

NEW YORK COMMENTS TO SAB, January 25-26, 2011

We appreciate this opportunity to address the Committee.

My name is Dr. Raymond Vaughan. I am an Environmental Scientist with the New York State Attorney General's Office, and a member of New York's ballast water management team which is coordinated by the Department of Environmental Conservation.

In our comments to the SAB's third meeting last November, we explained briefly how the uncertainty associated with aggregation can be avoided by testing the entire contents of a relatively small but representative ballast tank. My comments today are on this same topic.

Such a tank, which I'll call a "sample tank," can be used for land-based testing, shipboard testing, or compliance monitoring. The sample tank, shown schematically in red in the diagram below, should be configured as a separate ballast tank. Its volume should be either the volume needed to demonstrate compliance for a Poisson distribution, or some fraction thereof. The sample tank should be "partnered" with one of the main ballast tanks, and should be routinely filled or discharged whenever the main ballast tank is filled or discharged (so that both tanks remain equally full on a percent basis).

On uptake, part of the treated flow going into the "partnered" main tank from the ballast water treatment (BWT) system should be diverted isokinetically into the sample tank. On discharge, ballast water should be discharged from the sample tank into the "partnered" tank whenever the "partnered" tank is being discharged. Both tanks should remain the same percentage full at all times, and any backflow should be avoided. This procedure will keep a representative sample of ballast water within the sample tank at all times.

A sample can be collected for testing by discharging the entire contents of the sample tank through the ballast water treatment system (assuming that ballast discharge normally goes through BWT). By testing the entire contents of the sample tank, any uncertainty introduced by aggregation of organisms within the tank will be eliminated.

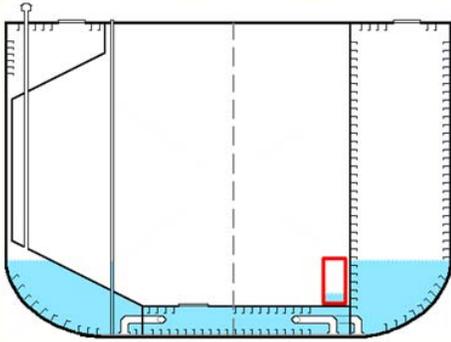
The size of the sample tank – whether it is the full volume needed to demonstrate compliance for a Poisson distribution, or some fraction thereof – will depend on testing constraints. The tank should not be larger than the volume that can be routinely tested in a single test session. As needed, multiple samples can be collected over time until the full Poisson volume has been reached.

This procedure effectively eliminates the statistical uncertainties that would otherwise be introduced by aggregation of organisms within ballast tanks. A rough analogy can be drawn to the composite samplers that are widely used to collect representative samples in land-based applications (e.g., Isco wastewater samplers).

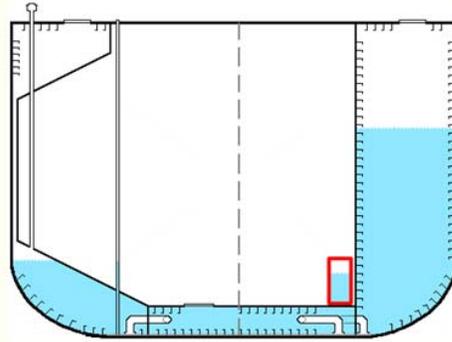
Thank you.

[Diagram: see next page.]

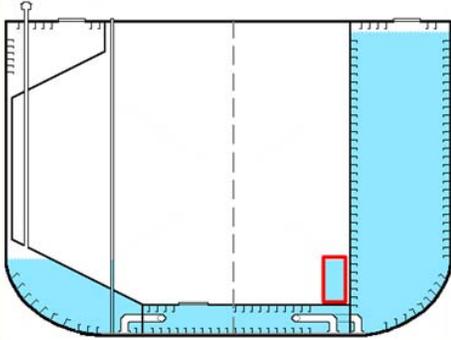
Sample tank & BW tank partly full



Sample tank & BW tank mostly full



Sample tank & BW tank full



Sample tank pumped out through BWT

