

Ship Borne HAB-BART Testing for Potable Waters

Ships have two major internal bacteriologically influenced problems with water that can affect ongoing operations. These problems relate to the potable water supplies for any crews and passengers, and also to the bilge waters that collect between hull and/or keel plates. BART testers can be used to determine the extent and risks that can be associated with the risks that can be generated from too high a level of bacterial activity. To address specifically potable water supply challenges, it is recommended that the general HAB bacteria test be used employing the HAB-BART system. To conduct each of these tests then 15ml of the sampled water needs to be added to tester following recommended procedures. Once set up the testers are left at room temperature and it should be noted that the normal ship motion has been found not to significantly affect the BART testing process. But it is important to secure the tester so that it is not thrown around by this motion.

Reading the HAB-BART testers is very simple. Initially the sample solution is blue at the start of the test after following the recommended set up procedures (see www.dbi.ca for more information).

There are two reactions that normally occur. If the blue disappears from the bottom up (UP reaction) then aerobic bacteria dominate and there is a lot of oxygen in the sampled water. If the blue disappears from the top down (DO reaction) then there is strong likelihood that the bacterial activity could be supporting off-odors, colored water and corrosive forms of activities in the water.

When you see an UP or DO reaction record that time that this was first observed. The difference between the time the test was set up and the first observation was made gives you a means to predict the population from the time lapse. Here it has been found that there is an inverse but direct correlation between the size of the active bacterial population and the length of the time lapse. The longer the time lapse then it may be linked to the smaller the active population of general HAB bacteria. Time lapses are usually measured in days and for potable water supplies the blue color should stay for at least four days (preferably six). If the blue color reacts out in less than two days for a potable water supply then disinfection of the water should be a considered option. Where bilge water is being tested with the HAB-BART it can be expected that larger bacterial populations will be active. The occurrence of a down reaction in the tester could be taken as a warning sign that corrosive processes are under way in the sampled bilge. Generally for bilge waters a time lapse of less than two days may be considered significant particularly with a down (DO) reaction. Refer to the data from the other two BART tester types for clarification of the corrosion risk in the bilges.

Ideally therefore for potable water the ideal would be no detection of general HAB bacteria using the HAB-BART tester. In reality general HAB bacteria get everywhere and a normal loading would still not give a time lapse of less than four days. If the time lapse is shorter (three days or less) then there is a potential risk from nuisance pathogenic bacteria (if there is and UP reaction) and, when there is a DO reaction, there is also a risk of the water becoming undrinkable because it has become too cloudy or smelly.

Droycon Bioconcepts, 315 Dewdney Avenue, Regina, Canada

(306) 585 1762 fax: (306) 585 3000

www.DBI.ca copyright©2008 DBI