MEPC and challenging waters

IMO's MEPC agreed on what ships should do if ballast water is difficult to treat because UV light on their treatment systems cannot penetrate it, or challenges with filters. Andrew Marshall of Ecochlor explains

This spring, the IMO Marine Environment Protection Committee (MEPC) met for its 81st session where important discussions around ballast water management took place.

One of the key topics addressed was the challenges faced by ships operating in areas with dirty or difficult-to-treat water, often referred to as "challenging waters."

While ballast water management systems (BWMS) have proven effective in most situations, some ports present unique challenges due to their water quality. These ports, known as ports with challenging water quality (PCWQ), often have high levels of suspended solids, turbidity, or other factors that can get in the way of the effectiveness of certain BWMS, particularly those relying on UV treatment.

Operators report that BWMS using filtration as part of the treatment process can experience difficulties with repeated clogging of filter units leading to excessively long ballasting operations.

In other cases treatment may be incomplete or ineffective due to turbidity or high organic loads.

For example, UV-based BWMSs work by exposing the water to UV light, which disrupts the DNA or organisms and prevents them from reproducing. However, the presence of suspended solids, dissolved organic matter or other substances in the water can absorb or scatter the UV light, reducing its effectiveness in inactivating organisms.

As a result, ship's operating in these challenging waters using UV based BMWS may struggle to meet the required discharge standards.

During MEPC 81, the Committee continued working on the challenges faced by ships operating in dirty waters and discussed potential solutions. One of the key outcomes was the adoption of the Interim Guidance on the Application of the BWM Convention to Ships Operating in Ports with Challenging Water Quality (Resolution MEPC.387(81). It has taken years of work for all the stakeholders to reach a consensus.

The PCWQ guidance provides procedures for ships to follow when operating in challenging waters and offers guidance to Administrations, port States and BWMS manufacturers on how to support and oversee ships in these situations. One goal of the guidance is to have standardized steps for crew and port States to follow, and reduce administrative burden when a PCWQ presents BWMS operational issues.

Importantly, the PCWQ guidance is built on the principle that bypassing the BWMS should be the last resort in all cases. This approach emphasizes the need for ships to exhaust all available options before considering a bypass, ensuring that the environmental objectives of the BWM Convention are supported. Further, should a bypass be deemed necessary, the guidance includes procedures that are implemented to decontaminate the vessels ballast tanks and piping system to support returning to D-2 compliance.

Or replace it

Ecochlor [my company] recently completed a project on an articulated tug barge (ATB) that required the replacement retrofit of an installed UV BWMS.

The vessel's frequent operations in shallow, muddy water conditions presented significant technical challenges for their existing UV-based system.

We addressed these challenges by installing our EcoOne® hybrid BWMS, utilizing ClO2 treatment, which offers the option of automatically disengaging the filter when not in a PCWQ and reengaging it when the water conditions improve. This feature allows the system to adapt to the ship's trade route, which includes ports with varying water types, without compromising performance.

Our BWMS met these requirements, ensuring that the crew could operate the system effectively without adding unnecessary complexity to their workload. TO