



## Industrial Pretreatment Permitting Guidance for Boat Bottom Pressure Washing

Painting, stripping and pressure washing of boat bottoms with antifouling marine paints are common activities performed by the marine industry. Antifouling marine paints contain toxic metals compounds that are intended to inhibit the growth of marine organisms. These compounds historically included lead and tin, which have been phased out and replaced with copper. If activities involving the application, maintenance and removal of antifouling marine paints are not managed in accordance with sound environmental practices, then these compounds can potentially cause significant environmental problems.

The DEM conducted a review of other State's practices, including the General Permit issued by the State of Maine. Results from studies conducted in surrounding states (Maine, Connecticut, and Massachusetts) on contaminants found in boat bottom washwater and sediments within the wash areas were analyzed.

Pressure washing wastewater includes dirt, algae, barnacles, salts, and paint particles. The paint particles are the source of the heavy metals. About 90% of the heavy metals; copper, lead, tin, zinc and arsenic are solid particle that are not dissolved. Typical untreated pressure washing wastewater samples contain copper levels in the 50 to 190 ppm range. The allowed copper concentrations in Rhode Island waterways is only 0.003 ppm which makes even treated wash water discharges virtually impossible.

Likewise the allowable concentrations to meet groundwater quality criteria also make this option unfeasible.

Therefore, the DEM determined that a treatment and discharge option that would require a permit would be expensive, difficult and not practical for most if not all marinas. As a result, the following three alternatives are recommended in order to achieve the concentrations that meet the standard.

1. Installation of recycling/treatment equipment
2. Collection and shipping wastewater to a treatment facility
3. Permitted discharge to a sewer system

Currently only the Cranston Wastewater Treatment Plant is authorized to accept non-domestic hauled waste without requiring a modification to its Industrial Pretreatment Program (IPP). Therefore marinas choosing option 2, collection and shipping wastewater to a treatment facility would be limited to the Cranston plant. Pre-treatment would be required (See next section). Fourteen other treatment plants in Rhode Island have approved IPP's but would require a modification to accept power washing wastewater. DEM would be available to work with any of these plants to develop an IPP for the acceptance of collected power washing waste water. (Note: some of these plants, such as Warwick, are able to accept non-domestic wastes from within their municipal limits.)

If any of the fifteen treatment plants with approved IPP's were to accept waste via option 3 (direct sewer connection) no IPP modification would be necessary. Permit applications would be required to be completed by the respective marinas and each facility would be responsible to evaluate the permit application.

The fifteen treatment plants with approved Industrial Pretreatment Programs are Cranston, Bristol, East Greenwich, East Providence, Bucklin Point, Fields Point, Newport, RIEDC, Smithfield, South Kingstown, Warren, Warwick, Westerly, West Warwick, and Woonsocket.

### Pre-treatment requirements

- As noted in the tables below, typical values/ranges for Copper, Lead, and Zinc associated with boat bottom pressure washing operations can exceed the allowable Industrial Pretreatment Program limits by factors of 10 to 20, and up to 100 and more in some cases. Therefore pretreatment of the pressure wash discharge would be required to meet the individual facility requirements. For example, trucking waste water to Cranston would require pretreatment of the waste water to the 1.0 ppm limit for copper, 0.30 ppm limit for Lead and the 1.0 ppm limit for Zinc.

Typical Values/Ranges for Pressure Wash Discharge	Copper (ppm)	Lead (ppm)	Zinc (ppm)
	55 to 90	1.7 to 4.0	6 to 22

### Industrial Pretreatment Limits for RI Waster Water Treatment Facilities

Municipality	Copper Limit (ppm)	Lead Limit (ppm)	Zinc Limit (ppm)
Bristol	3.38	0.691	1.05
Cranston	0.57	0.30	0.71
E. Greenwich	0.95	0.22	1.21
E. Providence(DM/MA)	3.38/2.07	0.69/0.43	2.61/1.48
Bucklin Point (DM/MA)	1.2/1.2	0.69/0.29	1.67/1.39
Fields Point (DM/MA)	1.2/1.2	0.6/0.4	2.61/1.48
Newport	1.0	0.1	1.2
RIEDC	2.07	0.27	0.76
Smithfield	0.513	0.159	2.072
South Kingstown (DM/MA)	3.38/2.07	0.44/0.43	0.65/0.65
Warren (DM/MA)	3.38/2.07	0.69/0.43	2.61/1.48
Warwick	0.7	0.15	1.0
Westerly	2.8	0.3	1.8
West Warwick	0.8	0.15	0.6
Woonsocket	3.38	0.69	2.61

DM = Daily Maximum  
MA = Monthly Average

**ABILITY TO AMEND:**

This document is meant as guidance for RI marina operators, based on current regulations and technology. As technology and industry practices change, either party may request a review of this guidance document for further consideration.

**For further assistance please contact:**

- [Beverly Migliore](#): 401-222-4700x 7503, Office of Customer and Technical Assistance
- [Eric Beck](#): 401-222-4700 x 7202, Office of Water Resources

RIDEM

[235 Promenade Street](#)

Providence, RI 02908