

# Appendix C:

## *Shipyard Best Management Practices*

**Compiled by the Washington Department of Ecology**

<b>SURFACE PREPARATION, PAINT REMOVAL, SANDING AREAS</b>
Enclose, cover, or contain blasting and sanding areas to the maximum extent practical to prevent abrasives, dust and paint chips from reaching storm sewers or receiving water
Use shrouded or vacuum-assisted tools that prevent abrasives, dust and paint chips from leaving immediate area being worked on (dustless sanders, vacuum blasting robots)
Use blast media that does not contain pollutants (examples: garnet, steel, ultra-high-pressure water)
Cover drains, trenches, and drainage channels to prevent entry of blasting debris to the system
Prohibit uncontained blasting or sanding activities over open water
Prohibit blasting or sanding activities during windy conditions that render containment ineffective
Inspect and clean sediment traps to ensure the interception and retention of solids before entering the drainage system
Vacuum or sweep accessible areas of the drydock to remove debris and spent sandblasting material before flooding
Improve work area to reduce areas which are hard to clean: alter keel support layout, seal crevices, make surfaces smoother
Segregate water that has come into contact with abrasives and paint chips from water that has not; treat separately
Collect spent abrasives frequently and store in an enclosed, covered area from which it cannot escape or be rained upon
Consider testing paint before removal to establish potential pollutant levels
Establish objective measures of cleanliness that will need to be met before proceeding to next work process

<b>PAINING</b>
Enclose, cover or contain painting activities to the maximum extent practical to prevent overspray from reaching the receiving water
Prohibit uncontained spray painting activities over open water
Prohibit spray painting activities during windy conditions that render containment ineffective
Mix paints and solvents in designated areas away from drains, ditches, piers and surface waters, preferably indoors or under a shed
When painting from floats, paint should be in cans five gallons or smaller, with drip pans and drop cloths underneath
Have absorbent and other cleanup items readily available for immediate cleanup of spills
Allow empty paint cans to dry before disposal
Keep paint and paint thinner away from traffic areas to avoid spills
Recycle paint, paint thinner and solvents
Train employees on proper painting and spraying techniques, and use effective spray equipment that delivers more paint to the target and less overspray
Investigate and use non-pollutant bearing paints (hard epoxies, fluorinated polyurethanes, isothiazolone-containing)

### **PRESSURE WASHING AREAS**

Perform pressure washing only in designated areas where washwater containment can be effectively achieved

Do not use detergents or additives in the pressure washwater

Direct deck drainage to a collection system sump for settling and/or additional treatment

Install diagonal trenches, or berms and sumps to contain and collect washwater at marine railways

Use solid decking, gutters and sumps at lift platforms to contain and collect washwater

Segregate stormwater from process water; consider using stormwater for applications that do not demand high cleanliness

Educate the customer about the environmental consequences of paint choice

### **NON-DRYDOCK ACTIVITIES**

Hang tarpaulin from the boat, and/or from fixed or floating platforms to reduce pollutants transported by wind

Pave or tarp surfaces under marine railways

Clean railways before the incoming tide

Haul vessels beyond the high tide zone before work begins or halt work during high tide

Place plastic sheeting or tarpaulin underneath boats to contain and collect waste and spent materials, and clean and sweep regularly to remove debris

Use appropriate plastic or tarpaulin barriers for containment when work is performed on a vessel in the water to prevent paint overspray from contacting stormwater or the receiving water

Vacuum or sweep rather than hose debris from the dock

<b>DRYDOCK MAINTENANCE</b>
Clean and maintain drydock on a regular basis to minimize the potential for pollutants in the stormwater runoff
Vacuum or sweep accessible areas of the drydock to remove debris and spent sandblasting material before flooding
If hosing must be used as a removal method, treat as pressure washwater
Clean the remaining areas of the dock after a vessel has been removed and the dock raised
Remove and properly dispose of floatable and other low-density waste (wood, plastic, insulations)
<b>DRYDOCK ACTIVITIES</b>
Use plastic barriers beneath the hull, between the hull and drydock walls for containment
Use plastic barriers hung from the flying bridge of the drydock, from the bow or stem of the vessel, or from temporary structures for containment
Weight the bottom edge of the containment tarpaulins or plastic sheeting during a light breeze
Use plywood and/or plastic sheeting to cover open areas between decks when sandblasting
Install tie rings or cleats, cable suspension systems, or scaffolding to make implementation containment easier

## **ENGINE MAINTENANCE AND REPAIRS**

Maintain an organized inventory of materials used in the maintenance shop

Dispose of greasy rags, oil filters, air filters, batteries, spent coolant and degreasers properly

Label and track the recycling of waste material (e.g., used oil, spent solvents, batteries)

Drain oil filters before disposal or recycling

Store cracked batteries in a non-leaking secondary container

Promptly transfer used fluids to the proper container; do not leave full drip pans or other open containers around the shop. Empty and clean drip pans and containers

Do not pour liquid waste down floor drains, sinks, or outdoor storm drain inlets

Plug floor drains that are connected to the storm or sanitary sewer; if necessary, install a sump that is pumped regularly

Inspect the maintenance area regularly for proper implementation of control measures

Train employees on proper waste control and disposal procedures

## **SHIPBOARD WATER HANDLING**

Keep cooling water used aboard ships separate from sanitary wastes to minimize disposal costs for the sanitary wastes

Keep cooling water from contact with spent abrasives and paint to avoid pollution of the receiving water

Inspect connecting hoses for leaks

Discharge sanitary wastes from the ship being repaired to the yard's sanitary system or dispose of by a commercial waste disposal company

## MATERIALS HANDLING

Store permanent tanks in a paved area surrounded by a dike system that provides sufficient containment for the larger of either 10 percent of the volume of all containers or 110 percent of the volume of the largest tank

Maintain good integrity of all storage tanks

Inspect storage tanks to detect potential leaks and perform preventive maintenance

Inspect piping systems (pipes, pumps, flanges, couplings, hoses, valves) for failures or leaks

Train employees on proper filling and transfer procedures

Store containerized materials (fuels, paints, solvents) in a protected, secure location and away from drains

Store reactive, ignitable, or flammable liquids in compliance with the local fire code

Identify potentially hazardous materials, characteristics and use

Control excessive purchasing, storage and handling of potentially hazardous materials

Keep records to identify quantity, receipt date, service life, users, and disposal routes

Secure and carefully monitor hazardous materials to prevent theft, vandalism and misuse of materials

Train employees on proper storage, use, cleanup and disposal of materials

Provide sufficient containment for outdoor storage areas for the larger of either 10 percent of the volume of all containers or 110 percent of the volume of the largest tank

Use temporary containment where required by portable drip pans

Use spill troughs for drums with taps

Mix paints and solvents in designated areas away from drains, ditches, piers and surface waters

### **IF SPILLS OCCUR ...**

- Stop the source of the spill immediately
- Contain the liquid until cleanup is complete
- Deploy oil containment booms if the spill may reach the water
- Cover the spill with absorbent material
- Keep the area well ventilated
- Dispose of cleanup materials properly
- Do not use emulsifier or dispersant

### **TRAINING**

Establish training programs for practices that prevent stormwater pollution

Include stormwater pollution prevention training in new employee orientations

Establish incentive programs of material rewards to encourage stormwater pollution prevention ideas and implementation. Provide prompt feedback

Recognize successful practices and publicize them internally (newsletters, posters, plaques) and externally (speaking engagements, press releases to industry journals and local media)

Appoint a specific stormwater pollution prevention coordinator and task force to develop and implement a stormwater pollution prevention program. Keep records

Conduct an annual program evaluation at the corporate level

Establish quantifiable goals. Chart progress by individual, by unit and overall

Incorporate stormwater pollution prevention accomplishments into annual job performance evaluations