monocacy National Battlefield
Oxon Cove Park & Oxon Hill Farm
Piscataway Park
Potomac Heritage National Scenic Trail
Thomas Stone National Historic Site
Massachusetts
Blackstone River Valley National Heritage Corridor
Boston National Historical Park
Boston African American National Historic Site
Boston Harbor Islands National Recreation Area
Cape Cod National Seashore
Essex National Heritage Area
Lowell National Historical Park
Minute Man National Historic Site
New Bedford Whaling National Historical Park
Salem Maritime National Historic Site
Saugus Iron Works National Historic Site
Springfield Armory National Historic Site
Michigan
Isle Royale National Park
Pictured Rocks National Lakeshore
Sleeping Bear Dunes National Lakeshore
Minnesota
Grand Portage National Monument
Mississippi National River and Recreation Area
Pipestone National Monument
Voyageurs National Park
Mississippi
Gulf Islands National Seashore
Natchez National Historical Park
Natchez Trace National Scenic Trail
Missouri
Jefferson National Expansion Memorial
Lewis & Clark National Historic Trail
Ozark National Scenic Riverways
Trail Of Tears National Historic Trail
Wilson's Creek National Battlefield
Montana
Bighorn Canyon National Recreation Area
Glacier National Park
Lewis & Clark National Historic Trail
Little Bighorn Battlefield National Monument
Yellowstone National Park
Nebraska
Agate Fossil Beds National Monument
Homestead National Monument of America
Lewis & Clark National Historic Trail
Niobrara National Scenic River
Scotts Bluff National Monument
Nevada
Lake Mead National Recreation Area
New Hampshire
New Jersey
Appalachian National Scenic River
Delaware National Scenic River
Delaware Water Gap National Recreation Area
Ellis Island National Monument
Gateway National Recreation Area
Great Egg Harbor River
Lower Delaware National Wild and Scenic River
New Jersey Pinelands National Reserve
New Mexico
Aztec Ruins National Monument
Capulin Volcano National Monument
El Malpais National Monument
El Morro National Monument
Fort Union National Monument
Gila Cliff Dwellings National Monument
Petroglyph National Monument
Salinas Pueblo Missions National Monument

White Sands National Monument
New York
Castle Clinton National Monument
Chesapeake Bay Gateways Network
Ellis Island National Monument
Erie Canalway National Heritage Corridor
Fire Island National Seashore
Gateway National Recreation Area
Governors Island National Monument
Hudson River Valley National Heritage Area
National Parks of New York Harbor
Saratoga National Historical Park
Statue Of Liberty National Monument
Upper Delaware Scenic and Recreational River
North Carolina
Blue Ridge National Heritage Area
Cape Hatteras National Seashore
Cape Lookout National Seashore
Great Smoky Mountains National Park
Wright Brothers National Monument
North Dakota
Fort Union Trading Post National Historic Site
Lewis & Clark National Historic Trail
Theodore Roosevelt National Park
Northern Mariana Islands
American Memorial Park
Ohio
Perry's Victory & International Peace Memorial
Oklahoma
Chickasaw National Recreation Area
Trail Of Tears National Historic Trail
Oregon
Crater Lake National Park
Fort Vancouver National Historic Site
John Day Fossil Beds National Monument
Lewis & Clark National Historic Trail
Lewis and Clark National Historical Park
Oregon Caves National Monument
Pennsylvania
Chesapeake Bay Gateways Network
Delaware National Scenic River
Delaware & Lehigh National Heritage Corridor
Delaware Water Gap National Recreation Area
Johnstown Flood National Monument
Lackawanna Heritage Valley
Lower Delaware National Wild and Scenic River
Potomac Heritage National Scenic Trail
Rivers Of Steel National Heritage Area
Schuylkill River Valley National Heritage Area
Upper Delaware Scenic and Recreational River
Puerto Rico
Rhode Island
Blackstone River Valley National Heritage Corridor
South Carolina
Congaree National Park
Fort Moultrie National Monument
Fort Sumter National Monument
South Dakota
Jewel Cave National Monument
Lewis & Clark National Historic Trail
Missouri Recreational River
Tennessee
Big South Fork National River and Recreation Area
Great Smoky Mountains National Park
Obed Wild and Scenic River
Texas
Alibates Flint Quarries National Monument
Amistad National Recreation Area
Big Bend National Park
Big Thicket National Preserve
Chamizal National Memorial
Lake Meredith National Recreation Area
Padre Island National Seashore
Rio Grande Wild and Scenic River
Utah
Arches National Park
Bryce Canyon National Park
Canyonlands National Park
Capitol Reef National Park
Cedar Breaks National Monument
Dinosaur National Monument
Glen Canyon National Recreation Area
Hovenweep National Monument
Natural Bridges National Monument
Timpanogos Cave National Monument
Vermont
Virgin Islands
Buck Island Reef National Monument
Virgin Islands National Park
Virgin Islands Coral Reef National Monument
Virginia
Assateague Island National Seashore
Booker T Washington National Monument
Cape Henry Memorial
Captain John Smith Chesapeake National Historic Trail
Chesapeake Bay Gateways Network
Colonial National Historical Park
Fredericksburg & Spotsylvania National Military Park
Great Falls Park
Lyndon Baines Johnson Memorial Grove on the Potomac
Potomac Heritage National Scenic Trail
Theodore Roosevelt Island Park
Washington
Fort Vancouver National Historic Site
Lake Chelan National Recreation Area
Lake Roosevelt National Recreation Area
Lewis & Clark National Historic Trail
Mount Rainier National Park
North Cascades National Park
Olympic National Park
Ross Lake National Recreation Area
San Juan Island National Historical Park
West Virginia
Bluestone National Scenic River
Chesapeake Bay Gateways Network
Gauley River National Recreation Area
New River Gorge National River
Wisconsin
Apostle Islands National Lakeshore
Saint Croix National Scenic River
Wyoming
Bighorn Canyon National Recreation Area

Devils Tower National Monument
Fossil Butte National Monument
Grand Teton National Park
John D Rockefeller Jr. Memorial Parkway
Yellowstone National Park

G.3 National Wildlife Refuges (Including, but Not Limited to Wetlands Management Districts, Waterfowl Production Areas, National Game Preserves, Wildlife Management Areas, and National Fish and Wildlife Refuges)

As of 9/30/06, there were 547 national wildlife refuges in all 50 states. Neches River NWR in Texas and the Rocky Mountain Front Conservation Area in Montana were the 546th and 547th national wildlife refuges. There were 37 Wetland Management Districts in the Prairie Pothole region of the northern Great Plains.

The acreage for the NWRS as of 9/30/06 was 96,369,969.43 acres. The system encompasses 547 national wildlife refuges, 37 Wetland Management Districts (which include Waterfowl Production Areas in 204 counties), and 50 Coordination Areas which are managed by the states.

Refuges that have boundaries in multiple states are listed only in the state where the main visitor entrance is located. Maps of each area can be found by accessing the National Fish and Wildlife Services website at: http://www.fws.gov/refuges/refugeLocatorMaps/index.html.

Alamosa National Wildlife Refuge	CO
Alaska Maritime National Wildlife Refuge	AK
Alaska Peninsula National Wildlife Refuge	AK
Alligator River National Wildlife Refuge	NC
Amagansett National Wildlife Refuge	NY
Anahuac National Wildlife Refuge	TX
Ankeny National Wildlife Refuge	OR
Antioch Dunes National Wildlife Refuge	CA
Aransas National Wildlife Refuge	TX
Arapaho National Wildlife Refuge	CO
Archie Carr National Wildlife Refuge	FL
Arctic National Wildlife Refuge	AK
Arrowwood National Wildlife Refuge	ND
Arrowwood Wetland Management District	ND
Arthur R. Marshall Loxahatchee National Wildlife Refuge	FL
Ash Meadows National Wildlife Refuge	NV
Assabet River National Wildlife Refuge	MA
Atchafalaya National Wildlife Refuge	LA
Audubon National Wildlife Refuge	ND
Back Bay National Wildlife Refuge	VA
Baker Island National Wildlife Refuge	HI
Bald Knob National Wildlife Refuge	AR
Bamforth National Wildlife Refuge	WY
Bandon Marsh National Wildlife Refuge	OR
Banks Lake National Wildlife Refuge	GA
Baskett Slough National Wildlife Refuge	OR
Bayou Cocodrie National Wildlife Refuge	LA
Bayou Sauvage National Wildlife Refuge	LA
Bayou Teche National Wildlife Refuge	LA
Bear Lake National Wildlife Refuge	ID
Bear River Migratory Bird Refuge	UT
Becharof National Wildlife Refuge	AK
Benton Lake National Wildlife Refuge	MT
Benton Lake Wetland Management District	MT
Big Branch Marsh National Wildlife Refuge	LA
Big Lake National Wildlife Refuge	AR
Big Muddy National Fish & Wildlife Refuge	MO
Big Oaks National Wildlife Refuge	IN
Big Stone National Wildlife Refuge	MN
Big Stone Wetland Management District	MN
Bill Williams River National Wildlife Refuge	AZ
Bitter Lake National Wildlife Refuge	NM
Black Bayou Lake National Wildlife Refuge	LA
Blackbeard Island National Wildlife Refuge	GA
Blackwater National Wildlife Refuge	MD
Block Island National Wildlife Refuge	RI
Bogue Chitto National Wildlife Refuge	LA
Bombay Hook National Wildlife Refuge	DE
Bon Secour National Wildlife Refuge	AL
Bond Swamp National Wildlife Refuge	GA
Bosque del Apache National Wildlife Refuge	NM
Bowdoin National Wildlife Refuge	MT
Boyer Chute National Wildlife Refuge	NE

Brazoria National Wildlife Refuge	TX
Breton National Wildlife Refuge	LA
Browns Park National Wildlife Refuge	CO
Buck Island National Wildlife Refuge	VI
Cabo Rojo National Wildlife Refuge	PR
Cache River National Wildlife Refuge	AR
Cahaba River National Wildlife Refuge	AL
Caloosahatchee National Wildlife Refuge	FL
Cameron Prairie National Wildlife Refuge	LA
Canaan Valley National Wildlife Refuge	WV
Cape May National Wildlife Refuge	NJ
Cape Meares National Wildlife Refuge	OR
Cape Romain National Wildlife Refuge	SC
Carlton Pond Waterfowl Production Area	ME
Carolina Sandhills National Wildlife Refuge	SC
Castle Rock National Wildlife Refuge	CA
Cat Island National Wildlife Refuge	LA
Catahoula National Wildlife Refuge	LA
Cedar Island National Wildlife Refuge	NC
Cedar Keys National Wildlife Refuge	FL
Cedar Point National Wildlife Refuge	OH
Charles M. Russell National Wildlife Refuge	MT
Chase Lake National Wildlife Refuge	ND
Chassahowitzka National Wildlife Refuge	FL
Chautauqua National Wildlife Refuge	IL
Chickasaw National Wildlife Refuge	TN
Chincoteague National Wildlife Refuge	VA
Choctaw National Wildlife Refuge	AL
Cibola National Wildlife Refuge	AZ
Clarence Cannon National Wildlife Refuge	MO
Clarks River National Wildlife Refuge	KY
Clear Lake National Wildlife Refuge	CA
Cokeville Meadows National Wildlife Refuge	WY
Cold Springs National Wildlife Refuge	OR
Coldwater River National Wildlife Refuge	MS
Columbia National Wildlife Refuge	WA
Colusa National Wildlife Refuge	CA
Conboy Lake National Wildlife Refuge	WA
Crab Orchard National Wildlife Refuge	IL
Crane Meadows National Wildlife Refuge	MN
Crescent Lake National Wildlife Refuge	NE
Cross Creeks National Wildlife Refuge	TN
Cross Island National Wildlife Refuge	ME
Crystal River National Wildlife Refuge	FL
Currituck National Wildlife Refuge	NC
Cypress Creek National Wildlife Refuge	IL
Dahomey National Wildlife Refuge	MS
D'Arbonne National Wildlife Refuge	LA
Deep Fork National Wildlife Refuge	OK
Deer Flat National Wildlife Refuge	ID
Delta National Wildlife Refuge	LA
Des Lacs National Wildlife Refuge	ND
Desecheo National Wildlife Refuge	PR
Desert National Wildlife Range	NV
DeSoto National Wildlife Refuge	IA
Detroit Lakes Wetland Management District	MN
Detroit River International Wildlife Refuge	MI
Devils Lake Wetland Management District	ND
Don Edwards San Francisco Bay National Wildlife Refuge	CA
Driftless Area National Wildlife Refuge	IA
Dungeness National Wildlife Refuge	WA
Eastern Neck National Wildlife Refuge	MD
Eastern Shore Of Virginia National Wildlife Refuge	VA
Edwin B. Forsythe National Wildlife Refuge	NJ
Egmont Key National Wildlife Refuge	FL
Elizabeth A. Morton National Wildlife Refuge	NY
Elizabeth Hartwell Mason Neck National Wildlife Refuge	VA
Emiquon National Wildlife Refuge	IL
Erie National Wildlife Refuge	PA
Ernest F. Hollings ACE Basin National Wildlife Refuge	SC
Eufaula National Wildlife Refuge	AL
Fallon National Wildlife Refuge	NV
Felsenthal National Wildlife Refuge	AR
Fergus Falls Wetland Management District	MN
Fish Springs National Wildlife Refuge	UT
Fisherman Island National Wildlife Refuge	VA
Flattery Rocks National Wildlife Refuge	WA
Flint Hills National Wildlife Refuge	KS
Florence Lake National Wildlife Refuge	ND
Fort Niobrara National Wildlife Refuge	NE
Fox River National Wildlife Refuge	WI
Franklin Island National Wildlife Refuge	ME
Franz Lake National Wildlife Refuge	WA
Glacial Ridge National Wildlife Refuge	MN
Grand Bay National Wildlife Refuge	MS
Grand Cote National Wildlife Refuge	LA
Gravel Island National Wildlife Refuge	WI
Grays Lake National Wildlife Refuge	ID
Great Bay National Wildlife Refuge	NH
Great Dismal Swamp National Wildlife Refuge	VA
Great Meadows National Wildlife Refuge	MA
Great River National Wildlife Refuge	MO
Great Swamp National Wildlife Refuge	NJ
Great White Heron National Wildlife Refuge	FL
Green Cay National Wildlife Refuge	VI
Grulla National Wildlife Refuge	TX
Guadalupe-Nipomo Dunes National Wildlife Refuge	CA
Guam National Wildlife Refuge	GU
Hagerman National Wildlife Refuge	TX
Hakalau Forest National Wildlife Refuge	HI
Halfbreed Lake National Wildlife Refuge	MT
Hamden Slough National Wildlife Refuge	MN
Hanalei National Wildlife Refuge	HI
Handy Brake National Wildlife Refuge	LA
Harbor Island National Wildlife Refuge	MI
Harris Neck National Wildlife Refuge	GA
Hart Mountain National Antelope Range	OR
Hatchie National Wildlife Refuge	TN
Havasu National Wildlife Refuge	CA
Hawaiian Islands National Wildlife Refuge	HI
Hillside National Wildlife Refuge	MS
Hobe Sound National Wildlife Refuge	FL
Holla Bend National Wildlife Refuge	AR
Horicon National Wildlife Refuge	WI
Howland Island National Wildlife Refuge	HI
Humboldt Bay National Wildlife Refuge	CA
Huron National Wildlife Refuge	MI
Huron Wetland Management District	SD
Hutton Lake National Wildlife Refuge	WY
Imperial National Wildlife Refuge	AZ
Innoko National Wildlife Refuge	AK

Iowa Wetland Management District	IA
Iroquois National Wildlife Refuge	NY
Island Bay National Wildlife Refuge	FL
Izembek National Wildlife Refuge	AK
J. Clark Salyer National Wildlife Refuge	ND
J. Clark Salyer Wetland Management District	ND
J.N. Ding Darling National Wildlife Refuge	FL
James Campbell National Wildlife Refuge	HI
James River National Wildlife Refuge	VA
Jarvis Island National Wildlife Refuge	HI
John H. Chafee National Wildlife Refuge	RI
John Hay National Wildlife Refuge	NH
John Heinz at Tinicum National Wildlife Refuge	PA
Johnston Island National Wildlife Refuge	HI
Julia Butler Hansen Refuge for the Columbian White-Tailed Deer	WA
Kakahaia National Wildlife Refuge	HI
Kanuti National Wildlife Refuge	AK
Kenai National Wildlife Refuge	AK
Kern National Wildlife Refuge	CA
Key West National Wildlife Refuge	FL
Kilauea Point National Wildlife Refuge	HI
Kirtlands Warbler Wildlife Management Area	MI
Kirwin National Wildlife Refuge	KS
Kodiak National Wildlife Refuge	AK
Kootenai National Wildlife Refuge	ID
Koyukuk National Wildlife Refuge	AK
Kulm Wetland Management District	ND
Lacassine National Wildlife Refuge	LA
Lacreek National Wildlife Refuge	SD
Laguna Atascosa National Wildlife Refuge	TX
Laguna Cartagena National Wildlife Refuge	PR
Lake Alice National Wildlife Refuge	ND
Lake Andes National Wildlife Refuge	SD
Lake Ilo National Wildlife Refuge	ND
Lake Isom National Wildlife Refuge	TN
Lake Mason National Wildlife Refuge	MT
Lake Ophelia National Wildlife Refuge	LA
Lake Umbagog National Wildlife Refuge	NH
Lake Wales Ridge National Wildlife Refuge	FL
Lake Woodruff National Wildlife Refuge	FL
Lake Zahl National Wildlife Refuge	ND
Las Vegas National Wildlife Refuge	NM
Lee Metcalf National Wildlife Refuge	MT
Leopold Wetland Management District	WI
Leslie Canyon National Wildlife Refuge	AZ
Lewis and Clark National Wildlife Refuge	WA
Litchfield Wetland Management District	MN
Little Pend Oreille National Wildlife Refuge	WA
Little River National Wildlife Refuge	OK
Long Lake National Wildlife Refuge	ND
Lostwood National Wildlife Refuge	ND
Louisiana Wetland Management District	LA
Lower Hatchie National Wildlife Refuge	TN
Lower Rio Grande Valley National Wildlife Refuge	TX
Lower Suwannee National Wildlife Refuge	FL
Mackay Island National Wildlife Refuge	NC
Madison Wetland Management District	SD
Maine Coastal Islands National Wildlife Refuge	ME
Mandalay National Wildlife Refuge	LA
Marin Islands National Wildlife Refuge	CA
Martin National Wildlife Refuge	MD
Mashpee National Wildlife Refuge	MA
Mathews Brake National Wildlife Refuge	MS
Matlacha Pass National Wildlife Refuge	FL
Mattamuskeet National Wildlife Refuge	NC
Maxwell National Wildlife Refuge	NM
McFaddin National Wildlife Refuge	TX
McKay Creek National Wildlife Refuge	OR
McNary National Wildlife Refuge	WA
Medicine Lake National Wildlife Refuge	MT
Meredosia National Wildlife Refuge	IL
Merritt Island National Wildlife Refuge	FL
Michigan Wetland Management District	MI
Michigan Islands National Wildlife Refuge	MI
Middle Mississippi River National Wildlife Refuge	IL
Midway Atoll National Wildlife Refuge	HI
Mille Lacs National Wildlife Refuge	MN
Mingo National Wildlife Refuge	MO
Minidoka National Wildlife Refuge	ID
Missisquoi National Wildlife Refuge	VT
Modoc National Wildlife Refuge	CA
Monomoy National Wildlife Refuge	MA
Montezuma National Wildlife Refuge	NY
Morgan Brake National Wildlife Refuge	MS
Mountain Longleaf National Wildlife Refuge	AL
Muscatatuck National Wildlife Refuge	IN
Nantucket National Wildlife Refuge	MA
National Key Deer Refuge	FL
Navassa Island National Wildlife Refuge	PR
Necedah National Wildlife Refuge	WI
Nestucca Bay National Wildlife Refuge	OR
Ninigret National Wildlife Refuge	RI
Nisqually National Wildlife Refuge	WA
North Platte National Wildlife Refuge	NE
Nowitna National Wildlife Refuge	AK
Noxubee National Wildlife Refuge	MS
Occoquan Bay National Wildlife Refuge	VA
Ohio River Islands National Wildlife Refuge	WV
Okefenokee National Wildlife Refuge	GA
Oregon Islands National Wildlife Refuge	OR
Ouray National Wildlife Refuge	UT
Oxbow National Wildlife Refuge	MA
Oxford Slough Waterfowl Production Area	ID
Oyster Bay National Wildlife Refuge	NY
Panther Swamp National Wildlife Refuge	MS
Parker River National Wildlife Refuge	MA
Pathfinder National Wildlife Refuge	WY
Patoka River National Wildlife Refuge and Wildlife Management Area	IN
Pea Island National Wildlife Refuge	NC
Pee Dee National Wildlife Refuge	NC
Pelican Island National Wildlife Refuge	FL
Piedmont National Wildlife Refuge	GA
Pinckney Island National Wildlife Refuge	GA
Pine Island National Wildlife Refuge	FL
Pocosin Lakes National Wildlife Refuge	NC
Pond Creek National Wildlife Refuge	AR
Port Louisa National Wildlife Refuge	IA
Prime Hook National Wildlife Refuge	DE
Rachel Carson National Wildlife Refuge	ME
Rainwater Basin Wetland Management District	NE
Rappahannock River Valley National Wildlife Refuge	VA
Red River National Wildlife Refuge	LA

Reelfoot National Wildlife Refuge	TN
Rice Lake National Wildlife Refuge	MN
Roanoke River National Wildlife Refuge	NC
Ruby Lake National Wildlife Refuge	NV
Rydell National Wildlife Refuge	MN
Sabine National Wildlife Refuge	LA
Sachuest Point National Wildlife Refuge	RI
Sacramento River National Wildlife Refuge	CA
Salinas River National Wildlife Refuge	CA
Salt Plains National Wildlife Refuge	OK
San Bernard National Wildlife Refuge	TX
San Diego Bay National Wildlife Refuge	CA
San Joaquin River National Wildlife Refuge	CA
San Pablo Bay National Wildlife Refuge	CA
Sandy Point National Wildlife Refuge	VI
Santee National Wildlife Refuge	SC
Savannah National Wildlife Refuge	SC
Seal Island National Wildlife Refuge	ME
Selawik National Wildlife Refuge	AK
Seney National Wildlife Refuge	MI
Sequoyah National Wildlife Refuge	OK
Shell Keys National Wildlife Refuge	LA
Sherburne National Wildlife Refuge	MN
Shiawassee National Wildlife Refuge	MI
Siletz Bay National Wildlife Refuge	OR
Silvio O. Conte National Fish & Wildlife Refuge	MA
Sonny Bono Salton Sea National Wildlife Refuge	CA
St. Catherine Creek National Wildlife Refuge	MS
St. Croix Wetland Management District	WI
St. Johns National Wildlife Refuge	FL
St. Marks National Wildlife Refuge	FL
St. Vincent National Wildlife Refuge	FL
Steigerwald Lake National Wildlife Refuge	WA
Stewart B. McKinney National Wildlife Refuge	CT
Stillwater National Wildlife Refuge	NV
Sunkhaze Meadows National Wildlife Refuge	ME
Supawna Meadows National Wildlife Refuge	NJ
Susquehanna River National Wildlife Refuge	MD
Swan Lake National Wildlife Refuge	MO
Swanquarter National Wildlife Refuge	NC
Tallahatchie National Wildlife Refuge	MS
Tamarac National Wildlife Refuge	MN
Target Rock National Wildlife Refuge	NY
Ten Thousand Islands National Wildlife Refuge	FL
Tennessee National Wildlife Refuge	TN
Tensas River National Wildlife Refuge	LA
Tetlin National Wildlife Refuge	AK
Tewaukon National Wildlife Refuge	ND
Texas Point National Wildlife Refuge	TX
Tijuana Slough National Wildlife Refuge	CA
Tishomingo National Wildlife Refuge	OK
Togiak National Wildlife Refuge	AK
Trempealeau National Wildlife Refuge	WI
Trinity River National Wildlife Refuge	TX
Trustom Pond National Wildlife Refuge	RI
Tualatin River National Wildlife Refuge	OR
Tule Lake National Wildlife Refuge	CA
Two Rivers National Wildlife Refuge	IL
UL Bend National Wildlife Refuge	MT
Umatilla National Wildlife Refuge	OR
Union Slough National Wildlife Refuge	IA
Upper Klamath National Wildlife Refuge	OR
Upper Mississippi River National Wildlife & Fish Refuge	MN
Upper Ouachita National Wildlife Refuge	LA
Upper Souris National Wildlife Refuge	ND
Valentine National Wildlife Refuge	NE
Valley City Wetland Management District	ND
Wallkill River National Wildlife Refuge CA	NJ
Wapanocca National Wildlife Refuge	AR
Washita National Wildlife Refuge	OK
Wassaw National Wildlife Refuge	GA
Wertheim National Wildlife Refuge	NY
Wheeler National Wildlife Refuge	AL
White River National Wildlife Refuge	AR
Wichita Mountains Wildlife Refuge	OK
Willapa National Wildlife Refuge	WA
Willow Creek-Lurline Wildlife Management Area	CA
Wolf Island National Wildlife Refuge	GA
Yazoo National Wildlife Refuge	MS
Yukon Delta National Wildlife Refuge	AK
Yukon Flats National Wildlife Refuge	AK

G.4 National Wilderness Areas

As of 7/22/2009, there were 776 national wilderness areas in the United States. Section 4(c) of the Wilderness Act of 1964 (16 U.S. C. 1131-1136) strictly prohibits motorized vehicles, vessels, aircrafts or equipment for the purposes of transport of any kind within the boundaries of all wilderness areas. Exceptions to this Act include motorized vehicle use for the purposes of gathering information on minerals or other resources; for the purposes of controlling fire, insects, or disease; and in wilderness areas where aircraft or motorized boat use have already been established prior to 1964.

The following is a list of all National Wilderness Areas within the United States. GIS shape files for each area can be found by accessing the following website: www.wilderness.net/index.cfm?fuse=NWPS&sec=geography#tabs-4.

Alabama

Cheaha Wilderness
Dugger Mountain Wilderness
Sipsey Wilderness

Alaska

Aleutian Islands Wilderness
Andreafsky Wilderness
Becharof Wilderness
Bering Sea Wilderness
Bogoslof Wilderness
Chamisso Wilderness
Chuck River Wilderness
Coronation Island Wilderness
Denali Wilderness
Endicott River Wilderness
Forrester Island Wilderness
Gates of the Arctic Wilderness
Glacier Bay Wilderness
Hazy Islands Wilderness
Innoko Wilderness
Izembek Wilderness
Karta River Wilderness
Katmai Wilderness
Kenai Wilderness
Kobuk Valley Wilderness
Kootznoowoo Wilderness
Koyukuk Wilderness
Kuiu Wilderness
Lake Clark Wilderness
Maurille Islands Wilderness
Misty Fjords National Monument Wilderness
Mollie Beattie Wilderness
Noatak Wilderness
Nunivak Wilderness
Petersburg Creek-Duncan Salt Chuck Wilderness
Pleasant/Lemusurier/Inian Islands Wilderness
Russell Fjord Wilderness
Saint Lazaria Wilderness
Selawik Wilderness
Semidi Wilderness
Simeonof Wilderness
South Baranof Wilderness
South Etolin Wilderness
South Prince of Wales Wilderness
Stikine-LeConte Wilderness
Tebenkof Bay Wilderness
Togiak Wilderness
Tracy Arm-Fords Terror Wilderness
Tuxedni Wilderness
Unimak Wilderness
Warren Island Wilderness
West Chichagof-Yakobi Wilderness
Wrangell-Saint Elias Wilderness

Arizona

Apache Creek Wilderness
Aravaipa Canyon Wilderness
Arrastra Mountain Wilderness
Aubrey Peak Wilderness
Baboquivari Peak Wilderness
Bear Wallow Wilderness
Beaver Dam Mountains Wilderness
Big Horn Mountains Wilderness
Cabeza Prieta Wilderness
Castle Creek Wilderness
Cedar Bench Wilderness
Chiricahua National Monument Wilderness
Chiricahua Wilderness
Cottonwood Point Wilderness
Coyote Mountains Wilderness
Dos Cabezas Mountains Wilderness
Eagletail Mountains Wilderness
East Cactus Plain Wilderness
Escudilla Wilderness
Fishhooks Wilderness
Fossil Springs Wilderness
Four Peaks Wilderness
Galiuro Wilderness
Gibraltar Mountain Wilderness
Grand Wash Cliffs Wilderness
Granite Mountain Wilderness
Harcuvar Mountains Wilderness
Hells Canyon Wilderness
Hellsgate Wilderness
Hummingbird Springs Wilderness
Imperial Refuge Wilderness
Juniper Mesa Wilderness
Kachina Peaks Wilderness
Kanab Creek Wilderness
Kendrick Mountain Wilderness
Kofa Wilderness
Mazatzal Wilderness
Miller Peak Wilderness
Mount Baldy Wilderness
Mount Logan Wilderness
Mount Nutt Wilderness
Mount Tipton Wilderness
Mount Trumbull Wilderness
Mount Wilson Wilderness
Mt. Wrightson Wilderness
Muggins Mountain Wilderness
Munds Mountain Wilderness
Needle's Eye Wilderness
New Water Mountains Wilderness
North Maricopa Mountains Wilderness
North Santa Teresa Wilderness
Organ Pipe Cactus Wilderness
Paiute Wilderness
Pajarita Wilderness
Paria Canyon-Vermilion Cliffs Wilderness
Pine Mountain Wilderness
Pusch Ridge Wilderness
Rawhide Mountains Wilderness
Red Rock-Secret Mountain Wilderness
Redfield Canyon Wilderness
Rincon Mountain Wilderness
Saddle Mountain Wilderness
Saguaro Wilderness
Salome Wilderness
Salt River Canyon Wilderness
Santa Teresa Wilderness
Sierra Ancha Wilderness
Sierra Estrella Wilderness
Signal Mountain Wilderness
South Maricopa Mountains Wilderness
Strawberry Crater Wilderness
Superstition Wilderness
Swansea Wilderness
Sycamore Canyon Wilderness
Table Top Wilderness
Tres Alamos Wilderness
Trigo Mountain Wilderness
Upper Burro Creek Wilderness
Wabayuma Peak Wilderness
Warm Springs Wilderness
West Clear Creek Wilderness
Wet Beaver Wilderness
White Canyon Wilderness

Harquahala Mountains Wilderness
Hassayampa River Canyon Wilderness
Havasu Wilderness
Peloncillo Mountains Wilderness
Petrified Forest National Wilderness Area
Woodchute Wilderness
Woolsey Peak Wilderness

Arkansas

Big Lake Wilderness
Black Fork Mountain Wilderness
Buffalo National River Wilderness
Caney Creek Wilderness
Dry Creek Wilderness
East Fork Wilderness
Flatside Wilderness
Hurricane Creek Wilderness
Leatherwood Wilderness
Poteau Mountain Wilderness
Richland Creek Wilderness
Upper Buffalo Wilderness

California

Agua Tibia Wilderness
Ansel Adams Wilderness
Argus Range Wilderness
Beauty Mountain Wilderness
Big Maria Mountains Wilderness
Bigelow Cholla Garden Wilderness
Bighorn Mountain Wilderness
Black Mountain Wilderness
Bright Star Wilderness
Bristol Mountains Wilderness
Bucks Lake Wilderness
Cache Creek Wilderness
Cadiz Dunes Wilderness
Cahuilla Mountain Wilderness
Caribou Wilderness
Carrizo Gorge Wilderness
Carson-Iceberg Wilderness
Castle Crags Wilderness
Cedar Roughs Wilderness
Chanchelulla Wilderness
Chemehuevi Mountains Wilderness
Chimney Peak Wilderness
Chuckwalla Mountains Wilderness
Chumash Wilderness
Cleghorn Lakes Wilderness
Clipper Mountain Wilderness
Coso Range Wilderness
Coyote Mountains Wilderness
Cucamonga Wilderness
Darwin Falls Wilderness
Dead Mountains Wilderness
Death Valley Wilderness
Desolation Wilderness
Dick Smith Wilderness
Dinkey Lakes Wilderness
Domeland Wilderness
El Paso Mountains Wilderness
Elkhorn Ridge Wilderness
Emigrant Wilderness
Hollow Hills Wilderness
Hoover Wilderness
Ibex Wilderness
Imperial Refuge Wilderness
Indian Pass Wilderness
Inyo Mountains Wilderness
Ishi Wilderness
Jacumba Wilderness
Jennie Lakes Wilderness
John Krebs Wilderness
John Muir Wilderness
Joshua Tree Wilderness
Kaiser Wilderness
Kelso Dunes Wilderness
Kiavah Wilderness
King Range Wilderness
Kingston Range Wilderness
Lassen Volcanic Wilderness
Lava Beds Wilderness
Little Chuckwalla Mountains Wilderness
Little Picacho Wilderness
Machesna Mountain Wilderness
Magic Mountain Wilderness
Malpais Mesa Wilderness
Manly Peak Wilderness
Marble Mountain Wilderness
Matilija Wilderness
Mecca Hills Wilderness
Mesquite Wilderness
Mojave Wilderness
Mokelumne Wilderness
Monarch Wilderness
Mount Lassic Wilderness
Mt. Shasta Wilderness
Newberry Mountains Wilderness
Nopah Range Wilderness
North Algodones Dunes Wilderness
North Fork Wilderness
North Mesquite Mountains Wilderness
Pine Creek Wilderness
Pinnacles Wilderness
Pinto Mountains Wilderness
Piper Mountain Wilderness
Piute Mountains Wilderness
Pleasant View Ridge Wilderness
Red Buttes Wilderness
Resting Spring Range Wilderness
Rice Valley Wilderness
Riverside Mountains Wilderness
Rocks and Islands Wilderness
Rodman Mountains Wilderness
Russian Wilderness
Sacatar Trail Wilderness
Saddle Peak Hills Wilderness
San Gabriel Wilderness
San Gorgonio Wilderness
San Jacinto Wilderness
San Mateo Canyon Wilderness
San Rafael Wilderness
Sanhedrin Wilderness
Santa Lucia Wilderness
Santa Rosa Wilderness
Sawtooth Mountains Wilderness
Sequoia-Kings Canyon Wilderness
Sespe Wilderness
Sheep Mountain Wilderness
Sheephole Valley Wilderness
Silver Peak Wilderness
Siskiyou Wilderness
Snow Mountain Wilderness
South Fork Eel River Wilderness
South Fork San Jacinto Wilderness
South Nopah Range Wilderness
South Sierra Wilderness
South Warner Wilderness
Stateline Wilderness
Stepladder Mountains Wilderness
Surprise Canyon Wilderness
Sylvania Mountains Wilderness

Farallon Wilderness
Fish Creek Mountains Wilderness
Funeral Mountains Wilderness
Garcia Wilderness
Golden Trout Wilderness
Golden Valley Wilderness
Granite Chief Wilderness
Granite Mountain Wilderness
Grass Valley Wilderness
Hauser Wilderness
Havasu Wilderness
Old Woman Mountains Wilderness
Orocopia Mountains Wilderness
Otay Mountain Wilderness
Owens Peak Wilderness
Owens River Headwaters Wilderness
Pahrump Valley Wilderness
Palen/McCoy Wilderness
Palo Verde Mountains Wilderness
Phillip Burton Wilderness
Picacho Peak Wilderness
Thousand Lakes Wilderness
Trilobite Wilderness
Trinity Alps Wilderness
Turtle Mountains Wilderness
Ventana Wilderness
Whipple Mountains Wilderness
White Mountains Wilderness
Yolla Bolly-Middle Eel Wilderness
Yosemite Wilderness
Yuki Wilderness

Colorado

Black Canyon of the Gunnison Wilderness
Black Ridge Canyons Wilderness
Buffalo Peaks Wilderness
Byers Peak Wilderness
Cache La Poudre Wilderness
Collegiate Peaks Wilderness
Comanche Peak Wilderness
Dominguez Canyon Wilderness
Eagles Nest Wilderness
Flat Tops Wilderness
Fossil Ridge Wilderness
Great Sand Dunes Wilderness
Greenhorn Mountain Wilderness
Gunnison Gorge Wilderness
Holy Cross Wilderness
Hunter-Fryingpan Wilderness
Indian Peaks Wilderness
James Peak Wilderness
La Garita Wilderness
Lizard Head Wilderness
Lost Creek Wilderness
Maroon Bells-Snowmass Wilderness
Mesa Verde Wilderness
Mount Evans Wilderness
Mount Massive Wilderness
Mount Sneffels Wilderness
Mount Zirkel Wilderness
Neota Wilderness
Never Summer Wilderness
Platte River Wilderness
Powderhorn Wilderness
Ptarmigan Peak Wilderness
Raggeds Wilderness
Rawah Wilderness
Rocky Mountain National Park Wilderness
Sangre de Cristo Wilderness
Sarvis Creek Wilderness
South San Juan Wilderness
Spanish Peaks Wilderness
Uncompahgre Wilderness
Vasquez Peak Wilderness
Weminuche Wilderness
West Elk Wilderness

Florida

Alexander Springs Wilderness
Big Gum Swamp Wilderness
Billies Bay Wilderness
Bradwell Bay Wilderness
Cedar Keys Wilderness
Chassahowitzka Wilderness
Florida Keys Wilderness
Island Bay Wilderness
J.N. "Ding" Darling Wilderness
Juniper Prairie Wilderness
Lake Woodruff Wilderness
Little Lake George Wilderness
Marjory Stoneman Douglas Wilderness
Mud Swamp/New River Wilderness
Passage Key Wilderness
Pelican Island Wilderness
St. Marks Wilderness

Georgia

Big Frog Wilderness
Blackbeard Island Wilderness
Blood Mountain Wilderness
Brasstown Wilderness
Cohutta Wilderness
Cumberland Island Wilderness
Ellicott Rock Wilderness
Mark Trail Wilderness
Okefenokee Wilderness
Raven Cliffs Wilderness
Rich Mountain Wilderness
Southern Nantahala Wilderness
Tray Mountain Wilderness
Wolf Island Wilderness

Hawaii

Haleakala Wilderness
Hawaii Volcanoes Wilderness

Idaho

Big Jacks Creek Wilderness
Bruneau-Jarbidge Rivers Wilderness
Gospel-Hump Wilderness
Hells Canyon Wilderness
Little Jacks Creek Wilderness
Sawtooth Wilderness
Selway-Bitterroot Wilderness

Craters of the Moon National Wilderness Area
Frank Church-River of No Return Wilderness
North Fork Owyhee Wilderness
Owyhee River Wilderness
Pole Creek Wilderness

Illinois

Bald Knob Wilderness
Bay Creek Wilderness
Burden Falls Wilderness
Clear Springs Wilderness
Crab Orchard Wilderness
Garden of the Gods Wilderness
Lusk Creek Wilderness
Panther Den Wilderness

Indiana

Charles C. Deam Wilderness

Kentucky

Beaver Creek Wilderness
Clifty Wilderness

Louisiana

Breton Wilderness
Kisatchie Hills Wilderness
Lacassine Wilderness

Maine

Caribou-Speckled Mountain Wilderness
Moosehorn (Baring Unit) Wilderness
Moosehorn Wilderness

Massachusetts

Monomoy Wilderness

Michigan

Beaver Basin Wilderness
Big Island Lake Wilderness
Delirium Wilderness
Horseshoe Bay Wilderness
Huron Islands Wilderness
Isle Royale Wilderness
Mackinac Wilderness
McCormick Wilderness
Michigan Islands Wilderness
Nordhouse Dunes Wilderness
Rock River Canyon Wilderness
Round Island Wilderness
Seney Wilderness
Sturgeon River Gorge Wilderness
Sylvania Wilderness

Minnesota

Agassiz Wilderness
Boundary Waters Canoe Area Wilderness
Tamarac Wilderness

Mississippi

Black Creek Wilderness
Gulf Islands Wilderness
Leaf Wilderness

Missouri

Bell Mountain Wilderness
Devils Backbone Wilderness
Hercules-Glades Wilderness
Irish Wilderness
Mingo Wilderness
Paddy Creek Wilderness
Piney Creek Wilderness
Rockpile Mountain Wilderness

Montana

Absaroka-Beartooth Wilderness
Anaconda Pintler Wilderness
Bob Marshall Wilderness
Cabinet Mountains Wilderness
Great Bear Wilderness
Lee Metcalf Wilderness
Medicine Lake Wilderness
Mission Mountains Wilderness
Red Rock Lakes Wilderness
Scapegoat Wilderness
Selway-Bitterroot Wilderness
UL Bend Wilderness

Gates of the Mountains Wilderness
Rattlesnake Wilderness
Welcome Creek Wilderness

Nebraska

Fort Niobrara Wilderness
Soldier Creek Wilderness

Nevada

Alta Toquima Wilderness
Arc Dome Wilderness
Arrow Canyon Wilderness
Bald Mountain Wilderness
Becky Peak Wilderness
Big Rocks Wilderness
Black Canyon Wilderness
Black Rock Desert Wilderness
Boundary Peak Wilderness
Bridge Canyon Wilderness
Bristlecone Wilderness
Calico Mountains Wilderness
Clover Mountains Wilderness
Currant Mountain Wilderness
Death Valley Wilderness
Delamar Mountains Wilderness
East Fork High Rock Canyon Wilderness
East Humboldts Wilderness
Eldorado Wilderness
Far South Egans Wilderness
Fortification Range Wilderness
Goshute Canyon Wilderness
Government Peak Wilderness
Grant Range Wilderness
High Rock Canyon Wilderness
High Rock Lake Wilderness
High Schells Wilderness
Highland Ridge Wilderness
Ireteba Peaks Wilderness
Jarbidge Wilderness
Jimbilnan Wilderness
Jumbo Springs Wilderness
La Madre Mountain Wilderness
Lime Canyon Wilderness
Little High Rock Canyon Wilderness
Meadow Valley Range Wilderness
Mormon Mountains Wilderness
Mount Grafton Wilderness
Mt. Charleston Wilderness
Mt. Irish Wilderness
Mt. Moriah Wilderness
Mt. Rose Wilderness
Muddy Mountains Wilderness
Nellis Wash Wilderness
North Black Rock Range Wilderness
North Jackson Mountains Wilderness
North McCullough Wilderness
Pahute Peak Wilderness
Parsnip Peak Wilderness
Pinto Valley Wilderness
Quinn Canyon Wilderness
Rainbow Mountain Wilderness
Red Mountain Wilderness
Ruby Mountains Wilderness
Santa Rosa-Paradise Peak Wilderness
Shellback Wilderness
South Egan Range Wilderness
South Jackson Mountains Wilderness
South McCullough Wilderness
South Pahroc Range Wilderness
Spirit Mountain Wilderness
Table Mountain Wilderness
Tunnel Spring Wilderness
Wee Thump Joshua Tree Wilderness
Weepah Spring Wilderness
White Pine Range Wilderness
White Rock Range Wilderness
Worthington Mountains Wilderness

New Hampshire

Great Gulf Wilderness
Pemigewasset Wilderness
Presidential Range-Dry River Wilderness
Sandwich Range Wilderness
Wild River Wilderness

New Jersey

Brigantine Wilderness
Great Swamp National Wildlife Refuge Wilderness

New Mexico

Aldo Leopold Wilderness
Apache Kid Wilderness
Bandelier Wilderness
Bisti/De-Na-Zin Wilderness
Blue Range Wilderness
Bosque del Apache Wilderness
Capitan Mountains Wilderness
Carlsbad Caverns Wilderness
Cebolla Wilderness
Chama River Canyon Wilderness
Cruces Basin Wilderness
Dome Wilderness
Gila Wilderness
Latir Peak Wilderness
Manzano Mountain Wilderness
Ojito Wilderness
Pecos Wilderness
Sabinoso Wilderness
Salt Creek Wilderness
San Pedro Parks Wilderness
Sandia Mountain Wilderness
West Malpais Wilderness
Wheeler Peak Wilderness
White Mountain Wilderness
Withington Wilderness

New York

Otis Pike Fire Island High Dune Wilderness

North Carolina

Birkhead Mountains Wilderness
Catfish Lake South Wilderness
Ellicott Rock Wilderness
Joyce Kilmer-Slickrock Wilderness
Linville Gorge Wilderness
Middle Prong Wilderness
Pocosin Wilderness
Pond Pine Wilderness
Sheep Ridge Wilderness
Shining Rock Wilderness
Southern Nantahala Wilderness
Swanquarter Wilderness

North Dakota

Chase Lake Wilderness
Lostwood Wilderness
Theodore Roosevelt Wilderness

Ohio

West Sister Island Wilderness

Oklahoma

Black Fork Mountain Wilderness
Upper Kiamichi River Wilderness
Wichita Mountains Wilderness

Oregon

Badger Creek Wilderness
Black Canyon Wilderness
Boulder Creek Wilderness
Bridge Creek Wilderness
Bull of the Woods Wilderness
Clackamas Wilderness
Copper Salmon Wilderness
Cummins Creek Wilderness
Diamond Peak Wilderness
Drift Creek Wilderness
Eagle Cap Wilderness
Gearhart Mountain Wilderness
Grassy Knob Wilderness
Hells Canyon Wilderness
Kalmiopsis Wilderness
Lower White River Wilderness
Mark O. Hatfield Wilderness
Menagerie Wilderness
Middle Santiam Wilderness
Mill Creek Wilderness
Monument Rock Wilderness
Mount Hood Wilderness
Mount Jefferson Wilderness
Mount Thielsen Wilderness
Mount Washington Wilderness
Mountain Lakes Wilderness
North Fork John Day Wilderness
North Fork Umatilla Wilderness
Opal Creek Wilderness
Oregon Badlands Wilderness
Oregon Islands Wilderness
Red Buttes Wilderness
Roaring River Wilderness
Rock Creek Wilderness
Rogue-Umpqua Divide Wilderness
Salmon-Huckleberry Wilderness
Sky Lakes Wilderness
Soda Mountain Wilderness
Spring Basin Wilderness
Steens Mountain Wilderness
Strawberry Mountain Wilderness
Table Rock Wilderness
Three Arch Rocks Wilderness
Three Sisters Wilderness
Waldo Lake Wilderness
Wenaha-Tucannon Wilderness
Wild Rogue Wilderness

Pennsylvania

Allegheny Islands Wilderness
Hickory Creek Wilderness

Puerto Rico

El Toro Wilderness

South Carolina

Cape Romain Wilderness
Congaree National Park Wilderness
Ellicott Rock Wilderness
Hell Hole Bay Wilderness
Little Wambaw Swamp Wilderness
Wambaw Creek Wilderness
Wambaw Swamp Wilderness

South Dakota

Badlands Wilderness
Black Elk Wilderness

Tennessee

Bald River Gorge Wilderness
Big Frog Wilderness
Big Laurel Branch Wilderness
Citico Creek Wilderness
Cohutta Wilderness
Gee Creek Wilderness
Joyce Kilmer-Slickrock Wilderness
Little Frog Mountain Wilderness
Pond Mountain Wilderness
Sampson Mountain Wilderness
Unaka Mountain Wilderness

Texas

Big Slough Wilderness
Guadalupe Mountains Wilderness
Indian Mounds Wilderness
Little Lake Creek Wilderness
Turkey Hill Wilderness
Upland Island Wilderness

Utah

Ashdown Gorge Wilderness
Beartrap Canyon Wilderness
Beaver Dam Mountains Wilderness
Blackridge Wilderness
Black Ridge Canyons Wilderness
Box-Death Hollow Wilderness
Canaan Mountain Wilderness
Cedar Mountain Wilderness Area
Cottonwood Canyon Wilderness
Cottonwood Forest Wilderness
Cougar Canyon Wilderness
Dark Canyon Wilderness
Deep Creek North Wilderness
Deep Creek Wilderness
Deseret Peak Wilderness
Doc's Pass Wilderness
Goose Creek Wilderness
High Uintas Wilderness
LaVerkin Creek Wilderness
Lone Peak Wilderness
Mount Naomi Wilderness
Mount Nebo Wilderness
Mount Olympus Wilderness
Mount Timpanogos Wilderness
Paria Canyon-Vermilion Cliffs Wilderness
Pine Valley Mountain Wilderness
Red Butte Wilderness
Red Mountain Wilderness
Slaughter Creek Wilderness
Taylor Creek Wilderness
Twin Peaks Wilderness
Wellsville Mountain Wilderness
Zion Wilderness

Vermont

Big Branch Wilderness
Breadloaf Wilderness
Bristol Cliffs Wilderness
George D. Aiken Wilderness
Glastenbury Wilderness
Joseph Battell Wilderness
Lye Brook Wilderness
Peru Peak Wilderness

Virginia

Barbours Creek Wilderness
Beartown Wilderness
Brush Mountain East Wilderness
Brush Mountain Wilderness
Garden Mountain Wilderness
Hunting Camp Creek Wilderness
James River Face Wilderness
Kimberling Creek Wilderness
Lewis Fork Wilderness
Little Dry Run Wilderness
Little Wilson Creek Wilderness
Mountain Lake Wilderness
Peters Mountain Wilderness
Priest Wilderness
Raccoon Branch Wilderness
Ramseys Draft Wilderness
Rich Hole Wilderness
Rough Mountain Wilderness
Saint Mary's Wilderness
Shawvers Run Wilderness
Shenandoah Wilderness
Stone Mountain Wilderness
Three Ridges Wilderness
Thunder Ridge Wilderness

Washington

Alpine Lakes Wilderness
Boulder River Wilderness
Buckhorn Wilderness
Clearwater Wilderness
Colonel Bob Wilderness
Glacier Peak Wilderness
Glacier View Wilderness
Goat Rocks Wilderness
Juniper Dunes Wilderness
Lake Chelan-Sawtooth Wilderness
Mount Adams Wilderness
Mount Baker Wilderness
Mount Rainier Wilderness
Mount Skokomish Wilderness
Noisy-Diobsud Wilderness
Salmo-Priest Wilderness
San Juan Wilderness
Stephen Mather Wilderness
Tatoosh Wilderness
The Brothers Wilderness
Trapper Creek Wilderness
Washington Islands Wilderness
Wenaha-Tucannon Wilderness

Henry M. Jackson Wilderness	Norse Peak Wilderness	Wild Sky Wilderness
Indian Heaven Wilderness	Olympic Wilderness	William O. Douglas Wilderness
	Pasayten Wilderness	Wonder Mountain Wilderness

West Virginia

Big Draft Wilderness	Laurel Fork North Wilderness	Mountain Lake Wilderness
Cranberry Wilderness	Laurel Fork South Wilderness	Roaring Plains West Wilderness
Dolly Sods Wilderness		Otter Creek Wilderness
		Spice Run Wilderness

Wisconsin

Blackjack Springs Wilderness	Porcupine Lake Wilderness	Wisconsin Islands Wilderness
Gaylord A. Nelson Wilderness	Rainbow Lake Wilderness	
Headwaters Wilderness	Whisker Lake Wilderness	

Wyoming

Absaroka-Beartooth Wilderness	Gros Ventre Wilderness	Popo Agie Wilderness
Bridger Wilderness	Huston Park Wilderness	Savage Run Wilderness
Cloud Peak Wilderness	Jedediah Smith Wilderness	Teton Wilderness
Encampment River Wilderness	North Absaroka Wilderness	Washakie Wilderness
Fitzpatrick Wilderness	Platte River Wilderness	Winegar Hole Wilderness

G.5 National Wild and Scenic Rivers

Alagnak, Alaska
Alatna, Alaska
Allagash Wilderness Waterway, Maine
Allegheny, Pennsylvania
American (Lower), California
Andreafsky, Alaska
Aniakchak, Alaska
Au Sable, Michigan
Bear Creek, Michigan
Beaver Creek, Alaska
Big and Little Darby Creeks, Ohio
Big Marsh Creek, Oregon
Big Piney Creek, Arkansas
Big Sur, California
Birch Creek, Alaska
Black Butte, California
Black Creek, Mississippi
Black, Michigan
Bluestone, West Virginia
Buffalo, Arkansas
Cache la Poudre, Colorado
Carp, Michigan
Charley, Alaska
Chattooga, Georgia, North and South Carolina
Chetco, Oregon
Chilikadrotna, Alaska
Clackamas, Oregon
Clarion, Pennsylvania
Clarks Fork Yellowstone, Wyoming
Cossatot, Arkansas
Crescent Creek, Oregon
Crooked, Oregon
Delaware (Lower), New Jersey & Pennsylvania
Delaware (Middle), New Jersey & Pennsylvania
Delaware (Upper), New York & Pennsylvania
Delta, Alaska
Deschutes, Oregon
Donner und Blitzen, Oregon
Eagle Creek, Oregon
East Branch Tahquamenon, Michigan
East Fork Jemez, New Mexico
Eel, California
Eleven Point, Missouri
Elk, Oregon
Elkhorn Creek, Oregon
Farmington (West Branch), Connecticut
Feather, California
Flathead, Montana
Fortymile, Alaska
Grande Ronde, Oregon
Great Egg Harbor, New Jersey
Gulkana, Alaska
Horsepasture, North Carolina
Hurricane Creek, Arkansas
Illinois, Oregon
Imnaha, Oregon
Indian, Michigan
Ivishak, Alaska
John Day, Oregon
John, Alaska

Joseph Creek, Oregon
Kern, California
Kings, California
Klamath, California
Klickitat, Washington
Kobuk, Alaska
Lamprey, New Hampshire
Little Beaver, Ohio
Little Deschutes, Oregon
Little Miami, Ohio
Little Missouri, Arkansas
Lostine, Oregon
Loxahatchee, Florida
Lumber, North Carolina
Malheur, Oregon
Manistee, Michigan
Maurice, New Jersey
McKenzie, Oregon
Merced, California
Metolius, Oregon
Middle Fork Clearwater, Idaho
Middle Fork Salmon, Idaho
Middle Fork Vermilion, Illinois
Minam, Oregon
Missouri, Montana
Mulberry, Arkansas
Mulchatna, Alaska
Musconetcong, New Jersey
New, North Carolina
Niobrara, Nebraska
Noatak, Alaska
North Fork American, California
North Fork Crooked, Oregon
North Fork John Day, Oregon
North Fork Koyukuk, Alaska
North Fork Malheur, Oregon
North Fork Middle Fork Willamette, Oregon
North Fork Owyhee, Oregon
North Fork Smith, Oregon
North Fork Sprague, Oregon
North Powder, Oregon
North Sylamore Creek, Arkansas
North Umpqua, Oregon
Nowitna, Alaska
Obed, Tennessee
Ontonagon, Michigan
Owyhee, Oregon
Paint, Michigan
Pecos, New Mexico
Pere Marquette, Michigan
Pine, Michigan
Powder, Oregon
Presque Isle, Michigan
Quartzville Creek, Oregon
Rapid, Idaho
Red, Kentucky
Richland Creek, Arkansas
Rio Chama, New Mexico
Rio de la Mina, Puerto Rico
Rio Grande, New Mexico
Rio Grande, Texas
Rio Icacos, Puerto Rico
Rio Mameyes, Puerto Rico
Roaring, Oregon
Rogue, Oregon
Saint Joe, Idaho
Saline Bayou, Louisiana
Salmon, Alaska
Salmon, Idaho
Salmon, Oregon
Sandy, Oregon
Selawik, Alaska
Sespe Creek, California
Sheenjek, Alaska
Sipsey Fork West Fork, Alabama
Sisquoc, California
Skagit, Washington
Smith, California
Snake, Idaho & Oregon
South Fork John Day, Oregon
Squaw Creek, Oregon
St. Croix (Lower) Minnesota & Wisconsin
St. Croix (Lower), Minnesota & Wisconsin
St. Croix, Minnesota & Wisconsin
Sturgeon, Michigan (Hiawatha National Forest)
Sturgeon, Michigan (Ottawa National Forest)
Sudbury, Assabet, Concord, Massachusetts
Sycan, Oregon
Tinayguk, Alaska
Tlikakila, Alaska
Trinity, California
Tuolumne, California
Unalakleet, Alaska
Upper Rogue, Oregon
Verde, Arizona
Wallowa, Oregon
Wekiva, Florida
Wenaha, Oregon
West Little Owyhee, Oregon
Westfield, Massachusetts
White Clay Creek, Delaware & Pennsylvania
White Salmon, Washington
White, Oregon
Whitefish, Michigan
Wildcat River, New Hampshire
Wildhorse and Kiger Creeks, Oregon
Wilson Creek, North Carolina
Wind, Alaska
Wolf, Wisconsin
Yellow Dog, Michigan

G.6 Outstanding National Resource Water (ONRW) Designated by a State or Tribe

States have an obligation under the antidegradation policy of the CWA to ensure that water quality is maintained and protected where "high quality waters constitute an outstanding national resource, such as water of national and state parks and wildlife refuges and waters of exceptional recreational or ecological significance." 40 CFR §131.12(a)(3).

Water Resources Boards may designate certain waters, including wetlands, as outstanding under state and federal law. When waters are designated, their existing water quality shall, at a minimum, be protected and maintained. Because ONRWs are designated by each state, permittees should consult state water quality management agencies to determine if ONRWs exist in the area where they may operate their vessel.

Appendix H – Annual Report

EPA United States Environmental Protection Agency
Washington, DC 20460 Form Approved OMB No.
One Time Report for Discharges Incidental to the Normal Operation 2040-0004
Of a Vessel under the NPDES Vessel General Permit

Owner/Operator and Vessel Information

Date Submitted ___________________ Vessel NOI Number (if applicable) _________
Vessel Owner/Operator ___________________________ Phone___________________________
Address____ E-mail___________________________
Vessel Name ____________________________________ Vessel Type ______________________
Length _____________________FEET/METERS (Circle One) Gross Tonnage _______□ gross tons □ gross registered tons
Date of Vessel Construction ________________________
Calendar Year for which you are submitting the report: _____
Did your vessel operate in waters subject to this permit during the previous calendar year: □ Yes □ No
If you answered No to this question, completion of the remainder the following questions are voluntary; however you must certify the bottom of the report.

Questions

1. Please list your vessel's primary geographical regions of operation in U.S. waters last year and report the approximate percentage of time was your vessel in each region?
□ Gulf Coast ___ □ Pacific Coast ___ □ Atlantic Coast ___ □ Mississippi-Ohio River System ___ □ Great Lakes ___ □ Puerto Rico and the US Virgin Islands □ Other: _________

2a. Did you conduct the following inspections in the last year? (Optional for inland vessels less than 300GT and unmanned, unpowered barges)
Drydock Inspections □ Yes □No Most recent drydock and inspection date: _________
Next scheduled drydocking: _________
Annual Inspections □ Yes □ No Most recent inspection date: _________
All Required Routine Inspections □ Yes □No
If you checked no, how many routine inspections did you miss in the last year?
□ 1-2 □3-4 □5-6 □7 or more
Last below water (or drydock) hull inspection: _________

2b. On average, how often did you conduct routine inspections in the last year?
□ Never □Once per week □Between once per week and once per day □Once per day □More than once per day □Other: ________________

3a. Did your vessel discharge ballast water in U.S. waters? □ Yes □No
What is the capacity of your vessel's ballast tanks? _____________□ gallons □ $meters^3$
How many ballast tanks are present on your vessel (include holds or other areas that were used to carry ballast water)? ___________

For each tank or hold used to carry ballast, list type, capacity, and identifier: _________
Does your vessel have a ballast water treatment system? □ Yes □No □ N/A
If you answered yes, please attach analytical monitoring data for treated ballast water discharges required by Parts 2.2.3.5.1.1 of the permit (see VGP Ballast Water DMR below).
Did you operate outside the EEZ and enter the Great Lakes? □ Yes □No □ N/A
If yes, did you discharge ballast water? □ Yes □No □ N/A
If yes, did you conduct ballast water exchange and/or flushing as applicable? □ Yes □No □ N/A

3b. Does your vessel have an exhaust gas scrubber? □ Yes □No
Did your vessel discharge washwater from its exhaust gas scrubber in U.S. waters? □ Yes □No □ N/A
If you answered yes, please attach analytical monitoring data for exhaust gas scrubber washwater (see VGP Exhaust Gas Scrubber DMR below)
Discharge required by Part 2.2.26 of the permit.

3c. Does your vessel have an oily water separator (OWS)? □ Yes □No
If your vessel is greater than 400 GT did it discharge treated bilgewater within 1 nm of shore? □ Yes □No □ N/A Did you ever discharge into waters subject to this permit (within 3 nm)? □ Yes □No □ N/A
If you discharged within 1 nm, why did you discharge?
□ Never left waters subject to this permit, but the discharge met a 15 ppm standard. □ Technically infeasible or unsafe to hold (if checked, please attach explanation as to why it was technically infeasible or unsafe to hold).
If you discharged within three nautical miles, did you collect analytical oil and grease monitoring data? □ Yes □ No □ No, I qualified for the analytical monitoring waivers found in Part 2.2.2.1 of the permit (not available in the first two years of permit coverage).
If you answered yes, please attach analytical monitoring data for bilgewater sampling (see VGP Bilgewater DMR below)

3d. Did you discharge treated or untreated graywater in U.S. waters? □ Treated □Untreated □None
Does your vessel have and use a treatment system for graywater or graywater mixed with sewage? □ Yes □No □ N/A
If yes, please list the system make and model: __________
Is your vessel subject to analytical monitoring requirements in Parts 2.2.15, 5.1, or 5.2 □ Yes □ No. If yes, please attach analytical monitoring data for treated graywater discharges (see VGP Graywater DMR below).

3e. Do you use anti-foulant coating? Yes □No □ N/A
If so, what is the type of anti-fouling hull coating on vessel and select specific product?

Date last applied: _________

4. Did your vessel store any discharges incidental to the normal operation of vessels on board for onshore disposal?
□ Yes (please list) ____ □No
If yes, please list disposal method (e.g., onshore treatment, pump out truck)________

5. Did your vessel use environmentally acceptable lubricants for oil to sea interfaces?
□ Yes (please name the brand(s)) ___________________________ □No
If not, why? ________________

6. Did you have to claim a safety exemption for any discharge category, and were therefore unable to meet effluent limits of the VGP?
□ Yes (please list discharge types) ______________________________________ □No
If yes, reason(s) safety exemptions claimed? _____________________________

7. Did you receive any citations or warnings from EPA or the U.S. Coast Guard for any violations of environmental laws? If yes, please scan and attach.
□ Yes (explain) ____
____

□No

8. Did you have any instances of noncompliance this year (e.g., discharging untreated bilgewater, exceeding numeric effluent limits)?
□ Yes □No

If you answered yes, please fill out the table below. Please attach additional pages as necessary.

Date	VGP Requirement Affected	Description of Noncompliance	Cause of Noncompliance	Description of Corrective Action Performed or Scheduled

Certification Information

I certify under penalty of law that the information contained in this form is, to the best of my knowledge and belief, true, accurate and complete. Furthermore, I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information contained therein. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information contained is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

____
Signature and Date

Annual Report: Ballast Water Treatment System Reporting Supplemental Addendum (VGP Ballast Water DMR)

A. Ballast Water Treatment System Information Facility Identifier (i.e., NOI number): ______________
Treatment system description: ____
System supplier and model:____
Installation Date: ______________________
First date of operation: ______________________
Technology type (check all that apply):

☐ Akylamines	☐ Deoxygenation	☐ Ozone
☐ Bioremediation	☐ Electric pulse	☐ Peracetic acid
☐ Cavitation	☐ Filtration	☐ Plasma pulse
☐ Chlorine addition/electrochlorination	☐ Heat	☐ Shear
☐ Chlorine dioxide	☐ Hydrocyclone	☐ Ultrasound
☐ Coagulation	☐ Menadione/Vitamin K	☐ Ultraviolet
☐ Other (specify): ______________________		

Is the ballast water treatment system type approved? Yes No

If you answered "*Yes*" please provide the flag administration(s) that approved that system? ______________________

Are all type approval data available to US EPA or the US Coast Guard (see Part 2.2.3.5.1.1.1 of this permit)? Yes No Unknown
Has the system been determined by the US Coast Guard to be an "Alternate Management System?" Yes No Unknown
Note: if you responded "*unknown*" to the two questions above, you must follow the monitoring schedule for devices for which high quality data are not available.

B. Monitoring Information
Have all the permit monitoring conditions for the ballast water treatment system(s) that apply to your vessel (Part 2.2.3.5.1.1.1 of this permit) been completed during the previous calendar year? Yes No
Please check which monitoring requirements were completed:
☐ Ballast water system functionality monitoring at least monthly.
☐ Calibration of probes/sensors that measure ballast water treatment performance at least annually.
☐ Biological monitoring. Number of sampling events: ___
☐ Residual biocide and derivative monitoring (if applicable). Number of initial: ___ Number of maintenance: ___

Provide ballast water treatment system functional monitoring information and ballast discharge analytical data for the previous calendar year in the attached tables. Provide any correlations and/or calculations between measured operating parameters and treatment concentrations in the space below (e.g., correlation between measured ORP and chlorine concentration in ballast water):

C. Certifier Name and Title
I certify under penalty of law that this document were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information contained therein. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information contained is, to the best of my knowledge and belief true, accurate, and complete. I have no personnel knowledge that the information submitted is other than true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.
Print Name:____
Title:____
Signature:____
Email:____

Ballast Water Treatment System Functionality Monitoring (provide information for each month for all that apply; attach pages as needed)

Parameter Used to Measure System Functionality[a]	Units[b]	Measurement Method[c]	Month[d]	Number of Measurements per Month[e]	Minimum Monthly Measured Value	Average Monthly Measured Value	Maximum Monthly Measured Value	System Design Operating Range

a. Part 2.2.3.5.1.1.2 and Appendix J of the permit describes the types of measurements required to verify system functionality (e.g., chlorine concentration, ORP, ozone concentration, etc.).
b. Units include items such as mg/L or ppm for chemical concentrations, lbs or gallons/month for chemical dosage amounts, watts/month for power consumption, etc.
c. Measurement methods can include probe, sensor, sample analysis, counts, etc.
d. Vessels need to provide information for only those months that ballast water was discharged into U.S. waters.
e. If continuous measurements are recorded for the parameter, note “continuous” in the provided column.

Biological Monitoring of Ballast Water Discharges (provide information for each sampling event for all that apply; attach pages as needed)

Parameter	Analytical Method	Sample Date(s)[a]	Sample Result(s)[a]	Units	Discharge Location
Total live bacteria					
E. coli					
Enterococci					
Other (specify):					

a. Part 2.2.3.5.1.1.4 of the permit provides the required sampling schedule. If you collected multiple samples during the calendar year, list the samples and corresponding results in order of date collected.

Residual Biocide/Derivative Monitoring of Ballast Water Discharges (provide information for each sampling event for all that apply; attach pages as needed)

Biocide/Derivative[a]	Analytical Method	Sample Date(s)[b]	Sample Result(s)[b]	Units	Discharge Location

a. Section 2.2.3.5.1.1.5 of the permit lists biocides and derivatives the vessel must monitor for based on the type of treatment system (e.g., chlorine, haloacetic acid, trihalomethanes). You must report those results here.
b. Section 2.2.3.5.1.1.5 provides the required sampling schedule. If you collected multiple samples during the calendar year, list the samples and corresponding results in order of date collected.

Annual Report: Exhaust Gas Scrubber Discharge Monitoring Supplemental Addendum (VGP Exhaust Gas Scrubber Discharge Monitoring Report)

Exhaust Gas Scrubber Analytical Monitoring (provide information for all that apply)

Sample Date: ____________ Sample Type (inlet water, water after the scrubber, discharge water): _______________ Facility Identifier (i.e., NOI number): ______________

Sample #:______________ (Please provide a separate page for each sampling event)

Parameter	Analytical Method[a]	Sample Date(s)[b] (MM/DD/YYYY)	Sample Result(s)	Units	Flow Rate	Discharge Location (Lat/Long)[c]	Was the Sample Taken in U.S. Waters?
Nitrate-Nitrite							
pH							
Arsenic							
Cadmium							
Chromium							
Copper							
Lead							
Nickel							
Selenium							
Vanadium							
Zinc							
Acenaphthylene							
Acenaphthene							
Anthracene							
Benz[a]anthracene							
Benzo[ghi]perylene							
Benzo[a]pyrene							
Benzo[b]fluoranthene + benzo[k]fluoranthene							
Chrysene							
Dibenz[a,h]anthracene							
Fluoranthene							
Fluorene							
Indeno[1,2,3,c,d]pyrene							
Naphthalene							
Phenanthrene							
Pyrene							

Additional Detail:

pH Probe Value (at same time sample collected): ________________________________

PAH Probe Value (at same time sample collected): ______________________________

Turbidity Probe Value (at same time sample collected): __________________________

Maximum continuous rating or 80 percent of the power rating of the fuel oil combustion unit in MWh: _________________________

Sampling performed downstream of the water treatment equipment but upstream of washwater dilution (or other reactant dosing) prior to discharge? □ Yes □No

a) Part 2.2.26.2.3 of the permit discusses appropriate methods for monitoring. Please select methods that correct for matrix interference.
b) Part 2.2.26.2.2 of the permit provides the required sampling schedule. If you collected multiple samples during the calendar year, list the samples and corresponding results in order of date collected.
c) Provide latitude and longitude of discharge location during sampling.

Exhaust Gas Scrubber Continuous Monitoring (provide information for all that apply)

Month:______________________ (Please provide a separate page for each month of the discharge)

Parameter	Units[a]	Minimum Monthly Measured Value	Average Monthly Measured Value	Maximum Monthly Measured Value	Did You Operate in US Waters this Month?
pH	Standard Units				
PAH (if available)	μ/L PAHphe				
Turbidity					
Temperature					

Additional Details:

pH probe calibration date: ______________________________

PAH probe calibration date (if available): ____________________

Turbidity probe calibration date: __________________________

Temperature probe calibration date: ________________________

Maximum continuous rating or 80 percent of the power rating of the fuel oil combustion unit in MWh: ____________________________

Sampling performed downstream of the water treatment equipment but upstream of washwater dilution (or other reactant dosing) prior to discharge? ☐ Yes ☐ No

Exhaust gas scrubber treatment system additives (names of any additives and dosage (if available) used, i.e., coagulant, flocculant, reaction water): ____ ______ ______

a. Units for turbidity are either FNU or NTU, and units for temperature are either °C or °F.

Annual Report: Graywater Discharge Monitoring Supplemental Addendum (VGP Graywater Discharge Monitoring Report)

Graywater Monitoring (provide information for all that apply)

My vessel had to conduct sampling _______________ times in year______________________Facility Identifier (i.e., NOI number): ______________

Sample #:_____________ (Please provide a separate form for each sampling event)

Parameter	Analytical Method[a]	Sample Date(s)[b] (MM/DD/YYYY)	Sample Time	Sample Result(s)	Units	Discharge Location[c] (Lat/Long)	Overboard Discharge Port Location[c]	Analysis Date/ Analyst[d] (MM/DD/YYYY)	Was the Sample Taken in U.S. Waters?
pH									
BOD									
Fecal coliform									
Suspended Solids									
Total Residual chlorine[e]									
E. coli[f]									
Total phosphorus(TP)[f]									
Ammonia[f]									
Nitrate + Nitrite[f]									
Total Kjeldahl Nitrogen (TKN)[f]									

a. Part 2.2.15.2, 5.1.2 and 5.2.2 of the permit discusses appropriate methods for monitoring.
b. Part 2.2.15.2, 5.1.2 and 5.2.2 of the permit provides the required sampling schedule.
c. Provide latitude and longitude of discharge location during sampling and the sampled overboard discharge port location
d. Provide both the name of analyst and analysis date in MM/DD/YYYY format.
e. Parameter not required for medium and large cruise ships meeting certain criteria per Parts 5.1.2.2.1 and 5.2.2.2.1.
f. Parameter must be analyzed only by medium and large cruise ships.

Annual Report: Bilgewater Discharge Monitoring Supplemental Addendum (VGP Bilgewater Discharge Monitoring Report)

Bilgewater Monitoring (provide information for all that apply)

Sample #:______________ (Please provide a separate form for each sampling event) Facility Identifier (i.e., NOI number): ______________

Parameter	Analytical Method[a]	Sample Date(s) (MM/DD/YYYY)	Sample Time	Sample Result(s)	Units	Discharge Location[b]	Overboard Discharge Port Location[b]	Analysis Date/ Analyst Name[c] (MM/DD/YYYY)	Was the Sample Taken in U.S. Waters?
Oil and Grease					ppm				

Additional Details:

OCM Value (at same time sample collected) ____________________________

OCM Make and Model Number ____________________________

OMC calibration date and name of calibrator ____________________________

Oil/water separator additive type (name of any additives used, i.e, solidifier, flocculant): ______________________

a. Part 2.2.2.1 of the permit discusses monitoring methods. Samples must be analyzed for oil by either Method ISO 9377-2 (2000) Water Quality–Determination of hydrocarbon oil index–Part 2: Method Using Solvent Extraction and Gas Chromatography (incorporation by reference, see 46 CFR §162.050–4) or EPA Method 1664.
b. Provide latitude and longitude of discharge location during sampling and the sampled overboard discharge port location
c. Provide both the name of analyst and analysis date in MM/DD/YYYY format.

Appendix I – Standard Discharge Monitoring Report

EPA's Standard Discharge Monitoring Report is available at:
http://www.epa.gov/compliance/resources/publications/data/systems/icis/quickreference/icis-dmr-overview-and-form.pdf

Appendix J – Ballast Water Treatment System Sensors, Measurement Requirements and Appropriate Equipment for Physical/Chemical Indicator Monitoring

Technology Type	Measurement	Potential Control Sensor, Equipment, or Procedure	Non Discharge Indicators of BWTS Performance	Required Metrics to be Reported
Alkylamines	Alkylamines	Chemical analysis and treatment monitoring	-Alkylamines concentration at injection -Alkylamines dosage and usage	-Alkylamines sample concentration -Alkylamines dosage and usage
	pH	pH sensor	pH	pH readings
Biological agents	Treatment chemical	Chemical analysis and treatment monitoring	-Treatment chemical concentration at injection -Treatment chemical dosage and usage	-Treatment chemical sample concentration -Treatment chemical dosage and usage
Cavitation	Pressure differential	Pressure sensors (before/after)	Pressure differential	Pressure readings
Chlorination: (e.g., sodium chlorite and sodium hypochlorite	Chlorine	In-line N,N diethyl-p-phenylene diamine (DPD) analyzer, sample analysis, and treatment monitoring	-Chlorine concentration at injection -Chlorine dosage on treatment and usage (if chlorine addition)	-Chlorine readings from both on-line sensor and sample analysis -Chlorine dosage on treatment (if chlorine addition)
	Oxidation reduction potential (ORP)	ORP sensor	ORP at injection	ORP readings
	Power consumption, voltage and current	System power diagnostics	Chlorination module power consumption, voltage and current (if electrochlorination)	No Reporting Required
	Total residual oxidizers (TRO)	Amperometric sensor	TRO at injection	TRO readings
	Conductivity/salinity	Conductivity and temperature sensor	Conductivity and temperature at injection	Conductivity/salinity and temperature readings
Chlorine Dioxide	Chlorine Dioxide	On-line chlorine dioxide amperometric sensor, Lissamine Green B (LGB) sample analysis, and treatment monitoring	-Chlorine dioxide concentration at injection - Chlorine dioxide dosage and usage (if chlorine dioxide addition)	-Chlorine dioxide readings from both on-line sensor and sample analysis - Chlorine dioxide dosage and usage (if chlorine dioxide addition)

Coagulation (flocculent)	Coagulant	Chemical analysis and treatment monitoring	-Treatment flocculent concentration at injection -Treatment chemical dosage and usage	- Treatment flocculent concentration -Treatment chemical dosage and usage
	Turbidity (NTU)	Turbidity sensor	Coagulation effluent turbidity	Coagulation effluent turbidities
Deoxygenation	Dose of inert gas (if used)	Treatment monitoring	Deoxygenation gas dosage and usage	Deoxygenation gas dosage and usage
	pH (if CO_2 used)	pH sensor	pH	pH readings
	Dissolved oxygen (DO)	DO sensor	Deoxygenation module dissolved oxygen concentration	Dissolved oxygen concentrations
Electric pulse	Power consumption, voltage and current	System power diagnostics	Electric pulse module power consumption, voltage and current	Electric pulse module power consumption, voltage and current readings
Filtration	Flow rate	Flow meter	Filter effluent flow	Flow readings
	Pressure differential	Pressure sensors (before/after)	Filter pressure differential (e.g., before/after filtration)	Filter pressures (before/after)
	Back flush frequency	Treatment monitoring	Filter backwash frequency	Filter backwash frequencies
Heat	Temperature	Thermistors	Treatment temperature	Temperature readings
Hydrocyclone	Back flush frequency	Treatment monitoring	Hydrocyclone back flush frequency	Hydrocyclone back flush frequencies
	Power consumption, voltage and current	System power diagnostics	Hydrocyclone power consumption, voltage and current	Hydrocyclone power consumption, voltage and current
Menadione/Vitamin K	Menadione/Vitamin K	Chemical analysis and treatment monitoring	-Menadione/Vitamin K concentration at injection -Menadione/Vitamin K dosage and usage	-Menadione/Vitamin K concentration at injection -Menadione/Vitamin K dosage and usage
Ozone	TRO	Amperometric sensor	TRO at ozone injection	TRO readings
	Ozone	On-line ozone sensor (if used) and sample analysis	Ozone concentration at injection	Ozone readings from both on-line sensor (if used) and sample analysis
	Bromate	Sample analysis	Bromate at ozone injection	Bromate measurements
	Power consumption, voltage and current	System power diagnostics	Ozonation module power consumption, voltage and current	No Reporting Required
	Conductivity/salinity	Conductivity and temperature sensor	Conductivity and temperature at injection	Conductivity/salinity and temperature readings
Peracetic acid	Hydrogen peroxide	On-line sensor, chemical	-Hydrogen peroxide	-Hydrogen peroxide readings

		analysis, treatment monitoring	concentration at injection -Hydrogen peroxide dosage and usage	from both on-line sensor and sample analysis -Hydrogen peroxide dosage and usage
	Peracetic acid	On-line sensor, chemical analysis, treatment monitoring	-Peracetic acid concentration at injection -Peracetic acid dosage and usage	-Peracetic acid readings from both on-line sensor and sample analysis -Peracetic acid dosage and usage
	pH	pH sensor	pH at injection	pH readings
Plasma pulse	Power consumption, voltage and current	System power diagnostics	Plasma pulse module power consumption, voltage and current	Plasma pulse module power consumption, voltage and current readings
	Temperature	Thermistors	Treatment temperature	Temperature readings
Shear	Pressure differential	Pressure sensors (before/after)	Pressure differential	Pressure readings
Ultrasound	Power consumption, voltage and current	System power diagnostics	Ultrasound power consumption, voltage and current	Ultrasound module power consumption, voltage and current readings
UV and UV+TiO_2	Power consumption, voltage and current	System power diagnostics	UV module power consumption, voltage and current	UV module power consumption, voltage and current
	Lamp status and age	Treatment monitoring	UV lamp status and age	No Reporting Required
	UV dose, intensity, transmittance	UV sensors and monitors	UV dose, intensity, transmittance	UV dose, intensity, transmittance
	Flow rate	Flow meter	UV effluent flow	Flow readings

Appendix K – Permit Authorization and Record of Inspection Form (PARI) (for vessels which need not complete NOIs)

VGP Authorization and Record of Inspection (PARI) Form

I. Vessel Owner/Operator Information

Vessel Owner/Operator ____________________________ Phone ________________________

Address and Email Address: ____

II. Vessel Information

Vessel Name _____________________________ Vessel Type ___________________

Vessel Identifier ___________________________ □ Registered number/operating number □ IMO number

III. Owner/Operator Acknowledgement

By signing this form, I acknowledge that I have read and am familiar with the VGP and that I am implementing all permit requirements contained in the VGP.

IV. Certification Information

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information contained therein. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information contained is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

____
Signature and Date

V. Annual Inspections by Year

A. 2014
I certify that I have completed an annual inspection for 2014 in accordance with Part 4.1.3 of the VGP.

____
Signature and Date

B. 2015
I certify that I have completed an annual inspection for 2015 in accordance with Part 4.1.3 of the VGP.

____
Signature and Date

C. 2016
I certify that I have completed an annual inspection for 2016 in accordance with Part 4.1.3 of the VGP.

____
Signature and Date

D. 2017
I certify that I have completed an annual inspection for 2017 in accordance with Part 4.1.3 of the VGP.

____
Signature and Date

E. 2018
I certify that I have completed an annual inspection for 2018 in accordance with Part 4.1.3 of the VGP.

____
Signature and Date