Lake Carriers' Association

The Greatest Ships on the Great Lakes

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Via E-Mail: elizabeth.gawrys@state.mn.us

Ms. Elizabeth Gawrys
Minnesota Pollution Control Agency – 5th Floor
520 Lafayette Rd North
St. Paul, MN 55155-4194

RE: State Disposal System ("SDS") Permit MNG300000 Ballast Water Discharge General Permit ("BWDGP")

Dear Ms. Gawrys:

Thank you for the opportunity to provide input on the Ballast Water Discharge General Permit. Lake Carriers Association and its members applaud MPCA for recognizing that there are no ballast water management systems (BWMS) presently available – nor will there likely be any BWMSs available in the next five years or more – that are appropriate for use on lakers. We believe the inclusion of a mechanism for granting extensions from the discharge standard is a judicious, thoughtful and measured approach for our vessels regarding the application of a ballast water discharge standard to lakers. Building upon the success of previous studies, research and activities conducted by LCA and its members, we will continue to seek best management practices, new and innovative technologies and environmentally progressive strategies to help reduce the environmental footprint of our fleet, which is already acknowledged as being the most environmentally friendly of all modes of transportation.

However, as stated in our previous comments to the first SDS permit, LCA questions the continued need for the SDS Permit. In these times of ever-shrinking state budgets, the SDS permit process is a duplication of the federally mandated state 401 certification of the EPA's Vessel General Permit. Any and all permit requirements can – and, in fact are required to – be included in the 401 certification. Therefore, we urge the MPCA Commissioner and the Citizens' Board to carefully evaluate the necessity of having two resource-heavy permitting processes which essentially accomplish the same goal.

Continued…./

If MPCA ultimately determines to issue the permit, MPCA should nonetheless eliminate the requirement for a ballast water management system because no such systems exist or are expected to be available. At the very least, MPCA should modify the proposed certification process. The certification process will create needless administrative burdens, expose MPCA and vessels to potential liability, and overall increase costs and complexity for the simple purpose of demonstrating that nothing has changed. As explained further in these comments, there are several simpler alternatives that would minimize the problems created by the certification process.

Due to the importance of these issues for LCA's members and the regional economy, we would also like to formally request that MPCA hold a full citizen's board hearing for consideration of the SDS Ballast Water Discharge General Permit.

Summary of Comments

- Great Lakes shipping is essential to Minnesota's economy;
- Great Lakes shipping has the smallest environmental footprint of all the transportation modes;
- LCA and its members are fully committed to managing the ballast on U.S.-flag lakers;
- Permit should be allowed to expire without renewal;
- U.S. EPA and U.S. Coast Guard are prepared to address treating Lakers' ballast if and when systems exist;
- Existing federal regulations amply govern lakers' ballast water discharges;
- If permit is renewed, requirement for ballast water management systems should be eliminated;
- Independent study confirms lack of viable treatment systems;
- Frigid, fresh water precludes use of currently available technologies;
- Inability to protect against corrosive effects of treatment systems fleet-wide issue;
- Lakers' ballast water flowrates incompatible with existing treatment systems and slower flowrates incompatible with design of Great Lakes shipping;
- Expansion of shoreside infrastructure likely too costly;
- Short voyages rule out many treatment systems;
- Lakers have never and never will introduce an ANS;
- Currently there is no scientific basis for a WQBEL;
- If ballast water management system requirement is included, the certification process should be changed;
- Permit must retain a provision for non-availability of treatment systems.

Full Submission

Great Lakes Shipping Is A Cornerstone of Minnesota's Economy

Lake Carriers' Association ("LCA") represents 17 American companies that operate 57 U.S.-flag vessels ("lakers") on the Great Lakes and carry the raw materials that drive the nation's economy: iron ore and fluxstone for the steel industry, aggregate and cement for the construction industry, coal for power generation, as well as salt, sand and grain. Collectively, our members can transport more than 115 million tons of dry-bulk cargo per year and employ more than 1,600 men and women, all of whom are U.S. citizens or legally admitted aliens, and provide annual wages and benefits of approximately $125 million. In turn, the cargos our members carry generate and sustain more than 103,000 jobs in the eight Great Lakes states (4,300 alone in Minnesota) and have an economic impact of more than $20 billion.

The Association has strong ties to Minnesota, not the least of which is the fact that one of our largest members, Great Lakes Fleet/Key Lakes, Inc., is headquartered in Duluth. The company operates nine U.S.-flag Great Lakes freighters ("lakers") and is heavily involved in the movement of Minnesota-mined iron ore to steel mills in Indiana and Pennsylvania.

Actually, just about every member of LCA has strong ties to Minnesota. In 2012, our members loaded 27.4 million tons of iron ore in Duluth, Two Harbors and Silver Bay. Those tons represent 60.6 percent of the iron ore hauled by U.S.-flag lakers and 51 percent of all of the ore moving from U.S. ports last year.

Our members both load and deliver coal in Minnesota's Lake Superior ports. Last year they moved 1 million tons from Superior Midwest Energy Terminal in Superior, Wisconsin, to powerplants in Silver Bay and Taconite Harbor and delivered 168,000 tons of coal to Duluth that were loaded at Lake Erie ports.

Our members delivered 1.5 million tons of limestone to Duluth in 2012. The aggregate served the construction industry. The fluxstone was railed to the ore mines on the Mesabi Range to make fluxed pellets.

Our members now serve the Duluth cement market via a terminal in Superior, the 150,000 tons shipped there last year transited Minnesota waters before being landed in Wisconsin. The 250,000 tons of grain loaded in Superior likewise moved through Minnesota waters on their way to Buffalo, New York.

Rounding out our members' trade to/from Duluth is 70,000 tons of salt and 45,000 tons of liquid bulk products.

Great Lakes Shipping Keeps Minnesota Companies Competitive Regionally and Globally

The efficiencies of Great Lakes shipping are one of Minnesota's greatest assets. A U.S. Army Corps of Engineers report found that Great Lakes shipping annually saves its customers $3.6 billion in transportation costs compared to the next least costly mode of transportation.[1] A report released by the U.S. Maritime Administration in 2013 states that "Studies have demonstrated that, on average, transportation cost savings from $10 to more than $20 per ton of bulk cargo are associated with the use of lakers compared to the next most competitive transportation mode (rail or truck)."[2] **Using the Maritime Administration's findings, lakers saved the Minnesota iron mining industry between $274,000,000 and $548,000,000 in freight costs last year.**

Of All The Transportation Modes, Great Lakes Shipping Has Least Environmental Impact

The movement of raw materials is not just important to Minnesota's economy, it is important to Minnesota's environment. It is well documented that waterborne commerce has the smallest environmental impact. Again citing the 2009 Corps report, a cargo of 1,000 tons transported by a Great Lakes freighter produces 90 percent less carbon dioxide as compared to the same volume transported by truck and 70 percent less if the cargo moved by rail. Those percentages will get even better as LCA members continue to repower their vessels. One member is even planning to begin

[1] Great Lakes Navigation System: Economic Strength to the Nation, February 2009, page 1.
[2] Status of the U.S.-Flag Great Lakes Water Transportation Industry, February 2013, page 11.

switching to liquefied natural gas as early as 2015 if the engineering and infrastructure challenges can be met.

Vessels are much more fuel efficient than trains and trucks. The Corps report states that a Great Lakes freighter sails 607 miles on one gallon of fuel per ton of cargo, whereas a train goes only 202 miles and a truck a mere 59 miles.

LCA Members Committed To Management of Ballast Water

We share MPCA's commitment to the environment and long have been engaged in efforts to control and stop the introduction of additional aquatic nuisance species into the Great Lakes. Our first step was in 1993 when we developed and implemented a Voluntary Ballast Water Management Plan to control introduction of the European Ruffe in Lake Superior Ports (Attachment A). This pioneering effort (the first of its kind in North America) was hailed by U.S. Fish & Wildlife service as being the "cutting edge of technology."

LCA then partnered with the Northeast Midwest Coalition to test ballast water treatment systems that could be installed on oceangoing vessels, the primary vector for additional introductions. We can honestly say that the ballast water treatment systems coming on the market today owe at least something to that ground-breaking research.

When some outbreaks of Viral Hemorrhagic Septicemia led to fish kills in the early and mid-2000s, LCA developed a ballast water management plan specific to that threat (Attachment C).

Our members have fully complied with the ballast water requirements of the VGP and the Coast Guard's Final Rule. Some members have undertaken individual, voluntary efforts to further address ballast water and aquatic nuisance species.

Furthermore, we disagree with MPCA's implication on page 5 of the Fact Sheet that volume of ballast water discharged is the dominant factor when evaluating the risk of ANS introduction. In the National Academy of Sciences report (National Research Council, National Academy of Sciences, 2011), numerous factors were identified which contribute to the variance in probability of establishment of a self-sustaining population. In their admittedly non-comprehensive list of factors affecting the likelihood of establishment of a self-sustaining population, NAS identified 10 broad factors, only one of which related to the volume of discharge. Similarly, Lee et al (Lee, Reusser, Frazier, & Ruiz, 2010) identifies 25 different factors which can affect the prediction of invasion rates. Moreover, while Lake Superior receives the greatest volume of discharged ballast water, it is also has the least number of NIS of all of the Great Lakes, further supporting the scientific evidence that ballast water volume is not a particularly accurate predictor of invasion risk.

In short, the industry has been, and will continue to be, an active participant in the effort to solve what is a world-wide problem. While we applaud MPCA's inclusion of an extension mechanism that acknowledges that BWMSs appropriate for use on our vessels are not presently available, and will not likely be available for the duration of this permit, we are disappointed that MPCA has chosen to require lakers built prior to January 1, 2009 to install a ballast water treatment system during the first scheduled drydocking after March 30, 2018.

Permit Should Be Allowed to Expire Without Renewal

We respectfully request that Minnesota's Ballast Water Discharge General Permit be allowed to expire without renewal. We recognize and applaud MPCA's commitment to protecting the state's

Lake Superior waters, but believe the EPA's current and next Vessel General Permit and the U.S. Coast Guard's Final Rule on Standards for Living Organisms in Ships' Ballast Water Discharged in U.S. Waters provide the best safeguards currently available. Both agencies are publicly committed to re-examining the need for lakers to treat the ballast if and when systems become available that can function effectively in the Great Lakes environment. While we remain convinced that it should not be necessary for lakers to treat their ballast even if treatment systems prove compatible with our operational requirements and fresh water environment, the situation will be fully addressed by two Federal agencies, so Minnesota's requirement to install treatment systems starting in 2018 is duplicative and unnecessary.

The federal VGP is extremely comprehensive, and by law must protect Minnesota's waters and Minnesota's water quality standards. In addition, MPCA can add conditions that it deems necessary to protect Minnesota's water quality standards during the 401 certification process. The SDS permit is an unnecessary regulatory tool that also conflicts with attempts by federal agencies to regulate ballast water.

The federal government has made clear with the passage of the Clean Water Act and the issuance of the VGP that it intends to occupy the field of discharges of ballast water to waters of the United States. And while the Clean Water Act's National Pollution Discharge Elimination System is typically a delegated program, in this case, the federal government has issued a permit (the VGP) that is intended to be the sole authorization required for permittees to which it applies. Moreover, in this case, the state SDS permit directly conflicts with the federal VGP. The VGP specifically excludes lakers constructed before January 1, 2009 from compliance with the numeric limits established for ballast water. The SDS permit, however, specifically requires lakers constructed before January 1, 2009 "to meet the numeric discharge requirements in the VGP after their first scheduled drydocking after March 30, 2018."

This is a direct conflict that likely exceeds the states' authority and violates the supremacy clause of the United States Constitution. The Supreme Court has repeatedly recognized that, pursuant to the supremacy clause, the Clean Water Act preempts state law. *See, e.g., Arkansas v. Oklahoma*, 503 U.S. 91 (1992); *Int'l Paper Co. v. Ouellette*, 479 U.S. 481 (1987); *City of Milwaukee v. Illinois and Michigan*, 451 U.S. 304 (1981).

The fact that the SDS permit is the inappropriate vehicle for regulating ballast water discharges into waters of the United States is bolstered by the purpose of the SDS program. The SDS program is intended to regulate discharges of "waste" from "disposal systems." *See* Minn. Stat. § 115.07. A "disposal system" means a system for disposing of sewage, industrial waste and other wastes, and includes sewer systems and treatment works. Minn. Stat. § 115.01 Subd. 5. Discharges of ballast water are not sewage or industrial waste, as they are not the result of any industrial process. In fact, ballast water is not any type of "waste," which is defined in the Minnesota statutes as a "solid waste, sewage sludge, and hazardous waste." Minn. Stat. § 115A Subd. 34. Ballast is simply the uptake and discharge of water, no more, no less. The SDS program is not appropriate for regulating ballast water.

The Minnesota statute specific to ballast water simply requires that a vessel operate according to an approved ballast water management plan and maintain a ballast water record book. *See* Minn. Stat. § 115.171-073. There is no requirement for an SDS permit for ballast water in the statute.

The unique treatment requirement in the SDS also creates inconsistent regulatory schemes between others states, something Minnesota specifically sought to avoid when it joined a lawsuit in 2004 to

force EPA to regulate ballast water discharges. In the amicus curiae brief Minnesota filed along with five other states, Minnesota lamented the lack of uniform regulation, writing that:

> . . . inconsistent state regulatory schemes could create confusion, burden commerce, and amount to a balkanized approach to what is truly a region-wide, indeed national-wide problem. They are also likely to be less effective until the recurring introduction of invasive species in ballast water is brought under control.

Brief for Amici Curiae in Support of Plaintiffs' Motion for Summary Judgment, *Northwest Environmental Advocates, et al. v. U.S. EPA*, 3:03-cv-05760 (N.D. Cal. July 15, 2004). By creating a separate regulatory regime in Minnesota alone, MPCA is creating the very conflicts it sought to avoid by pushing EPA to issue the VGP in the first place. Rather than create avoidable problems with unnecessary overlapping regulation, MPCA should simply let the SDS permit expire, and rely on their existing regulatory authority to issue 401 certifications for the VGP.

Federal Regulations Will Address Lakers Treating Ballast If and When Technology Exists That Can Meet Operational Requirements

Our first objection is that the permit is duplicative of U.S. E.P.A. and U.S. Coast Guard regulations. The EPA's Vessel General Permit ("VGP") that will come into effect on December 19, 2013 clearly states that the agency will modify the permit to require installation on the vessels in question if such a system is available before the permit expires. To quote directly from the VGP:

> **1.9 Permit Reopener Clause**
>
> ***1.9.1 Modification of the VGP***
> Permit modification or revocation will be conducted according to 40 CFR §§122.62, 122.63, 122.64, and 124.5.This permit is subject to modification in accordance with 40 CFR §§124.5 and 122.62. Grounds for such modification include receipt of new information that was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and would have justified the application of different permit conditions at the time of permit issuance. **With respect to ballast water discharges (emphasis added)**, new information that will be considered in determining whether to modify this permit includes, but is not limited to, data or information from permittees, the general public, states, academia, scientific or technical articles or studies, results of monitoring conducted under this permit, and whether the U.S. Coast Guard has received a written extension request pursuant to 33 CFR 151.2036 indicating that:
>
> • Treatment technology has improved such that these improved technologies would have justified the application of significantly more stringent effluent limitations or other permit conditions had they been known at the time of permit issuance;
>
> • Treatment technologies known of at the time of permit issuance perform better than understood at the time of permit issuance such that this improved performance would have justified the application of significantly more stringent effluent limitations or other permit conditions had this been understood at the time of permit issuance;
>
> • Treatment technology for a certain vessel(s) will not be available within the timeframe specified in Part 2.2.3.5.2, Table 6, such that this information would have justified the

> imposition of a different implementation date had it been known at the time of permit issuance.
>
> • Scientific understanding of pollutant effects or of invasion biology has evolved such that this new information would have justified the application of significantly more stringent effluent limitations or other permit conditions had this been understood at the time of permit issuance; or
>
> • The cumulative effects of any discharge authorized by the VGP on the environment are unacceptable.
>
> Regarding implementation dates of the limits found in Part 2.2.3.5 of the VGP, EPA advises that where the U.S. Coast Guard has granted or denied an extension request pursuant to 33 CFR 151.2036, that information will be considered by EPA, but is not binding on EPA.

In its discussion, MPCA opines that the EPA's approach represents "good intentions," but not a requirement to install treatment systems. The draft BWDGP states that "MPCA believes that such technology may become available if regulatory pressure to have such a technology is maintained."

We do not see any lack of "regulatory pressure." Not only has the EPA made clear that it will reopen the VGP and modify it when systems become available, the U.S. Coast Guard's Final Rule on ballast water also stresses lakers are going to be addressed when the technology hurdles have been cleared:

> The Coast Guard fully intends to expand the applicability of the Ballast Water Discharge Standard to all vessels not legislatively exempted that operate in U.S. navigable waters or territorial sea, as we proposed in the Notice of Proposed Rulemaking, but we have determined that additional analysis is necessary to support this expansion. We also intend to conduct additional research as necessary. We expect this research will be part of the notice or other rulemaking document that addresses the phase-two standard, and that vessels covered by the expanded applicability will be required to install a Ballast Water Management System that meets at least the phase-one standard.

The final rule also states that "The Coast Guard intends to re-examine this decision [to not require lakers to install treatment systems] in the near future."

It is also worth highlighting that MPCA apparently questions if its efforts will have the desired result. MPCA believes that such technology **"may"** (emphasis added) become available if regulatory pressure is maintained, but the agency does not say that such technology will become available.

Federal Regulations Amply Govern Lakers' Ballast Water Discharges

While neither the U.S. Coast Guard's Final Rule on ballast water discharges nor the EPA's current and forthcoming VGP require lakers constructed before 2009 to treat their ballast, both agencies have imposed a number of requirements on these lakers. The VGP that will come into effect on December 19, 2013 continues these current requirements:

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

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

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

• Minimize or avoid uptake of ballast water in the following areas and situations:

— Areas known to have infestations or populations of harmful organisms and pathogens (e.g., toxic algal blooms).
— Areas near sewage outfalls.
— Areas near dredging operations.
— Areas where tidal flushing is known to be poor or times when a tidal stream is known to be turbid.
— In darkness, when bottom-dwelling organisms may rise up in the water column.
— Where propellers may stir up the sediment.
— Areas with pods of whales, convergence zones, and boundaries of major currents

• Clean ballast tanks regularly to remove sediments in mid-ocean (when not otherwise prohibited by applicable law) or under controlled arrangements in port, or at drydock.

• No discharge of sediments from cleaning of ballast tanks is authorized in waters subject to this permit.

• Where feasible, utilize the high sea suction when the clearance is less than 5 meters (approximately 15 feet) to the lower edge of the seachest or the vessel is dockside to reduce sediment intake.

• When feasible and safe, you must use your ballast water pumps instead of gravity draining to empty your ballast water tanks, unless you meet the treatment limits found in Part 2.2.3.5 of this permit.

• Minimize the discharge of ballast water essential for vessel operations while in the waters subject to this permit.

The VGP then lists the following new requirements for lakers:

2.2.3.4 Mandatory Ballast Water Management Practices for "Lakers"
"Lakers" must meet the following additional ballast water management requirements:

• Each owner/operator must perform annual inspections on their vessel to assess sediment accumulations. Removal of sediment, if necessary, must be carried out. Each vessel owner/operator must develop sediment removal policies as part of the Ballast Water Management Plan. Records of sediment removal and disposal (including facility name and location and all invoices) shall be kept onboard the vessel. EPA notes the discharge of sediments from cleaning of ballast tanks is not authorized in waters subject to this permit (see Part 2.2.3.3 of this permit).

• When practical and safe, vessels must minimize the ballast water taken up at dockside. This will typically mean limiting uptake to the amount of ballast water required to safely depart the dock and then complete ballasting in deeper water.

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

The slight differences between the VGP and the Coast Guard's Final Rule are organizational. The Coast Guard addresses rinsing the anchor and anchor chain in the section that includes the ballast water requirements listed above (§151.2050 Additional Requirements – Nonindigenous Species Reduction Practices). The VGP addresses the issue under Section 2.2.8 – Chain Locker Effluent, but both require that the anchor and anchor chain be washed down while being raised to remove sediment and marine organisms.

If the SDS Permit is Renewed, the Requirement that Ballast Water Management Systems be Installed on the First Drydocking after March 30, 2018 should be Eliminated

The draft SDS permit requires lakers built before January 1, 2009 to meet the numeric discharge requirements in the VGP after their first scheduled drydocking after March 30, 2018. This will require all such lakers to install ballast water management systems capable of meeting these limits.
If MPCA chooses to reissue the SDS permit, we respectfully request that this requirement be eliminated.

The requirement and the date chosen are arbitrary, and are not dictated by any statute or regulation. The ballast water statute requires a management plan, but there is no direction for MPCA to impose the numeric discharge requirements in the VGP, let alone impose these requirements more strictly than the VGP. This requirement creates a conflict with the VGP and other states, further complicating vessels' ability to operate in Minnesota's waters.

Instead, MPCA should simply state that the SDS permit will follow the requirements of the federal VGP, which along with the 401 certification process will provide MPCA with every opportunity to ensure the protection of Minnesota's waters. We understand MPCA's interest in pursuing theoretical technology, but as will be explained below, ballast water management systems do not exist, are not expected to be developed soon because of Lakers' unique characteristics, and are not going to be developed simply because MPCA requires them.

Independent Study Confirms Many Technological Hurdles to Clear Before Lakers Could Treat Their Ballast

When the EPA was investigating the possibility of requiring lakers to treat their ballast, it directed the Science Advisory Board ("SAB") to assess the feasibility of such a mandate. While the report is now more than 2 years told, it still provides an excellent overview of the many hurdles that must be cleared before treating lakers' ballast is even feasible:

> "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 option. **Perhaps the most dramatic limitations are found with the Great Lakes bulk carrier fleet** (emphasis added) that operates vessels solely within the Great Lakes with large volumes of fresh, and often cold, ballast water ("Lakers"). The vessels in this fleet have ballast volumes up to 50,000 m^3, high pumping rates (up to 5,000 m^3/hour, uncoated ballast tanks (older vessels), and some vessels have separate sea chests and pumps for each ballast tank. A further confounding issue is that voyages taken by Lakers average four to five days, with many less than two days. Given these characteristics, a number of limitations are imposed: electrochlorination and ozonation may only work in freshwater with the addition of brine (in particular C and Br, respectively); oxidizing chemicals may increase the corrosion rate of uncoated tanks; 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; and the space and power needed for the numbers of filtration + UV treatments may simply not be available."[6]

We endorse these declarations in the Science Advisory Board's report, but must expand on some statements.

Water Temperature Precludes Use of Currently Available Technologies.

Cold is perhaps not the best word to use when describing the temperature of Great Lakes water at the beginning and end of the shipping season. It is a frigid 33 degrees. The ballast water treatment systems being installed on vessels now were not designed to function in such an environment. For one, there is the issue of slush ice plugging up the treatment equipment. During winter operations slush ice frequently plugs up the existing main engine raw water cooling duplex strainers. With their significantly finer mesh it is likely that similar problems will occur with respect to any pre-filters and filters, as well as, other equipment required to treat/filter ballast water.

Shortly after receiving type approval from Germany in 2008, the SEDNA Ballast Water Management System using Peraclean Ocean 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.

Inability to Protect Against Corrosive Effects of Treatment Systems is a Fleet-Wide Issue

Lack of coating in the ballast tanks is not limited to older vessels. It is essentially a fleet-wide issue. Most Great Lakes vessels use intermittent welding in their construction, which makes coating ineffective as no effective corrosion protection is possible in the seams and crevices outside of the welded connections. Introduction of salt water or other corrosives would result in rapid loss of steel. On a practical basis, our members' ballast tanks are uncoated. To date, there have been no studies – either long- or short-term – to evaluate the effects of ballast water treatment systems on coated or uncoated tanks. Even systems which de-oxygenate the ballast as a means of killing organisms and would therefore presumably reduce oxidative corrosion have been demonstrated in some studies to foster anaerobic microbial crevice corrosion.

[6] Efficacy of Ballast Water Treatment Systems: A Report by the EPA Science Advisory Board, July 12, 2011, pg. 40.

Flowrates Necessary to Meet Needs of Commerce Incompatible with those Needed for Treatment Technologies

Lakers' challenging ballast water volumes and flowrates cannot be reduced to levels required for current ballast water treatment technologies without rendering Great Lakes waterborne commerce uneconomical. The largest vessels operated by our members can carry more than 70,000 net tons of cargo in a single voyage when high water levels offset the chronic lack of adequate dredging. The rules of naval architecture require then that the vessel take on a similar weight when in ballast.

The flowrate necessary to accommodate these amounts, which can approach 80,000 gallons per *minute*, is a result of our operational requirements. In order to remain competitive with the railroads, vessels must load and discharge cargo as quickly as possible. This means cargos of 65,000-70,000 tons are loaded and discharged in roughly ten hours. Smaller, what we call "River-class" lakers, load and discharge 15,000 tons or so in less than four hours.

To put these volumes and flowrates in perspective, Western Lake Superior Sanitary District includes Duluth, Hermantown, Proctor, Cloquet and three more small municipalities. On an average day, the WLSSD processes approximately 2.0 million gallons per hour at their facility. Their facility encompasses approximately 15 acres and contains 12 treatment tanks and miles of piping. The largest lakers have flowrates which are more than twice as much as WLSSD, yet would have to treat this volume in the confines of an already cramped engine room which is a small fraction of the size.

Slower Flowrates Incompatible with Design of Great Lakes Shipping

Slowing the unloading process (and therefore the rate at which ballast is taken on) to accommodate ballast water exchange technologies would have several severe impacts. First, it would reduce the fleet's seasonal capacity and result in shortfalls of raw materials for our customers. The reason a vessel in the Head-of-the-Lakes trade (Lake Superior to the Lower Lakes) can make 50-plus trips in a season is because it can load and discharge cargo in approximately 10 hours. Lengthen those times to 20 or 30 hours and the vessel will forfeit trips. Based on a five-day round trip and increasing both the load and discharge times from 10 to 20 hours would reduce a vessel's seasonal carrying capacity by almost 15 percent.

There is no viable way to offset those lost trips right now. With the economy still yet to fully recover from the recession, it is true that some vessels remain in lay-up, but during recent periods of high demand, only one hull has been idle. That ship is the JOHN SHERWIN and it has not operated since 1981.

New construction would take two years at a minimum, and could easily last 30 months, so if the keel for a 1,000-footer was laid today, the vessel would not enter service until September 2015 at the earliest, and more likely not until March 2016 or later. And of course, as new construction, the vessel would be required to install a ballast water treatment system under the VGP, and there is no such system in existence or anticipated during the term of the next VGP.

Nor could slowing loading times be offset by increasing the speed of vessels while underway (10 to 16 miles per hour depending on the vessel). The ships are already operating at their safe continuous horsepower rating. A slight increase in speed is possible, but only for a short period of time, and it would not be nearly enough to offset the slower loading (and discharge) times.

Slowing load and discharge rates would also create lengthy congestion-related delays at the busiest terminals. For example, Superior Midwest Energy Terminal in Superior, Wisconsin, is the largest

coal-loading dock on the Great Lakes. In periods of peak demand for electricity, the dock has loaded more than 2.5 million tons of coal in a single month. That volume required more than 50 vessels, or one ship every 14 hours. Double or triple load times and there will be several vessels anchored off Duluth/Superior waiting their turn at the dock. The same will hold true at the busiest receiving terminals. Ships will queue up waiting for dock time. In both instances, the capacity of the system has been significantly reduced.

These delays and reduced voyage opportunities associated with lower flow rates will have additional unintended environmental consequences. For example, the reduction in seasonal carrying capacity of 15% would have to be made up by either additional vessels coming into service (which will not likely occur for several years as noted above) or a modal shift. In the best case scenario, these additional vessel transits will result in at least a 15% increase in air emissions and in the worst case scenario, the shift to either rail or truck would result in a significantly greater air emission footprint. Additionally, the congestion-related delays would also result in an increase in air emissions for vessels waiting for pier space for loading and/or discharging. Thus, as a result of attempting to address a relatively low risk, the proposed requirements would result in at least a 15% increase in air emissions in the Great Lakes.

Expansion of Shoreside Infrastructure Likely Too Costly

It is also not feasible to construct a new loading terminal to afford berths for more vessels, and therefore accommodate the increased loading and unloading time necessary if flowrates were reduced to accommodate ballast exchange technologies. This is especially true in the remote regions surrounding Lake Superior. The cost – per dock – could approach $1 billion, especially if rail connections must be significantly expanded or newly laid. We are told one mile of rail today can cost as much as $4 million (and much, much more if a bridge must be built). The iron ore mines on Minnesota's Mesabi Range are anywhere from 60 to 100 miles from the shores of Lake Superior, so a new rail link alone could cost $400,000,000.

Short Voyages Rule Out Some Treatment Systems

The SAB's statement that voyages taken by Lakers average four to five days (which is relevant because treatments that require holding times may not be effective on "short voyages") applies mostly to Canadian lakers that transit the Welland Canal and St. Lawrence Seaway. Given our members' current trade patterns, the longest voyage made with any regularity is from Duluth/Superior at the western end of Lake Superior to Buffalo, New York. That's a voyage of 988 miles and assuming the vessel is not delayed by weather or a malfunction of the locks at Sault Ste. Marie, Michigan, the trip averages about 74 hours.

SAB's statement that many voyages are less than two days is correct and applies to both U.S. and Canadian Lakers, but needs to be expanded to note that a significant number of voyages are a matter of just a few hours.

For example, as noted earlier, U.S.-flag lakers moved 1 million tons of coal from Superior Midwest Energy Terminal in Superior, Wisconsin to Silver Bay, Minnesota, and Taconite Harbor, Minnesota. Both a voyages are extremely short, 4 hours to Silver Bay, and 7 hours to Taconite Harbor.

These short voyages also preclude the use of many potential treatment technologies. In their study of the the SEDNA Ballast Water Management System, de Lafontaine, et al concluded that a 15-20 day hold time is required to ensure the residual toxicity of the discharge meets acceptable national and international standards. Other BWMS which use active substances have not undergone similar

testing and study, so data on the toxicity of other systems' discharges is not available. Until such studies have been completed, it would be irresponsible for our members to install systems which could potentially do more harm to the environment than good and equally irresponsible for EPA to require such systems to be installed.

Lakers Never Leave Great Lakes, So Have Never
And Will Never Introduce An Aquatic Nuisance Species

The most important consideration is this: We do not believe there is need for our members' vessels to treat their ballast. **These vessels never leave the Great Lakes so they have never and will never introduce an aquatic nuisance species.** Most voyages are between Duluth/Superior and Conneaut, Ohio, just west of the Ohio-Pennsylvania line. A few vessels take limestone to Erie, Pennsylvania; a few other vessels deliver grain, limestone and sand to Buffalo. Transits of the Welland Canal are infrequent, and by law, none of the vessels enrolled in LCA could ever trade farther east than Anticosti Island. The water in their ballast tanks is drawn from the Great Lakes and returned to the Great Lakes. Any organisms found in our ballast tanks are either indigenous to the Great Lakes, were brought here by an oceangoing vessel or were introduced via one of the other 63 vectors identified by the U.S. Geological Survey (Attachment C). That's why the EPA's VGP and Coast Guard ballast water regulations focus on oceangoing vessels.

We applaud the mandatory ballast water exchange requirement for oceangoing vessels. Since 2006, when it became mandatory for **all vessels** (closing the loophole for those declaring "no ballast on board) entering the Great Lakes from beyond the Exclusive Economic Zone, no **unmanaged** ballast water has been discharged into the Great Lakes from salties. Not coincidentally, **no new aquatic nuisance species have been identified in the Great Lakes since 2006.**

Irrespective of the eventual SDS Permit language and requirements, LCA and/or its members will continue to implement voluntary best management practices and vigorously pursue other measures to address ballast water transfer of aquatic nuisance species. For example, one member, working closely with federal partners and an environmental organization, is actively involved in testing a delivery system that could treat ballast in a "rapid response" scenario. Although unsuccessful in our applications, LCA has also applied for several Great Lakes Restoration Initiative grants focused on laker ballast water. We have also funded a ballast tank sediment study at the University of Minnesota, Duluth.

Currently There Is No Scientific Basis For A Water Quality Based Effluent Limit (WQBEL)

We strongly agree with MPCA's determination that a numeric water quality based effluent limit ("WQBEL") cannot be determined at this time, and thus, none has been included in this Permit. That is why both VGP 1 and 2 in addition to the Coast Guard's final ballast water rule implemented technology based effluent limits, which apply to lakers as well as oceangoing vessels, but not numeric WQBELs..

MPCA has already reached the same conclusion. When MPCA issued the 401 certification for the most recent VGP, MPCA declined to impose a WQBEL because it was "unable to conclusively determine a numeric standard which would definitively protect water quality." 401 Certification, P. 3. In the determination approving the 401 Certification, MPCA stated:

> [A]fter careful review of the available data and studies completed to further define the threshold at which point the introduction of nonnative species impacts the quality of Waters of the State, MPCA and the DNR staff are unable to conclusively determine a

> numeric standard which would definitively protect water quality and an unaltered species composition of the ecosystem. This determination is consistent with the National Academies' National Research Council 2011 report Assessing the Relationship Between Propagule Pressure and Invasion Risk in Ballast Water. Therefore, a numeric WQBEL in not included in the final 401 certification.

MPCA reiterated this position in the fact sheet for the proposed SDS permit. Page 8 of the Fact sheet states that "there is currently not enough information on the relationship between propagule pressure and the invasion risk in ballast water to be able to calculate a Water Quality Based Effluent Limit (WQBEL)." While this is true, the sentence should read "*numeric* Water quality Based Effluent Limit," because EPA and MPCA have imposed non-numeric measures in the VGP and 401 certification to ensure compliance with water quality standards.

The decision not to impose a numeric WQBEL is supported by the VGP fact sheet and the National Academies of Science report. Accordingly, there is no scientific basis for a WQBEL.

If the Ballast Water Management System Requirement is Retained in the SDS Permit, the Certification Process should be Changed

The draft SDS permit requires that, if there are still no ballast water management systems available, pre-2009 lakers must "demonstrate that the U.S. Coast Guard (USCG) has not type approved, under 46CFR Part 162.060, any ballast water treatment system commercially available and compatible for the Permittee's vessel as of that date" (the certification). This certification process is unnecessary, as it simply reaffirms what is already known: that no BWMS are available. In effect, this creates a burdensome administrative process simply to maintain the status quo.

The certification process also creates substantial uncertainty for permittee vessels. The draft permit does not explain what sort of "demonstration" is adequate, what burden of proof is required, what the MPCA acceptance process will be, or whether there is an appeals process. The permit does not describe any standards or definition of what demonstrates a system that is commercially viable. As a result, the certification process undermines the certainty that is supposed to accompany an SDS permit and could complicate the necessary insurance that allow vessels to operate.

Lake Carriers' Association and their members are also concerned that this certification process may create potential liability. For example, MPCA's acceptance of the certification may be deemed a final agency action, and thus challengeable in the Minnesota Court of Appeals. This would call into question the validity of the vessel's permit and require MPCA and the affected vessels to defend the validity of their permit and certification in court. These problems exist for each of the 60-plus U.S.-flag lakers and are only amplified by the requirement to submit this certification annually. The prospect of defending potentially hundreds of lawsuits every year is daunting and entirely avoidable.

These problems can be avoided if MPCA eliminates the certification process or extends the compliance date until after the next VGP is issued in 2019. In lieu of the certification process, MPCA can include language in the SDS permit that MPCA will re-evaluate the permit if BWMS become commercially available and operationally feasible for leakers. This is the same requirement that is in the VGP, thereby avoiding any conflict.

The date chosen by MPCA is also arbitrary and is not tied to any expected development in BWMS technology. Worse, the date creates a conflict with VGP, which will be issued mere months later. MPCA should therefore extend the date to ease these burdens. Extending the date will avoid

unnecessary duplication and confusion by allowing the federal and state regulatory processes to be streamlined and made uniform.

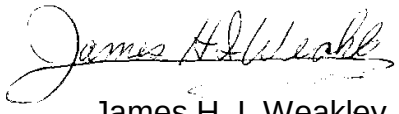
If Permit Is Renewed with the Certification Requirement, Must Retain Provision for Non-Availability of Treatment Systems

If the State of Minnesota renews the Ballast Water Discharge General Permit with the certification process, it must retain the language that will allow vessels to operate after their first scheduled drydocking after March 30, 2018 if the Permittee "can demonstrate that the U.S. Coast Guard has not type approved, under 46CFR Part 162.060, any ballast water treatment system commercially available and compatible for the Permittee's vessel as of that date." As explained above, there are no existing treatment systems that would work on lakers constructed before 2009, nor are there any promising prospects that will accommodate lakers ballast rates, short voyages, and other unique characteristics. This exception is therefore necessary to ensure that lakers can continue to operate in Minnesota waters.

As we have discussed before, Minnesota's iron ore mining industry and the steelmakers it serves depend on low-cost transportation of taconite pellets. It takes 1.5 tons of iron ore to make a ton of steel, and those few steel mills that do have rail access would face astronomical increases in the delivered cost of their iron ore. Other steel mills would face either closure or switching to finishing imported slabs. None of these scenarios are good for Minnesota, our nation's steel industry, or the country in general. Despite all the restructuring since the early 1980s, the Great Lakes basin is still home to 50 percent of the nation's steelmaking capacity. We must all foster that industry, not jeopardize it.

We hope these comments will be received in the spirit with which they are offered, one of shared concern for the environment. While we disagree on how best to approach to the ballast water issue as it relates to lakers, we can assure you we will always do our best to respect and protect Minnesota's Lake Superior waters.

Very respectfully,



James H. I. Weakley
President

Lee, H., Reusser, D. A., Frazier, M., & Ruiz, G. (2010). *Density Matters: Review of Approaches to Setting Organism-Based Ballast Water Discharge Standards.* Office of Research and Development, National Health and Environmental Effects Research Laboratory, Western Ecology Division. U.S. EPA.

National Research Council, National Academy of Sciences. (2011). *Assessing the Relationship Between Propagule Pressure and Invasion Risk in Ballast Water.* Washington, DC: The National Academies Press.

Attachment A

1993 GREAT LAKES MARITIME INDUSTRY VOLUNTARY BALLAST WATER MANAGEMENT PLAN FOR THE CONTROL OF RUFFE IN LAKE SUPERIOR PORTS

Owners and operators of vessels in the domestic and international trade on the Great Lakes recognize their role in assisting the governments of the United States and Canada in controlling the introduction and spread of non-indigenous fish species. We recognize that control must be on many fronts, including ballast water management, chemical control, predatory fish control, and other mechanisms. Vessels must use ballast water for safety purposes to provide adequate stability, trim, propulsion, maneuverability, and hull stress control. Recognizing these constraints, the marine industry will do everything within its power, consistent with safety and stability, to decrease the spread of known unwanted non-indigenous species. The introduction of new species from outside the system is under the control of the U. S. and Canadian Coast Guards through ballast water exchange regulations prior to entry into the system. This plan deals with the control of the spread of the European Ruffe from Western Lake Superior ports, in particular, Duluth/Superior or other harbors where Ruffe colonies are documented.

FOR VESSELS DEPARTING LAKE SUPERIOR PORTS ***WEST*** OF BALLAST DEMARCATION LINE:

1) Operators of vessels pumping ballast water onboard in the above harbors, with ballast line intakes equipped with screens fitted with holes larger than ½" in diameter, are restricted at all times of the year in their pumping out of ballast water from these harbors into the Great Lakes or their Connecting Channels or harbors. This ballast water should be pumped out west of a ballast demarcation line between Ontonagon, Michigan and Grand Portage, Minnesota. Ballast water from these harbors must not be pumped out within 5 miles of the south shore of Lake Superior while west of the ballast demarcation line. Ballast exchange should take place in water at least 20 fathoms (120 feet) deep.
2) Operators of vessels pumping ballast water onboard in the above harbors, with ballast line intakes equipped with screens fitted with holes ½" in diameter or less, are restricted only during the period between May 15 and September 15 in their pumping out of ballast water from these harbors into the Great Lakes or their Connecting Channels or harbors. During this 4-month period, these vessels should pump out the harbor ballast water west of a ballast demarcation line between Ontonagon, Michigan and Grand Portage, Minnesota. Harbor ballast water must not be pumped out within 5 miles of the south shore of Lake Superior while west of the ballast demarcation line. Ballast exchange should take place in water at least 20 fathoms (120 feet) deep.
3) If ballast exchange is not completed at the time the vessel reaches the demarcation line, exchange may continue in Lake Superior, but only in waters at least 40 fathoms (240 feet deep) and 15 miles from shore. In all cases, exchange must stop before proceeding east of 86^{o} west.

FOR VESSELS DEPARTING LAKE SUPERIOR PORTS ***EAST*** OF BALLAST DEMARCATION LINE:

4) Vessels departing Thunder Bay should limit pumping ballast onboard as in paragraphs 1) and 2) above. These vessels may exchange ballast in Lake Superior, but only in waters at least 40 fathoms (240 feet deep) and 15 miles from shore. In all cases, exchange must stop before proceeding east of 86^{o} west.

FOR ***ALL*** VESSELS DEPARTING LAKE SUPERIOR PORTS:

5) Operators of vessels pumping in ballast water from the above harbors and leaving the harbor with that water will maintain a record showing the amount of ballast water taken, the means of control, if any, and the location where the treated or untreated harbor ballast water was pumped out.
6) The ballast water records will be available for review by U.S. or Canadian Coast Guard personnel.
7) The above requirements will be waived for vessels which attest by means of a log entry that the harbor ballast water from the above harbors will not be pumped out within the Great Lakes/St. Lawrence Seaway System (at least until reaching salt water). Masters of these vessels recognize that ballast water from the above harbors must not be pumped out in any other fresh or brackish water port and thus should exchange ballast with salt water.

VOLUNTARY BALLAST WATER MANAGEMENT PLAN CO-SPONSORED BY:

Canadian Shipowners Association — The Thunder Bay Harbour Commission — Shipping Federation of Canada
Lake Carriers' Association — Seaway Port Authority of Duluth — U.S. Great Lakes Shipping Association

04/02/93

Attachment B

GREAT LAKES MARITIME INDUSTRY VOLUNTARY BALLAST WATER MANAGEMENT PLAN (BMP) FOR THE CONTROL OF VIRAL HEMORRHAGIC SEPTICEMIA (VHS) VIRUS

(Issued March 2007)

Owners and operators of vessels sailing exclusively within the Enclosed Aquatic Ecosystem of the Great Lakes recognize their role in assisting the governments of the United States and Canada in controlling the spread of invasive species. This BMP, specifically for the VHS virus, is in addition to general voluntary management practices for aquatic nuisance species. Vessels must use ballast water for safety purposes to provide adequate stability, trim, propulsion, maneuverability, and hull stress management. Recognizing these constraints, the marine industry will do everything within its power, consistent with safety and stability, to decrease the potential of moving fish from affected areas (Lake Huron, Lake St. Clair, Lake Erie, Lake Ontario, the St. Lawrence River, and the Canadian Maritime Provinces) to unaffected areas (Lake Michigan and Lake Superior).

WHAT IS VHS AND HOW IS IT SPREAD?

1) VHS is a virus that can cause fish to hemorrhage and result in large scale fish mortality in a short period of time. It is known to have existed in fish killed in 2003 in Lake St. Clair and resulted in a large fish kill in Lake Ontario in the spring of 2005.
2) VHS can be found in multiple fish species. It does not affect humans.
3) VHS is primarily transmitted by fish to fish contact via urine, feces, and sexual fluids. It enters the new host through the gills or wounds. It also may be possible for the virus to be transmitted by infected fish eggs.
4) The VHS virus can survive indefinitely in a live host. It is not known how long it can survive outside of a host, but it may be a couple of days. If in contact with decaying organic matter, such as a dead fish, the VHS virus could survive longer and perhaps more than a week, but it is not known for certain.
5) Fishery managers are doing what they can to slow the spread of the virus and account for the increase in natural fish mortality caused by the virus; however, once it is in wild fish populations, it is unlikely to be controlled and impossible to be eliminated.
6) Potential vectors for the introduction and spread include: aquaculture, bait fish, recreational boaters, sport fishermen, organisms in trade, natural movement of species and predators, or any other vector capable of transporting a viable virus. The U.S. Federal Government is currently conducting a "risk analysis."

FOR *ALL* VESSELS DEPARTING AREAS KNOWN TO CONTAIN VHS TO UNAFFECTED PORTS

1) In lieu of the normal 5-year inspection, annually inspect and replace, as necessary, ballast sea chest screens. Replace screens with the smallest openings allowed by good engineering practice. Inspections will be documented by log entry, diver's report, video report, dry-docking report, marine inspection note, or surveyor's report.
2) During cargo operations, while accounting for boom list, hull stress, and bending moments, lighten the ship as much as practical to elevate water intakes before ballasting to minimize sediment uptake and increase water flow.
3) Ballast water taken aboard in VHS affected waters should be the minimum needed to ensure the safety of the crew and vessel. Additional ballast water can be taken aboard, once deeper water is reached.
4) Ballast water should always be taken aboard or discharged via the pumps and never "gravity fed or drained." This ensures a fish that somehow makes it past the screen is pulverized by the high speed, high pressure, and tight tolerance pump.

VOLUNTARY BALLAST WATER MANAGEMENT PLAN CO-SPONSORED BY:

Lake Carriers' Association • Shipping Federation of Canada • United States Great Lakes Shipping Association

Attachment C

Vectors for Introduction and Spread of Non-Indigenous Species Identified by U.S. Geological Survey

Accidental	Hitchhiker - Plants	Released – Packing Material
Canal	Hitchhiker – Platforms	Released - Pet
Dispersed	Hitchhiker – Scuba Gear	Shipping
Dispersed - Flood	Hitchhiker – Oysters	**Shipping – Ballast Water**
Dispersed - Ocean Current	Hitchhiker – Stocked Fish	Shipping – Hull Fouling
Dispersed - Waterfowl	Hitchhiker With Tunicates	Shipping – Solid Ballast
Escaped Captivity	Hybridized	Stocked
Escaped Captivity - Aquaculture	Ocean Currents	Stocked – Aquaculture
Escaped Captivity - Farm	Planted	Stocked – Aquarium
Escaped Captivity - Fur Farm	Planted - Erosion Control	Stocked – Escaped
Escaped Captivity - Pet	Planted - Food	Stocked – For Biocontrol
Escaped Captivity - Pond	Planted - Forage	Stocked – For Conservation
Escaped Captivity - Research	Planted - Ornamental	Stocked – For Exhibit
Escaped Captivity - Zoo	Planted – Restoration/Mitigation	Stocked – For Food
Gulf Stream Drift	Planted – Wildlife Habitat	Stocked - For Forage
Hitchhiker	Released	Stocked – For Research
Hitchhiker - Fishing, Boating	Released – Aquarium	Stocked – For Sport
Hitchhiker - Aquaculture	Released - Bait	Stocked – Illegally
Hitchhiker - Aquatic plants	Released – Fish Food	Stocked – Misidentified
Hitchhiker - Imported Logs	Released - Biocontrol	Stream Capture
Hitchhiker – Imported Plants	Released – Food	Unknown
Hitchhiker - Packing Material	Released – Lab Animals	