Client Alert 20-2015
June 3, 2015

U.S. BALLAST WATER MANAGEMENT STANDARD (BWMS) UPDATE & VESSEL GENERAL PERMIT (VGP)
BALLAST WATER MONITORING REQUIREMENTS

I. UPDATE ON THE BALLAST WATER TREATMENT SYSTEM (BWTS) TYPE APPROVAL PROCESS
II. EXTENSIONS FOR BWTS INSTALLATION DEADLINES
III. BALLAST WATER SAMPLING UNDER THE VGP

Please refer to our earlier Client Alert 07-2015, issued on February 5th, 2015 and see below for a summary of developments that have taken place since that time, including our estimated timeline for U.S. Coast Guard (USCG) type approval of the first ballast water treatment systems (BWTS). This Client Alert also addresses the ballast water sampling requirement under the VGP.

I. BWTS TYPE APPROVAL - LETTERS OF INTENT (LOI) FILED BY MANUFACTURERS

- At the time of issuing this Client Alert, 17 manufacturers had submitted letters of intent to the USCG. These letters are required by law when manufacturers intend to submit their ballast water treatment systems to Independent Labs (IL) to begin the testing process.

- Of the 17 manufacturers mentioned above, three (3) have completed testing with an independent lab and submitted the results to the USCG for type-approval testing. These manufacturers are:
  - Trojan Technologies – Trojan Marinex BWT
  - Alfa Laval – PureBallast 3.0/3.0EX (3.1/3.1EX)
  - DESMI – RayClean BWMS

NOTE: All three systems are UV-based. The test results are being reviewed at the USCG Marine Safety Center (MSC), after which each system will undergo rigorous testing at a USCG-nominated laboratory, in accordance with the Environmental Technology Verification (ETV) Protocol and Shipboard Testing Requirements in 46 CFR 162.060-28. Based on industry feedback, it is estimated that the process will only be completed and (if successful) USCG type approval granted around early to mid-2016*.

II. USCG BWTS INSTALLATION DEADLINES – APPLICATIONS FOR EXTENSION

- As we have previously advised, vessels with ballast capacities between 1500 M3 and 5000 M3, whose compliance date was/is by the first scheduled drydocking after 01 January 2014, were issued extensions until 01 January 2016 or 01 January 2017. Extension applications began being accepted during 2013.

- All other vessels, whose compliance date is by the first scheduled drydocking after 01 January 2016, can now submit extension applications as well. However, the USCG is only responding to applications from vessels with scheduled drydocking dates in 2016 at this time. If the applications are in order, extensions are being granted until 01 January 2018.

- For vessels with ballast capacity between 1500 M3 and 5000 M3 which have already received an extension until 01 January 2016, a supplemental extension request can be submitted to the USCG, asking for the deadline to be extended further, since no BWTS has received type approval. If approved, such supplemental extensions will delay the compliance deadline to 01 January 2018.
New vessels (keel laid after 01 December 2013, as described in 33 CFR 151.2035) can also apply to the USCG for an extension under the same grounds (no type approved BWTS available). If accepted, the compliance deadline will be extended until **01 January 2018**.

**Notes**

- The above extension dates are firm deadlines by when a BWTS must be installed. They are not to be read as “the first scheduled drydocking after (stated date).”
- All applications must be made in accordance with the guidance contained in **USCG POLICY LETTER 13-01** , which was included in our Client Alert 07-2015.
- While the application should be made directly by the vessel operators, ECM can provide a sample template for the application letter, if required.

**III. BALLAST WATER SAMPLING UNDER THE VESSEL GENERAL PERMIT (VGP) FOR VESSELS FITTED WITH (AND USING) BWTS**

The VGP requires all vessels operating a BWTS to conduct sampling of ballast water discharges twice during the first year the system is installed. We have attached an excerpt from the **EPA’S BALLAST WATER SAMPLING GUIDE**, which highlights the testing that is required.

To conduct this testing, we have found the most efficient organization to be **SGS NORTH AMERICA**. Other labs designated by the USCG seem to be geared more towards type-approval testing of BWTS, as Independent Laboratories (IL) under the U.S. Ballast Water Management Standard. **SGS can be contacted for both collection and analysis.** We have confirmed that they provide the required services worldwide, including sample collection on board. Queries should be directed to Robert Goldring, their North American head of services, who will then advise his local or international office. Contact details are listed below. It would expedite matters if Mr. Goldring is told that your company is an ECM client.

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Please direct all comments and/or queries to [ecm@ecmmaritime.com](mailto:ecm@ecmmaritime.com).

* The estimated date/period is based on communication with regulatory authorities and industry feedback, but is not to be treated as an official statement. It is only being provided as a guideline to vessel operators to facilitate their planning.
2.4 BALLAST WATER

2.4.1 Biological Monitoring

The 2013 VGP specifies that vessels using a ballast water treatment system (i.e., those subject to Part 2.2.3.5.1.1.1 of the 2013 VGP) must sample and analyze ballast water discharges for the following biological indicators:

- Total heterotrophic bacteria,
- E. coli, and
- Enterococci.

The vessel’s ballast water system must be provided with sampling ports arranged in order to collect representative samples of the vessel’s ballast water. In addition to the sampling ports designed and installed in accordance with the specifications in the ETV Protocol (http://nepis.epa.gov/Adobe/PDF/P10097A4.pdf). Sampling ports must be located:

- As close as practicable to the ballast water management system prior to treatment to determine concentrations of living organisms upon uptake; and
- As close as practicable to the ballast water management system overboard outlet prior to the discharge point to determine concentrations of living organisms prior to discharge.6

Sampling of ballast water discharges for these vessels must be conducted two times during the first year the system is installed or used for vessels with devices for which high quality data are available (See Part 2.2.3.5.1.1.4 of the 2013 VGP for definition of high quality data). For vessels with high quality data, if sampling results are below permit limits for two consecutive events, the vessel owner/operator may reduce monitoring to one time per year after the first year. However, if the vessel owner/operator exceeds a permit limit on any sampling event, they must return to monitoring two times per year until they have two additional results below permit limits.

For vessels required to perform ballast water monitoring for which high quality data are not available, monitoring must be conducted four times per year.

For all vessels required to perform ballast water monitoring, one of the samples may be conducted as part a vessel’s annual or other survey, and during the first year, one of those sampling events may be conducted as part of the installation of the system to ensure it is functioning properly.

Table 2-5 summarizes applicable analytical methods that can be used for ballast water monitoring for indicator organisms. Table 2-6 provides a few examples of ballast water indicator organism sample collection and preservation techniques for some of the most common analytical methods.

6 See 46 CFR 162.060-28
### Table 2-5. Indicator Organism Monitoring Parameters*

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Instrument or Analysis</th>
<th>EPA Method</th>
<th>Standard Method</th>
<th>ASTM</th>
<th>ISO</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Heterotrophic Bacteria</td>
<td>Plate Counts</td>
<td>SM 9215</td>
<td>ASTM D5465</td>
<td>ISO 6222:1999</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>E. coli</em></td>
<td>Selective Substrate</td>
<td>SM 9223B</td>
<td>ASTM D5392 – 93</td>
<td>ISO 9308-1:2000</td>
<td>Colilert®</td>
<td></td>
</tr>
</tbody>
</table>

* Sampling and testing shall be conducted according to 40 CFR Part 136. The listed methods are suggested methods, but EPA will also accept Part 136 methods that are considered equivalent.

### Table 2-6. Example Ballast Water Indicator Organism Sample Collection and Preservation Techniques

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Method</th>
<th>MRL</th>
<th>Unit</th>
<th>Container</th>
<th>Sample Volume</th>
<th>Preservation</th>
<th>Holding Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Heterotrophic Bacteria</td>
<td>SM 9215</td>
<td>1</td>
<td>CFU or MPN/100 mL</td>
<td>Plastic Bottle</td>
<td>120-mL</td>
<td>Cool, ≤4°C, Na₂S₂O₃ if Chlorine Present</td>
<td>8 hours</td>
</tr>
<tr>
<td><em>E. coli</em></td>
<td>EPA 1603 or Colilert®</td>
<td>1</td>
<td>CFU or MPN/100 mL</td>
<td>Plastic Bottle</td>
<td>120-mL</td>
<td>Cool, ≤10°C, Na₂S₂O₃ if Chlorine Present</td>
<td>8 hours</td>
</tr>
<tr>
<td>Enterococci</td>
<td>EPA 1600 or Enterolert®</td>
<td>1</td>
<td>CFU or MPN/100 mL</td>
<td>Plastic Bottle</td>
<td>120-mL</td>
<td>Cool, ≤10°C, Na₂S₂O₃ if Chlorine Present</td>
<td>8 hours</td>
</tr>
<tr>
<td>Total Residual Chlorine*</td>
<td>SM 4500-Cl G</td>
<td></td>
<td>Field Test</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

MRL = Method Reporting Limit.

* Collected to determine sample preservation requirements and not for compliance monitoring.
2.4.2 Additional Considerations for Field Tests (Total Residual Chlorine)

Note that total residual chlorine needs to be measured in the field to determine the type of preservation needed for the three biological indicators samples. This monitoring is performed using test meters equipped with the appropriate sensors designed to meet the analytical method listed. Generally, a 1-liter sample container is filled during sample collection for use in performing field measurements. If total residual chlorine is detected, sodium thiosulfate (Na₂S₂O₃) will need to be added as a preservative for any biological indicators samples. (ASTM D7365-09a specifies treatment options for samples containing chlorine.) Vessel owners/operators should ensure that all equipment used for field measurements are calibrated following applicable calibration procedures specified by the instrument manufacturer.

2.4.3 Residual Biocides from Ballast Water Treatment

Vessels subject to Part 2.2.3.5.1.1.1 of the 2013 VGP must conduct monitoring of the ballast water discharge for any residual biocides or derivatives used in the treatment process to demonstrate that residual biocides or derivatives are in compliance with this permit. Table 2-7 below summarizes required sampling frequency based on ballast water treatment type and available data. Table 2-8 summarizes sample collection and analysis procedures for ballast water monitoring for residual biocides.

Table 2-7. Monitoring Schedule for Residual Biocides or Derivatives of the Residual Biocide

<table>
<thead>
<tr>
<th>Type of Monitoring</th>
<th>Devices for Which High Quality Type Approval Data Are Available</th>
<th>Devices for Which High Quality Data Are Not Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Monitoring</td>
<td>3 times in the first 10 discharge events (not to exceed a 180 day period).</td>
<td>5 times in the first 10 discharge events (not to exceed a 180 day period).</td>
</tr>
<tr>
<td>Maintenance Monitoring</td>
<td>2 times per year.</td>
<td>4 times per year.</td>
</tr>
</tbody>
</table>

7 See Section 2.2.3.5.1.1.5.2 of the 2013 VGP for definition of high quality data.
We refer to our recent CLIENT ALERT 20-2015, issued on June 3, 2015 on the subject of BALLAST WATER TREATMENT SYSTEM (BWTS) type approval by the USCG, as well as the ballast water sampling requirements under the VESSEL GENERAL PERMIT (VGP).

That Client Alert was based on information received from the USCG and industry sources in late May - early June 2015. As you may recall, we had written that 17 system manufacturers had submitted Letters of Intent (LoI) to the USCG, of which three manufacturers had also completed the testing process with an Independent Laboratory (IL) and submitted their results to the USCG for their review, towards obtaining final type approval.

We now have an update to this information. Please see below for the latest status received from the USCG’s Environmental Standards Division:

- As of June 17, 2015 a total of twenty-two (22) BWTS manufacturers had submitted Letters of Intent (LoI) to the USCG. This represents an increase of 5 submissions over our last update.
- The number of manufacturers that have completed the testing process with an Independent Laboratory (IL) and submitted their results to the USCG remains unchanged at three (3).
- Based on their internal review status, the USCG estimates that the first BWTS will receive type approval by the end of this year (2015).

We believe that this advancement of the USCG’s estimated date for the first BWTS type approval from early-mid 2016 to “by the end of 2015” is significant, as it clearly indicates they are moving steadily towards full type approval of one or more systems. It also suggests that the USCG has made progress with reconciling the issues they have had with Ultraviolet (UV) ballast water treatment systems, for which the USCG’s standards differ significantly from IMO type approval standards, in certain respects. All three of the abovementioned systems that have completed the testing process and had their results submitted to the USCG are UV-based. With the advancement of the USCG’s estimated date for the first type approval(s), it appears that the results presented by one or more of these systems may be finding acceptance with the USCG’s evaluation team.

At this stage, we do not believe that the new estimated date for type approval will affect any extension requests to BWTS installation deadlines. However, we encourage all operators of vessels with ballast capacities under 1,500 M3 and over 5,000 M3, that have drydockings scheduled in 2016, to submit extension requests as early as possible. Extensions in this category are currently being granted until January 1st, 2018. Operators of vessels with ballast capacities between 1,500 M3 and 5,000 M3 that already have extensions until January 1st, 2016 can apply for an additional extension, also until January 1st, 2018.

Please direct all comments and/or queries to ecm@ecmmaritime.com.