Public Comment
Responsiveness Summary

Permit No. MIG140000

Ballast Water Control General Permit

The 60-day public comment period was open from May 28, 2006, through July 28, 2006, with a public hearing held on July 11, 2006, in Lansing. Nine attendance cards were submitted at the hearing and seven individuals made statements for the record. The verbal testimony concluded after one hour. In addition, the Michigan Department of Environmental Quality (MDEQ) staff fielded a question-and-answer period following the hearing. Twenty-one written comments were received during the public notice period.

The actual comments summarized below have been abbreviated, paraphrased, and/or edited for clarity.

Acronyms and abbreviations used in this document:

AIS - Aquatic Invasive Species
BMP - Best Ballast Water Management Practice
COC-Certificate of Coverage
DEQ - Michigan Department of Environmental Quality
IMO - International Maritime Organization
NOAA - National Oceanic and Atmospheric Administration
NOBOB - No Ballast On Board
TRC - Total Residual Chlorine
USCG - United States Coast Guard
USEPA - United States Environmental Protection Agency
UV - Ultra Violet Radiation

General Comments

1. **Comment:** We support the efforts of the state and the treatment methods proposed in the Ballast Water Control Permit. Federal efforts to address the issue have proved ineffectual.

   The initiative taken by the State of Michigan is particularly laudable in view of the absence of similar action by our two national governments, or by other Great Lakes states or provinces, including our own Province of Ontario. We hope that your leadership will set an example that will encourage other jurisdictions to take similar actions to protect our shared waters of the incomparable Great Lakes.

   Response: The MDEQ appreciates the support for our efforts to implement the first port operations permitting program in the Great Lakes. The MDEQ is also facilitating a Great Lakes AIS Coalition with other Great Lakes states to implement, on a basin-wide basis, water pollution laws that prohibit the discharge of AIS into the Great Lakes from oceangoing vessels.

2. **Comment:** Because there are no United States- or Canadian-approved ballast water treatment technologies available, the Michigan ballast water permitting system should be delayed at least two years. Complying with the Canadian Code of Best Practices for

Ballast Water Management and the practice of salt water flushing (swish and spit) is an effective treatment.

Response: Act No. 33, Public Act of 2005, requires all oceangoing vessels engaging in port operations in Michigan to obtain a permit from the MDEQ beginning January 1, 2007. The MDEQ shall issue a permit only if the oceangoing vessel will not discharge AIS or, if ballast water is discharged, the vessel operator shall use environmentally sound technology and methods, as determined by the MDEQ, to prevent the discharge of AIS. The law does not allow the MDEQ to delay permit requirements. While the MDEQ considers ballast water exchange and salt water flushing to be beneficial management practices, the MDEQ does not agree that BMPs and the voluntary NOBOB vessel technique of salt water flushing have proven effective in preventing AIS introductions into the Great Lakes. See Response No. 9 for an explanation of why the MDEQ chose the four treatment methods in the Ballast Water Control General Permit.

3. **Comment:** The MDEQ does not know whether the treatment systems identified in the general permit will treat ballast water effectively and in an environmentally friendly way.

   Response: The four treatment technologies identified in the Ballast Water Control General Permit have undergone extensive laboratory testing and some shipboard testing to address both environmental concerns and treatment effectiveness. After reviewing the test reports, the MDEQ concluded that the four subject treatment methods were demonstrated to be environmentally sound and effective in preventing the discharge of AIS through ballast water. In addition, based on extensive testing, four United States (U.S.) companies have marketed each of the ballast water treatment technologies identified in the Ballast Water Control General Permit. Two of the ballast water treatment systems (UV/filtration and Deoxygenation) have been permanently installed on operating commercial vessels.

4. **Comment:** A Michigan ballast water regulation does not protect the Great Lakes from AIS introductions. The Great Lakes states should wait for a USCG ballast water treatment performance standard.

   Response: This permit by itself will not protect the Great Lakes from all AIS introductions. However, compliance with the permit conditions will prevent direct AIS introductions into Michigan waters in accordance with the recent amendments to the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. As mentioned in Response No. 1, the MDEQ is also seeking agreements with other Great Lakes states to implement actions similar to Michigan's in order to fully protect the Great Lakes.

5. **Comment:** Several comments were made that the MDEQ's port operations permit requirement will divert maritime trade to alternative ports and harm Michigan's economy.

   Response: The MDEQ cannot speak on the possible economic costs to the state. However, it can be assumed that the Michigan legislature weighed the costs involved in regulating port operations against the costs of AIS introductions.

6. **Comment:** The Michigan law authorizes the MDEQ to issue a permit to the operator of a vessel when the operator (1) will not discharge ballast water, or (2) will discharge ballast water, but will use environmentally sound technology to prevent the discharge of AIS. The statutory language makes plain that the demonstration by the applicant must precede the issuance of a permit.

   Response: The MDEQ has determined that the four ballast water treatment methods included in the Ballast Water Control General Permit are environmentally sound and effective in preventing the discharge of AIS. No further treatment demonstrations by the applicant are required. If an applicant proposes to use an alternate treatment method, a demonstration must be submitted and approved by the MDEQ prior to issuance of an individual permit. The MDEQ believes its established permitting process and the conditions contained in the proposed Ballast Water Control General Permit meet the intent of the law.

7. **Comment:** The MDEQ is requested to delay its premature ballast water permit program until international certifying organizations and the USCG approve ballast water treatment systems that can be used internationally.

   Response: The **M**DEQ is responding to a mandate under Act No. 33, Public Act of 2005, which requires oceangoing vessels to obtain a permit from the MDEQ beginning January 1, 2007. As stated in Response No. 2, the law does not allow the MDEQ to delay the permit requirements.

8. **Comment:** Very little is known about the extent of the toxic effects of treating ballast water with chlorine dioxide because of a lack of independent research. Chlorine dioxide should not be deemed an environmentally sound treatment.

   Response: Chlorine dioxide has been extensively researched and used for treating drinking water and various wastewaters for many years. Research over the years has shown chlorine dioxide does not form chlorinated byproducts when reacting with natural organic matter. The MDEQ found only one study that revealed trace amounts of chlorinated organics, and the amounts were not at levels of environmental or public health concern. Unlike chlorine, the primary oxidation byproduct of chlorine dioxide treatment is chlorite. At very low levels, chlorite is toxic to some aquatic life. To protect surface water aquatic life, the MDEQ developed a water quality-based discharge limit of 13 ug/l for chlorite. That discharge limit is a requirement in the Ballast Water Control General Permit.

9. **Comment:** The MDEQ should revise the permit to require compliance with the proposed IMO standard beginning January 1, 2007.

   Response: The MDEQ has carefully evaluated the ballast water treatment methods and determined that these ballast water treatment methods have the highest success rates among available treatment methods of destroying AIS and protecting the diversity or abundance of native species, or the ecological stability of the waters of the state, or activities dependent on such waters. The determination is in accordance with Act No. 33, Public Act of 2005.

10. **Comment:** Hypochlorite should be removed from the general permit because no amount of modification can make it effective or environmentally sound. The use of hypochlorite to treat unfiltered ballast water will create dangerous chlorination byproducts.

    Response: During the time period 2001 to 2004, the MDEQ conducted a comprehensive study using hypochlorite as a ballast water biocide. Following the MDEQ's study, the MDEQ determined in 2005 that hypochlorite is safe for ship and crew, effective, and an environmentally sound ballast water biocide. Hypochlorite can be easily neutralized to eliminate any toxic effects.

    The MDEQ study also included an examination of the amounts of chlorination byproducts produced during treatment of ballast water with a high (1000 ppm) organic matter content. The chlorination byproducts created after reaching a concentration of 10 ppm TRC were small and not environmentally significant. The trihalomethanes formed were well below the theoretical discharge limits under Michigan water quality standards. Michigan's discharge standards for toxics are consistent with the standards of other Great Lakes states and protect all designated aquatic life, wildlife, and human uses.

    Treatment of high sediment or extremely turbid ballast water from NOBOB vessels is not expected. The Great Lakes is predominantly a ballast source region. Most oceangoing vessels discharging ballast water into the Great Lakes discharge Great Lakes water mixed with residual ballast tank sediments. A recent NOAA study revealed that the average residual ballast tank sediment content in Great-Lakes -bound NOBOB vessels was not significant.

    It is important to note that if all the ballast water discharged annually by oceangoing vessels in the Great Lakes was treated with hypochlorite as required by the permit, this would require roughly 63 tons of hypochlorite. In comparison, it is estimated that over 500 tons of chlorine is used for zebra mussel control at water intakes in the Great Lakes and 53,000 tons of chlorine is used for the disinfection of wastewaters discharged into the Great Lakes.

11. **Comment:** Deoxygenation probably will not meet the proposed IMO standard unless the holding period is at least 96 hours, not the 48 hours specified in the permit.

    Response: As discussed in Response No. 9, the MDEQ chose treatment methods that have the highest success rates among available treatment methods of destroying AIS and protecting the diversity or abundance of native species, or the ecological stability of the waters of the state, or activities dependent on such waters. Thus, the MDEQ did not evaluate the available ballast water treatment methods using the proposed IMO standard. The treatment studies reviewed by the MDEQ used indicator organisms killed as a measure of effectiveness, not total viable organisms remaining, as in the proposed IMO standard. The oxygen deprivation tests demonstrated 99 percent mortality for most indicator organisms within 48 hours.

12. **Comment:** For UV treatment, the filtration level of 100 microns, as provided in the permit, is unlikely to be effective in preventing the discharge of AIS.

Response: Hyde Marine, Incorporated, which is currently marketing the Hyde Marine UV Ballast Water Treatment System, recommends a 50 micron filter/separator to assure UV treatment effectiveness. Therefore, the MDEQ has revised the draft permit to require the use of the 50 micron filter/separator when treating ballast water with UV radiation.

13. **Comment:** UV treatment is not effective unless the solids are removed. An enforceable standard for turbidity needs to be set.

    Response: As mentioned in Response No. 12, the UV pre-filtration requirement has been reduced from 100 microns to 50 microns. In addition, the Ballast Water Control General Permit requires automated UV light sensors to ensure adequate light transmission and treatment. The UV light sensor control is essentially the same as a turbidity meter. The MDEQ believes a numerical standard to regulate turbidity is not necessary (see paragraph 3 of Response No. 10). The Ballast Water Control General Permit prohibits ballast water discharges that do not receive the required UV radiation dose level.

14. **Comment:** NOBOB vessels are currently unregulated by the federal government and are not covered by the draft ballast water permit.

    Response: The Ballast Water Control General Permit is applicable to all oceangoing vessels engaging in port operations in Michigan, which includes NOBOBs.

15. **Comment:** The MDEQ should require adequate mixing of chlorine dioxide with the ballast water, as is required for hypochlorite.

    Response: The MDEQ agrees with this comment, and the draft permit has been revised to include the adequate mixing requirement.

16. **Comment:** The MDEQ should provide for public participation in the permitting process.

    Response: The MDEQ has provided for public participation in the permitting process. All permit applications for coverage under the Ballast Water Control General Permit will be available for public review. Public notification of these permit applications, including any addendums, will be posted on the MDEQ Web site for two weeks. If an applicant proposes to use a ballast water treatment technology not included in the general permit, the applicant may submit a treatment performance demonstration and apply for an individual permit. Individual permits are processed as required by Michigan's Part 21 Rules, which includes public notification of documents, a 30-day public comment period, and an opportunity for public participatory meetings.

17. **Comment:** The MDEQ should require vessel operators to monitor ballast water discharges for AIS and report on the effectiveness of the technology and methods they use.

Response: Required treatment performance monitoring by the permittee was considered by the MDEQ. The MDEQ carefully evaluated treatment effectiveness studies when setting the permit conditions. At this time, the MDEQ does not believe that additional monitoring is necessary to evaluate effectiveness.

18. **Comment:** The MDEQ documents distributed for review do not inform the ship operating sector that the use of biocides/pesticides is regulated by the USEPA under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).

Response: Part II.E.4 of the Ballast Water Control General Permit states that permit coverage under the general permit does not authorize violation of any federal law or regulation. Part II.E.4 also states that issuance of the state permit does not obviate the necessity of obtaining other federal or state permits, or approvals from other units of government as may be required by law. The MDEQ plans to include a similar statement in the COC cover letter.

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