

# Vessel Wash Wastewater Treatment System

## Recommended Best Management Practices

Wastewater generated from washing vessel bottoms can contain various levels of both particulates and dissolved metals (copper, zinc, lead, tin, iron and other metals), organic materials (barnacles, tube worms, bacteria and algae) and salts. Hull/water line cleaners can raise or lower the pH of the wash wastewater. Studies have indicated that the metals commonly found in vessel wash wastewater bind preferentially to fine particles. It should be noted that these

fine particles and bound metals can be difficult to remove from the wastewater through mechanical filtration alone. In addition, when the wastewater is recycled and the unsettled particulate matters remain within the system it can lead to the early breakdown of the pressure washer units. The following are recommended best management practices for wash wastewater removal and system maintenance:

1

**Purge systems at regular intervals** that use only primary treatment units such as mechanical filtration and cyclonic action as the primary method of removing metals. Frequent purging is needed to prevent the build-up of dissolved metals at toxic levels within the recycled wash-water that will occur over time if not addressed. Conduct purging every two to three weeks or according to the number of boats washed, the size of the boats washed, and the amount of wastewater collected. The wastewater may be stored in a large tank or multiple drums for proper disposal as industrial wastewater.

2

**To establish the baseline operation characteristics** of the recycled wash-water, contract with a laboratory for biweekly pH and bacterial analysis. Samples should be collected by laboratory staff. It is recommended that samples be collected toward the end of a wash-cycle at the following locations:

- Directly from the storage tank located on the system during the middle to end of the work week.
- Directly from the water source.

Adjust purging schedule based on the results of water samples.

3

**Contract with a licensed wastewater hauling company** for proper disposal of the wastewater at the end of the season and as needed during the operation period.

4

**Remove or cover all sacrificial anodes** when pressure washing. This will help prevent other contaminants like zinc and lead from entering the wastewater. Wash wastewater with elevated levels of metals may be classified as hazardous waste and incur higher removal costs.

5

**The use of chemicals designed to remove growth** on the hull and water line can adversely affect the pH in your wash wastewater system. If a neutral pH level is not maintained, dissolved metals in the water may increase and create possible health and safety concerns. If your system does not automatically monitor pH, a pH meter can be used and an acid or base added to maintain as near a neutral pH as possible.

