LAKE CARRIERS' ASSOCIATION

November 25, 2020

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U.S. Environmental Protection Agency
1200 Pennsylvania Avenue NW
Washington, DC 20460.

Subject: Vessel Incidental Discharge National Standards of Performance, Docket ID No. EPA-HQ-OW-2019-0482

Lake Carriers' Association is submitting these comments in response to the proposed rule on the Vessel Incidental Discharge National Standards of Performance published on October 26, 2020, U.S. Environmental Protection Agency, Docket Number EPA-HQ-OW-2019-0482.

On behalf of our 11 members operating 46 U.S.-flag Great Lakes vessels, we thank you for the opportunity to provide these comments.

Sincerely,

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Development of National Discharge Standards of Performance

As the U.S. Environmental Protection Agency (EPA) notes in their Preamble to 40 Code of Federal Regulations (CFR) Part 139, Vessel Incidental Discharge National Standards of Performance, there are about 82,000 domestic and foreign non-military, non-recreational vessels that will be impacted by this proposed rule. Of these, approximately 50 are U.S.-flagged and operating exclusively on the Laurentian Great Lakes (defined as "Lakers"), the majority of which are operating members of the Lake Carriers' Association (LCA). As such, our comments reflect the commonalities of the U.S.-flag fleet of vessels operating exclusively on the Laurentian Great Lakes in general terms and specifically the 46 vessels of the operating members of LCA, all of which operate exclusively on the Laurentian Great Lakes. The majority of our members' vessels are restricted to the upper four Great Lakes (Erie, Huron, Michigan, and Superior) by their size, prohibiting them from transiting through the navigational locks on the Welland Canal linking Lake Erie and Lake Ontario. All these vessels are prohibited from sailing beyond Anticosti Island at the mouth of the St. Lawrence River by design, Safety of Life at Sea Convention, U.S. Coast Guard (USCG) certificate of inspection and vessel operating limitations.

As the U.S. EPA is aware, this rulemaking is governed by Section 312(p) of the Clean Water Act, 33 U.S.C. §§ 1251 *et seq.*, and the Administrative Procedure Act, 5 U.S.C. §§ 551 *et seq*. These laws require that the rulemaking be supported by the facts in the record, and not be "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." 5 U.S.C. § 706(2). EPA's decisions must be supported by "substantial evidence" in the record. *Ass'n of Data Processing v. Bd. of Governors*, 745 F.2d 677, 683 (D.C. Cir. 1984). Substantial evidence is such relevant evidence as a reasonable mind might accept as adequate to support a conclusion. *See Richardson v. Perales*, 402 U.S. 389, 401 (1971). While EPA may be given some deference on its scientific judgments, *New York v. EPA*, 852 F.2d 574, 580 (D.C. Cir. 1988), *cert. denied*, 489 U.S. 1065 (1989), it is nevertheless obligated to ensure that the judgments are well reasoned and based on articulated facts and information in the record. *See*, *e.g*., *Am. Trucking Ass'ns v. EPA*, 175 F.3d 1027, 1054-55 (D.C. Cir. 1999), *reh'g granted in part and denied in part*, 195 F.3d 4 (D.C. Cir. 1999), *aff'd in part and rev'd in part on other grounds*, *Whitman v. Am. Trucking Ass'ns*, 531 U.S. 457 (2001); *Tex Tin Corp. v. EPA*, 992 F.2d 353, 354-55 (D.C. Cir. 1993) (EPA's reliance upon generic studies in face of conflicting detailed and specific scientific evidence held arbitrary and capricious). We are confident that U.S. EPA will carefully review the record and make "a reasoned decision based on 'reasonable extrapolations from some reliable evidence,'" *Nat. Res. Def. Council v. EPA*, 902 F.2d 962, 968 (D.C. Cir. 1990), *opinion vacated in part on other grounds*, 921 F.2d 326 (D.C. Cir. 1991). We are also confident it will examine "the relevant data and articulate a satisfactory explanation for its action including a 'rational connection between the facts found and the choice made.'" *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983) (quoting *Burlington Truck Lines, Inc. v. United States*, 371 U.S. 156, 168 (1962)).

It is also crucially important that U.S. EPA provide reasoned and logical explanations for its choices, and not merely conclusory statements. *See*, *e.g.*, *Chemical Mfrs. Ass'n v. EPA*, 28 F.3d 1259, 1266 (D.C. Cir. 1994) (unsupported and conclusory statement regarding scientific model "added nothing to the agency's defense of its thesis except perhaps the implication that it was committed to its position regardless of any facts to the contrary"). U.S. EPA should, likewise, not infer facts not in the record. *See*

Nat. Gypsum Co. v. EPA, 968 F.2d 40, 43-44 (D.C. Cir. 1992) (agency cannot infer "facts" not in the record); *Nat. Res. Def. Council v. EPA*, 859 F.2d 156, 210 (D.C. Cir. 1988) (agency actions based upon speculation are arbitrary and capricious).

U.S. EPA must also adequately consider and meaningfully respond to relevant and significant public comments that LCA and others put forward. *See Appalachian Power Co. v. EPA*, 249 F.3d 1032 (D.C. Cir. 2001) (rejecting agency action where the agency failed to respond to significant comments and failed to justify its actions or offer sufficient explanation for them). "For an agency's decisionmaking to be rational, it must respond to significant points raised during the public comment period." *Allied Loc. & Reg'l Mfrs. Caucus v. EPA*, 215 F.3d 61, 80 (D.C. Cir. 2000), *cert. denied*, 532 U.S. 1018 (2001); accord *La. Fed. Land Bank Ass'n v. Farm Credit Admin.*, 336 F.3d 1075, 1079 (D.C. Cir. 2003) (remanding rule to agency where agency failed to address substantive comments); *Nat. Lime Ass'n v. EPA*, 627 F.2d 416, 433 (D.C. Cir. 1980) (remanding standards based, in part, on U.S. EPA's failure to respond to significant comments). "[T]he opportunity to comment is meaningless unless the agency responds to significant points raised by the public. A response is also mandated by *Overton Park*, which requires a reviewing court to assure itself that all relevant factors have been considered by the agency." *Home Box Off. v. FCC*, 567 F.2d 9, 35-36 (D.C. Cir. 1977) (citation omitted); *see also State Farm*, 463 U.S. at 43 (an agency decision is arbitrary if the agency "failed to consider an important aspect of the problem").

Our comments below address:

- U.S. EPA's reasoning in their response to the Second Circuit Court's 2015 decision on certain aspects of the 2013 Vessel General Permit (Natural Resource Defense Council v. U.S. Environmental Protection Agency, 808 F.3d 566, 570 n.11 [2015]);
- Vessels operating exclusively on the Laurentian Great Lakes (Lakers);
- Best management practices (BMPs) not continued from existing requirements;
- Responses to U.S. EPA request for comments on specific aspects of the proposed regulations; and
- The proposed regulations inclusive of all subparts and appendices.

Addressing National Resources Defense Council, et al. vs. U.S. Environmental Protection Agency, et al., 808 F.3d 556 (2nd Circuit Court 2015) decisions[1]

LCA addresses below, and is in support of, two key provisions of U.S. EPA's reasoning, clarification, and justification of two U.S. EPA decisions incorporated into the 2013 Vessel General Permit (VGP) that were deemed "arbitrary and capricious" by the U.S. Second Circuit Court in 2015:

- "EPA's decision to exempt Lakers built before January 1, 2009 from numeric effluent limits of VGP §2.2.3.5 was arbitrary and capricious. EPA based this decision on its finding that there was no treatment technology 'available' for these vessels either onboard or onshore;" and
- "EPA arbitrarily and capriciously limited its consideration to shipboard treatments, failing to consider onshore treatment. Petitioners argued that onshore facilities used in other industries, such as sewage treatment plants and drinking water treatment plants, were reasonable alternatives to shipboard treatment that should have been considered."

Two key documents that are included in the U.S. EPA Docket on these proposed regulations are studies looking at 1) the potential to install ballast water management systems (BWMSs) on vessels operating exclusively on the Laurentian Great Lakes[2] and 2) the potential for onshore options for the supply and treatment of ballast water[3].

Ballast Water Management of Vessels Operating Exclusively on the Laurentian Great Lakes:

U.S. EPA assessed the availability of ballast water treatment technology by evaluating the operational and technical considerations for installation and operation of a USCG type-approved BWMS on vessels operating exclusively on the Laurentian Great Lakes and alternative approaches that could be used to develop a specific discharge standard (BWDS) for Great Lakes vessels. Specifically, U.S. EPA assessed the:

- compatibility of type-approved BWMSs to meet the current BWDS under the environmental conditions of the Great Lakes;
- operational and technical challenges of the installation of type-approved BWMSs given the unique architecture and engineering of Great Lakes vessels;
- availability of other treatment technologies for Great Lakes vessels; and
- potential use of current type-approved BWMS on Great Lakes vessels to meet an alternative BWDS.

The Choice Ballast Solutions study (2017) addresses the first two points. The Hull and Associates study

[1] The Lake Carriers' Association and the Canadian Shipowners Association intervened on behalf of the U.S. EPA. See Attachment 2.
[2] Choice Ballast Solutions. Technical Engineering Analysis and Economic Feasibility Study for Ballast Water Management System Installation and Operation on board U.S.-flag Great Lakes Fleet. Cleveland, Ohio. April 2017. U.S. EPA Docket Number EPA-HQ-OW-2019-0482-0485.
[3] Hull and Associates. Preliminary Coast Estimate for the: Shoreside Ballast Treatment and Supply for the U.S. Great Lakes. Dublin, Ohio. February 2017. U.S. EPA Docket Number EPA-HQ-OW-2019-0482-0494.

(2017) addresses the third point. The final point is encapsulated from the findings of both studies.

Onboard Ballast Water Management:

In the summer of 2016, Choice Ballast Solutions began to prepare this study on retrofitting U.S.-flag vessels operating exclusively on the Great Lakes with BWMSs to: 1) treat and discharge ballast water using onboard systems, and 2) install the necessary onboard equipment to use shoreside facilities as an option for ballast water management. This was done to address outstanding issues arising from a decision by the United States Court of Appeals, Second Circuit, on one item noted in their decision: that the U.S. EPA acted arbitrarily and capriciously by exempting Lakers built before pre-2009 from meeting a numeric ballast water discharge standard (BWDS).

If the exemption were to be removed, the critical challenges for Lakers would be to identify BWMSs that meet the unique requirements for shipboard operations and design limitations on Lakers and have been tested and proven to work in the freshwaters of the Great Lakes.

Choice Ballast Solutions focused on the feasibility of installing onboard systems for the management of ballast water considering the ability of BWMSs to handle the volumes and flow rates of Laker ballast water uptake and discharge, necessary power and availability of existing power to operate a BWMS, space availability to house onboard the BWMS, structural modifications to the vessel to accommodate a BWMS, and impacts to cargo carrying capacities. Choice Ballast Solutions developed estimates and ranges of capital costs, operation and maintenance costs, and other administrative costs associated with retrofitting BWMSs on U.S.-flag Lakers.

The study was a research effort by Choice Ballast Solutions with LCA providing background history, details on Great Lakes shipping, ballasting, and operations. Choice Ballast Solutions remained independent throughout the process but LCA provided assistance in project scoping; defined operational requirements for the U.S.-flag Great Lakes trade; and provided details on each vessel's systems to assist Choice Ballast Solutions in developing the feasibility of options for each "class" of U.S.-flag Laker. A Professional Engineer with Choice Ballast Solutions stamped this feasibility study. Choice Ballast Solutions had the independence to assure an unbiased determination on the feasibility to install, operate, and maintain these systems for U.S.-flag vessels operating exclusively on the Laurentian Great Lakes.

As noted in the Choice Ballast Solutions feasibility study there are a number of hurdles that have to be addressed before any serious consideration can be determined on the installation, use, and effectiveness of any system on a U.S.-flag Laker:

- While operations and efficiency were considered in the study, impacts to safety of crew and vessel were not.
- In November 2016, the Great Ships Initiative (GSI) published a briefing paper highlighting the problem and need for pure freshwater testing in the Great Lakes[4]. GSI stated that USCG and the International Maritime Organization (IMO) require "challenge conditions for organism sizes and

[4] Included in U.S. EPA's Vessel Incidental Discharge Regulations as docket number EPA-HQ-OW-2019-0482-0168.

densities that are not a good fit for native (Great Lakes) assemblages".

- Choice Ballast Solutions' discussions with each BWMS supplier confirmed that no BWMS has been tested and approved specifically for use in the Great Lakes[5], including BWMSs with USCG type-approval or the two additional systems that at the time had applied for USCG type-approval. This remains true today.
- Adjustments to loading conditions due to loss of available cargo volume in the holds and loss of available ballast volumes need to be investigated to understand the full impacts on hull bending. Also, with any addition of new sea chests, the impact on hull girder stresses must be investigated.
- BWMS operational impacts to the complex logistics system of the Great Lakes docks is difficult to quantify and were not estimated in the Choice Ballast Solutions study. Efficient operation is dependent on the timing of vessels arriving and departing. A vessel delayed by BWMS problems that limit ballasting times or prevent the discharge of ballast during dock operations would have a ripple effect for the entire dock, customer, other vessels, and the possibly the waterway (e.g., ArcelorMittal dock on the Cuyahoga River or one of the stone docks on the Rouge River). Given the limited number of vessels and fixed navigation season (based on Soo Lock closure), the accumulated delays could result in undelivered cargo or modal shift (modal shift is not an option for iron ore).
- U.S.-flag Lakers have been built and put into service without anti-corrosion coatings in the ballast tanks and voids because they do not suffer the same corroding effects that oceangoing vessels do because of the Great Lakes' freshwater. Internal corrosion of these spaces would be accelerated by active substances of biocides such as chlorine, chlorine dioxide, and other oxidizers when introduced as part of a BWMS protocol. Due to this concern, the installation of a suitable BWMS using a chemical disinfection process would require that ballast tanks be prepared and coated to prevent the damage caused by accelerated corrosion. This does not account for the discharges of total residual oxidants that may exceed state drinking water requirements.

Additionally, while this was an initial study of the feasibility to install and operate BWMSs onboard U.S.-flag Lakers, certain items key to their integration and operation were not considered in the total cost estimates, including:

- Lost time associated with BWMS installation were not conducted. The installation of a suitable BWMS may require that ballast tanks be prepared and coated to prevent the additional damage caused by accelerated corrosion by the process used by certain BWMS to disinfect ballast water, typically chemical disinfection. In the case of retrofitting the thirteen 1,000-foot U.S.-flag Lakers, this could be as much as one year for each vessel.
- Additional labor for the operation of BWMS was not included in the estimate of operating costs.
- Loss of cargo carrying capacity fleet-wide for the U.S.-flag Lakers due to lost cargo volume could be as much as 1.7 million tons each season (representing 1.9 percent of average annual cargoes) resulting from the loss of cargo space due to BWMS installation, the additional weight for the

[5] This remains true as of the submittal of these comments on November 24, 2020.

structural upgrades required, and additional weight of the systems and their peripherals. This is the equivalent of about 25 trips of a 1,000-foot Laker or 75 trips for a river-class Laker annually that would be needed to accommodate the lost cargo carrying capacity, currently unavailable in most years.

In the case of BWMSs that utilize ultraviolet (UV) radiation for the disinfection of ballast water, USCG, in their type approval certification, has required a minimum hold time for treated ballast water within the ballast tanks. For the vessels for which Choice Ballast Solutions proposed UV as possibly viable, vessel voyage times where ballasting is an essential component occasionally meet a 72-hour hold time (Duluth, Minnesota/Superior, Wisconsin to Buffalo, New York carrying grain), but can be a little as one hour and are typically 24 to 48 hours. No vessels are, nor could they be, dedicated to that longest voyage. This renders many UV BWMSs as inappropriate for Lakers. In addition, not all BWMSs meet the requirements of 46 Code of Federal Regulations 111.105, Hazardous Locations, and therefore many are unsuitable for installation in hazardous locations on U.S. flag-vessels including many Lakers[6].

Regarding the installation of onboard systems to integrate with shoreside options for ballast water management, the Choice Ballast Solutions study did not include the costs or logistics to establish those onshore facilities to accept discharged ballast water for treatment or facilities to provide potable water for ballast. All components of the Choice Ballast Solutions study ended at the side of the vessel where the ship to shore connection would be made.

The cost impacts to the U.S.-flag Laker fleet are significant to say the least. Choice Ballast Solutions estimated that the cost to install BWMSs on the U.S.-flag Laker fleet would be approximately $639 million, with a single vessel costing as much as $36 million. Annual maintenance is estimated at $11 million across the fleet. To retrofit U.S.-flag Lakers to connect to and operate with shore-based facilities for ballast water management would cost $68 million, with one class of 1,000-foot vessels estimated to cost $4 million apiece. This is in addition to the costs and fees associated with the construction, operation, and maintenance of onshore facilities not covered in this study (see the description of the Hull and Associates study, below). It is debatable how much of this can be absorbed or passed on to the customer without significant negative consequences to the Laker transportation system economics.

The costs associated with the installation of suitable BWMSs on U.S.-flag Lakers and their annual operation and maintenance are extraordinarily high and prohibitive.

The BWMS manufacturers surveyed for the study did not represent a final recommendation of these technologies or any specific BWMS; in fact, none were USCG type-approved at the time of the publication of the study. Each technology and supplier have limitations which would require further testing and validation on specific U.S.-flag vessels operating exclusively in the Laurentian Great Lakes. Other restrictions such as hold times, again, as much as 72 hours, preclude the use of a particular BWMS

[6] At the time of submission of these comments to U.S. EPA, November 24, 2020, there were 38 USCG type-approved BWMS. Twenty of these use some variation of chemical disinfection process and are not suitable for use on U.S.-flag Lakers. Eighteen use UV radiation. Eight of those 18 UV systems are not allowed to be placed on U.S.-flag vessels. Eighteen BWMS, across all types of primary disinfection, are not allowed to be placed on U.S.-flag vessels.

on U.S.-flag vessels operating exclusively on the Laurentian Great Lakes.

LCA believes this document is accurate, insightful, and the most comprehensive in its look at onboard options for ballast water management onboard U.S.-flag vessels operating exclusively on the Laurentian Great Lakes and fully supports U.S. EPA's determination that indeed vessels operating exclusively on the Laurentian Great Lakes should be excluded from having to meet a numeric BWDS.

Ballast Water Reception Facilities:

In the summer of 2016, Hull and Associates began an investigation to study onshore options for ballast water management based upon two of their core areas of expertise: sanitary sewage collection/treatment and water supply and distribution facilities. This was done to address outstanding issues arising from a decision by the Second Circuit Court of Appeals on one item noted in their decision: the feasibility of onshore treatment as an option for ballast water management.

Hull and Associates developed an objective approach to assessing the feasibility of installing a network of shoreside facilities on the U.S. side of the Great Lakes in commercial ports and private docks to support ballast activities normal to the course of operations for the U.S.-flag Lakers.

Hull and Associates focused on the logistics of such a system, infrastructure requirements, developing estimates and ranges of capital costs, operation and maintenance costs, permitting requirements, and other administrative planning efforts required for shoreside facility concepts including the storage and transport of unloaded ballast water to a wastewater treatment facility for disposal and storage of potable water for ballast loading.

LCA provided background history and details on Great Lakes shipping, ballasting, and operations. Hull and Associates remained independent throughout the process, but included LCA in scoping, assisting with the "mechanics" of the Great Lakes trade, and providing a limited review of the draft document. A Professional Engineer with Hull and Associates stamped their feasibility study. Allowing Hull and Associates this latitude was to assure an unbiased determination on the feasibility and cost to install, operate, and maintain a U.S. shore-based system of facilities to supply and treat ballast water for U.S.-flag vessels in the Great Lakes. No assessment was done on a complimentary system on the Canadian side of the Great Lakes that would be required to make onshore options in the Great Lakes viable.

Hull and Associates used initial data on the locations of existing U.S. commercial docks, wastewater treatment facilities, and potable water systems in the Great Lakes provided by another vendor. This included 82 U.S. ports, 60 active commercial deep-draft ports, and 1,200 commercial docks, mostly privately-owned.

Hull and Associates based their findings on a full analysis of existing conditions and facilities within the Great Lakes on the U.S. side and developed six scenarios at port locations that were sited with consideration given to port logistics (i.e., port size, geographic complexity, and frequency of calls of vessels), availability of existing wastewater treatment and potable water facility service or siting of new stand-alone treatment facilities, and proposed a barge-based option in the port of Duluth/Superior. The study extrapolated the costs for these select scenarios to make an overall projection of cost ranges for

such facilities that would be required to be developed on the U.S. side of the Great Lakes to provide a comprehensive approach to ballast water treatment and supply.

This study did not include the cost to modify commercial vessels to allow them to integrate with shore-based facilities. That was undertaken by Choice Ballast Solutions, as described above. All components of the Hull and Associates study started from the side of the vessel where the ship to shore connection would be made.

Facilities were sized to the needs of U.S.-flag Lakers. Canadian-flag vessels and vessels engaged in transoceanic trade ("salties") were not included in the scenario development. Though the Canadian vessels control 90 percent of the binational trade, their status with regards to Canadian regulations to implement IMO's ballast water convention and install BWMS, as a signatory country, is not finalized and therefore was not considered with this study.

The cost implications are huge. Hull and Associates estimated that $11 billion ($34 billion-time weighted average), decades of planning and construction, and $575 million annually for operations and maintenance would be required to create and sustain this system. This would be above and beyond any money currently being spent on consent decrees and facility updates for municipalities in the Great Lakes. Some of these facilities would be municipally-owned, some private, and in a number of cases where facilities would need to be built and operated exclusively for ballast water management, the owner/operator was not determined. It is understood that all costs specific to the modifications of existing facilities, construction of new facilities, all infrastructure, and their operations and maintenance will have to be passed on to the vessels and their owner/operators in the form of fees or surcharges. It is clear that U.S.-flag Laker economics could not sustain costs of this magnitude.

Additionally, the usage fees for Lakers would be astronomical. As a general estimate on annual fees to utilize these systems, the consulting firm Black and Veatch publishes a study of average water and wastewater rates for 50 U.S. cities[7]. Utilizing the large industrial user rates, annual fees would be in the range of $82 million for using potable water for ballast water and $121 million for treating ballast water as wastewater for U.S.-flag vessels operating exclusively of the Laurentian Great Lakes. These numbers probably grossly underestimate the eventual costs to the Great Lakes commercial maritime economy as aging infrastructure, consent decrees, and lack of capital financing for such an onshore system will continue to drive costs upward.

Similarly, a study by King and Hagen (2013)[8], looked at the economic and logistic feasibility of a "port-based" ballast water treatment system in the Port of Baltimore, Maryland. The system would be barge-based and used primarily for contingency treatment when shipboard systems malfunctions or not available. It assumed that the largest customer of the barge-based system would be bulk carriers due to the relative volume of ballast water discharge. Two barge-based units would be built, each with a

[7] Black and Veatch Management Consulting, LLC. 50 Largest Cities Water and Wastewater Rate Survey. Los Angeles, California. October 2018.
[8] King, D.M. and Hagen, P.T. Economic and Logistical Feasibility of Port-based Ballast Water Treatment: A Case Study at the Port of Baltimore. Maritime Environmental Resource Center, University of Maryland. College Park, Maryland. May 2013.

treatment rate of 2.6 million gallons per hour. This would allow for minimal on-board or shore-based temporary storage of ballast water. The treatment would be a combination of filtration and UV disinfection. By their own account, King and Hagen determined that a barge-based treatment approach would not be feasible because of operational challenges including the geographic expanse of the Port of Baltimore, as in Duluth/Superior, and multiple ships arriving each day (they estimated 50-60 ships annually would require this contingency treatment) could cause severe bottlenecks. The report assumed vessels would be willing to pay $20,000 to $25,000 for each treatment to break even.

Using the King and Hagan methodology for U.S.-flag vessels operating exclusively on the Laurentian Great Lakes, costs for a single treatment of ballast water from a 1,000-foot U.S.-flag Laker (commonly known as a "footer") could reach $250,000 for their 16 million gallons of ballast water, not counting any costs tied to the creation and operation of barge-based services in a port such as Duluth/Superior.

LCA believes these documents are insightful and comprehensive, and clearly show the inherent difficulties of onshore treatment options, including barge-based transfers, for ballast water management and the exorbitant costs and long timeline for development associated with establishing such a system on the U.S.-side of the Great Lakes.

Please keep in mind that for the shore-based system to work, a complimentary network of water and wastewater facilities would have to be built on the Canadian side of the Great Lakes as well. Without that complimentary network, vessels equipped only to meet a ballast water discharge requirement using onshore options would either need to install and maintain a BWMS, currently incompatible with use on U.S.-flag Lakers, in addition to the equipment required to use for onshore or options or be required to forego any cargo operations in Canada.

LCA agrees with and supports U.S. EPA's determinations addressing the Second Circuit Court decisions:

- That all vessels operating exclusively on the Laurentian Great Lakes, regardless of the dates in which they were built, have unique and substantial challenges not found elsewhere and there is insufficient evidence to support that there are reasonably available and viable options for these vessels to meet a numeric BWDS, a BWMS equipment carriage requirement (as proposed by Canada in lieu of meeting the BWDS), or alternative technologies is the best available technology economically achievable; and
- That onshore options for the uptake of ballast water as supplied by onshore facilities that meet U.S. drinking water standards or ballast water that is ultimately discharged to an onshore treatment facility is operationally and logistically difficult, if not impossible, and incredibly expensive, so it is not a ballast water management option for Lakers.
- In support of U.S. EPA's determination, LCA submits a joint legal brief submitted to the Second Circuit Court on behalf of LCA and the Canadian Shipowners Association on August 27, 2014.

Response Comments to the Preamble of the Vessel Incidental Discharge National Standards of Performance

In the Preamble to the proposed regulations, U.S. EPA addressed several issues specific to vessels operating exclusively on the Laurentian Great Lakes and in general to discharges that are incidental to the normal operation of a commercial vessel. U.S. EPA also has proposed removing one BMP that was included in the 2013 Vessel General Permit (VGP) concerning minimizing the uptake of water for ballast in certain areas. Additionally, U.S. EPA is seeking further comment on a potential self-assessment exercise for Lakers and the ability of bilgewater systems to reduce the maximum discharge allowed of oils and grease by three-fold from 15 parts per million (ppm) to 5 ppm and the accuracy of oil content monitors (OCMs) to measure the new target.

LCA addresses these topics below.

Vessels Operating Exclusively on the Laurentian Great Lakes:

U.S. EPA justifies exempting all vessels operating exclusively on the Laurentian Great Lakes, defined as "Lakers," built after 2008, acknowledging that "a material technical mistake occurred" and "information (became) available that was not reasonably available" when the 2013 VGP was promulgated:

> "After careful consideration of all the relevant factors, EPA proposes to subcategorize and not require any vessel operating exclusively on the Great Lakes, regardless of when they were built, to meet the numeric discharge standard and instead to continue to require that these vessels implement best management practices."

U.S. EPA states the above because of "the uniqueness of these vessels (Lakers) and the Great Lakes ecosystem." U.S. EPA assessed the best available technology economically achievable (BATEA) and determined the challenges that faced Lakers in 2013 still face all of them today.

> "EPA evaluated the few U.S. and Canadian Lakers that had been built since 2009 and concluded that they were also unable to meet the VGP discharge requirements. Consistent with that conclusion, the USCG regulations do not require non-seagoing vessels, including all Lakers, to meet the numeric discharge standard."

U.S.-flag Lakers do not operate in brackish or saltwater and do not sail past Quebec City on the St. Lawrence River. All U.S.-flag Lakers operating exclusively on the Laurentian Great Lakes generally share the issues around short voyages and Great Lakes water conditions of low salinity, very cold temperatures, large water temperature range, high dissolved organic carbon, high sediment loads in ports and at docks located on rivers, and low UV transmittance.

LCA agrees with and supports U.S. EPA's determination that a "material technical mistake or misinterpretation" was made in separating vessels exclusively operating on the Laurentian Great Lakes into those vessels built before January 1, 2009 from those built on or after that date. The same operational and technical issues continue to exist with all of these Lakers, no matter the build date, as well as the difficulties of treating Great Lakes water given the fact that the BWMS manufacturers have largely ignored testing their systems in the Great Lakes (the few that have failed) or building BWMSs to

meet the challenging waters and organism assemblages and community composition.

USCG is charged with type-approving BWMSs for use on commercial vessels operating in the territorial waters of the U.S. This type-approval process places certain limitations on the use of each system as recommended by the testing facility through a USCG-approved Independent Laboratory. Systems are tested through onshore mockup and a fully-installed shipboard demonstration. There are three distinct salinities in which each system may be approved for use: marine (28-36 practical salinity units [psu]), brackish (10-20 psu), and fresh (<1 psu). Beyond the salinity restrictions, operational limitations placed on each USCG type-approved BWMS and generally include:

- Ambient water temperature;
- Flow rates of ballast water at intake and/or discharge for treatment;
- Hold time within the ballast tanks between uptake and discharge;
- Chemical dosages including biocides and any salinity augmentation;
- Water temperature as a part of the feed system;
- Total residual oxidant (TRO) or total residual chlorine (TRC);
- Suitability for the installation and use of a particular BWMS for installation on a U.S.-flag vessel in-line with 46 CFR Subchapter F and J[9]; and
- Limitations on placement location within the vessel in line with 46 CFR 111.105, Hazardous Locations.

In exploring and assessing currently type-approved BWMS's compatibility, LCA looked at many variables and their impacts on vessel operations and the Great Lakes as the operating environment. The assessed parameters include:

- Corrosivity of currently available chemical biocides to uncoated Laker steel including structural members, inner and outer steel plate, and associated ballast water systems;
- Primary filtration treatment on water intake for ballast, the typical and potential suspended solids found at Great Lakes ports and docks, and the potential negative impact on ballast pumping rates;
- TRC of BWMS's using chlorine as a primary disinfectant and its discharge concentrations into the waters of the Great Lakes;
- The lost cargo capacity of a Laker and the accumulated lost cargo capacity of the U.S.-flag Laker fleet due to structural and spatial requirements of installing a BWMS onboard a vessel;
- Vessel stability due to those structural modifications and further requirements to ensure compliance and safety of the crew and vessel;
- Impacts to operations and specifically vessel transit times between Great Lakes' ports, the limitations that USCG-mandated hold times would impose, and accumulated lost cargo capacity due to those hold times exceeding current voyage durations;
- Water temperatures of the Great Lakes and the water temperatures in which USCG type-

[9] To date, 38 BWMSs have been type-approved by USCG. Of these, 18 are not approved for use on U.S.-flag vessels including 14 of the most recent 18 BWMSs type-approved by the USCG.

approved BWMSs have been tested in;
- Required electrical load, need for power augmentation, and ballast pump characteristics; and
- Increased fuel consumption and increased fuel capacity required.

In examining the 38 currently USCG type-approved BWMSs for suitability and compatibility for use on U.S.-flag Lakers, none meet the operational necessities for vessels operating exclusively on the Laurentian Great Lakes. Whether it is the required hold time mandated in the USCG BWMS type-approval certificate (redacted), their reliance on specific minimum salinities or temperatures to properly dose the ballast water, their inherent deleterious impact on structural and mechanical components of the vessels[10], insufficient flow rates, structural and spatial requirements to retrofit vessels that can greatly impact cargo carrying capacity, or any other host of factors, these system types as currently configured do not appear to provide viable options for installation.

For a comparison of the suitability of each of these 38 USCG type-approved BWMS, please see Attachment 1, U.S. Coast Guard Type-Approved Ballast Water Management System Side-by-Side Comparison.

Lastly, and in further recognition of the difficulty and unsuitability of installing and operating a BWMS on U.S.-flag Lakers, in its first report to Congress on the Great Lakes and Lake Champlain Invasive Species Program, U.S. EPA's Great Lakes National Program Office made the following statement:

> "Currently, there are no BWMS for vessels operating primarily on the Great Lakes capable of meeting ballast water discharge standards for ANS that are required of other commercial vessels with ballast water. EPA understands that the lack of capable BWMS at this time is due to the unique construction of some of these vessels (e.g., the existing U.S. Laker fleet); the challenging environmental conditions of the Great Lakes, including turbid ports, icing conditions and the short voyage times; and the lack of interest from the BWMS manufacturers to develop systems for such a small and unique set of vessels."[11]

Great Lakes and Lake Champlain Invasive Species Program:

LCA supports the establishment of the Great Lakes and Lake Champlain Invasive Species Program. LCA believes the research goals of the program are a valuable piece of the continued protection of our waters.

LCA, as the only association representing the U.S.-flag fleet of vessels operating exclusively on the Laurentian Great Lakes, believes our operating members are critical to the effort and success of the program. As such, we believe it is vital that our members' U.S.-flag fleets be full partners in this program for any components looking at facets dealing specifically with vessels operating exclusively on the

[10] Twenty of the currently USCG type-approved BWMSs use a direct dose chemical or a process to generate a disinfecting chemical that is corrosive and deleterious to key structural components of Lakers, including the ribs and hull.

[11] U.S. EPA, Great Lakes National Program Office. The Great Lakes and Lake Champlain Invasive Species Program, 2019 Report to Congress. https://www.epa.gov/sites/production/files/2020-11/documents/2020-10-02_gllcisp_2019_report_to_congress_final.pdf.

Laurentian Great Lakes. LCA also believes it is important that any funds appropriated for the Great Lakes and Lake Champlain Invasive Species Program that involve technology and research components for vessels must be directed toward U.S.-flag vessels operating exclusive on the Laurentian Great Lakes, except those funds directed specifically toward research on Lake Champlain.

Vessels Operating Primarily but Not Exclusively on the Laurentian Great Lakes:

LCA notes that this class of vessel does not apply to any of its members' U.S.-flag Lakers based on the above noted operational, structural, and regulatory limitations. This class could apply to foreign-flag vessels, but we do not know how many or their geographic range. We believe it applies to over twenty of the eighty-five Canadian-flag vessels typically calling on the Great Lakes, Caribbean, Arctic, East Coast of Canada, and East Coast of the U.S. Canadian-flag vessels are free to reflag foreign and then return to the Canadian-flag fleet with their coastwise and Great Lakes privileges restored. Some of them do that annually once the St. Lawrence Seaway closes. They are free to call on the rest of the world and often trade in the Caribbean. Any vessel sailing east of Anticosti Island is an oceangoing vessel and any vessel sailing downstream of Montreal operates in brackish or saltwater. The Great Lakes Pilotage Regulations for both countries, Safety of Life at Sea Convention, 2013 Vessel General Permit, Vessel Incidental Discharge Act of 2018, and navigation rules all use Anticosti Island as the line of demarcation for the Great Lakes and St. Lawrence River. Vessels operating in the ocean, beyond Anticosti Island, have different design, construction, equipment, and operational requirements than Lakers. They also present a different risk profile and have different ballast water treatment options available to them than do Lakers. For example, Canada Steamship Lines operates a "Trillium" class vessel on the West Coast, calling on ports in Canada, the U.S. and Mexico. That vessel will have to have a BWMS installed. It is possible the same system could be installed on the Trillium class vessels sailing beyond Anticosti Island and into the Laurentian Great Lakes. Those voyages sailing beyond Anticosti Island and the Laurentian Great Lakes typically exceed the 72-hour hold time required by many UV systems. Those vessels also have coated ballast water tanks to deal with the saltwater ballast. It remains an unanswered and enforcement question beyond the scope of this rulemaking, but BWMS approved for oceangoing vessels may or may not work on discharges of ballast water loaded in the Great Lakes. Impaired vessel operators or drivers of motor vehicles aren't treated differently if they are "primarily, but not exclusively" sober. A vessel either "exclusively operates in the Laurentian Great Lakes" or it is an ocean-going vessel if it ventures east of Anticosti Island. This is a route distinction. It is not a build date or flag distinction. The Canadian-flag fleet is capable of distinguishing between its vessels that do and do not sail east of Anticosti Island. If not, governments can use AIS data to make the distinction. Those vessels that are not Lakers should not be treated as such.

Best management practice not continued from existing requirements:

Of relevance to LCA and its operating members on the Great Lakes, U.S. EPA is proposing to remove the management practice that vessels should avoid the uptake of ballast water:

- In areas known to have infestations or populations of harmful organisms and pathogens (e.g., toxic algal blooms);
- In areas near sewage outfalls;

- In areas near dredging operations;
- In darkness when bottom-dwelling organisms may rise in the water column; and
- Where propellers may stir up the sediment.

Operationally, these would be difficult, at best, with which to comply. The Great Lakes shipping season is only nine-and-a-half months of the year as ice on the lakes, connecting channels, and in ports and rivers and maintenance requirements on the navigational locks at Sault Ste. Marie, Michigan shut down operations and the U.S.-flag fleet heads to winter layup for its own maintenance, upgrades, and scheduled drydocking. Limiting the ability of a vessel to uptake ballast water at the docks limits a vessel's ability to discharge cargo. U.S.-flag Lakers are not capable of taking on full cargo loads while retaining all ballast water onboard and are not designed to safely operate in the open Great Lakes with no cargo or ballast water onboard. Typically, even in a slower year, all vessels sailing have little room in their schedules to stand off a dock and wait for daylight or for dredging or combined sewer overflow events to abate. A 1,000-foot-long Laker waiting until sunrise or for a combined sewer overflow event to abate to begin discharging cargo and uptaking ballast water could easily add up to eight hours to many of its scheduled 52 annual trips. Adding all of that that time would be the equivalent of adding up to 17 days or more, which would subtract about three trips annually. Spread across the thirteen 1,000-foot vessels in the U.S.-flag Laker fleet, this would be the equivalent of losing 39 trips or leaving 2.73 million tons of cargo undelivered on the docks.

In the Great Lakes, especially in the river ports of the lower lakes, sediment accumulation is a constant battle even with annual dredging by the U.S. Army Corps of Engineers in the federally-designated navigation channels and maintenance dredging by privately hired contractors at private docks where most of the U.S.-flag fleet does business. The commercial dredging resources are limited in the Great Lakes and must be shared between 60 commercial ports, an additional 80 recreational ports, and 1,200 privately-owned docks that all must be maintained. In addition to the limited dredging resources, the ports and channels have limited windows to dredge based upon the seasonality of fish spawning, migratory birds, mating season of wildlife, and so on as delineated by the U.S. Fish and Wildlife Service and state natural resource departments. Limiting the ability of a vessel to offload cargo and uptake ballast water where active dredging operations are taking place or where sediment may be stirred up or attempting to reschedule all such dredging to not interfere with Laker operations is not operationally viable for the Great Lakes fleets.

LCA supports the elimination of this BMP as a matter of practical execution.

Great Lakes Vessels Self-assessment:

At VIII.B.1.vi.C.7, U.S. EPA posed:

> "To support the goal of identifying those technologies, U.S. EPA is considering whether to require owners/operators of Great Lakes vessels to perform a self-assessment either individually or in partnership with other vessel owners/operators and submit information annually to U.S. EPA."

LCA believes a self-assessment could provide good information but that a requirement to do so annually

would not produce substantial new information year-over-year, that substantial aspects are relatively static such as general voyage details, other facets such as developing technology have very long lead times that are measured not in months but rather years, and the detail that U.S. EPA is seeking for annual reporting would become onerous to the owners/operators of Great Lakes vessels.

LCA recommends that a five year review cycle is more appropriate for reporting based upon: certification cycle for USCG type-approved BWMS, scheduled five-year drydocking cycles for commercial vessels, the five-year review cycle of U.S. EPA's Vessel Incidental Discharge National Standards of Performance, discharges managed under the VGP or National Pollution Discharge Elimination System, and the example set by Minnesota Pollution Control Agency in their 2018 State Disposal System Vessel Discharge Permit seeking similar information through self-assessment on a five-year cycle based on a vessel's scheduled dry dock.

At VIII.B.1.vi.C.8.i in Vessel Incidental Discharge National Standards of Performance, U.S. EPA:

> "…seeks comment on the type of vessel-specific information that would be valuable for Great Lakes Vessels to include in their annual submission and for EPA to assess. This information could include: operational considerations on locations and opportune times to conduct ballast water monitoring, specific details of voyages that impact holding times of certain BWMS, details of loading/unloading logistics that limit ballast water management and reasons for such limitations, including weather considerations, crew considerations or other operational information. In addition, information could be provided on characteristics of ports for future opportunities for onshore or barge-based reception facility opportunities."

The treatment of ballast water as presented in U.S. EPA's Vessel Incidental Discharge National Standards of Performance has three general facets: onboard treatment, BMPs, and onshore or barge-based options.

<u>Onboard</u>:

BWMS's are type-approved by USCG after a rigorous certification process that takes years to complete. Once a BWMS is successfully type-approved, USCG issues a 5-year certification for the equipment. Technologies for the treatment of ballast water have so far been relatively static with just a few successful options: UV, some form of chemical disinfection (i.e., chlorine, chlorine dioxide, ozone, etc.), and pasteurization. Most of these include filtering as a primary treatment to remove suspended solids and larger organisms. Other potential options being investigated and yet to be proven viable include technologies such as cavitation.

As we have presented here, UV is currently the only available treatment technology that could even be considered for use on a U.S.-flag vessel operating exclusively on the Laurentian Great Lakes. All other options are incompatible with U.S.-flag Lakers because of the deleterious impacts to structural components of our vessels (i.e., corrosion), potential exceedances of state drinking water allowances based on TRO/TRC discharge from any BWMS using certain forms of chemical disinfection, and other parameters mandated by USCG in their type-approval certificate around temperature requirements, hold times, and inadequate flow rates. And as we have stated in our review of the suitability of these

BWMSs for installation and use on a U.S.-flag vessel operating exclusively on the Laurentian Great Lakes, of the 38 currently USCG type-approved BWMSs, only 18 utilize UV and of these only 10 have been approved for use on U.S.-flag vessels. The trend of type-approval certification has turned heavily toward BWMS for use only on foreign-flag vessels with 14 of the most recent 18 specifically not allowed for installation on U.S.-flag vessels per 46 CFR Subchapters F and J. LCA does not expect great leaps in technological advances for ballast water treatment, but rather slower, step-wise, smaller incremental changes.

Annual assessments and reporting on these systems will generally not provide new insights or information.

Best management practices:

As a component of the management of ballast water, certain BMPs have been proven highly successful. For the prevention of a successful introduction of aquatic non-native species into the Laurentian Great Lakes, ballast water exchange and flushing combined with 100 percent inspection of all vessels and ballast tanks of seagoing vessels entering the system has proven wildly successful. In fact, since 2006 when this BMP was fully instituted, there have been no new known or documented introductions or establishments of aquatic non-native species in the Great Lakes via ballast water.[12] Nor has there been proven spread and establishment via the ballast water of U.S.-flag vessels operating exclusively on the Laurentian Great Lakes.[13]

In U.S. EPA's review of BMPs included in the 2013 VGP, the U.S.-flag Laker fleet was asked to complete surveys on the practices and viability of the existing BMPs. U.S. EPA determined in the publication of these draft Vessel Incidental Discharge National Standards of Performance to remove a BMP deemed not practical to implement (see discussion above). That BMP was first adopted in 2000. Other BMPs that were retained date back to the 1990s.

Annually assessing BMPs for ballast water in the Great Lakes would not provide substantially new information to U.S. EPA or the U.S.-flag fleet operating exclusively on the Laurentian Great Lakes.

Onshore or barge-based treatment:

The Hull and Associates study on onshore options for ballast water demonstrates the long lead time involved in such technologies as "onshore or barge-based reception facility opportunities." For instance, in Superior, Wisconsin there are several high-capacity and high-use docks for loading iron ore, coal, and grain. These docks are in nearly continual use throughout the shipping season, March 25 through January 15. They are scattered over eight to 10 miles of shoreline and all are privately owned and operated. A likely daily scenario is that two vessels, most likely two footers will be loading at the

[12] Saint Lawrence Seaway Development Corporation. Fiscal Year 2019 Annual Report. Washington, DC: "The effectiveness of the BWWG and the Seaway's ballast water inspection program has been publicly credited as a key factor in preventing the discovery of establishment of any new species in the Great Lakes Seaway System since 2006 – the longest such period of non-detection on record."

[13] Great Lakes Aquatic Nonindigenous Species Information System (https://www.glerl.noaa.gov/glansis/), accessed online Wednesday, November 18, 2020.

Superior Midwest Energy Terminal (SMET) at the western end of the Superior docks, which loads western coal for delivery to energy production facilities in Southeast Michigan, and the Burlington Northern Santa Fe Railway Dock 5 at the extreme eastern end of the harbor, which loads taconite for delivery to steel mills and transloading in Indiana, Michigan, and Ohio. Each footer will be discharging 14 to 16 million gallons of ballast water in an eight to 12-hour timeframe.

Superior, Wisconsin, with a population of 26,000, operates a wastewater treatment facility that has a daily average throughput capacity of 5 million gallons per day (mgd). To modify the facility to receive that additional 30 million gallons, would require at least a 500 percent increase in storage capacity, a way to manage the new wastewater stream, and to provide adequate access for vessels over eight to 10 miles of shoreline. Keep in mind, however, that on a typical day there can be five, six, or more vessels in Duluth/Superior Harbor including U.S.-flag Lakers, Canadian-flag vessels, and oceangoing foreign-flag vessels.

In other locations such as Port Inland, Michigan, the closest water and wastewater facilities are in Manistique, Michigan about 20 miles from Port Inland. The privately-owned dock supplies crushed limestone primarily on U.S.-flag Lakers with ballast water capacities of around 4 to 6 million gallons. Manistique's wastewater treatment facility capacity is 1.5 mgd. There are no water or wastewater utility lines that service the dock.

In Toledo, Ohio, there are 25 docks spread over 14 miles of the Maumee River's shoreline.

In addition to this, water and wastewater treatment facilities are designed to handle local physical and contaminant compositions. Bringing in waters to Duluth/Superior or Two Harbors, Minnesota from other ports such as Cleveland or Burns Harbor which have very different sediment content, pH, and chemical/biological constituents or introducing salt water from oceangoing vessels into their system can cause a system upset. This will impact their ability to comply with their own individual National Pollutant Discharge Elimination System General Permit.

These are typical scenarios throughout the Great Lakes. Water and wastewater infrastructure projects and upgrades have timelines that stretch from years and into decades depending upon the size of the project(s) from proposal to design to funding and finally to construction. These are some of the largest and most demanding and costly infrastructure projects in the U.S. and are typically managed at the local level.

Assessing and reporting on the viability and progress on these projects annually will not provide any substantially new information year-over-year.

Therefore, LCA recommends a five-year self-assessment cycle rather than annually.

Bilges:

At VII.B.3, U.S. EPA invited:

> "comment on the proposed standard and whether the following should be required by the final rule: (1) type-approved systems capable of meeting a 5 ppm numeric discharge standard, and

> (2) oil content monitors (OCMs) that can consistently and accurately determine oil content at these low detection levels when considering margin for error. The research performed by EPA suggests that OCMs relying on alternative mechanisms other than turbidity/light scattering, such as UV fluorescence, may be more accurate since the monitor can differentiate between oil and other contaminants. EPA invites comment on the cost and availability of such OCMs."

It appears that U.S. EPA is specifically seeking comments from manufacturers with technologies that treat bilgewater and monitor the discharge for a more restrictive compliance target.

However, LCA would like to comment on the introduction of any new technology onboard our member operating companies. While all LCA operating members' vessels have oily water separators that can ensure a maximum discharge of 15 ppm of residual greases and oils, only a few reported that they could further reduce the discharge to 5 ppm and accurately monitor that discharge with current technology and OCMs onboard. To reach 5 ppm, a large number reported that they would have to replace their existing systems and recalibrate or replace their existing OCMs.

If U.S. EPA were to require the reduction from 15 ppm to 5 ppm for bilgewater, LCA suggests that installing new treatment and monitoring equipment only happen once a vessels' existing equipment has reached end-of-life functionality.

40 Code of Federal Regulations Part 139

Subpart B, General Standards for Discharges Incidental to the Normal Operation of a Vessel

139.4, General operations and maintenance:

LCA supports the required practices within 139.4(a) and (b)(1-13).

139.5, Biofouling management:

According to the definition, "fouling rate" (139.2) is a scale developed by the U.S. Navy (Naval Ships' Technical Manual, Chapter 81, Waterborne Underwater Hull Cleaning of Navy Ships, Revision 5, S9086-CQ-STM-010, 2006) that assigns a fouling rating (FR) number to the 10 most frequently encountered biofouling patterns. Numbers are assigned on a scale from 0 to 100, in 10-point increments, with the lowest number representing a clean hull and the higher numbers representing biofouling organism populations of increasing variety and severity.

Critical throughout these proposed regulations is a fouling rate of 20 (FR 20) that determines specific actions to be taken on such potential discharge systems as hull and associated niche areas and seawater piping. The U.S.-flag members of LCA have not seen biofouling as an issue typical of their vessels operating exclusively on the Laurentian Great Lakes. Annual underwater surveys of seachest screens do not find biofouling. Unlike a typical drydock for oceangoing vessels, hull cleaning is not an item for scheduled drydocking of U.S.-flag Lakers. Most of the operators have histories reaching back a century or more and in all types of seasons have not seen biofouling as systemic or typical.

LCA would like U.S. EPA to consider foregoing the requirement to develop a biofouling management plan for vessels that operate exclusively on the Laurentian Great Lakes.

Since U.S. EPA is deferring the contents and structure of a biofouling management plan to USCG in their implementing regulations another option would be to allow vessels operating exclusively on the Laurentian Great Lakes the opportunity to provide an abbreviated plan or statement attesting to regular visual inspections for biofouling.

139.6, Oil management:

LCA supports the prohibition of discharges of used or spent oil and oil in quantities considered harmful. Likewise, during fueling, maintenance, and other vessel operations, LCA operating members have been and will continue to incorporate measures and actions that prevent, minimize, and contain spills and overflows.

LCA supports the use of environmentally acceptable lubricants in oil-to-sea interfaces as available and technically feasible.

Subpart C, Standards for Specific Discharges Incidental to the Normal Operation of a Vessel

139.10, Ballast tanks:

LCA does not believe that it is operationally or economically feasible for a U.S.-flag vessel operating exclusively on the Great Lakes to receive water meeting the Safe Drinking Water Act or Health Canada's Guidelines for Canadian Drinking Water Quality for ballast or to discharge ballast water to an onshore reception facility for treatment, does not consider these viable options at this time, and have not been presented with any evidence that these are viable options for ballast water management. Please see the more detailed discussion related to the Second Circuit Court decision, above.

No U.S.-flag Laker is designed to meet the option to continually take on and discharge ballast water in a flow-through system. Nor are there any U.S.-flag Lakers with permanently sealed ballast tanks. These are not viable options to design new or retrofit existing U.S.-flag Lakers.

LCA supports the BMPs as presented, including:

- Flushing and cleaning ballast tanks to remove sediments and potential biofouling organisms (139.10[c][1][i]);
- Using high sea suction when practical (139.10[c][1][ii]);
- Using ballast pumps to discharge ballast water rather than gravity (139.10[c][1][iii]). U.S.-flag Lakers typically use pumps to uptake water for ballast as well; and
- Maintenance of sea chest screens (139.10[c][1][iv]). U.S.-flag Laker owner/operators annually inspect sea chest screens to ensure their integrity.

LCA supports the development of ballast water management plans in line with the plans currently in-place as a part of the 2013 VGP and as the plan would be developed to match the "operational profile of the vessel" and appropriate BMPs and any installed systems (139.10[c][4]). LCA assumes that the USCG will delineate the contents and format of any ballast water management plan in their implementing regulations.

LCA supports the requirement for instantaneous maximums for the discharge of biocides at 139.10(d)(2).

LCA supports the exemptions for meeting numeric ballast water discharge standards for vessels that:

- Are less than or equal to 3,000 gross registered tons (139.10[d][3][i]);
- Take on and discharge ballast water exclusively in a single Captain of the Port Zone (139.10[d][3][iii]);
- Do not travel more than 10 nautical miles and do not pass through navigational locks (139.10[d][3][iv]);
- Operate exclusively in the Great Lakes and the St. Lawrence River west of a rhumb line drawn from Cap des Rosiers to Point-Sud-Oeste (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 (139.10[d][3][v]); or

- Are enrolled in the USCG Shipboard Technology Evaluation Program (139.10[10][3][vi]).

LCA fully supports saltwater exchange and flushing for all vessels entering the Great Lakes and St. Lawrence River from east of Anticosti Island, whether those vessels are arriving from overseas locations, Arctic ports, or the east coast of the U.S. or Canada (139.10[f]). LCA also supports the continued inspection of all ships and all ballast tanks entering the St. Lawrence Seaway to ensure compliance with the saltwater exchange and flushing requirements.

139.11, Bilges:

LCA supports the prohibition of the discharge of flocculants or additives outside the use of an oily water separator, the use of additives to remove sheening in discharges, and discharges in federally-protected waters.

LCA agrees that discharges of bilgewater should occur only while a vessel is underway.

139.12, Boilers:

LCA supports minimizing boiler blowdown when in port or the prohibition in federally-protected waters.

139.13, Cathodic protection:

LCA has no objections to the requirement to fill the spaces between flush-fit anodes and backing as a prevention technique for biofouling.

139.14, Chain lockers:

LCA supports rinsing anchors and anchor chains of sediments and any biofouling organisms as they are retrieved.

139.15, Decks:

Current rules under the 2013 VGP align with the proposed requirements on discharges from decks. 33 CFR Part 151.66, Operating requirements: Discharge of deck sweepings in the Great Lakes and other navigable waters, govern the discharge of bulk dry cargo residue into U.S. waters of the Great Lakes. The rule continues to allow the discharge of non-toxic and non-hazardous substances into specific areas of the Great Lakes. It includes limestone and other clean stone, iron ore, coal, grain, salt, and cement. It does not include residues of any substance known to be toxic or hazardous. In the future, as more national marine sanctuaries for the preservation of shipwrecks or maritime heritage are established in the Great Lakes, it may become increasingly difficult to comply with zero discharges from decks in federally-protected waters, especially as their boundaries may intersect with established navigational course lines and entrances and approaches to commercial ports.

Please see comments below as they specifically relate to Part 139.40 and Appendix A to Part 139, A.1, National Marine Sanctuaries.

139.16, Desalinization and purification systems:

LCA has no objections to the prohibition on discharging any toxic or hazardous materials associated with desalinization and purification systems.

139.17, Elevator pits:

LCA supports the prohibition on discharging untreated, accumulated water and sediment from elevator pits.

139.18, Exhaust gas emission control systems:

The U.S.-flag Great Lakes vessels equipped with scrubbers are closed-loop. Sludges and oils are removed from the recirculating water via a clarifier and purifier. Bleed-off water is discharged, in accordance with the proposed requirements. The residual scrubber sludge goes to a holding tank and is pumped off to shore disposal facilities.

LCA supports the standards and limitations set on exhaust gas emission control systems.

139.19, Fire protection equipment:

LCA supports prohibition of the discharge of fluorinated firefighting foam during equipment testing, training, maintenance, inspection, or certification, except as directed by the USCG during inspection and certification, in port and federally-protected waters.

139.20, Gas turbines:

LCA supports the prohibition of discharges of untreated gas turbine washwater unless it is otherwise infeasible.

139.21, Graywater systems:

LCA member vessels are subject the requirements of 40 CFR Part 140, Marine Sanitation Device Standard, and 33 CFR Part 159, Marine Sanitation Devices.

As such, LCA supports the restrictions and prohibitions on the discharge of graywater.

139.22, Hulls and associated niche systems:

LCA member vessels do not use biocidal coatings on their hulls or associated niche areas. Tributyltin, dibutyltin, cybutryne, or copper containing compounds have not and are not used for Laker hull and associated niche systems coatings.

LCA has no objections to the restrictions and prohibitions on the coatings or their application, maintenance, and reapplication on hulls and associated niche areas.

LCA supports the guidelines and restrictions on the cleaning of hulls and associated niche areas as proposed.

139.23, Inert gas systems:

LCA supports the general standards as presented in Subpart B of these regulations as they apply to discharges from inert gas systems.

139.24, Motor gasoline and compensating systems:

LCA supports the general standards as presented in Subpart B of these regulations as they apply to discharges of motor gasoline and compensating discharges and the prohibition of discharges from motor gasoline and compensating systems in federally-protected waters.

139.25, Non-oily machinery:

LCA supports the prohibition of the discharge of untreated non-oily machinery wastewater and packing gland or stuffing box effluent containing toxic or bioaccumulative additives or the discharge of oil in such quantities as they may be harmful.

139.26, Pools and spas:

LCA has no objections to the restrictions, exemptions, and prohibitions on discharges of pool and spa water.

139.27, Refrigeration and air conditioning:

LCA supports the prohibition of direct overboard discharge of any condensate from refrigeration, air conditioning, and similar equipment that contains toxic or hazardous materials.

139.28, Seawater piping:

LCA has no objections to the restrictions and prohibitions on the discharges associated with seawater piping systems.

139.29, Sonar domes:

LCA has no objections to the restrictions and prohibitions on the discharges associated with sonar dome maintenance or repair or the prohibition on the use of bioaccumulative biocides on exterior of sonar domes.

Subpart D, Special Area Requirements

139.40, Federally-protected waters:

In Section 139.40, the proposed regulations regarding ballast tanks and federally-protected waters are in line with two statutes governing certain ballast water operations in Great Lakes national marine sanctuaries that preserve shipwrecks or maritime heritage:

1) Public Law 113–281, Howard Coble Coast Guard and Maritime Transportation Act of 2014, Section 610, Safe Vessel Operation in Thunder Bay, enacted on December 18, 2014 which states:

> "The Secretary of the department in which the Coast Guard is operating and the Administrator of the Environmental Protection Agency may not prohibit a vessel operating within the existing boundaries and any future expanded boundaries of the Thunder Bay National Marine Sanctuary and Underwater Preserve from taking up or discharging ballast water to allow for safe and efficient vessel operation if the uptake or discharge meets all Federal and State ballast water management requirements that would apply if the area were not a marine sanctuary."

2) Public Law 114–120, Coast Guard Authorization Act of 2015, enacted on February 8, 2016, amended the above Section 610, Safe Vessel Operation in the Great Lakes, by expanding the safe harbor for ballasting operations to:

> "any national marine sanctuary that preserves shipwrecks or maritime heritage in the Great Lakes …. unless the designation documents for such sanctuary do not allow taking up or discharging ballast water in such sanctuary.''

LCA fully supports maintaining this exemption in the Great Lakes for ballasting operations in these national marine sanctuaries. This is especially important as more sanctuaries will be coming on line to further encompass large swaths of the Great Lakes in critical locations for vessel traffic and as the sanctuary boundaries intersect with the navigational course lines that have been in-place since the late 1800s. Retaining this exemption is paramount to safe navigation and the safety of a vessel's crew.

The impacts as the result of certain discharges incidental to the normal operation of a vessel in federally-protected waters set aside for ecological and biological preservation are distinctly different than those set aside for shipwrecks and maritime heritage. For example, a national marine sanctuary such as Thunder Bay in Lake Huron or the proposed Wisconsin Shipwreck Coast National Marine Sanctuary in Lake Michigan are preserving the shipwrecks and artifacts on the lake bed and not the waters or lakebed where they lie. The biological rationale for limiting certain incidental discharges in other types of federally-protected waters does not apply to these types of protected areas.

Using the same rationale for the above statutory exception for ballasting operations, LCA asks U.S. EPA to include exceptions to the prohibited list of discharges for Great Lakes federally-protected waters set aside for the preservation of shipwrecks or maritime heritage for incidental discharges of dry cargo residues of the following cargoes as the result of deck washdown: iron ore (composed of taconite, bentonite, and limestone), limestone, coal, sand, grain, wood products, and other naturally occurring products of the Great Lakes region that are transported throughout the Great Lakes as many of these

have been since 1850. The amount of accumulated on-deck residue of these cargoes is minimal and the decks are required to be broom clean before washdown, but forestalling their removal until the vessel is outside of federally-protected waters does have a chance of becoming a safety issue for the crew as they undertake other necessary chores on deck as these U.S.-flag vessels get underway. NOAA readily admits that they do not regulate or protect the water column in the historically based marine sanctuaries, only the wrecks on the bottom. The loading processes for the types of dry bulk cargoes handled by vessels operating exclusively on the Great Lakes and St. Lawrence River is very efficient and results in little spillage or product not reaching the holds. In fact, USCG in their final rule making on dry cargo residue in the Great Lakes stated:

> "Our analysis shows that the DCR (dry cargo residue) deposition rate in open Great Lakes waters is within natural deposition rates – 0.2 percent or less of the natural deposition rate even in areas of highest DCR discharge activity. Only port and nearshore areas experience deposition rates higher than the natural deposition rate. The DCR-discharge impact in those areas must be mitigated as we described in the DEIS's preferred alternative. The criteria for determining the effects on environmental and human resources for each of the alternatives were established through collaboration with experienced National Environmental Policy Act practitioners and with the EPA as a cooperating agency. The evaluation of the impacts was based on scientific studies, vetted through expert panels. The results were published in draft and final environmental impact statements issued prior to publication of the interim rule, resulting in further refinement of the analysis."[14]

Though minimal, it is still the crews' responsibility to ensure a clean deck, free from potential slip, trip, and fall potential. By not allowing this important part of vessel safety to be done until the vessel is outside of any national marine sanctuary set aside to preserve shipwrecks and marine heritage in the Great Lakes risks a crew's health and safety.

LCA requests that U.S. EPA clarify that the prohibition on discharging accumulated water and sediment from any chain locker into federally-protected waters does not include rinsing anchors and anchor chains in federally-protected waters as they are being raised after anchoring in those same waters. Any accumulated sediment and biofouling from this rinsing would come from those same federally-protected waters. It is a standard industry practice to rinse deployed anchors and anchor chain as they are retrieved to reduce the potential to transport of sediments and organisms that might become attached to those devices. This practice only has the potential to return accumulated in-situ sediment and bio-fouling back to their original locations. LCA agrees with the prohibition against discharging from the vessel's anchor chain locker any water or sediments into federally-protected waters that are not specifically for the preservation of shipwrecks or maritime heritage.

LCA has no objections, except as necessary for the safety of the crew and vessel, to the prohibition of discharges within federally-protected waters from:

[14] USCG Docket No. USCG-2004-19621. Dry cargo Residue Discharges in the Great Lakes. pg. 5263. https://www.federalregister.gov/documents/2014/01/31/2014-01927/dry-cargo-residue-discharges-in-the-great-lakes. (January 31, 2014).

- Bilges,
- Boilers,
- Fire protection equipment during testing, training, maintenance, inspection, or certification,
- Graywater systems if the vessel has remaining available graywater storage capacity,
- Hulls and associated niche areas from in-water cleaning,
- Motor gasoline and compensating works,
- Pools and spas, and
- Seawater piping systems' chemical dosing.

Subpart E, Procedures for States to Request Changes to Standards, Regulations, or Policy Promulgated by the Administrator

139.50, Petition by the Governor for the Administrator to Establish an Emergency Order or Review a Standard, Regulation:

LCA recommends the following for proposed regulation 40 CFR 139.50 should be revised as follows to comply with section 312(p)(7) of VIDA:

1. In paragraph (a)(1), strike "312(p)(4)(e)" and insert "312(p)(4)(E)".
2. At the end of paragraph (b)(2), strike "and".
3. At the end of paragraph (b)(3), strike the period and insert "; and".
4. Insert new paragraph (b)(4) to read as follows:

   "(4) The direct and indirect costs if the requested petition were to be granted by the Administrator."

   Under section 312(p)(4) of the Clean Water Act (CWA), the national standards of performance developed under the VIDA for vessels requires the application of best practicable control technology currently available (BPT) for conventional, toxic, and nonconventional pollutants; best conventional pollutant control technology (BCT) for conventional pollutants; and best available technology economically achievable (BAT) for toxic and nonconventional pollutants (including ANS), which will result in reasonable progress toward the national goal of eliminating the discharge of all pollutants. Consideration of cost impacts is an element of BPT, BCT, and BAT. A petition by the Governor of a State under section 312(p)(7) to review a standard of performance or other requirement developed under section 312(p)(4) essentially tasks the U.S. EPA to repeat the section 312(p)(4) process for a specific discharge using the additional new information provided in the petition. Therefore, the petition should include the appropriate cost information necessary to apply BPT, BCT, and BAT during that review.

5. Redesignate paragraphs (c) through (e) as paragraphs (d) through (f).
6. Insert a new paragraph (c) to read as follows:

   "(c) A review of a standard of performance, regulation, or policy promulgated by the Administrator under CWA section 312(p)(4) or 312(p)(6) that is requested under subsection (a)(2) of this section must comply with all other applicable provisions of CWA section 312(p)."

   This provision explains the limits of a review conducted under paragraph (a)(2). Since, unlike CWA section 312(p)(4)(E), section 312(p)(7)(A)(ii) does not exempt such reviews from any other applicable provisions of section 312(p), all such provisions apply to any such a review. For example, the Administrator could not approve a petition submitted under paragraph (a)(2) of the proposed regulation that requests a statutory exclusion in section 312(p) be overturned based on new information or that a discharge by a vessel into waters outside the geographic scope of section 312(p) be subject to the requirements of that section.

7. Insert a new paragraph (d) that reads as follows:

"(d) On receipt of a proposed standard of performance or other requirement under paragraph (b) of this section, the Administrator shall submit, after consultation with USCG, a document to the Federal Register that, at minimum:

"(1) States that the proposed standard or requirement and supporting documents required by paragraph (b) are publicly available; and

"(2) Provides an opportunity for public comment regarding the proposed standard or requirement."

This change would provide the public, including vessel operators whose discharges would be covered by a revised performance standard and others with technical expertise, an opportunity to provide the U.S. EPA with information that would be needed by the U.S. EPA to apply the best practicable control technology currently available, the best conventional pollution control technology, or the best available technology economically achievable, as appropriate. LCA notes that this would be similar to the public notice and comment opportunity provided under proposed 40 CFR 139.51 for Great Lakes Governors' petitions. Since petitions under 40 139.50(a)(2) have the potential to be national in scope, they should include a similar opportunity for public review and comment before the determination by the Administrator is made.

8. In paragraph (e)(1), as redesignated, insert ", after consultation with vessel operators whose incidental discharges are likely to be included in the requested emergency order," between "section" and "by". Such consultations would help ensure that an emergency order includes practicable measures that are appropriate to effectively address the specific, temporary emergency, regardless of whether those measures were included in the petition or recommended by the affected vessel operators. Vessel operators are more likely to be aware of the full range of emergency measures available to be implemented by their vessels than State agencies.
9. In paragraph (f)(2), as redesignated, insert "by not later than 30 days after the date such determination is made" after "the Administrator shall". This deadline is required by section 312(p)(7)(C)(ii)(II) of the CWA.
10. In paragraph (g), as redesignated, insert "by not later than 30 days after the date such determination is made" after "the Administrator shall". This deadline is required by section 312(p)(7)(C)(iii) of the CWA.
11. Insert at the end new paragraph (h) to read as follows:

    "(h) Disapproval of a proposed standard of performance or other requirement under paragraph (e) of this section shall be considered to be a final agency action subject to judicial review under CWA section 509, subject to CWA section 312(p)(7)(C)(v)."

    This provision reflects section 312(p)(7)(C)(iv) of the CWA and its inclusion in the regulations is consistent with the inclusion of a similar provision in section 139.51 of the proposed regulations.

139.51, Petition by a Governor for the Administrator to Establish Enhanced Great Lakes Systems Requirements:

LCA recommends the following for the proposed regulation 40 CFR 139.51 should be revised as follows to comply with CWA section 312(p)(10)(B) of VIDA:

1. Insert at the beginning of regulation 40 CFR 139.51 a description of the responsibilities of the U.S. EPA's Great Lakes National Program Office under section 312(p)(10)(B)(ii) of the CWA to publish in the Federal Register and make available for public comment documents described in that statute. It may be appropriate in the regulation to direct that these actions be undertaken by "the Secretary, acting through the Director of the Great Lakes National Program Office,".
2. Correct the references in paragraph (a) to "312(p)(10)(ii)" in the proposed regulation to read "312(p)(10)(B)(ii)".
3. In paragraph (b), insert "meet the requirements of section 312(p)(10)(B)(ii)(III)(bb) and" after "must."
   Because section 312(p)(10)(B)(iii)(I)(cc)(BB) of the CWA requires the Administrator and the Secretary to terminate a review of a petition if the number of endorsing Governors drops below the number required by 312(p)(10)(B)(ii)(III)(bb) due to a withdrawal of an endorsement (which is addressed in comment 7 below), the regulation should make it clear that a petition must be initially endorsed by at least the required number of Governors in order to be eligible to be reviewed under this regulation.
4. In paragraph (b)(2) and (3), strike "Information indicating that" and insert "An explanation regarding why" so these provisions are consistent with section 312(p)(10)(B)(iii)(I)(bb)(BB) and (CC) of the CWA.
   Although section 312(p)(10)(B)(iii)(III) directs the Secretary to determine whether the petition meets these two requirements, the statute requires the petitioning Governors to send the same petition to both the Administrator and the Secretary. Therefore, the petition content requirements in U.S. EPA's regulations should be consistent with the statute to avoid confusing future petitioners.
5. In paragraph (c)(2) insert "during the 90-day period beginning on the date of receipt by the Administrator of the proposed standard or requirement" before the period. This timeframe is specifically included in section 312(p)(10)(B)(iii)(II)(bb).
6. Redesignate paragraphs (f) through (h) as paragraphs (g) through (i) and redesignate paragraphs (i) and (j) as paragraphs (k) through (l).
7. Insert a new paragraph (f) that describes the window of consideration of a withdrawal of a Great Lakes Governor's endorsement and the potential effect of such withdrawal on the U.S. EPA review process, as described in section 312(p)(10)(B)(iii)(I)(cc) of the CWA. Because this provision is not included in section 312(p)(10)(B)(ii) of the CWA, the references to section 312(p)(10)(B)(ii) of the CWA in paragraph (a) of proposed 40 CFR 139.51(a) do not cover this contingency.
8. In paragraph (g), as redesignated, insert "or the Secretary determines that the proposed standard or requirement is not in accordance with maritime safety or is not in accordance with applicable maritime and navigation laws and regulations" before the period.
   The use of "or" between the two USCG determinations is appropriate because a failure to meet either of the two USCG determinations results in disapproval of the petition under the statute, even if the Administrator determines that the proposed standard or requirement is at least as stringent as comparable standards and requirements in these regulations. The phrase ", in concurrence with the Secretary," does not adequately convey the statutory requirements regarding approval of a petition under this section.
9. In paragraph (h), as redesignated, insert ", in concurrence with the Secretary," after "Administrator"

the first time it appears to be consistent with the preceding paragraph (g), as redesignated, and with section 312(p)(10)(B)(VI) of the CWA.

10. In paragraph (i), as redesignated, insert ", in concurrence with the Secretary," after "Administrator" the first time it appears to be consistent with the preceding paragraphs (g) and (h), as redesignated, and with section 312(p)(10)(B)(V) of the CWA.
11. In paragraph (i), as redesignated, insert "of the determination to the Governor of each Great Lakes State and to the Federal Register" after "notice." This would make the disapproval notice provision in the regulation consistent with the text of the approval notice provision in paragraph (h), as redesignated, and with the statute.
12. In paragraph (i)(2), as redesignated, strike "paragraph (b) of".
    Section 312(p)(10)(B)(V)(aa)(BB) of the CWA directs the Administrator to make such recommendations to conform to the "requirements of this subparagraph", which is subparagraph (B) of the statute. The equivalent provision of the regulations would be the entire section 139.51, which includes by reference the initial petitions to the Great Lakes Commission, the subsequent development of the proposed standard or other requirement, and its submission to the Administrator. Paragraph (b) of this section of the regulation does not by itself include the entire scope of the requirements included in this provision of the statute.
13. Insert the following as new paragraph (j):

    "(j) The Administrator, in concurrence with the Secretary as required, shall make an approval or disapproval determination under this section, submit a notice of such determination to the Governor of each Great Lakes State, and publish the notice of determination in the Federal Register by not later than 180 days after the date of receipt of the proposed standard or regulation."

    This deadline is specified in section 312(p)(10)(B)(IV) of the CWA. The addition of the phrase "as required" is needed to address that one of the determinations made by the Administrator under regulation 139.51 (whether the proposed standard or other requirement is at least as stringent as comparable standards and requirements under this part) does not require the concurrence of the Secretary.
14. Insert the following at the end of paragraph (k), as redesignated:

    "A requirement to prohibit 1 or more types of discharges regulated under this part, whether treated or not treated, into waters of the Great Lakes System shall not apply outside the waters of the Great Lakes States of the Governors endorsing that proposed requirement."

This is needed to comply with CWA section 312(p)(10)(B)(ii)(III)(cc).

139.52, Application by a State for the Administrator to Establish a State No-Discharge Zone:

LCA supports the list of required petition elements described in the proposed regulation at 40 CFR Part 139.52.

Appendix A to Part 139, Federally-Protected Waters

A.1, National Marine Sanctuaries

LCA requests that U.S. EPA identify in this section which of the listed national marine sanctuaries preserves shipwrecks or maritime heritage in the Great Lakes, so it is clear the limitation in section 139.40 applies to those waters.

Attachment 1, U.S. Coast Guard Type-Approved Ballast Water Management System Side-by-Side Comparison[1]

BWMS[2]	Manufacturer	USCG Approval No.	Filtration	Disinfection Process	Ambient, Feed, or In-tank Restrictions?		Total Residual Oxidant	Corrosive[3]	Hold Time	Maximum Flow Rate (m^3/hour)	Approved for Installation in Hazardous Locations? (46 CFR 111.105)	Approved for Installation on U.S.-flag Vessels? (46 CFR Sub. F & J)	Compatible with U.S.-flag Lakers?[4]
					Temperature	Salinity							
Optamarin	Optimarin AS	162.060/1/2	Yes	Ultraviolet (UV)	Yes (0-55°C)	N/A	N/A	No	Yes[5] (24-72 hours)	3,000	No	Yes	No HT,MNF
PureBallast 3.0 & 3.1	Alfa Laval	162.060/2/3	Yes	UV	No	N/A	N/A	No	Yes (72 hours)	3,000	Yes (conditional)[6]	Yes	No HT,MNF
OceanSaver[7]	TeamTec	162.060/3/3	Yes	Electrodialysis	Yes (>17°C)	Yes (>20 psu)	1.7 mg/L	Yes	No	7,200	No	Yes	No C,WQ,ST
BalClor	Sunrui	162.060/4/2	Yes	Electrolysis	Yes (>5°C)	Yes (15 psu)	7.5 mg/L	Yes	No	8,500	No	No	No C,WQ,NA,ST
EcoChlor[8,9]	Ecochlor	162.060/5/2	Yes	Chemical Injection	No	N/A	4.25 mg/L	Yes	Yes (24 hours)	16,200	Yes	Yes	No C,WQ,HT,ST
ERMA FIRST[10]	ERMA FIRST	162.060/6/3	Yes	Electrolysis	Yes (>-2°C)	Yes (0.9 psu)	6 mg/L	Yes	No	3,740	Yes (conditional)	Yes	No C,WQ,ST
ECS and ECS-A	Techcross	162.060/7/2	No	Electrolysis	Yes (0-55°C)	ECS: N/A ECS-A: Yes (>3 psu)	7.5 mg/L	Yes	Yes (48 hours)	12,000	Yes (conditional)	Yes	No C,WQ,HT,ST
Purimar	Samsung	162.060/8/1	Yes	Electrochlorination	Yes (4-40°C)	Yes (10 psu)	2.5-3 mg/L	Yes	Yes (24 hours)	10,000	No	No	No C,WQ,HT,NA,ST
BIO-SEA B	BIO-UV	162.060/9/2	Yes	UV	Yes (-2-40°C)	N/A	N/A	No	No (freshwater)	1,400	No	Yes	No MNF
Aquarius EC	Wartsila	162.060/10/3	Yes	Electrolysis	Yes (>15°C)	Yes (>15 psu)	10 mg/L	Yes	Yes (24 hours)	4,000	No	No	No C,WQ,HT,NA,ST
HiBallast	Hyundai Heavy Industries	162.060/11/2	Yes	Electrolysis	Yes (>4 °C)	Yes (>15 psu)	8 mg/L	Yes	Yes (24 hours)	10,000	Yes (conditional)	Yes	No C,WQ,HT,ST
OceanGuard	Headway Technology Group	162.060/12/1	Yes	Electrolysis	Yes (0-40°C)	Yes (>0.85 psu)	2 mg/L	Yes	Yes (2 hours)	5,200	No	No	No C,WQ,HT,NA,ST
BallastAce	JFE	162.060/13/2	Yes	Chemical Injection	No	N/A	2.5-14 mg/l	Yes	Yes (24 hours)	4,000	No	No	No C,WQ,HT,NA,ST
GloEn-Patrol	Panasia	162.060/14/0	Yes	UV	Yes (-2-40°C)	N/A	N/A	No	Yes (48 hours)	6,000	Yes (conditional)	Yes	No HT
BALPURE	De Nora	162.060/15/2	Yes	Electrolysis	Yes (15-50°C)	Yes (>18 psu)	7-15 mg/L	Yes	Yes (24 hours)	8,570	Yes (conditional)	Yes	No C,WQ,HT,ST

[1] Comparisons and information provided is for BWMS use in freshwater, only.
[2] U.S. Coast Guard list of type-approved BWMS is maintained online at: https://www.dco.uscg.mil/Our-Organization/Assistant-Commandant-for-Prevention-Policy-CG-5P/Commercial-Regulations-standards-CG-5PS/Marine-Safety-Center-MSC/Ballast-Water/TACs/
[3] International Maritime Organization G8 testing requirements include corrosion but only as it relates to tank coatings in accordance with the International Paint and Printing Ink Council.
[4] Aspects that impact compatibility of a system to a U.S.-flag laker include chemical compatibility with vessel construction ("**C**"), discharges exceeding state drinking waters limits ("**WQ**"), hold times in ballast tanks versus voyage times ("**HT**"), low rates incapable of maintaining normal load/unload rates for cargo operations ("**MNF**"), U.S. Coast Guard approval for installation and operation on a U.S.-flag vessel ("**NA**"), feed stock limitations due to salinity or temperature ("**ST**"), and/or not approved for use in freshwater ("**NFW**").
[5] Hold time varies based upon Treatment Rated Capacity (TRC). TRC is the maximum flow capacity of the system. At 50% TRC, hold time is 24 hours. At 100% TRC, hold time is 72 hours.
[6] "Yes (conditional)" means certain components (e.g., power distribution unit, control unit, electrolysis unit, neutralization tank, etc.) may not be installed in areas designated as "hazardous".
[7] Requires feed water storage equivalent to 2 to 5 percent of total ballast water volume.
[8] Tested at Golden Bear facility in waters over 12°C, only.
[9] Chemical dosing (ClO_2) without neutralization process. Does not monitor for total residual chlorine at discharge.
[10] Requires feed water storage equivalent to 2 percent of total ballast water volume.

Attachment 1, U.S. Coast Guard Type-Approved Ballast Water Management System Side-by-Side Comparison[1]

BWMS[2]	Manufacturer	USCG Approval No.	Filtration	Disinfection Process	Ambient, Feed, or In-tank Restrictions?		Total Residual Oxidant	Corrosive[3]	Hold Time	Maximum Flow Rate (m^3/hour)	Approved for Installation in Hazardous Locations? (46 CFR 111.105)	Approved for Installation on U.S.-flag Vessels? (46 CFR Sub. F & J)	Compatible with U.S.-flag Lakers?[4]
					Temperature	Salinity							
inTank BWTS	Scienco/FAST	162.060/16/1	No	Chemical Injection Electrochlorination[11]	Yes (0-35°C)	>22 mS/cm conductivity	2-5 mg/L	Yes	Yes (24 hours)	N/A[12]	Yes (conditional)	Yes	No C,WQ,HT,ST
CompactClean	DESMI	162.060/17/1	Yes	UV	No	N/A	N/A	N/A	Yes (2 hours)	3,000	No	Yes	No HT,MNF
Aquarius UV	Wartsilia	162.060/18/2	Yes	UV	Yes (-2-45°C)	N/A	N/A	No	Yes (72 hours)	1,000	No	Yes	No HT,MNF
PureBallast 3.2	Alfa Laval	162.060/19/2	Yes	UV	No	N/A	N/A	No	Yes (2.5 hours)	3,000	Yes (conditional)	Yes	No MNF
Evolution	Cathelco	162.060/20/0	Yes	UV	Yes (> -2°C)	N/A	N/A	No	Yes (48 hours)	1,500	No	Yes	No HT,MNF
Blue Ocean Shield	COSCO Shipbuilding	162.060/21/1	Yes	UV	Yes (0-40°C)	N/A	N/A	No	Yes (72 hours)	3,200	No	No	No HT,NA
EcoBallast	Hyundai Heavy Industries	162.060/22/0	Yes	UV	Yes (0-50°C)	N/A	N/A	No	Yes (120 hours)	2,160	No	No	No HT,MNF,NA
HK-(E) C	Miura Co.	162.060/23/1	Yes	UV	Yes (0-50°C)	N/A	N/A	No	Yes (17 hours)	900 (intake) 1,200 (discharge)	No	No	No HT,MNF,NA
EcoGuardian	HANLA IMS	162.060/24/0	Yes	Electrolysis	Yes (>10°C)	N/A	6-10 mg/L	Yes	No	4,000	No	No	No C,WQ,NA,ST
HK-S (E)	Miura Co.	162.060/25/0	Yes	UV	Yes (<50°C)	Yes (>1 psu)	N/A	No	Yes (48 hours)	900 (intake) 1,200 (discharge)	No	No	No HT,MNF,NA,ST
BAWAT BWMS Mk2	BAWAT A/S	162.060/26/0	No	Pasteurization	Yes (<64°C)	N/A	N/A	Yes	Yes (40-80 seconds)	5,000	No	No	No C,NA,ST
GloEn-Patrol 2.0	Panasia Co., Ltd.	162.060/27/0	Yes	UV	Yes (-2 to 40°C)	N/A	N/A	No	Yes (>24 hours)	6,000	Yes (conditional)	Yes	No HT
NK-O3 BlueBallast II	NK Co. Ltd.	162.060/28/0	No	Ozone	No	Yes (>1 psu)	N/A	Yes	Yes (>24 hours)	8,000	No	No	No C,HT,NA,ST
NK-O3 BlueBallast II Plus	NK Co. Ltd.	162.060/29/0	No	Ozone	No	N/A	N/A	Yes	Yes (>24 hours)	8,000	No	No	No C,HT,NA
Hyde GUARDIAN-US	Hyde Marine	162.060/30/0	Yes	UV	Yes (0 to 40°C)	N/A	N/A	No	Yes (>24 hours)	3,000	Yes (conditional)	Yes	No HT,MNF

[11] System offers two options for chemical disinfection: direct injection of NaOCl or generation on board through electrochlorination.
[12] Treatment is performed in ballast water tank after uptake and before discharge. Total amount of ballast water capable of being treated with chemical capacity on board is 200,000 m^3 (52 million gallons).

Attachment 1, U.S. Coast Guard Type-Approved Ballast Water Management System Side-by-Side Comparison[1]

BWMS[2]	Manufacturer	USCG Approval No.	Filtration	Disinfection Process	Ambient, Feed, or In-tank Restrictions?		Total Residual Oxidant	Corrosive[3]	Hold Time	Maximum Flow Rate (m^3/hour)	Approved for Installation in Hazardous Locations? (46 CFR 111.105)	Approved for Installation on U.S.-flag Vessels? (46 CFR Sub. F & J)	Compatible with U.S.-flag Lakers?[4]
					Temperature	Salinity							
HK-(E)R	Miura Co.	162.060/31/1	Yes	UV	Yes (<50°C)	N/A	N/A	No	Yes (>72 hours)	900 (intake) 1,200 (discharge)	No	No	No HT,MNF,NA
ECS-HYCHLOR	Techcross, Inc.	162.060/32/0	Yes	"Indirect" Electrolysis	Yes (>2.5°C)	Yes (8 psu)	5 mg/l	Yes	Yes (3/48 hours)[13]	8,000	Yes (conditional)[14]	Yes	No C,WQ,HT,ST
LUV-U1	Semb-Eco Pte Ltd.	162.060/33/0	Yes	UV	Yes (5-55°C)	Yes (>10 psu)	N/A	No	Yes (48 hours)	500	No	No	No HT,MNF,NA,ST
MICROFADE II	Kuraray Co., Ltd.	162.060/34/0	Yes	Chemical Injection	No	N/A	Not listed[15]	Yes	Yes (24 hours)	2,000	No	No	No C,HT,MNF,NA
oneTank	oneTank, LLC	162.060/35/0	No	Chemical Injection	No	N/A	5 mg/l	Yes	Yes (24 hours)	133	No	Yes	No C,HT,WQ,MNF
Seascape	Elite Marine Corporation	162.060/36/0	Yes	UV	Yes (-2 to 40°C)	N/A	N/A	No	Yes (48 hours)	5,000	No	No	No HT,NA
ATPS-BLUEsys	Panasonic Enviro. Systems	162.060/37/0	No	Electrolysis	N/A	Yes (>1.5 psu)	12 mg/l	Yes	Yes (24 hours)	3,600	No	Yes	No C,HT,WQ,ST,NFW
KBAL	Knutsen Ballast Water AS	162.060/38/0	No	Heat and UV	Yes (-2 to 40°C)	Yes (0-50 psu)	N/A	Maybe	Yes (>72 hours)	3,000	Yes (conditional)	No	No HT,MNF,NA

[13] There are two filter options available for the Techcross ECS-HYCHLOR BWMS: Filtersafe and Techcross. Hold time varies with each filter. The Filtersafe model requires a 3-hour minimum hold time. If the Techcross filter is used, the hold time is a minimum of 48 hours.
[14] Only the Techcross ECS-HYCHLOR models with the "Ex-" prefix meet the requirements of 46 CFR 111.105 and may be installed in hazardous locations to which they are certified on a U.S.-flag vessel.
[15] Total residual oxidant concentration not noted in BWMS type approval certificate. Certificate list 8 mg/L as maximum concentration of dosage required.

Attachment 2

No. 13-1745

with Nos. 13-2393 & 13-2757 *Consolidated*

UNITED STATES COURT OF APPEALS
FOR THE SECOND CIRCUIT

NATURAL RESOURCES DEFENSE COUNCIL, NORTHWEST ENVIRONMENTAL ADVOCATES, CENTER FOR BIOLOGICAL DIVERSITY, AND NATIONAL WILDLIFE FEDERATION, Petitioners,
v.
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, Respondent,
v.
LAKE CARRIERS' ASSOCIATION AND
CANADIAN SHIPOWNERS ASSOCIATION, Intervenors.

ON PETITION FOR REVIEW OF FINAL ACTION OF THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

INTERVENORS LAKE CARRIERS' ASSOCIATION AND CANADIAN SHIPOWNERS ASSOCIATION'S OPENING BRIEF IN FINAL FORM

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DATED: August 27, 2014

RULE 26.1 CORPORATE DISCLOSURE STATEMENT

Intervenor Lake Carriers' Association is a trade association representing seventeen American companies operating fifty-seven U.S.-flag vessels on the Great Lakes. Lake Carriers' Association does not have any parent corporation and no publicly held corporation owns 10% or more of its stock.

Intervenor Canadian Shipowners Association is a trade association representing Canadian companies that own vessels operating in the Great Lakes – St. Lawrence Seaway, along the East Coast of Canada and in the Canadian Arctic. Canadian Shipowners Association does not have any parent corporation and no publicly held corporation owns 10% or more of its stock.

DATED: August 27, 2014

/s/ *Matthew D. Melewski*
Matthew D. Melewski
The Boutique Firm PLC

Counsel for Intervenors
Lake Carriers' Association and
Canadian Shipowners Association

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STATEMENT OF THE CASE

A. Legal Background

The 1972 amendments to the Clean Water Act ("CWA") established a novel approach to the regulation of water pollution, by prohibiting all discharges into waters of the United States, except pursuant to a permit. 33 U.S.C. § 1311(a). Most discharges, like the one at issue here, are permitted under the National Pollution Discharge Elimination System ("NPDES"), 33 U.S.C. § 1342. Once issued, a permit establishes definitively the CWA requirements applicable to the covered activity for the term of the permit. CWA permits remain the law as to the covered discharges even if regulatory standards later change. 49 Fed. Reg. 37,998, 38,045 (Sept. 26, 1984); 44 Fed. Reg. 32,854, 32,869 (June 7, 1979). By complying with its permit, the permit holder complies with the CWA. 33 U.S.C. § 1342(k); 33 U.S.C. § 1344(p); *NRDC v. EPA*, 822 F.2d 104, 111 (D.C. Cir. 1987).

Among other conditions and limitations in a permit, the CWA authorizes EPA to require the installation and use of Best Available Technology Economically Achievable ("BAT"). 33 U.S.C. §§ 1311(B)(2)(A); 1314(b)(2)(B); 40 C.F.R. § 125.3(d)(3). By definition, BAT must be technologically available to, and economically achievable by, the target industry. *E.g., Rybachek v. EPA*, 904 F.2d 1276, 1290 (9th Cir. 1990); *Waterkeeper Alliance, Inc. v. EPA*, 399 F.3d 486, 515-18 (2d Cir. 2005); *NRDC v. EPA,* 863 F.2d 1420, 1426 (9th Cir. 1988). This

cannot be a prediction or an estimate. Rather, EPA must identify demonstrated technology that can be installed and operated at the time it is required. While EPA may look at "the best performer in an industrial category" to establish effluent limits based on BAT, the technology must "be available to the industrial category concerned." *Am. Frozen Food Inst. v. Train*, 539 F.2d 107, 133 (D.C. Cir. 1976). As the Supreme Court has explained, EPA must "survey the practicable or available pollution-control technology for an industry and assess its effectiveness." *E. I. du Pont de Nemours & Co. v. Train*, 430 U.S. 112, 131 (1977). "In determining a BAT . . . EPA evaluates existing or 'available' technologies and considers their cost and capabilities among other factors." *NWF v. EPA,* 286 F.3d 554, 558 (D.C. Cir. 2002) *supp'd sub nom., In re Kagan*, 351 F.3d 1157 (D.C. Cir. 2003).

EPA is permitted to look at different industries in making a BAT determination, but a technology from a different industry may only be required if it is practicably adaptable to the target industry. This transfer of technology is permissible only "if [EPA] determines the technology to achieve those higher levels can be practicably applied." S. Rep. No. 92-414, 92d Cong., 1st Sess. (1971), A Legislative History of the Water Pollution Control Act Amendments of 1972, 93d Cong., 1st Sess. 1468 (Jan. 1973) (hereinafter "Leg. Hist."); *see* Senate Consideration of the Report of the Conference Committee, October 4, 1972, Leg.

Hist. 169-170 (statement of Sen. Muskie); *Hooker Chemicals & Plastics Corp. v. Train*, 537 F.2d 620, 636 (2d Cir. 1976) ("even if technology which is not presently in use can be treated as available and achievable, there must be some indication . . . that such technology is feasible . . . ."); *CPC Int'l, Inc. v. Train*, 515 F.2d 1032, 1048 (8th Cir. 1975) ("EPA must . . . determine that the technology is transferable to the industry").

The effluent limitations capable of being achieved through the use of BAT are known as Technology-Based Effluent Limits ("TBELs"). *See* 40 C.F.R. §§ 122.44(a); 125.3. Typically, BAT and TBEL determinations are imposed through the use of national effluent limitation guidelines ("ELGs"). 40 C.F.R. § 125.3(c)(1). When there are no applicable ELGs, as in the case of invasive species, EPA uses its "best professional judgment" to establish technological limits on a case-by-case basis. 40 C.F.R. §§ 125.3(a)(2)(v)(B); 125.3(c)(2); *Am. Petroleum Inst. v. EPA*, 787 F.2d 965, 971 (5th Cir. 1986).

The CWA directs EPA to apply a variety of technical and practical factors to determine effluent limits that are actually attainable:

> Factors relating to the assessment of best available technology shall take into account the age of equipment and facilities involved, the process employed, the engineering aspects of the application of various types of control techniques, process changes, the cost of achieving such effluent reduction, non-water quality environmental impact (including energy requirements), and such other factors as the Administrator deems appropriate.

33 U.S.C. § 1314(b)(2)(B); 40 C.F.R. § 125.3(d)(3); *Waterkeeper Alliance*, 399 F.3d at 516. EPA is further directed to consider:

> (i)The appropriate technology for the category or class of point sources of which the applicant is a member, based upon all available information; and
>
> (ii) Any unique factors relating to the applicant.

40 C.F.R. § 125.3(c)(2); *NRDC v. EPA,* 822 F.2d at 124 ("EPA is instructed to specify the factors to be considered in evaluating available technologies; utilize them to identify the best control technologies, measures, and practices available; and determine the degree of effluent reduction attainable using the best technology.").

These effluent limits cannot be projections, or wishful thinking. They are not "technology-forcing" in the sense of requiring the development of technology, but rather must be based on established technological capabilities. "A technology-based standard discards its fundamental premise when it ignores the limits inherent in the technology." *NRDC v. EPA,* 859 F.2d 156, 208 (D.C. Cir. 1988).

If it determines that additional measures are needed to ensure compliance with water quality standards, EPA can also require water quality-based effluent limits ("WQBELs"). *See* 40 C.F.R. § 122.44(d). WQBELs are intended to ensure that the discharges authorized by the permit will not cause an excursion above a state's water quality standards. 33 U.S.C. § 1313; 40 C.F.R. § 122.44(d)(1)(vii).

They can be numeric, narrative, or rely on indicator parameters, depending on the water quality standards at issue. 40 C.F.R. § 122.44(d).

State water quality standards serve a dual purpose under the CWA: first, to establish the specific "fishable/swimmable" goals for each waterbody; and second, to provide a basis for permitting decisions. *See* 48 Fed. Reg. 51,400, 51,403 (Nov. 8, 1983). Under Section 303 of the CWA, Congress vested States with the primary authority to develop, review and periodically revise these water quality standards. *See* 33 U.S.C. § 1313(c); 40 C.F.R. § 131.4.

In general, there are two types of water quality standards. Numeric standards limit the amount of specified contaminants and are expressed as specific numeric limitations (e.g., "no more than 5 mg/l chlorine"). Narrative standards, by contrast, are a textual standard (e.g., "the ecosystem shall not be degraded"). Unlike numeric standards, narrative standards are inherently subjective, and are to be interpreted by the relevant state. *See* 40 C.F.R. § 122.44(d)(1)(vi).

No state in the country has numeric *or* narrative water quality standards for invasive species. EPA, *2013 Final Issuance of National Pollutant Discharge Eliminations System Vessel General Permit for Discharges Incidental to the Normal Operation of Vessels Fact Sheet* (hereinafter "Fact Sheet"), EPA-HQ-OW-2011-0141-0950 at 111 (JA 126). The water quality standards at issue in this case

are narrative standards; generalized statements about preserving the marine habitat, protecting aquatic life, and maintaining uses such as fishing. *Id.*

Even if EPA is the permitting authority, as in this case, CWA section 401 requires EPA to obtain a "401 Certification" from the state, determining that the discharges at issue will comply with the state's water quality standards. 33 U.S.C. § 1341; 40 C.F.R. § 122.4(b). Having vested states with the primary authority to develop water quality standards, Congress also vested states with the primary authority to certify whether federal permitting decisions are consistent with those standards. *See* 33 U.S.C. § 1341; *Mobil Oil Corp. v. Kelley*, 426 F. Supp. 230, 234-35 (S.D. Ala. 1976) ("certification under Section 401 is set up as an exclusive prerogative of the [S]tate."); *see also Lake Erie Alliance for the Prot. of the Coastal Corridor v. U.S. Army Corps of Eng'rs*, 526 F. Supp. 1063, 1074 (W.D. Pa. 1981). This includes the responsibility of interpreting the state's narrative water quality standards. *See Am. Paper Inst., Inc. v. U.S. EPA,* 996 F.2d 346, 351-53 (D.C. Cir. 1993).

B. Factual Background

The U.S. government, foreign governments, international organizations and shipping industry groups have been working to control the introduction and spread of invasive species for decades. EPA*, 2013 VGP: EPA's Response to Public Comments* (March 28, 2013) (hereinafter "Response"), EPA-HQ-OW-2011-0141-

0926 at 396-97 (JA 1484-85); EPA-HQ-OW-2011-0141-0013 at 3-5 (JA 921-23). The damage caused by invasive species is of particular concern in the Great Lakes, where they can be introduced by overseas shipping, among many other vectors. *See* National Research Council, *Assessing the Relationship Between Propagule Pressure and Invasion Risk in Ballast Water* (June 2, 2011), EPA-HQ-OW-2011-0141-0578 (Attachment 14) at 2 (JA 235) (hereinafter "NAS Report")[1] ("ballast water is only one of many potential vectors"); EPA-HQ-OW-2011-0141-0136 (JA 1263-64); *Response*, EPA-HQ-OW-2011-0141-0926 at 361 (JA 457). Industry groups like Intervenors Lake Carriers' Association ("LCA") and Canadian Shipowners Association ("CSA") (collectively "Intervenors") have worked voluntarily to develop and implement best management practices, many of which are now widely used by state and federal regulators. No new invasive species have been found in the Great Lakes since 2006. *Fact Sheet*, EPA-HQ-OW-2011-0141-0950 at 18 (JA 33); *Response*, EPA-HQ-OW-2011-0141-0926 at 405 (JA 464).

In 2004, the International Maritime Organization ("IMO") adopted the International Convention for the Control and Management of Ships' Ballast Water and Sediments (Feb. 13, 2004) A.T.N.I.F. 18 ("Convention") to control the spread of invasive species. EPA-HQ-OW-2011-0141-0924 (JA 1230-35). The

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[1] *Available at* http://www.epa.gov/npdes/pubs/nas_final_report_prepublication_version.pdf.

Convention is designed to be implemented in stages, one of which was the establishment of ballast water effluent limits commonly known as the "IMO D-2" standards. *Id.* at 22 (JA 1235); EPA Science Advisory Board, *Efficacy of Ballast Water Treatment Systems: A Report by the EPA Science Advisory Board* (July 11, 2011) (hereinafter "SAB Report"), EPA-HQ-OW-2011-0141-0229 at 12 (JA 610).

The Convention originally called for the IMO D-2 standards to be implemented beginning in 2014, after which time vessels would be required to install a ballast water treatment system ("BWTS"), or some other means of complying with the IMO D-2 standards. *Convention*, EPA-HQ-OW-2011-0141-0924 at 18 (JA 1231). In late 2013, however, the IMO was forced to postpone the dates of compliance until 2016 or later. Int'l Maritime Organization, Assembly Res. A.1088(28), *Application of the International Convention for the Control and Management of Ship's Ballast Water and Sediments*, 2004 (Dec. 4, 2013).[2]

In 2009, the U.S. Coast Guard ("USCG") began developing its own regulations for ballast water, proposing to use effluent limits and a compliance

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[2] *Available at:* http://www.imo.org/Pages/home.aspx. Although the Resolution is publicly available on IMO's website, the website requires users to register an account for access. *See* https://webaccounts.imo.org/Common/WebLogin.aspx?ReturnUrl=%2f. The Court can take judicial notice of the IMO Resolution and the fact that it extends the compliance deadlines. *E.g.*, *Rivas v. Fischer*, 687 F.3d 514, 520 n.4 (2d Cir. 2012); *Staehr v. Hartford Fin. Servs. Grp., Inc.*, 547 F.3d 406, 425 (2d Cir. 2008).

schedule derived from the IMO D-2 standard. *See* 74 Fed. Reg. 44,632, 44,634 (Aug. 28, 2009). The USCG finalized its regulations in 2012, and required vessels to begin installing BWTSs capable of meeting the IMO D-2 beginning in 2014. 33 C.F.R. §§ 151.1512; 151.2035. In late 2013, however, the USCG communicated that they have not been able to certify that any BWTSs would be able to meet the IMO D-2 standards. As a result, the USCG began issuing extensions for affected vessels until 2016. USCG, Extension Approval Letter Database; Cynthia Giles, U.S. Environmental Protection Agency, *Enforcement Response Policy for EPA's 2013 Vessel General Permit: Ballast Water Discharges and U.S. Coast Guard Extensions under 33 C.F.R. part 151* (Dec. 27, 2013).[3]

As an interim step, the USCG created the Alternate Management System ("AMS") process, which authorized vessel owners to temporarily use a foreign-approved BWTS for up to five years if USCG has not approved an appropriate BWTS. 33 C.F.R. § 151.2026. This would allow for the continued flow of waterborne commerce to and from the U.S., by allowing vessel owners to legally discharge ballast water in U.S. waters. *See* 77 Fed. Reg. 17,258, 17,259 (Mar. 23, 2012). Under the AMS framework, BWTSs are not expected to meet the TBELs.

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[3] *Available at*: https://homeport.uscg.mil/ballastwater. The USCG's website is secured such that web addresses for individual documents are not reproducible. The Court can take judicial notice of these USCG regulatory actions. *E.g.*, *Christman v. Skinner*, 468 F.2d 723, 726 (2d Cir. 1972); *United States v. Bradford*, 160 F.2d 729, 731 (2d Cir. 1947); *see supra*, note 2.

An AMS designation only means that "the Coast Guard determines that the [BWTS] is at least as effective as [ballast water exchange]." *Id.* at 17,259.

EPA issued the first Vessel General Permit ("2008 VGP") in 2008, in response to a court decision invalidating a 30-year-old regulatory exemption for ballast water. *See Nw. Envtl. Advocates v. EPA*, No. C 03-05760, 2006 WL 2669042 (N.D. Cal. Sept. 18, 2006), *aff'd*, 537 F.3d 1006 (9th Cir. 2008); EPA-HQ-OW-2011-0141-0013 at 4-5 (JA 920-21). The 2008 VGP did not require the installation of BWTSs because EPA determined that the technology was not yet available or economically achievable. *Id.* at 37 (JA 927).

Several parties brought legal challenges to the 2008 VGP. Petitioners Natural Resources Defense Council, Northwest Environmental Advocates, and the Center For Biological Diversity Opening Brief in Page Proof Form at 17 (Doc. 140) (hereinafter "NRDC Brief"). The litigation was resolved via a 2011 settlement, under which EPA agreed that the subsequent VGP would include "numeric concentration-based effluent limits" representing "the applicable levels of technology-based controls." *Settlement Agreement*, EPA-HQ-OW-2011-0141-0016 at ¶ 9-13 (JA 1275-77). EPA also agreed to include WQBELs if necessary to meet applicable water quality standards. *Id.* ¶ 13 (JA 1277). The settlement agreement further provided that "EPA may express *either* any technology *or* any

necessary water quality-based effluent limits for ballast water narratively." *Id.* at ¶ 10 (JA 1276).

In 2010, EPA asked its Science Advisory Board ("SAB") to assess the efficacy of ballast water treatment systems. *SAB Report*, EPA-HQ-OW-2011-0141-0229 at 11 (JA 609). The SAB Report noted that a small number of BWTSs had been shown by foreign administrations to meet the IMO D-2 standards, but that no current ballast water treatment technologies were capable of meeting more stringent standards. *SAB Report*, EPA-HQ-OW-2011-0141-0229 at 12, 29, 36-37 (JA 610, 627, 634-35); *Fact Sheet*, EPA-HQ-OW-2011-0141-0950 at 77-79 (JA 92-94). The SAB further noted that measurement of, and therefore adherence to, more stringent effluent limits was not currently possible. *SAB Report*, EPA-HQ-OW-2011-0141-0229 at 29, 36 (JA 627, 634).

EPA also sought the assistance of the National Academies of Science ("NAS") to quantify the relationship between the volume of living organisms in ballast water and invasions of non-native species. *NAS Report*, EPA-HQ-OW-2011-0141-0578 (Attachment 14) (JA 222, et seq.). The NAS Report reached two significant conclusions. First, the NAS Report concluded that the volume of living organisms in ballast water was directly proportional to the probability of invasions. *Id.* at 4 (JA 237). Second, the NAS Report concluded that there was not enough information to actually link a particular volume of living organisms in ballast water

with a particular risk of invasions. *Id.* at 6 (JA 239) ("the data are not sufficient in present form to characterize a biologically meaningful relationship, much less estimate the associated uncertainty, to be able to identify with confidence the invasion probabilities associated with particular discharge standards."). In other words, the NAS report concluded that there is at present no way to establish a numeric effluent standard that will ensure compliance with water quality standards that prohibit the introduction of invasive species. *Fact Sheet*, EPA-HQ-OW-2011-0141-0950 at 115 (JA 130).

EPA has itself developed a testing protocol to determine the efficacy of BWTSs because existing testing and assurance methodologies are inadequate. NSF International, *Generic Protocol for the Verification of Ballast Water Treatment Technology* (Sept. 2010) (hereinafter "ETV Protocol"), EPA-HQ-OW-2011-0141-0231 (JA 1486 et seq.). The USCG relies on the ETV protocol to determine whether BWTSs can meet the IMO D-2 standards. *See, e.g.*, 46 C.F.R. § 162.060-28. No entity has approved a BWTS using the ETV Protocol. *See* EPA, *Enforcement Response Policy*, *supra* at note 3.

C. Procedural Background

On December 8, 2011, EPA issued the Draft National Pollutant Discharge Elimination System Vessel General Permit for Discharges Incidental to the Normal Operation of Vessels. 76 Fed. Reg. 76,716 (Dec. 8, 2011), EPA-HQ-OW-2011-

0141-0001 (JA 1310 et seq.). Intervenors submitted comments to EPA, in part explaining the practical and technological limitations of BWTSs on the Great Lakes. EPA-HQ-OW-2011-0141-0527 (JA 1252 et seq.) ("LCA Comment"); EPA-HQ-OW-2011-0141-0540 (JA 1248 et seq.) ("CSA Comment"). EPA forwarded the Draft to the individual states, each of which certified that the Vessel General Permit would assure compliance with their water quality standards.[4] *Vessel General Permit*, EPA-HQ-OW-2011-0141-0949 at 91 (JA 1074). Any additional conditions added by the states were incorporated into the final version. *Id.* at 91-139 (JA 1074 – 1122).

On April 12, 2013, EPA published the final Vessel General Permit for Discharges Incidental to the Normal Operation of Vessels ("VGP"), EPA-HQ-OW-2011-0141-0949 (JA 984 et seq.). 78 Fed. Reg. 21,938 (Apr. 12, 2013), EPA-HQ-OW-2011-0141-0880 (JA 869 et seq.). Among other things, the VGP authorizes the discharge of ballast water from commercial vessels into waters of the United States, including "all navigable waters of the Great Lakes subject to the jurisdiction of the United States." *VGP*, EPA-HQ-OW-2011-0141-0949 at 8 (JA 991). Intervenors members are permittees under the VGP and rely on it to operate in U.S. waters.

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[4] A few states waived their right to issue 401 Certifications. *VGP*, EPA-HQ-OW-2011-0141-0949 at 91 (JA 1074).

These discharges are subject to a "schedule" of dates on which EPA anticipates the advent of BAT for the treatment of ballast water. *See VGP*, EPA-HQ-OW-2011-0141-0949 at 38, Table 6 (JA 1021). Upon the "first scheduled drydocking" after the applicable date, EPA expects the permittee to have installed such technology sufficient to meet numeric TBELs for ballast water. *VGP*, EPA-HQ-OW-2011-0141-0949 at 29 (JA 1012) (referring to these limits as "ballast water numeric discharge limitations").

For existing vessels with ballast water capacity between 1,500 and 5,000 cubic meters, that date was January 1, 2014. *VGP*, EPA-HQ-OW-2011-0141-0949 at 38, Table 6 (JA 1021). All other existing vessels (with ballast water capacity less than 1,500 or more than 5,000 cubic meters) are required to comply with the BAT and TBELs as of the first scheduled drydocking after January 1, 2016. *Id.* New vessels will be required to install BWTSs upon delivery. *Id.*

The schedule was based on EPA's determination 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." *Fact Sheet*, EPA-HQ-OW-2011-0141-0950 at 98 (JA 113). The compliance dates "reflect EPA's judgment of when technology capable of meeting the numeric concentration-based effluent limits will become available and economically achievable (i.e., *when it becomes BAT*), not a schedule for installing

technology that is *already* available." *Response*, EPA-HQ-OW-2011-0141-0926 at 559 (JA 488). EPA also acknowledged that the VGP requirements were derived from the USCG regulations and the IMO D-2 standards. *See Fact Sheet*, EPA-HQ-OW-2011-0141-0950 at 13, 96 (JA 28, 111).

The VGP exempts vessels that operate solely on the Great Lakes ("Lakers") from the BAT and TBEL requirements.[5] EPA based this determination on the fact that there were no available BWTSs for Lakers and that even if such technology existed, installing BWTSs on Lakers faced unique challenges and costs due to Lakers' unique design. *Fact Sheet*, EPA-HQ-OW-2011-0141-1950 at 101, 116 (JA 116, 131); *SAB Report*, EPA-HQ-OW-2011-0141-0229 at 39 (JA 637). Some of these challenges include that Lakers operate in near zero salinity and very cold water, frequently have short voyages and high ballast flows, and most vessels have uncoated ballast tanks and confined spaces for fitting ballast water management equipment. *Id.* at 101 (JA 116).

Petitioners Natural Resources Defense Counsel, Northwest Environmental Advocates, the Center for Biological Diversity, and National Wildlife Federation

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[5] "Lakers" are defined as existing vessels "built before January 1, 2009 confined exclusively to the Laurentian Great Lakes (i.e., existing vessels that operates [sic] 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)." *VGP*, EPA-HQ-OW-2011-0141-0949 at 39 (JA 1022).

(collectively "Petitioners") each filed Petitions for Review of the VGP in the Second, Ninth and D.C. Circuits, which were consolidated in this case. NRDC Brief at 2. Intervenors' motion to intervene in these cases was granted on October 7, 2013. (Doc. 95).

On January 1, 2014, CSA filed a new Petition for Review of the VGP, based on the lack of available technology for vessels that operate on the Great Lakes, but fall outside the definition of "Laker." *CSA v. EPA*, No. 14-0039 (2d. Cir. 2014) (Doc. 1). On January 16, 2014, CSA moved for a stay of the first applicable BAT deadline in the VGP, January 1, 2014. *Id.* (Doc. 7-1). EPA cross-moved to dismiss CSA's Petition on February 11, 2014. *Id.* (Doc. 41). By Order dated April 9, 2014, the Court granted CSA's Motion for Stay and referred EPA's Motion to Dismiss to the eventual merits panel. *Id.* (Doc. 79). EPA and CSA then jointly moved to sever the CSA case from the Petitioners case and hold it in abeyance pending further proceedings while the stay of the January 1, 2014 BAT deadline remains in place. *Id.* (Doc. 98). The Court granted this request on May 23, 2014. *Id.* (Doc. 102).

SUMMARY OF THE ARGUMENT

The development of technology appropriate to treat ballast water has not progressed as quickly as anticipated. The IMO, USCG, and EPA all expected BAT to be available by January 1, 2014. This has not yet occurred, however, and

as a result, the IMO and USCG have been forced to postpone their respective deadlines (and EPA's first BAT deadline has been stayed).

Petitioners believe that EPA can solve this problem by requiring technology that is not available and effluent limits that are not currently achievable; that such "technology-forcing" demands will prompt the development of new technology. To this end, Petitioners contend that EPA was obligated to declare onshore treatment as BAT, was obligated to require Lakers to install BWTSs, and must establish WQBELs and monitoring requirements that provide absolute certainty that no invasive species will survive in ballast water discharges. None of these things is required by the CWA, and EPA's determinations to the contrary are well supported by the administrative record, and authorized by the statute and EPA's regulations.

Onshore treatment is not an "available" technology under the CWA. Facilities that treat drinking water have no demonstrated capacity to treat ballast water, and cannot be practicably applied to the ballast water context. The CWA authorizes EPA to evaluate process, engineering and cost constraints to determine whether a technology is available and can be transferred to another industry. The evidence on the record shows that onshore treatment is not "available" for the treatment of ballast water, and as a result, the CWA does not require it.

No treatment technology of any type is available for vessels that operate in the Great Lakes, and because such vessels face a bevy of unique constraints, no BWTSs capable of operating on a vessel in the Great Lakes are likely to be developed in the near future. The exemption for Laker vessels is supported by the evidence before EPA, and was well explained by EPA and the SAB.

Finally, the narrative WQBEL and the use of indicators to monitor discharges are specifically authorized by the CWA and EPA's implementing regulations. The WQBEL reflects the practical difficulty of enforcing vague narrative water quality standards, which are the true source of Petitioners grievance. Petitioners cannot use this proceeding to impose new water quality standards. The use of indicators is also driven by the lack of numeric limits, and as the SAB explained, technological constraints on direct monitoring. EPA cannot will technology into existence, and the CWA does not require EPA to do so.

ARGUMENT

I. THE TECHNOLOGY-BASED EFFLUENT LIMITS RELY ON THE DEVELOPMENT OF TECHNOLOGY

Petitioners argue that EPA's BAT and TBEL determinations did not reflect the best technology and effluent limitations available. Petitioners present this claim in three overarching arguments, none of which is persuasive.

First, Petitioners seem to argue that the failure to locate more effective technology was a result of EPA only looking for technologies that could meet the

IMO D-2 standards. NRDC Brief at 38-39. If EPA had not so limited itself – goes Petitioners' argument – EPA would have discovered technologies capable of not only meeting the IMO D-2 standards, but even more stringent effluent limits. The incremental 2-step process proposed by Petitioners is supported by no authority and is contrary to explicit directives of the CWA. Second, Petitioners argue that the BAT implementation schedule should have been expedited. The implementation schedule was based on the expectation that ballast water treatment technology would be developed, however, and in practice, technology has failed to become available consistent with EPA's (and the USCG's and IMO's) predictions. Third, Petitioners contend that EPA failed to consider onshore treatment, even though the record shows that drinking water and waste water facilities cannot feasibly be transferred to treat ballast water, and would not provide a complete or economical solution even if they could.

A. Establishing BAT and TBELs Is a Multifactorial Process To Determine What Technology Is "Available"

When EPA has not promulgated applicable ELGs, as here, EPA is directed to use its best professional judgment in imposing technological limits. 40 C.F.R. §§ 125.3(a)(2)(v)(B); 125.3(c)(2). In such cases, the CWA specifically directs EPA to consider a number of factors, including:

> the age of equipment and facilities involved, the process employed, the engineering aspects of the application of various types of control techniques, process changes, the cost of achieving such effluent

> reduction, non-water quality environmental impact (including energy requirements), and such other factors as the Administrator deems appropriate.

33 U.S.C. § 1314(b)(2)(B); 40 C.F.R. § 125.3(d)(3). EPA is further directed to consider:

> (i)The appropriate technology for the category or class of point sources of which the applicant is a member, based upon all available information; and
>
> (ii) Any unique factors relating to the applicant.

40 C.F.R. § 125.3(c)(2). This multi-factorial process gives substantial deference to EPA to consider any factors and technology that EPA "deems appropriate."

Petitioners contend that EPA was instead required to undertake an incremental two-step process, first to locate a potential technology in a vacuum, and second to determine TBELs based on that technology. NRDC Brief at 24, 38. Petitioners cite no authority in support of this proposition, and indeed this incremental two-step process appears nowhere in the CWA or EPA's implementing regulations. *Id.*; *see* 33 U.S.C. § 1314(b)(2)(B); 40 C.F.R. §§ 125.3(c)(2), 125.3(d)(3). Petitioners' contention is also at odds with the statute, which directs EPA to consider "the cost of achieving **such effluent reduction**." *Id.* (emphasis added). This presupposes that an effluent limit has been determined, contrary to Petitioners' proposal.

The IMO and USCG actions were appropriate factors to consider and EPA's reliance on them was a reasonable exercise of its best professional judgment. *See*

33 U.S.C. § 1314(b)(2)(B); 40 C.F.R. § 125.3(c)(2). Looking at the IMO D-2 standards was appropriate because "equipment manufacturers are currently designing and testing equipment to meet the D-2 standards," and because the SAB found that only the IMO D-2 standards are currently achievable using existing BWTSs – more stringent effluent limits will require further development. *SAB Report*, EPA-HQ-OW-2011-0141-0229 at 12, 29, 36, 38 (JA 610, 627, 634, 636); *Response*, EPA-HQ-OW-2011-0141-0926 at 407 (JA 466). Synching the BAT schedule with the IMO and USCG implementation schedules was appropriate because it would minimize conflicting regulatory requirements. *Fact Sheet*, Doc. EPA-HQ-OW-2011-0950 at 13, 96 (JA 28, 111); *see Response*, EPA-HQ-OW-2011-0141-0926 at 559 (JA 488). Finally, it was appropriate to follow drydocking schedules because retrofit installations must be coordinated years in advance with flag administrations, and because "immediately requiring installation onboard all vessels is economically unachievable." *Fact Sheet*, EPA-HQ-OW-2011-0950 at 52, 97-98 (JA 67, 112-13).

B. If Anything, the BAT Implementation Schedule Has Proven Overly Optimistic

When EPA issued the VGP, "technology capable of meeting the numeric concentration-based effluent limits [TBELs]" was not then available. *Response*, EPA-HQ-OW-2011-0141-0926 at 559 (JA 488). The implementation schedule therefore reflected "the Agency's determination of when treatment technology will

be 'available' and 'economically achievable' within the meaning of BAT." *Response*, EPA-HQ-OW-2011-0141-0926 at 559 (JA 488); *VGP*, EPA-HQ-OW-2011-0141-0949 at 38 (JA 1021); *Fact Sheet*, EPA-HQ-OW-2011-0141-0950 at 98 (JA 113) (stating that technology would become "available, practicable and economically achievable"). This was based in part on EPA's belief that "the IMO standards will imminently come into effect (and USCG ballast water rulemaking has been finalized)." *Fact Sheet*, Doc. EPA-HQ-OW-2011-0950 at 96 (JA 111).

Contrary to Petitioners' claims that the implementation schedule for the BAT should have been expedited, it has actually proven overly optimistic. Technology capable of meeting the TBELs has been slow in developing, the USCG has not approved any treatment systems, and the industry is not on track to have treatment technologies installed on the BAT implementation schedule. *See* USCG, Extension Approval Letter Database. Instead of "imminently" coming into effect, the IMO D-2 standards have been delayed until at least 2016. Assembly Res. A.1088(28), *supra*, at note 2. And although the USCG ballast water rule has been finalized, the USCG has begun issuing extensions to every affected vessel. *See* USCG, Extension Approval Letter Database, *supra* at note 3.

C. Onshore Drinking Water And Waste Water Facilities Cannot Practicably Be Transferred to Ballast Water Treatment

Before EPA can conclude that a technology in use by a different industry is nonetheless BAT, EPA must determine that the technology can practicably be

transferred to the target industry. *Hooker Chemicals & Plastics*, 537 F.2d at 636; *CPC Int'l, Inc.*, 515 F.2d at 1048. "It cannot simply be assumed that the existence of technologies used in facilities that treat sewage or drinking water indicates that onshore facilities to treat ballast water somehow are "available" for purposes of a ballast water BAT standard." *Response*, EPA-HQ-OW-2011-0141-0926 at 899 (JA 544).

Several federal courts, including this one, have rejected attempts to transfer technologies to different industries, on the grounds that the demonstration that the technology could be adopted by the target industry was inadequate. *E.g.*, *Hooker Chemicals & Plastics*, 537 F.2d at 636; *Tanners' Council of Am., Inc. v. Train*, 540 F.2d 1188, 1193 (4th Cir. 1976); *CPC Int'l, Inc.*, 515 F.2d at 1048-49 ("Given the unique nature of the corn wet milling effluent, and the apparent relevance of its uniqueness to the efficacy of deep bed filtration, the EPA cannot rely on a presumption of transferability of that technology."); *FMC Corp. v. Train*, 539 F.2d 973, 984-85 (4th Cir. 1976).

Here, EPA considered the statutory factors set forth in 33 U.S.C. § 1314(b)(2)(B) and appropriately exercised its best professional judgment to determine that onshore treatment cannot practicably be transferred to ballast water treatment. The administrative record supports the conclusion that facilities used to treat drinking water or waste water are not feasible alternatives for the treatment of

ballast water. As detailed below, there are several reasons that individually and collectively render onshore treatment of ballast water impractical.

1. Onshore Treatment Facilities Cannot Meet the Operational Constraints Involved With Treating Ballast Water

There are no existing drinking water or waste water facilities anywhere in the country capable of treating ballast water, and because no land-based system has ever even attempted to manage the logistics of treating ballast water, there is no data to suggest that such treatment is even theoretically possible. *Response*, EPA-HQ-OW-2011-0141-0926 at 368, 899 (JA 458, 544); *SAB Report*, EPA-HQ-OW-2011-0141-0229 at 58, 86 (JA 656, 684); NRDC Brief at 34.

Water would not be treated and discharged in one location, but in every cargo loading facility visited by the vessel. This would require "a national U.S. and international network of onshore reception facilities . . . at all ports of call," of which there are thousands. *Fact Sheet*, EPA-HQ-OW-2011-0141-0950 at 92 (JA 107). Facilities would need to account for the unique engineering constraints of every vessel. Most ships use and discharge ballast water differently, and due to the importance of ballast water for a ship's structural integrity, all of these unique characteristics must be accounted for at each facility. *Response*, EPA-HQ-OW-2011-0141-0926 at 899-901 (JA 544-46). This would further necessitate the ports to be reorganized to centralize water treatment, retrofitting vessels to store or haul ballast water, piping and pumps to ensure ballast discharge rates that would enable

cargo operations, and "consistent domestic and international standards (e.g., diameter, threading) for the necessary fittings to safely and effectively connect vessels and onshore facilities. *Response*, EPA-HQ-OW-2011-0141-0926 at 899-901 (JA 544-46). "The logistics of such a system that do not exist even in their infancy, are not "available" and "economically achievable" within the context of the CWA." *Response*, EPA-HQ-OW-2011-0141-0926 at 900 (JA 545).

Even if the infrastructure was in place, EPA and the SAB found that onshore treatment facilities have not been demonstrated to address either the "much greater taxonomic diversity of organisms" or "the extremely high numbers of organism [sic] found in the ballast water of vessels after some voyages." *SAB Report*, EPA-HQ-OW-2011-0141-0229 at 82-83 (JA 680-81). "[T]he time required to filter water to this level and its effect on vessel operations has not been evaluated." *SAB Report*, EPA-HQ-OW-2011-0141-0229 at 83 (JA 681). Such facilities would also have to be able to handle a huge number of vessels at once, and treat enormous variability in the "salinity, turbidity, volumes, discharge rates, organism characteristics/concentrations" of the ballast water. *Id.* at 82 (JA 680); *Response*, EPA-HQ-OW-2011-0141-0926 at 899 (JA 544).[6]

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[6] The Western Lake Superior Sanitary District, which serves Duluth and several other municipalities and occupies approximately 15 acres, treats an average flow rate that is less than half of some vessels on the Great Lakes. *Response*, EPA-HQ-OW-2011-0141-0926 at 673 (JA 510).

Petitioners identify no solution to these problems. Instead, Petitioners simply assume that onshore treatment "could be transferred to the target industry," and characterize the difference between drinking water and ballast water as one of "different waste streams." NRDC Brief at 33-36; Petitioner National Wildlife Federation' Opening Brief in Page Proof Form at 17 (Doc. 78) (hereinafter "NWF Brief"). Petitioners also claim that EPA was obligated to require onshore treatment because "[t]he point of the BAT standard is to force technology to meet water quality standards," thereby confusing technology-based limits with water quality-based limits. NWF Brief at 17. Only the latter are related to water quality standards. *Compare* 40 C.F.R. § 122.44(d) *with* 40 C.F.R. § 122.44(a)(1).

Petitioners bolster their arguments with misleading quotes and references from the SAB Report. For example, Petitioners claim that "[t]he SAB thought the efficacy of onshore treatment would be 1,000 times international standards," NRDC Brief at 15, when the SAB was actually discussing an "idealized . . . hypothetical design for an onshore ballast water treatment plant," not anything that actually exists, *see SAB Report*, EPA-HQ-OW-2011-0141-0229 at 53 (JA 651). Petitioners also repeatedly claim that the SAB found onshore treatment to be feasible and economical, *see, e.g.*, NRDC Brief at 31, without noting that the SAB Report concluded that "most of the existing studies and estimates use outdated assumptions or data, or are based on specific regions; therefore their conclusions

may not apply," *SAB Report*, EPA-HQ-OW-2011-0141-0229 at 6, 57, 81 (JA 604, 655, 679); *see id.* at 7 (JA 605) (stating that studies finding onshore treatment economically feasible "consider that vessels only call at those regional facilities; if vessels also call at ports outside the region without reception facilities, they would need a shipboard [BWTS].").

Ultimately the SAB "did not reach agreement on several issues related to treatment of ballast water in onshore reception facilities," and was only able to determine that there was inadequate information to determine whether onshore treatment could practicably be transferred to treat ballast water. *SAB Report*, EPA-HQ-OW-2011-0141-0229 at 7, 57-58, 86-87, 95-96 (JA 605, 655-56, 684-85, 693-94).[7]

2. Even if Such Facilities Existed, They Would Not Be a Practical Ballast Water Treatment Solution

Even if drinking water facilities could be practicably transferred to the treatment of ballast water, they could not provide a complete alternative to BWTSs for several reasons. Vessels often need to discharge ballast water before arriving at berth for trim, stability, safety or operational reasons. *Fact Sheet*, EPA-HQ-OW-2011-0141-0950 at 92 (JA 107); *Response*, EPA-HQ-OW-2011-0141-0926 at 835,

[7] Petitioners argue that because the SAB recommended that EPA further study onshore treatment, EPA was obligated to do so before issuing the VGP. NWF Brief at 15-16. Petitioners cite no support for this contention, which is inconsistent with EPA's authority under the CWA.

901 (JA 542, 546). It is not uncommon for vessels to ballast and deballast during the course of a Great Lakes voyage, when transiting shoal areas or restricted channels, or during periods of heavy weather for safety and stability purposes.

If a port lacks the necessary onshore facility, a vessel would be forced to discharge ballast water in contravention of the VGP, USCG regulations, and – when it comes into force – the IMO Convention. *Response*, EPA-HQ-OW-2011-0141-0926 at 900-01 (JA 545-546). The only way to avoid this would be to install a BWTS, thereby upending the claim that onshore treatment would be more efficient or less expensive than shipboard BWTSs. *Id.*; *SAB Report*, EPA-HQ-OW-2011-0141-0229 at 7, 96 (JA 605, 694).

II. THE EXEMPTION FOR LAKER VESSELS WAS NECESSARY AND APPROPRIATE

The exemption for "Laker" vessels is well supported by the administrative record. No BWTSs have yet been developed for operation in the Great Lakes, and vessels operating in these waters face unique constraints that render ballast water treatment of any type extremely challenging. This is the finding of the USCG, which has also exempted Lakers from compliance with its regulations. 33 C.F.R. § 151.2015. EPA considered the statutory factors set forth in 33 U.S.C. § 1314(b)(2)(B) and appropriately exercised its best professional judgment to determine that BWTSs are not BAT for Lakers.

A. Vessels Operating in the Great Lakes Face Unique Constraints that Make Ballast Water Treatment Infeasible

EPA and the SAB recognized that several technical hurdles must be cleared before treating Lakers' ballast water is even feasible. The SAB summarized this issue as follows:

> In addition to specific environmental and vessel applications, vessel type and vessel operations can dictate [BWTS] 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 . . .

SAB Report, EPA-HQ-OW-2011-0141-0229 at 40 (JA 638). As explained in the sections below, these limitations render BWTSs infeasible for vessels that operate on the Great Lakes.[8]

1. Large Volumes and High Flow Rates

The SAB found that two of the four most important limitations on the applicability of BWTSs are "ship ballasting rate" and "ballast volumes." *SAB Report*, EPA-HQ-OW-2011-0141-0229 at 39 (JA 637). The SAB found that these constraints are the most dramatic for vessels that operate on the Great Lakes,

[8] Petitioners argue that these constraints are equally applicable to new vessels, which were not exempted from the BAT requirement. NRDC Brief at 42 n.8; NWF Brief at 20. Intervenors agree with Petitioners that these constraints also limit the ability to install BWTSs on newly constructed vessels, and as the next section explains, no BWTSs exist for any vessels operating on the Great Lakes, existing or new. The lack of available technology and the constraints facing all vessels operating on the Great Lakes is one of the reasons Intervenor CSA brought a separate Petition for Review of the VGP. *CSA v. EPA*, 14-0039.

where "vessels in this fleet have ballast volumes up to 50,000 m3, high pumping rates (up to 5,000 m3/hour)." *SAB Report*, EPA-HQ-OW-2011-0141-0229 at 40 (JA 638). In fact, flow rates on some of the largest Lakers can reach over 4 million gallons per hour; more than double the flow rate at the Western Lake Superior Sanitary District, which serves Duluth and several other municipalities. *Response*, EPA-HQ-OW-2011-0141-0926 at 673, 677 (JA 510, 514). Intervenors have explained that these volumes and flow rates are necessary for vessel operations and commercial requirements in the Great Lakes region. *Response*, EPA-HQ-OW-2011-0141-0926 at 673 (JA 510); *CSA Comment*, EPA-HQ-OW-2011-0141-0540 at 2-3 (JA 1249-50). No BWTSs exist that can treat these high volumes and flow rates. *Response*, EPA-HQ-OW-2011-0141-0926 at 673, 677 (JA 510, 514).

2. Cold Water And Low Salinity

The other two most important limitations identified by the SAB "are ambient water salinity (the ability to treat fresh, brackish, and marine water) and temperature (the ability to work effectively and safely in a variety of temperatures from warm equatorial to cold polar water)." *SAB Report*, EPA-HQ-OW-2011-0141-0229 at 39 (JA 637).

The IMO G8 Guidelines define freshwater as salinity less than 3 Practical salinity units ("PSU"). Resolution MEPC.174(58), *Guidelines for Approval of Ballast Water Management Systems (G8)* (Oct. 10, 2008) (hereinafter "G8

Guidelines"), EPA-HQ-OW-2011-0141-0195 at 20 (JA 1262). The ETV Protocol accepts testing in water of less than 1 PSU as representative of fresh water. *ETV Protocol*, EPA-HQ-OW-2011-0141-0231 at 19 (JA 1518). The salinity of water in the Great Lakes is near zero PSU, however. *Response*, EPA-HQ-OW-2011-0141-0926 at 613-14 (JA 496-97). This presents a serious problem for the effective operation of systems approved under these protocols if they were not tested in freshwater salinities like the Great Lakes, and as the SAB found, "electrochlorination and ozonation" treatment methods may not work in freshwater at all. *SAB Report*, EPA-HQ-OW-2011-0141-0229 at 40 (JA 638).

The IMO approval process does not specify a temperature range in which to test. *See* EPA-HQ-OW-2011-0141-0195 (JA 1259 et seq.). EPA's ETV protocol specifies testing in a range of 4 to 35 degrees Fahrenheit (equivalent to approximately 1 degrees Celsius). *ETV Protocol*, EPA-HQ-OW-2011-0141-0231 at 19 (JA 1518). Water temperature in the Great Lakes is often a viscous 33 degrees. *Response*, EPA-HQ-OW-2011-0141-0926 at 614, 672 (JA 497, 509). No BWTSs have been designed to operate in such an environment, and the potential for slush ice interfering with treatment equipment is likely. *Response*, EPA-HQ-OW-2011-0141-0926 at 672 (JA 509). Slush ice already plugs the "main engine raw water cooling duplex strainers" and would presumably interfere with any filtration. *Id.* Cold water has also already proved to be a serious problem with

respect to residual chemicals. Shortly after receiving foreign type approval, the SEDNA BWTS was withdrawn from the market after studies revealed that unacceptably high levels of residual chemicals were found in ballast water discharges when operating in very cold waters. *Response*, EPA-HQ-OW-2011-0141-0926 at 672 (JA 509).

3. Short Voyage Durations

A further confounding issue is that voyages in the Great Lakes are typically shorter than five days, with many lasting only a few hours. *SAB Report*, EPA-HQ-OW-2011-0141-0229 at 40 (JA 638); *Response*, EPA-HQ-OW-2011-0141-0926 at 674-77 (JA 511-14); *CSA Comment*, EPA-HQ-OW-2011-0141-0540 at 3-4 (JA 1250-51). The IMO G8 testing protocol, by contrast, stipulates a minimum of 5 days ballast water retention. *G8 Guidelines*, EPA-HQ-OW-2011-0141-0195 at 18 (JA 1260). Accordingly, a system that is approved by the IMO may not be effective on the Great Lakes or may discharge harmful contaminants. *Response*, EPA-HQ-OW-2011-0141-0926 at 674-77 (JA 511-14); *CSA Comment*, EPA-HQ-OW-2011-0141-0540 at 3-4 (JA 1250-51); EPA-HQ-OW-2011-0141-0049 at 4 (JA 1268). For example, "deoxygenation and chemical treatments that require holding times to effectively treat water (or even the breakdown of active substances) may not be completely effective on short voyages." *SAB Report*, EPA-HQ-OW-2011-0141-0229 at 40 (JA 638).

4. Uncoated Ballast Tanks

Another important consideration for vessels that operate on the Great Lakes is the impact of systems that alter the chemical composition or reactivity of ballast water on ballast tanks and piping coatings. *SAB Report*, EPA-HQ-OW-2011-0141-0229 at 39 (JA 637). An increase in the corrosion rate of uncoated tanks will impact the maintenance and repair costs borne by the vessel owner. *SAB Report*, EPA-HQ-OW-2011-0141-0229 at 40 (JA 638); *Response*, EPA-HQ-OW-2011-0141-0926 at 672, 677 (JA 509, 514).

Lack of protection from corrosive effects of treatment systems is a fleet-wide issue in the Great Lakes. Most vessels in the Great Lakes lack any coating in the ballast tanks and/or use intermittent welding in their construction, which renders any coating ineffective. Introduction of salt water, chemicals or other corrosives would result in a rapid loss of steel. *Response*, EPA-HQ-OW-2011-0141-0926 at 672 (JA 509).

5. Low UV Transmittance and Unique Organism Assemblage

Waters in the Great Lakes frequently have very low ambient ultraviolet transmittance due to suspended and dissolved solids. A 2011 report noted that the low ultraviolent transmittance, due to the High Dissolved Organic Carbon Compounds, impeded the effectiveness of the advanced oxidation system being tested. *Response*, EPA-HQ-OW-2011-0141-0926 at 615 (JA 498).

Taxonomic categories of organisms in the Great Lakes may differ in size, morphology and other characteristics from their counterparts in brackish or salt water systems. A 2010 report found that a treatment system that technically meets the IMO D-2 standard in saltwater may not deliver the same performance in the Great Lakes. EPA-HQ-OW-2011-0141-0049 at 2 (JA 1266). Another report showed filter ineffectiveness in land-based trials likely due in part to filamentous algal forms in Duluth-Superior Harbor water. *Response*, EPA-HQ-OW-2011-0141-0926 at 614 (JA 497). Low UV transmittance and unique organism assemblages thus make both ultraviolet and filtration processes – which are commonly bundled together – difficult to operate effectively in the Great Lakes.

6. Ship Design Constraints

Vessels that operate in the Great Lakes are also uniquely designed for the specific trades, voyages and commercial realities of shipping in the Great Lakes region. Some of these ship design details constrain the ships' ability to use a BWTS. For example, most Lakers have between 10 and 18 separate ballast tanks, which run the length of the hull on each side of the vessel. *Response*, EPA-HQ-OW-2011-0141-0926 at 835 (JA 542). Some vessels have separate sea chests and pumps for each ballast tank. *SAB Report*, EPA-HQ-OW-2011-0141-0229 at 40 (JA 638). To maintain balance and structural integrity, and to keep the propeller and rudder submerged, the ballast cannot be pumped out all at once, removing

significant weight from one area of the vessel. *Response*, EPA-HQ-OW-2011-0141-0926 at 835 (JA 542). These engineering constraints may dictate the use of more than one BWTS, additional piping, or other engineering solutions.

There is also a lack of space to retrofit a BWTS within the engine room. *Response*, EPA-HQ-OW-2011-0141-0926 at 509 (JA 474). Most vessels were constructed deliberately to maximize cargo capacity and efficiency based on the size constraints of the St. Lawrence Seaway. *CSA Comment*, EPA-HQ-OW-2011-0141-0540 at 4 (JA 1251); *LCA Comment*, EPA-HQ-OW-2011-0141-0527 at 7-9 (JA 1253-55). The necessary electrical power is also a concern. The ballast system would be in operation at the same time as cargo operations, during which the self-unloading systems must be powered. This may require a generator, further constraining space concerns. *Id.* As the SAB concluded, "the space and power needed for the numbers of filtration + UV treatments may simply not be available." *SAB Report*, EPA-HQ-OW-2011-0141-0229 at 40 (JA 638).

B. There Are No Ballast Water Treatment Systems for the Great Lakes

The VGP requires the installation of a BWTS "which has been shown to be effective by testing conducted by an independent third party laboratory, test facility or organization." *VGP*, EPA-HQ-OW-2011-0141-0949 at 30 (JA 1013). The VGP explains that "[a] system that has been type approved by the U.S. Coast Guard under 46 CFR Part 162.060 or received 'Alternative Management System'

[sic] designation by the U.S. Coast Guard under 33 CFR 151.2026 will be deemed to meet this 'shown to be effective' provision." *Id.*

No U.S. or Canadian vessels operating on the Great Lakes are equipped with a BWTS capable of complying with the VGP. Moreover, no BWTS has been demonstrated to be effective or appropriate for use on the Great Lakes ecosystem. *Response*, EPA-HQ-OW-2011-0141-0926 at 509, 526, 671 (JA 474, 477, 508); *see Fact Sheet*, EPA-HQ-OW-2011-0141-1950 at 101, 116 (JA 116, 131) ("existing treatment systems have not been widely tested specifically for lentic freshwater environments"). Looking to the future, "the availability of [BWTSs for Lakers] may lag the development of ballast water treatment systems designed for ocean-going and coastal vessels." *Fact Sheet*, EPA-HQ-OW-2011-0141-1950 at 101 (JA 116).

1. No Ballast Water Treatment Systems Have Been Found Effective Using EPA's Assessment Protocol

Because existing testing and assurance methodologies are inadequate, the USCG relies on a testing protocol created by EPA to confirm that BWTSs can meet the TBELs. *ETV Protocol*, EPA-HQ-OW-2011-0141-0231 (JA 1486 et seq.); 46 C.F.R. § 162.060-28. No BWTS has been approved using the ETV protocol for any salinity. EPA, *Enforcement Response Policy*, *supra* at note 3. In other words, using EPA's own methodology, the USCG has been unable to determine that there are any BWTS capable of meeting the ballast water TBELs in the VGP. As a

result, the USCG has issued extensions until 2016 for each of Intervenors' vessels subject to the USCG requirements in 2014. *See* USCG, *Extension Approval Letter Database*, *supra* at note 3.

2. No Alternate Management System-Accepted BWTS Have Been Shown to Be Effective on the Great Lakes

In order to permit the use of BWTSs that might be installed before USCG Type Approval, the USCG created the temporary AMS program. 33 C.F.R. § 151.2026; 77 Fed. Reg. 17,254, 17,258-59 (Mar. 23, 2012). An AMS designation does not mean that the BWTS will comply with the TBELs. To the contrary, the U.S Coast Guard concluded that the foreign approval testing was not scientifically rigorous enough to ensure that these systems would consistently meet the TBELs. *See* 77 Fed. Reg. at 17,258-59. An AMS designation therefore only means that "the Coast Guard determines that the [BWTS] is at least as effective as [ballast water exchange]." *Id.* at 17,259. Thus, the purpose and effect of the AMS process is inconsistent with EPA's assumption that AMS-designated systems would comply with the TBELs. *See VGP*, EPA-HQ-OW-2011-0141-0949, at 30 (JA 1013).

Effectiveness and reliability aside, no AMS-approved BWTS has ever been effectively tested on the Great Lakes, let alone successfully installed and operated on a vessel in the Great Lakes. *Response*, EPA-HQ-OW-2011-0141-0926 at 526, 671 (JA 477, 508). Only the following six (6) AMS-approved BWTS have been

tested in water approximately "equivalent" in practical salinity units ("PSU") to "fresh water" during their foreign administration type approval testing or since:

Table 1. AMS-Accepted BWTSs That Have Been Tested In Fresh Water[9]

Manufacturer	System Name	Testing Limitation
Alfa Laval	Pure Ballast	Tested in Great Lakes and failed
Alfa Laval	Pure Ballast EX	Tested in Great Lakes and failed
Desmi Ocean Guard	Oxyclean	Never Tested in Great Lakes
Jiangsu Nanji Machinery	NiBallast	Never Tested in Great Lakes
NEI Treatment Systems	Venturi Oxygen System	Never Tested in Great Lakes
Wartsila	Aquarius UV	Never Tested in Great Lakes

The two Alfa Laval products were not tested in freshwater during their foreign type approval, but were subsequently tested in the Great Lakes. Both failed to meet the TBELs. *See* EPA-HQ-OW-2011-0141-0927 at 1219 (JA 1227) ("did not by itself meet the IMO requirements").

As explained in the previous section, the Great Lakes present unique constraints that will inhibit the operations of these BWTSs. For example, the NEI system requires a four-day hold time, which is too long for most Great Lakes voyages. EPA-HQ-OW-2011-0141-0936 at 13 (JA 1223). The Desmi Ocean Guard system relies on filtration, UV light, and Ozonation, operates at a maximum

[9] USCG, *Alternate Managements Systems (AMS) Accepted by the U.S. Coast Guard* (June 25, 2014), *available at*: https://homeport.uscg.mil/ballastwater. The Court can take judicial notice of these regulatory actions. *Supra*, at note 2,3.

rate of 1,500 cubic meters per hour, and was tested with a filter not designed to be adaptable to existing vessels. EPA-HQ-OW-2011-0141-0992 at 4-8 (JA 1206-1210). Pursuant to the constraints identified above, the ozonation system may not work effectively, the flow rates are grossly inadequate for Great Lakes vessels, the system will struggle to get enough power for the UV system, and it has not been tested to handle slush ice in the filters or the unique organism assemblage in the Great Lakes. Moreover, the SAB evaluated the information available for the Desmi Ocean Guard system and deemed it "unreliable." *SAB Report*, EPA-HQ-OW-2011-0141-0229 at 30, 38, A-1, A-5 (JA 628, 636, 712, 716) (identifying reliable sources of information).

The other systems were only tested in land-based trials, and have never been tested on a vessel, let alone in the Great Lakes. *See, e.g.*, *G8 Guidelines*, EPA-HQ-OW-2011-0141-0195 (JA 1259 et seq.). EPA's own BWTS assessment protocol warns that:

> any assumptions of shipboard technology performance based solely on land-based testing results should be avoided. Thorough evaluation of ballast water treatment technology must also include shipboard trials to monitor biological performance and other ship-related verification factors over an extended period of time.

ETV Protocol, EPA-HQ-OW-2011-0141-0231 at 1-2 (JA 1500-01).

Petitioners single out the Ecochlor system, claiming that "the SAB cited 10 tests" supposedly showing that the system had impressive results. NRDC Brief at

38. These tests appear only in the SAB bibliography, and are not discussed in the text. *SAB Report*, EPA-HQ-OW-2011-0141-0229 at A-1 (JA 712). Petitioners' claims are also contrary to the SAB conclusions. *See SAB Report*, EPA-HQ-OW-2011-0141-0229 at 36, 38 (JA 634, 636). With regard to use of the Ecochlor system in the Great Lakes, the system was not tested in freshwater, let alone the challenging cold water environment of the Great Lakes, and required five days of chemical treatment, which is impractical for most Great Lakes voyages. EPA-HQ-OW-2011-0141-0315 at 15 (JA 806) (explaining that the tests were conducted in brackish and marine water), 28-29 (JA 819-20) ("incubation period of 5 days").

3. Other Foreign Type Approved Systems Are Unreliable

Finally, there are some BWTSs that have been approved by foreign administrations, but do not even have AMS approval. Such systems cannot be considered "available" for use in any environment. EPA has counseled against installing such systems:

> 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

Fact Sheet, EPA-HQ-OW-2011-0141-0950 at 95 (JA 110). EPA also expressed doubts that the testing for such systems would have reliable data:

> 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.

Id. at 83-85 (JA 98-100).

The SAB explained that standard test protocols and reliable data have been lacking, test failures are not reported, testing is not being performed by disinterested parties, and quality assurance and quality control (QA/QC) protocols are lacking. *SAB Report*, EPA-HQ-OW-2011-0141-0229 at 7, 95 (JA 605, 693) ("it is impossible to draw reliable conclusions about the consistency or reliability of some [BWTSs].").

These systems were approved in accordance with the G8 Guidelines, which, as the EPA and SAB have noted, do not inspire confidence. For example, the G8 Guidelines do not require testing to be performed in freshwater in order to be approved. *G8 Guidelines*, EPA-HQ-OW-2011-0141-0195 at 20 (JA 1262); *see* EPA-HQ-OW-2011-0141-0315 at 15 (JA 806) (explaining that the tests were conducted in brackish and marine water).

III. THE CLEAN WATER ACT DOES NOT REQUIRE NUMERIC WATER QUALITY BASED EFFLUENT LIMITS

Water Quality Based Effluent Limits ("WQBELS") may be expressed as narrative or numeric effluent limits, or as Best Management Practices ("BMPs").

40 C.F.R. §§ 122.44(d), 122.44(k)(3); *In Re: Gov't of the D.C. Mun. Separate Storm Sewer Sys.*, 10 E.A.D. 323, 2002 WL 257698 at *16 (EAB Feb. 20, 2002). Petitioners argue that EPA should have imposed numeric WQBELs to ensure compliance with water quality standards. The CWA does not require numeric WQBELs, however, and for two reasons, numeric WQBELs are infeasible. Moreover, the individual states have already confirmed that the WQBELs in the VGP will assure compliance with their water quality standards. Because EPA cannot overrule the states on this point, Petitioners claim is moot.

A. Numeric Water Quality Based Effluent Limits For Invasive Species Are Infeasible

The CWA directs EPA to impose WQBELs if EPA determines that there is a reasonable potential that technology-based limits may not ensure compliance with water quality standards. 40 C.F.R. § 122.44(d). Here, EPA imposed a narrative WQBEL, requiring compliance with state water quality standards, and a BMP, requiring ballast water exchange for vessels entering the Great Lakes. *VGP*, EPA-HQ-OW-2011-0141-0949 at 59 (JA 1042); *Fact Sheet*, EPA-HQ-OW-2011-0141-0950 at 115-17 (JA 130-32). EPA determined that these measures would ensure that the discharges authorized by the VGP would not violate water quality standards. *Id.* EPA also determined that a numeric WQBEL was infeasible.

1. The National Academies of Science Report Determined That a Numeric WQBEL Cannot Be Calculated

Due to the lack of scientific information about the risk of invasive species relative to the concentration of living species in ballast water, EPA determined that it was infeasible to calculate numeric WQBELs for invasive species. *E.g.*, *Fact Sheet*, EPA-HQ-OW-2011-0141-0950 at 114-15, 145 (JA 129-30, 160). EPA relied on the NAS Report for this determination, which found "it was not possible with any certainty to determine the risk of nonindigenous species establishment under existing discharge limits." *NAS Report*, EPA-HQ-OW-2011-0141-0578 (Attachment 14) at 3, 130 (JA 236, 363) ("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.").

In other words, there is no known concentration of live organisms greater than zero that will provide certainty that no invasive species will be introduced. The only current way to translate that fact into a numeric WQBEL is a discharge limit of zero living species in ballast water. Because ballast water is required for operations, this would effectively eliminate shipping in the Great Lakes and severely restrict shipping throughout the remainder of the country.

Petitioners argue that the CWA nonetheless requires a numeric WQBEL. *See* NWF Brief at 12-14; NRDC Brief at 51-56. Petitioners suggest that invasion probability is unrelated to water quality standards, but do not say what alternative

metric or effluent limit would ensure compliance with water quality standards, or what evidence in the record supports the conclusion that a numeric WQBEL is feasible. *Id.*

2. There Are No Water Quality Standards for Invasive Species

No state in the country has numeric or narrative water quality standards for invasive species. In sum, there are no water quality standards specifically identifying invasive species at all. *Fact Sheet*, EPA-HQ-OW-2011-0141-0950 at 111 (JA 126). The only applicable standards are abstract narrative standards containing generalized statements about preserving the marine habitat, protecting aquatic life, and maintaining uses such as fishing. *Id.* These vague descriptions of a healthy aquatic environment do not easily lend themselves to numeric effluent limits. *See, e.g.*, *In re 401 Water Quality Certification*, 822 N.W.2d 676, 686 (Minn. Ct. App. 2012).

Petitioners nonetheless insist that a WQBEL must be enforceable through some sort of objective measurement that ensures compliance with the water quality standards. NWF Brief at 12-14; NRDC Brief at 61-63. Ultimately, this is a not a dispute with the WQBEL chosen by EPA, so much as it is a dispute with the concept of narrative water quality standards, which by their nature are subjective. The WQBEL chosen by EPA is narrative in large part because it is enforcing a

vague narrative water quality standard. If Petitioners want a numeric WQBEL, then Petitioners need to convince the states to pass new water quality standards.

B. States Have Already Determined That the Vessel General Permit Will Ensure Compliance With Their Water Quality Standards

Each U.S. state has certified (or waived its right to certify) that the VGP ensures that discharges of ballast water will comply with state water quality standards. *VGP*, EPA-HQ-OW-2011-0141-0949 at 91-139 (JA 1074 – 1122). Where states have determined that additional measures are needed to ensure compliance with their state water quality standards, they have imposed additional measures, including narrative WQBELs and BMPs. *VGP*, EPA-HQ-OW-2011-0141-0949 at 119-39 (JA 1074 – 1122). For example, New York adopted a narrative WQBEL essentially identical to that found in the VGP. *VGP*, EPA-HQ-OW-2011-0141-0949 at 126 (JA 1081). Many states also expressly determined that a numeric WQBEL was not feasible. *E.g.*, *Minnesota 401 Certification*, EPA-HQ-OW-2011-0141-0858 at 3 (JA 1238).

After the 401 Certifications were issued, Petitioner National Wildlife Federation brought suit in several states, arguing in part that the 401 Certification would not ensure compliance with the state's water quality standards. *See, e.g.*, *In re 401 Water Quality Certification*, 822 N.W.2d 676. In each case, the Court upheld the 401 Certification, and in one case, specifically affirming the state's

determination that a numeric WQBEL for invasive species was infeasible. *Id.* at 686-88.

Now that the 401 Certifications have been upheld, the matter is settled: the VGP will ensure compliance with the state water quality standards. *See, e.g.*, *Mobil Oil Corp. v. Kelley*, 426 F. Supp. at 234-235.[10] Petitioners seek a determination that the VGP does not ensure compliance with the state's water quality standards, and relief directing EPA to overrule the contrary state determinations and require additional WQBELs. This is something EPA cannot do. Neither the CWA nor its implementing regulations allow EPA to review or overturn State 401 Certification decisions. Because this Court cannot grant that relief, Petitioners' attack on the WQBEL is moot.

IV. THE CWA DOES NOT REQUIRE PETITIONERS' PREFERRED MONITORING REQUIREMENTS

The VGP establishes two primary types of monitoring: functional monitoring, which ensures that BWTSs designed to meet the TBELs are functioning properly, and monitoring through the use of biological indicator

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[10] Petitioners contend that EPA may not rely on state 401 Certifications in determining that the VGP will comply with state water quality standards, citing *In Re: Gov't of the D.C. Mun. Separate Storm Sewer Sys.*, 2002 WL 257698 at *16-17. That case stands for the proposition that EPA cannot rely exclusively on a questionable state 401 Certification to determine compliance with a state's water quality standards. Here, EPA is not relying on the 401 certifications, and substantial evidence in the administrative record supports EPA's independent determination that the VGP will comply with water quality standards.

organisms. *VGP*, EPA-HQ-OW-2011-0141-0949 at 30-32 (JA 1013-15).[11] Both types are supported by the administrative record and applicable technological limitations.

A. EPA's Determination That Monitoring Would Be Effective Was Reasonable

Petitioners believe that there are BWTSs available that will ensure compliance with the TBELs. NRDC Brief at 42; NWF Brief at 28. Yet, for purposes of their attack on the functional monitoring requirement, Petitioners believe that there is "no evidence to support EPA's assumption" that a properly operating BWTS will comply with the TBELs. NRDC Brief at 60; NWF Brief at 36-38. Petitioners cannot have it both ways. Either there are BWTSs that when operating correctly meet the TBELs, or there are not.[12]

Petitioners also take aim at the monitoring and corrective action associated with the narrative WQBEL, arguing that a violation will not be detected until after it occurs, and may not be traceable to a vessel or date of discharge. NRDC Brief at 47-48, NWF Brief at 7, 12, 14. This complaint is unpersuasive. All monitoring detects violations that occur in the past – as one cannot see into the future – and

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[11] The VGP also requires monitoring for residual biocides that may be discharged from certain BWTSs. *VGP*, EPA-HQ-OW-2011-0141-0949 at 32-36 (JA 1015-19).

[12] As explained above, there are no BWTSs that can meet the TBELs on the Great Lakes. *Supra*, at II.B.

there is little reason to think that a species invasion caused by an undetected violation of a numeric WQBEL would be more traceable.

B. The Monitoring Alternative Demanded By Petitioners Is Not Feasible

The CWA and EPA's regulations do not prescribe detailed monitoring requirements, but largely leave this determination to the discretion of EPA. 40 C.F.R. §§ 122.44(i); 122.44(d)(1)(vi) (authorizing monitoring using indicator parameters for narrative water quality standards); 136 (contemplating the use of surrogates). Petitioners find fault with the indicator monitoring required in the VGP, but do not cite anything in the record showing either an alternative or that the indicators will not work. NWF Brief at 32, 40; NRDC Brief at 60. Petitioners argue that EPA must be able to objectively monitor whether discharges are complying with water quality standards. NRDC Brief at 57; NWF Brief at 7, 42. As with many of their arguments, however, Petitioners overlook the abstract and subjective nature of the narrative water quality standards at issue. If Petitioners want to objectively measure compliance with water quality standards, then they need to convince the states to establish numeric water quality standards for invasive species.

The biological indicators chosen by EPA were derived from the USCG Coast Guard regulations, which underwent a rigorous process including three separate expert panel workshops, public scoping meetings, and cooperating agency

participation. *Response*, EPA-HQ-OW-2011-0141-0926 at 758 (JA 522). The indicator monitoring finds further support in the IMO requirements, the ETV Protocol, and the SAB Report. *Convention*, EPA-HQ-OW-2011-0141-0924 at 22 (JA 1235); *ETV Protocol*, EPA-HQ-OW-2011-0141-0231 at 78 (JA 1577). The SAB Report repeatedly discussed and suggested the use of indicators, or surrogate parameters, to monitor ballast water treatment success. *E.g.*, *SAB Report*, EPA-HQ-OW-2011-0141-0229 at 8 (JA 606) ("surrogate parameters should be investigated to complement or replace metrics that are logistically difficult or infeasible for estimating directly the concentration of living organisms. Representative "indicator" taxa (toxic strains of *Vibrio cholerae*; *Escherichia coli*; intestinal Enterococci) should continue to be used to assess [BWTS]."); 71-72 (JA 669-70).

The SAB recommended the use of indicator monitoring because "the detection of viable organisms at very low concentrations is a major practical and statistical challenge," requiring the sampling of very large volumes of water. *SAB Report*, EPA-HQ-OW-2011-0141-0229 at 26 (JA 624). This presents serious problems because:

> "the logistics of managing large sampling containers, sample transport costs (since samples usually are not processed aboard ship), analytical supplies, and personnel time would make it impractical to process all of the volume

SAB Report, EPA-HQ-OW-2011-0141-0229 at 27 (JA 625). One BWTS developer echoed this concern, adding that because it takes several days for an onshore laboratory to analyze the sample, the water content will have changed. EPA-HQ-OW-2011-0141-0451 at 2 (JA 1257).

The SAB ultimately concluded that "accurately enumerating only those organisms that are viable (living)" would be difficult and perhaps impossible. *SAB Report*, EPA-HQ-OW-2011-0141-0229 at 75 (JA 673). Petitioners, echoing the theme of their various proposals, nonetheless assert that direct monitoring is required "regardless of the state of technology." NWF Brief at 39. Thankfully, the CWA does not require the impossible.

CONCLUSION

If it were up to them, Petitioners would have required onshore treatment, BWTSs for Lakers, numeric WQBELs, and direct effluent monitoring. Such decisions fall within EPA's best professional judgment, however, and EPA rightfully determined that none of these things is technologically feasible. EPA's determinations were made pursuant to its authority under the CWA and were supported by the administrative record. The Petitions for Review must be dismissed.

Respectfully submitted,

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CERTIFICATION OF COMPLIANCE

I hereby certify that this brief complies with the type-volume limitations of Fed. R. App. P. 32(a)(7)(B) and the typeface and type style requires of Fed. R. App. P. 32(a)(5)-(6). This brief contains 11,235 words, excluding the parts of the brief exempted by Fed. R. App. 32(a)(7)(B)(iii).

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CERTIFICATION OF SERVICE

I hereby certify that on August 27, 2014, I filed a copy of the foregoing Intervenors Lake Carriers' Association And Canadian Shipowners Association's Opening Brief In Final Form through the Court's ECF system.

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