Oregon Department of Environmental Quality

# Best Management Practices for Oregon Shipyards

State of Oregon
Department of
Environmental
Quality

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**Alternative formats**

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# Overview

The ship/boat building and repair industry present a unique problem in terms of applying pollution control techniques. Although a given facility may not compare exactly with another facility in terms of repair capabilities, type and size of docks, size of vessels, and so on, there are enough similarities between facilities to describe control techniques that can be adapted to suit a specific site and Standard Industrial Classification (SIC).

There are several different functions that occur at ship and boat repair and manufacturing facilities. Some facilities employ a few people, while others employ many people, including various subcontractors, electricians, labors, machinists, welders, painters, sandblasters, riggers, pipe fitters and a number of administrative and managerial staff.

Each of these facilities and associated shipyard services creates their own unique set of potential environmental problems. A tremendous amount of spent blast abrasive dust, old paint and used grit is generated daily. Millions of gallons of vessel discharges are piped, collected, tested, treated, recycled, transported or discharged. Air pollution, noise pollution, accumulations of solid and hazardous waste and point and non-point pollution can occur simultaneously with the variety of operations that occur at these facilities. There are hundreds of smaller shipyards and marinas which service small commercial and private boats, in addition to very large shipyards that service everything from small vessels and marine equipment to super tankers.

# What Are Best Management Practices (BMPs)?

Best Management Practices are activities, including passive treatments that prevent or reduce the discharge of pollutants to water, air or soil.

# Why Use BMPs?

These Boatyard BMPs will help comply with several kinds of environmental laws. Several state and federal laws govern or prohibit the discharge of pollutants. Planning, placement of facilities, and scheduling of activities are very important for minimizing costs of BMPs. Proper planning and scheduling may allow you to avoid problems rather than having to fix them later. Violations can result in penalties and fines; flagrant and willful violations can send you to jail.

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# Quick Review of Federal and State Regulations

***Note:*** For copies of Oregon statutes and rule, see DEQ's hazardous waste rules webpage. For information on federal regulations, visit EPA's web page at http://www.epa.gov.

### *Water Quality*

State and federal clean water laws regulate what can and cannot be discharged into waters of the state and to sewage treatment plants. This includes storm water runoff and sewage. Oregon DEQ water quality statutes and rules may be found in Oregon Revised Statute (ORS) 468B and Oregon Administrative Rule (OAR) 340, Divisions 40 to 73.

### *Hazardous Waste*

State and federal hazardous waste laws and regulations oversee the management and disposal of hazardous waste. They overlap clean water laws and provide additional protection of the environment. Oregon DEQ hazardous waste and rules may be found in ORS 465, 466. 468, and 468A, and OAR 340, Divisions 100 to 135.

### *Air Quality*

State and federal air emission laws protect air quality by regulating emissions from specific processes and fugitive emissions. Oregon DEQ air quality statutes and rules may be found in ORS 468A and OAR 340, Divisions 200 to 264.

### *Solid Waste*

State solid waste laws regulate storage, recycling and disposal of solid waste. They also set standards for fill material. Oregon solid waste statutes and rules may be found in ORS 459 and 459A and OAR 125, Divisions 30 and 85, and OAR 340, Divisions 20 to 97.

### *Worker Safety Laws*

State and federal worker safety laws are designed to protect human health. As such they do not directly affect how discharges to the environment are controlled, however, they do indirectly have an impact by regulating worker exposure to dangerous chemicals and materials. Using the best management practices outlined in this document will help to increase worker awareness of such hazards. For more information on the Oregon Occupational Safety and Health Division (OR-OSHA), call 1-800-922-2689 or visit their web page at http://www.orosha.org/.

# Definitions

**Antifouling Bottom Paints** - paint that contains pesticide or biocide to discourage the growth of marine organisms.

**Ballast Water** - water placed in the hold of a boat or ship utilized to maintain stability.

**Bilge Water** - means water from a boat's bilge spaces, whether single or double hulled.

**BMPs** - Best Management Practices.

**Boatyard** - a facility that builds or repairs boats or ships less than 65 feet in length.

**$BOD_5$** - five-day biochemical oxygen demand.

**Bottom Wash Water** - water that has been used to pressure wash, brush clean, or chemically clean boat and ship hulls.

**COD** - chemical oxygen demand.

**Department** - the Department of Environmental Quality.

**Floating Drydock** - a dock that consist of a platform bottom and vertical sides (wing walls) that is raised with ballast tanks to work on ships above the water level.

**Fugitive Emissions** - dust, fumes, gases, mist, odorous matter, vapors or any combination thereof that are not easily given to measurement, collection, and treatment by conventional pollution control methods.

**Grab Sample** - a single sample or measurement taken at a specific time or over a short period of time as is feasible.

**Graving Dock** - a dock that is generally constructed with concrete sides and bottom and with a gate at the end of the dock next to the water surface.

**Hydroblasting** - the use of pressurized water to remove paint or oxidized metal.

**Industrial Waste** - any liquid, gaseous, radioactive, or solid waste substance or a combination thereof resulting from any process of industry, manufacturing, trade, or business, or from the development or recovery of any natural resources.

**Marine Lift** - a structure located usually over a wet slip which has large harnesses (which can be raised or lowered) attached to an overhead beam on a pulley. Lifts can be electric, hydraulic or pneumatic in operation.

**Marine Railway** - a platform that holds keel blocks which is positioned on a railway that is located next to the shoreline and extends into the water.

**Maximum Daily Discharge Limitation** - the highest allowable "daily discharge."

**MGD** - million gallons per day.

**NPDES** - National Pollutant Discharge Elimination System permit.

**Pressure Washing** - the use of a water pressure washer to remove dirt or biological growth from a vessels hull. "Pressure washing" includes the practice of hand scrubbing and rinsing with low-pressure water from a hose.

**Ringleman Smoke Chart** - the Ringelmann Smoke Chart with instructions for use as published in May, 1967, by the U.S. Department of Interior, Bureau of Mines.

**Sewage** - the water-carried human or animal wastes from residences, buildings, industrial establishments, or other places together with any groundwater infiltration and surface water as may be present. Gray water such as bath water, kitchen wastewater and laundry wastes are sewage.

**Shipyard** - a facility that builds or repairs boats or ships larger than 65 feet in length.

**Storm Water** - storm water runoff, snowmelt runoff, surface runoff, road wash waters related to road cleaning or maintenance, infiltration (other than infiltration contaminated by seepage from sanitary sewers or other discharges) and drainage.

**Solid Waste** - all useless or discarded putrescible and nonputrescible materials, including but not limited to garbage, rubbish, refuse, ashes, paper, and cardboard, sewage sludge, septic tank and cesspool pumpings or other sludge, useless or discarded commercial, industrial, demolition and construction materials, discarded or abandoned vehicles or part thereof, manure, vegetable or animal solid and semisolid materials, dead animals and infectious waste as defined in ORS 459.382. "Solid Waste" does not include:

a) Hazardous wastes as defined in ORS 466.005;
b) Materials used for fertilized or for other productive purposes or which are salvageable as such materials are used on land in agricultural operations and the growing or harvesting of crops and the raising of fowls or animals;

**TBT** - Tributyltin.

**TSS** - total suspended solids

**Turbidity** - the optical property that causes light to be scattered and absorbed rather than transmitted in straight line through a water sample. Turbidity in water is caused by

suspended matter, such as clay, silt, finely divided organic and inorganic matter, soluble colored organic compounds, and plankton and other microscopic organisms.

**Waste** - sewage, industrial wastes, and all other liquid, gaseous, solid, radioactive, or other substances which will or may cause pollution or tend to cause pollution of any water of the state.

**Waters Of The State** - lakes, bays, ponds, impounding reservoirs, within the territorial limits of the State of Oregon, and all other bodies of surface or springs, wells, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Pacific Ocean underground waters, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters which do not combine or effect a junction with natural surface or underground waters), which are wholly or partially within or bordering the state or within its jurisdiction.

# Introduction to Best Management Practices

This section contains different Best Management Practices (BMPs) to be used for control and collection of pollutants in boatyards. The BMPs have been numbered and grouped into categories for ease in referencing. These categories include:

- **Vessel Discharges**
- **Facilities**
- **Blasting and Painting Operations**
- **Yard Operation and Maintenance**
- **Administrative**

Each BMP data sheet provides a general discussion on the need for the BMP; a description of the BMP; a general discussion about how the BMP functions and why; associated criteria related to proper BMP functioning; and a brief discussion on related concerns which could affect the BMP operation. At times, implementation of certain BMPs may need to be reviewed due to updated information and specific sites on-site considerations. However, the primary intent of each BMP should always be maintained under every given condition.

Many of the BMPs listed are intended to function in conjunction with other BMPs. For example, using a lighter underneath an overhanging railway vessel to catch falling sandblast abrasive will be largely ineffective without also using shrouds to confine the abrasive materials. Each facility should review each Best Management Practice thoroughly to obtain a complete understanding of how and why they are implemented.

# 1.0 Vessel Discharges

## BMP 1.1 Sanitary Waste Disposal

### *General*

Most ocean-going vessels currently have or are being retrofitted for on-board collection, holding and transfer (CHT) or vacuum collection, holding and transfer (VCHT) systems. Sanitary wastewater is pumped (VCHT system) or flows by gravity (CHT) system through an internal ship piping network and is collected in storage tanks. Other shipboard systems include vacuum/incineration or aerobic treatment marine sanitation devices (MSDs). These systems are used to prevent the discharge of sanitary wastewater while the vessel is within navigable waters of the United States. Sewage is defined in Oregon as both black and gray water (bath water, kitchen wastewater and laundry wastes).

### *BMP Objective*

When a vessel is placed into a wet slip, dry dock or on a marine railway for repair, discharge of sanitary wastewater (black and gray) to waters of the state is prohibited. Some means of transferring the wastewater to a land-based sewerage system or septage hauler must be available. The ship's sanitary wastewater holding tanks are to be connected to a land-based system and pumped out as necessary.

### *BMP*

Connect the vessel's CHT, VCHT or similar system to an approved land-based sewerage system lateral or mainline for subsequent pumpout and disposal. Approval /permit should be obtained from the system owner prior to connection. If a shore-based sanitary hookup is not available, either the vessel's sewage system should be completely shut-off or a licensed septage hauler should be contacted to off-load the sewage waste and discharged and transported to a permitted disposal site or a sewage treatment facility.

The CHT or VCHT system should be properly cleaned and stored when not in use. Tank cleaning effluent must be discharged to a land based sanitary system or off-loaded by a licensed septage hauler. To reduce the number of waste discharge ports, an arrangement with the vessel's captain should be established to restrict or lock out unmanned and unused piping networks or fixtures.

## BMP 1.2 Bilge and Contaminated Ballast Water

### *General*

Vessels that are dry docked for repairs are generally carrying bilge and contaminated ballast water that must be disposed of properly. Ballast water is typically seawater that has been pumped into the vessel's ballast tanks to provide necessary stability. In most cases, the ballast water will have been discharged of overboard prior to the vessel entering US waters, or possibly just prior to entering the dry dock.

### *BMP Objective*

In order to (1) prevent contact with potential pollutants (i.e., sediment, blast abrasives, paint chips, trash, etc.) which may be present on the dry dock floor or marine railway underpaving, (2) prevent the discharge of potentially oily bilge and ballast water to surface waters, and (3) in order to provide necessary treatment for the bilge and ballast waters which can be contaminated with oily pollutants and toxics, the discharge ports for these wastewaters must be connected and pumped into some type of collection/treatment system. Also, to prevent the introduction to waters of the state of foreign exotic plant, aquatic insects, and animal species.

### *BMP*

Bilge and contaminated ballast water discharge ports must be connected to a land based sewerage system, land based collection and treatment system, or an approved temporary holding tank or vessel. All bilge and contaminated ballast water must be treated to remove the potential pollutants that may be present. Use of alternative treatment technology is encouraged (i.e., coagulation, emulsion breaking and flotation type treatments). Upon approval of the local municipality, bilge and ballast water may be discharged into the sanitary sewer system following pre-treatment. All pumping, valves, metering and coupling equipment must be watertight. Leaks must be immediately repaired when discovered.

# 2.0 Facilities

## BMP 2.1 Oil Storage and Containment

### *General*

Large quantities of oil and oily water are collected, pumped, transported in tanks and contained on a daily basis at boatyards and shipyards. Bilge water and tank cleaning water are the primary sources of oily contaminants on board a vessel. Oil and water separators are generally used to treat bilge water. Recovered oil is stored in either below or above ground in storage tanks. Depending on the storage capacity, a Spill Prevention Control and Countermeasure Plan (SPCC Plan), 40 CFR, Part 112, may be required. In most cases, the recovered oil is burned on-site in boilers or is transported to an oil recycling facility, where oil will be recycled into a usable product.

### *BMP Objective*

Since oil containment and transportation is a daily task at boat and shipyards, the possibility of an oil spill is ever present. It is imperative that containment berms around oil storage tanks and containers are designed to adequately contain the stored volume should an accident occur.

### *BMP*

Sufficient on-site storage must be available to contain the volumes of oil collected on a daily basis. Containment berms and an impervious surface must be in place around storage tanks. The lining within the bermed area must be impervious or low pervious material (synthetic liners, bentonite liner or high clay soils). The direct discharge of rainwater trapped inside an oil storage containment berm should not occur. Such water must be pumped or transported to an oil/water separator or pumped to a waste oil containment tank for storage and eventual treatment. If the storage tanks are below ground, records must be kept indicating the results of the tank tests.

Containment booms should be placed around moored or stationary vessels, stationary barges, or lighters. Placement of booms should be to maximize containment of spills. Periodic adjustment is usually necessary to ensure proper placement.

## BMP 2.2 Fueling Stations

### *General*

Fueling may occur at warehouses or businesses that maintain fleets of vehicles, or at port facilities over or near water. Fuels contain organic compounds and metals that adversely affect aquatic life.

### *BMP Objective*

The objective is to:

1) Prevent the discharge of gasoline or diesel fuel to surface waters;
2) Prevent the discharge of contaminated storm water runoff from fueling places; and

3) Ensure adequate cleanup by storing and maintaining adequate cleanup equipment and knowledgeable employees.

### *BMP*

1) Cover the fueling island to prevent contact with storm water runoff. Fuel nozzles should be automatic back pressure shutoff and should not have a holding clip to keep nozzle open.

2) Install curbing or grade the area around the fueling island to prevent storm water from flowing onto the area and becoming contaminated.

3) Pave the fuel island with Portland cement concrete, not asphalt, since gasoline will react with the asphalt and slowly dissolve it. Paving should be sloped to one side with a drain installed at the bottom of the slope to trap all spills. The drain needs to be connected to a lined sump or oil/water separator that will prevent spillage or leakage to surface waters or groundwater. The drain also needs a control valve, such as a locked drainage valve or plug, to prevent the release of large spills.

4) Do not clean the fueling island with water and detergents. Clean the island with dry methods like spot cleaning with adsorbents or mechanical sweepers. Use a damp cloth for the pumps and a damp mop on the paved area.

5) Retain suitable cleanup materials on site for prompt cleaning of all spills. Sorbant materials like spill pads, spill booms, or kitty liter will be effective in containing small spills. **Do not wash any spill into storm drains.** Dispose of the absorbent materials appropriately.

6) Post signs to educate employees. Personnel responsible for fueling vehicles should avoid overtopping of tanks.

7) Maintain an Emergency Spill Response and Cleanup Plan. See BMP 21.0, Spill Prevention Control. Also, see BMP 3.0 Oil storage and containment.

## BMP 2.3 Graving Dock Cleanup

### *General*

Major vessel repair, overhaul and construction may be conducted in graving docks. A vessel will be brought into a graving dock while the dock is flooded and positioned onto large support blocks. The dock end will be sealed with a caisson and the graving dock will be emptied of all water. The vessel is left standing freely on the support blocks and is then ready for cleaning and overhaul work.

The graving dock may be 70 feet deep, 1000 feet long and 200 feet wide. Docks can have various designs of floor channels used to collect wash and runoff water. The channels direct these flows to a sump pump or discharge station that discharges in State waters at a permitted discharge point. The channels may contain various configurations of sediment traps, though this is not usually the case.

Vessel maintenance and overhaul work generates numerous sources of pollutants. These pollutants include blast abrasives, paint, paper trash, discarded construction materials, sediment, marine growth, oil, solvents, and plastics. Tank and compartment cleaning within the vessel interior may also generate discharges of cleaning water. Bilge water, ballast water, non-contact cooling water, black and gray waste water (sanitary wastewater) must also be managed appropriately. Since these pollutants fall upon the dock floor, the possibility increases that pollutants will be discharged with wash water, accidental discharges, or stormwater that is collected in the dry-dock discharge sumps. Various BMPs (i.e., directional hose discharges, dock floor drain covers and sediment traps) are implemented to reduce the possibility of this happening.

### *BMP Objective*

The objective is to maintain a daily cleaning schedule of the graving dock floor to reduce the potential for pollutants to enter the drainage system via storm water runoff or by accidental ship discharge. Discharges from the docked vessel must not come into contact with the dock floor. Any non-contact cooling water may be piped, through flexible hosing, to an approved discharge point. The use of channel covers can prevent most graving dock particulate pollutants from entering the channels or dock sumps.

### *BMP*

Cleanup of the graving dock floor to remove trash, blast abrasive, oil and other potential pollutants should occur on a regular basis. Boatyard personnel should maintain records of each cleaning occurrence. The materials or fluids must be disposed of in the appropriate disposal bins or containment tanks.

After a vessel has been docked in a graving dock, all dock floor drains should be completely covered with tight fitting plywood, heavy tarpaulin or other similar device.

The floor channels and sediment traps should be checked weekly and cleaned of all blast abrasive and refuse. Water should not be used to wash grit or other materials into the channels.

Before the graving dock is flooded, cleanup of the dock floor **must** be completed. Hosing of the dock floor with water is not an acceptable cleanup technique and should not be performed. Floor cleanup can be accomplished with the use of the following equipment:

- Front end loaders
- Tractor sweepers
- Mechanical blowers
- Mobile sweepers
- Mobile vacuums
- Hand brooms
- Stationary vacuums

If an area is inaccessible to a front end loader or mechanical sweeper, vacuums, shovels or brooms should be used to complete the cleanup of blast abrasives and other solid pollutants.

Discharges from the docked vessel should not contact the dock floor. Any non-contact cooling water may be piped, through flexible hosing, to an acceptable discharge point. Hydrostatic leaks and gate leakage must be collected and diverted to dock channel drains. This water should not contact contaminants present on the graving dock floor.

## BMP 2.4 Floating Dry Dock Cleanup

### *General*

Vessel repair, overhaul and construction is conducted on floating dry docks. The floating dry dock has ballast tanks in the wing walls and/ or flooring which are filled with water to sink the dock. With the dock submerged, a vessel can be brought in and positioned on support blocks. The ballast tanks are then emptied and the dock rises, bringing the vessel out of the water. With the dock floating, traffic and personnel are able to enter and exit the dock floor and repair work can proceed.

As with graving docks, the vessel maintenance and overhaul work generates numerous sources of pollutants. These pollutants include blast abrasive, paper trash, discarded construction materials, sediment, oil, solvents, and plastics. Tank and compartment cleaning within the vessel interior may also generate discharges of cleaning water. Bilge water, ballast water, non-contact cooling water, gray and black water (sanitary wastewater), must be managed appropriately. Since these pollutants fall upon the dock floor, there is a great potential for accidental discharge of these materials through the dock sally ports and over the end sections of the floating dock.

### *BMP Objective*

Discharges from the docked vessel should not come into contact with the dry dock floor. Any non-contact cooling water may be piped through flexible hosing to an acceptable discharge point. Cleaning of the dock floor must be performed on a regular basis. All materials should be vacuumed or swept up and disposed of accordingly. Hose testing water is allowed to contact the dock floor, however, prior cleanup of the dock floor should have occurred. With compliance with other BMPs, the dock floor will generally be dry, thus permitting efficient removal of the abrasive grit. Various types of cleanup equipment are available to aid in this process.

### *BMP*

Cleanup of the dry dock floor to remove all trash, blast abrasives, oil, and other potential pollutants should occur at a frequency sufficient to prevent pollutants from reaching surface waters. The materials or fluids must be disposed of in an appropriate disposal bins or containment tanks.

Before the floating dry dock is lowered, cleanup of the dock floor should be completed. Washing of the dock floor with water is not an adequate cleanup technique and should not be performed. Boatyard personnel should maintain records of each dry dock cleaning. If an area is inaccessible to a front end loader or mechanical sweeper, work crews should use portable blowers, vacuums, shovels or brooms to complete the cleanup of blast abrasives and other solid

pollutants. Prior to lowering the dry dock, straw bales, filters and absorbent materials must be removed from the dock floor.

## BMP 2.5 Port Screening and Filtering

### *General*

Floating dry dock sally ports are openings in the dock wing walls through which service lines are routed into the dock area and water passes when raising or lowering the dock. These opening also allow the discharge of water and pollutants that fall upon the dock floor. Abrasive blasting, spray painting, water blasting, welding and numerous other repair and repair related operations generate pollutants with the potential of exiting the dock sally ports and entering state waters.

### *BMP Objective*

The objective is to prevent particulate matter from leaving the floating dock area through the sally ports at any time thus enhancing the removal of various pollutants. Storm water runoff and accidental water flow generated within the dry dock can discharge through the screening/filter structure and then through the sally ports, minus most particulate pollutants.

### *BMP*

The screen size should be adequate in size to prevent the potential movement through the sally ports of approximately 80% of the spent abrasive blast material. In some instances, the screens can be welded in place, flush with the wing walls of the dry dock. Otherwise, various shaped molding or hinges can be used to hold the screen in place. The screen and molding can be designed to allow service hoses or piping to pass through the sally port and not interfere with the primary purpose of the BMP. The screen need not cover the entire sally port opening, but the sally port should be covered to the degree necessary to filter any potential runoff of particulates. Absorbent boom material can be used to collect any oily materials and placed ahead or behind the screen. Prior to sinking the floating dry dock, the absorbent materials and trapped refuse must be cleaned up and disposed of properly.

## BMP 2.6 Marine Railway

### *General*

Marine railways provide the same function as do graving docks and floating dry docks. They allow vessels to be raised above the water surface so that repairs or overhaul can be performed. In general, the vessel is loaded onto a submerged railway much like a boat is placed on a trailer at a boat ramp. As the vessel rests on the railway blocks, the railway is mechanically pulled ashore, which raises the vessel above the water surface. Typically, the vessel is brought as far inland as the railway will allow. Sometimes, the entire vessel will rest above the high tide mark, while longer vessels may overhang the bank and water surface. This operation presents a pollution source problem since any vessel cleaning, painting, abrasive blasting, or discharges, have a direct or near direct access to the water surface.

### *BMP Objective*

The marine railway surface will catch pollutants (i.e., abrasive grit, spray paint, sediment, trash, marine growth) as they fall from the vessel while maintenance is in progress. The smooth surface will allow timely, efficient and easy cleanup of these potential pollutants. Cleanup between the railway structure and underneath the vessel is also enhanced.

In practice, no discharge from the railway vessel is allowed to come into contact with the underlying surface or railway support flooring. Any non-contact cooling water may be piped through flexible hosing to a discharge point. All materials should be vacuumed or swept up and disposed of in appropriately marked disposal bins. Hose testing water is allowed to contact the underpaving and the railway support floor; however, prior cleanup must have occurred.

### *BMP*

Pollutants that fall onto the railway surfacing must be cleaned up and properly disposed of on a frequent basis. Cleanup of the surface must commence should rainfall be imminent. Hosing of the railway underpaving is not an acceptable cleanup technique and should not be performed unless a collection treatment system is employed.

Marine railway facilities should have an impervious, smooth surface underlying and surrounding the railway structure to the greatest extent possible. This surface may be in the form of concrete or asphalt pavement. Instead of paving the area around the railway, a system of temporary tarps placed in a manner to trap trash and pollutant materials removed from the vessel may be employed but should not extend into the water. Design and construction of the marine railway undersurfaces must follow generally accepted and approved engineering practices.

Before the marine railway is lowered, cleanup of the railway support flooring should be completed. Hose spraying of water should not be used to clean off the underlying railway surface unless a collection and sediment treatment system is utilized. Boatyard personnel should maintain records of each railway cleaning. With compliance with other BMPs, the railway floor will be generally dry and the blast abrasive easier to clean up. Various types of mechanical vacuum equipment are available to aid in this process.

# 3.0 Blasting and Painting Operations

## BMP 3.1 Shrouding

### *General*

Vessel maintenance generally involves some amount of abrasive blasting with nickel slag (Green Diamond), copper slag , iron slag, iron shot or other materials, followed by painting. These operations may be carried out on the ship's interior tanks and compartments or on the exterior hull and upper decks. The use of blast abrasive or paint represents a potential pollutant source which may be lost to the water surface or off the property during the repair work.

### *BMP Objective*

The use of shrouds will reduce or prevent the loss of abrasive blast grit to the water surface or surrounding property. The shroud will also reduce the scattering effects of wind and localize the area of cleanup. To be effective, the shrouding must be properly designed, constructed, positioned and erected.

### *BMP*

While performing abrasive blasting or painting operations in floating dry docks, wet slips and marine railways, or other areas where blast material may reach State waters or leave the property, shroud material should be erected to prevent the loss or scattering of these potential pollutants. Shroud material should be used in graving dock areas as well, particularly extending from the ship sides to the top of the graving dock walls. In addition, shrouding should be incorporated with all blasting or painting performed on super structures. Support structures should be used in conjunction with the shroud. To be effective, the shrouding must be properly designed, constructed , positioned and erected.

**Floating Dry-docks:** It is recommended that lightweight polyethylene shroud be used for vertical hanging. Small sections of this material can be tied together to form large shrouds for hanging at the aft and bow sections of the dock. The shroud may have screened flaps or openings to lessen wind stresses. The material can also be manufactured with grommets and securing (spring type) hooks which are used to hang the shroud. Typically, the shroud can be fastened to cables connected to the dock wing walls or cables which are strung from the top of one wing wall to the other wing wall. Ropes or cables can be fastened to grommets on the center of the shrouds to enhance vertical hanging stability. The material can also be used to shroud the larger sally ports of some docks. For work on upper sides of vessels, the shroud fastened from the ship decks to the dock wing walls. The bottom of the shroud should hang sufficiently upon the dock floor to allow it to be weighted down or fastened. Periodically, scattered abrasive will be blown and trapped under the shroud. This should be swept up daily to prevent it from escaping into the water. Shrouding, combined with the other BMP techniques, will provide an effective method for controlling blast abrasive and paint overspray on floating dry docks.

**Graving Docks:** The primary concern at these facilities involves using shrouds to prevent blast abrasives and paint overspray from exiting the top of the dock. Shrouds should therefore be

erected between the vessel deck to the dock walls. Vessel deck abrasive blasting and painting tasks should be shrouded in a dome-like fashion to prevent the scatter and loss of pollutants.

**Marine Railways:** Marine railways present a different problem concerning the control of spent abrasive blast material. These are areas essentially uncontained and open to the effects of the wind. Two methods are suggested to control abrasive scatter at railways. The first technique involves erecting poles or masts at each end of the railway in a semicircular fashion. The poles can hold rolled-up shrouds that are lowered when needed. Shroud is also hung vertically from the railway wing wall scaffold to prevent abrasive loss on the railway sides. The top is protected by stringing shroud from the vessel deck to the side wall scaffolds. Some railways may not have side wall scaffolds. It is then necessary to erect masts which encircle the entire railway work area.

Another acceptable technique involves segregating the water surface from the railway work area. Masts are erected along the shoreline which holds the shrouds. The vessel is raised and the shrouds are strung to form a barrier between the water surface and the work area. A portable scaffold is then placed around the immediate work area of the vessel. The worker is required to work within the shroud material, which should be moved as the worker moves along the length of the vessel. Abrasive material that escapes the shrouding scaffold will be further confined to the work area by the shoreline shrouding. Timely cleanup and railway underpaving play an important and equal role in ensuring that the pollutants will not enter State waters. A light may be required in conjunction with shrouding for ships that overhang a marine railway, or on the pier side of a vessel in a wet slip.

**Wet Slips:** Wet slips are the most difficult locations to attempt control of abrasive material scatter and paint overspray. Such work in this area will most likely result in the loss of pollutants to the water surface. To properly conduct blasting and painting operations at wet slips, it will be necessary to use the pier, scaffolding, lighters, and the vessel to erect shrouds. Only small sections of a vessel should be generally be worked on at a time. Protecting surface waters from set slip blasting and painting is a time consuming and difficult task which must conform to the varying size and shape of each vessel. This task can be made more efficient by erecting masts along the pier and by using magnets against the vessel hull to hold the shroud in place. The use of magnets may not be acceptable if sensitive electronic equipment is on board the vessel. The lighters and the pier should be cleaned up at the end of each work shift.

## BMP 3.2 Over Water Protection

### *General*

General work and repairs are continually being performed around or adjacent to wet slip piers, floating dry docks, marine railways and the exterior and interior sides and the upper decks of ships and boats. Much of this work generates trash and pollutants of various forms which potentially may fall onto the water surface below. The use and proper positioning of lighters (pontoons, small floating decks or barges, etc.) can enhance the ability to retrieve pollutants prior to escape to surface waters.

### *BMP Objective*

The primary objective is to catch the waste pollutant material prior to being lost to the water surface where cleanup becomes more difficult. The lighters need not necessarily be used primarily for worker or machinery support but rather to catch discarded materials and pollutants.

Lighters also provide a surface for performing work related operations. The lighter should carry a drip pan in which all fluids (paints, solvents, oils, etc.) are contained. A drop cloth should be placed under the drip pan to catch fluid "slosh" over the pan rim due to wave action or transport. Following use of the drip pan, it must be removed from the lighter and cleaned. The waste fluids should be placed in proper storage containers for subsequent disposal.

For abrasive blasting and painting operations, lighters are to be used in conjunction with shrouding. Booms and/or absorbent devices are to be placed around the lighter to contain contaminants which may reach the water surface.

### *BMP*

Provide and position a lighter adjacent to ships, boats, floating dry docks, piers and marine railways. These work platforms provide a catch surface for task, paint spray, grit, paint slop, oil slop, etc. Cleanup of the lighter should occur daily; and, if possible, after each work shift. Cleanup procedures include sweeping or vacuuming spent abrasive and trash and placing the debris into designated disposal containers.

Lighters should be used to protect the water surface underneath and adjacent to vessels in wet slips and vessels which overhang marine railways and floating dry docks. The lighter must be large enough to support the workmen and the required equipment. A tarpaulin or other protective coverings should be employed if the spacing between the flooring boards is great enough to allow pollutants to fall through. The mixing of paints, solvents or other hazardous materials should not be permitted on the lighter. This should be previously performed at a designated mixing area.

## BMP 3.3 Water Cleaning

### *General*

Prior to performing boat maintenance, the exterior vessel hull may be cleaned of attached sediment and marine growth. Low pressure water spray is used to clean vessel hulls when only the surface layer of sediment and marine growth is to be removed. This technique can generate large volumes of wash water with the potential for transporting solid particulates in the form of runoff. The runoff is usually discharged through floating dry dock sally ports or graving dock floor channels.

### *BMP Objective*

Water spray techniques used to clean vessel hulls produce a scattered water pattern which can be difficult to control or immediately contain. Since water cleaning (by spray) is used to remove only attached sediment and marine growth, this runoff is allowed to discharge from dry docks or

marine railways. The runoff, however, should be filtered through straw bales or a similar filter material to reduce the discharge particulates. The particulate matter should be cleaned up during the daily dry-dock or marine railway cleaning.

### *BMP*

Wash water runoff should be channeled through filter fences before discharging to State waters. Straw bales or other filter media may be used to filter the wash water runoff. The bales should be arranged to filter all runoff from the water cleaning operation. The bales must be replaced as necessary to provide appropriate treatment.

Filter material may be woven or non-woven burlap, nylon, polyester, polypropylene or other fabrics currently available.

The filter material must be periodically removed and replaced to maintain effectiveness. Water may periodically pool in the area of the filter fence due to sediment, grit, or other particulates becoming trapped. When this occurs, the obstructing material should be cleaned up and disposed of in a designated waste bin.

Prior to lowering a floating dry dock or flooding a graving dock, all filter material must be removed.

## BMP 3.4 Water Blasting, Hydroblasting, Water-Cone Blasting and Slurry Blasting

### *General*

Water blasting, hydroblasting, water-cone blasting and slurry blasting is performed to either clean sediment and marine growth from the vessel hull or to remove the top layers of hull paint. These techniques will generate large volumes of water with the potential of transporting existing pollutants to surface waters.

### *BMP Objective*

Water blasting techniques produce a scattered water pattern which is difficult to control or immediately contain. Unless prior cleanup of the dock or marine railway has been conducted, it is difficult to prevent water blast from contacting pollutants.

### *BMP*

Water blasting, hydroblasting, slurry blasting and/or water cone blasting should not be conducted unless prior cleanup of the dry dock or marine railway floor lids is completed. Runoff generated from water blasting, hydroblasting, slurry blasting and/or water-cone blasting should not be allowed to discharge directly into surface waters from graving docks, floating dry docks or marine railways areas. All discharges should flow into a approved treatment unit or into sanitary sewer. The design flow of the collection and treatment system must be adequate to receive the water blasting runoff flowrates. Special consideration should be given to pumping and treatment of slurry blast runoff.

Water blasting runoff should be channeled into floor sumps where the wastewater will be pumped to grit removal basins/sedimentation tanks for settling treatment. The effluent discharge from the sedimentation treatment must meet the effluent limitations of this permit. All pump connections, valves, meters and couplings must be watertight. Leaks must be immediately repaired when discovered.

Prior to entering floor drains and sumps, water blasting runoff may also channeled through straw bales and/or sand bags which will catch most of the particles of paint and marine growth. Once the floor is dry, the collected particles may be removed employing graving dock and floating dock clean-up methods.

## BMP 3.5 Pressure (Hydrostatic) Testing

### *General*

General work and repairs are continually being performed around or adjacent to set slip piers, floating dry docks, marine railways and the exterior an interior sides of ships and the upper decks. Occasionally, water pressure hose testing of repaired structures (i.e., ship interior tank welds, door seals, or exterior spot weld) must be conducted. Water may be used to fill and pressurize an interior tank or high pressure water may be sprayed on a weld from outside the vessel. In some cases, water can splatter in all directions as a test is conducted. The water will collect on the floor of the graving dock or floating dry dock or may discharge directly into the adjacent surface waters if at a wet slip or marine railway.

### *BMP Objective*

Hose testing may result in the inadvertent mixing and discharge of test water and existing pollutants. Therefore, the potential for this occurring is reduced by strict cleanup of dry dock floors, marine railway work wares and wet slip piers prior to beginning the test. Ideally, water will be pumped from the adjacent surface waters and recycled directly back to the surface water through the pump under test.

### *BMP*

Hose and high water pressure testing should be minimized whenever possible. Pollutant materials (i.e., sediment, blast abrasives or trash) on the dock floor must be cleaned up prior to initiation of the test.

All water should be piped or channeled whenever possible to reduce contact with the dock floor.

# 4.0 Yard Operations and Maintenance

## BMP 4.1 Yard Inspection

### *General*

Most boat and shipyards are centers for a variety of repair, cleaning, painting, construction and fabrication operations because of continually changing maintenance operations, manpower requirements and repair schedules, yard "good housekeeping" and BMP controls tend to become a low priority among workers. N ew employees may not understand or remember to maintain BMP controls or report potential and existing environmental problems.

### *BMP Objective*

The purposes of an inspection include: keeping abreast of changing conditions within the boatyard; observing employees, contractor and client BMP control and "good housekeeping" performance; identifying potential pollutant source problems; and determining conditions which require resolution through immediate action. Designated cleanup crew should be available to perform cleanup tasks. Action must be taken immediately to correct specific boatyard problems. Follow-up actions should be undertaken to ensure that a specific concern has been properly addresses.

### *BMP*

A boat/ship yard environmental supervisor and all manager(s) should be responsible for routine inspections of all on-site waterfront, pier, and docking facilities. The inspection should include an evaluation of BMP control implementation and effectiveness. The inspections should include, but are not limited to, the direct observation of:

1) Repair activities along the shoreline, bulkheads, wetslips, dry docks and marine railways;
2) Abrasive blast materials work and storage areas;
3) Trash and waste container disposal areas;
4) Drip pan and drum platform temporary storage areas;
5) Oil containment/berm areas;
6) Slop oil treatment units;
7) Areas adjacent to storm drain inlets.

Frequent surveillance of the yard support shops and contractors (i.e. electrical, carpentry, engine, steel fabrication, machine, etc.) should be conducted to inspect for the possibility that pollutants (paints, chemicals, solvents, oils, etc.) have entered the storm drain system via tub or sink drains in the shops.

## BMP 4.2 General Yard Maintenance

### *General*

The ship/boat yard workplace is constantly changing due to the varied work tasks and fabrication requirements. Employees may shift from one work area to another and the numbers of employed individuals may change dramatically from one month to the next. Therefore, keeping all employees informed of their responsibility to maintain a clean environment is a continual task. This is accomplished most effectively by ensuring that employee's actions are scrutinized closely by supervisor's inspections and by promotion of company policy to maintain a clean and orderly yard.

### *BMP Objective*

The objective is simply to use commonly accepted practices to maintain a clean yard. As organized, clean yard provides an environment that reduces the potential for pollutants to enter air, groundwater and surface waters. A cleanup crew should walk through the yard conducting cleanup tasks of a general nature and per instruction of an environmental supervisor to complete specific tasks. Without the present of a dedicated and educated crew to maintain "good housekeeping", it is unlikely that a yard can maintain the intent of this BMP. Also, through management direction and commitment, the company must continually promote the general concept of "good housekeeping."

### *BMP*

Per an established daily schedule, a cleanup crew should:

1) Remove and properly dispose of general yard refuse, including but not limited to paper, plastics, cans, drink bottles, used welding materials and discarded fabrication and construction materials.

2) Cleanup spent blast abrasive and placed in appropriate container.

3) Clean lighters, drip pans and drip platforms.

4) Immediately cleanup spills of oil, paint, solvents, etc. and properly remove and dispose of saturated soils. Large spills on land and all spills into water must be reported to Oregon Emergency Response immediately at 1-800-454-0311.

5) Ensure that trash cans and trash bins are in the appropriate yard locations and are emptied when full. Trash bins must be located on piers and on vessels.

6) Remove and dispose of any refuse found on the water surface within the areas adjacent to the piers, bulkheads, dry docks or shorelines.

## BMP 4.3 Abrasive Blast Material Management

### *General*

Abrasive blasting is generally one of the preliminary tasks performed when a vessel is docked for repairs and maintenance. The task typically involves blasting the vessel, hull or upper decks and structures with nickel slag, copper slag, steel shot, or other materials to remove varying layers of old paint. Bottom paint containing pesticides is a special waste in Oregon and requires special handling and disposal. Blasting generates a large volume of used abrasive that must be cleaned up and contained on a frequent basis.

### *BMP Objective*

The objective is to store all used abrasive in appropriate containment vessels until ultimate disposal off site. Proper containment involves not allowing any stormwater runoff or accidental discharges to come in contact with the abrasive. This method eliminates the typical procedure of storing voluminous piles of spent abrasive on bare ground. Storing the abrasive in yard stockpiles promotes pollutant runoff during storms.

### *BMP*

Spent blast abrasive must be stored in proper containment vessels or structures while on the facility's site. Containment bins, tanks or hoppers must have covers to prevent rainwater from entering the structure and percolating through the stored abrasive. Containment structures may consist of specifically designed hoppers for holding abrasive, metal bins with covers, or a concrete containment pit or slab (three-walled) with covers. All runoff should be channeled to treatment units.

The used abrasive material should not be stored for more than six (6) months unless the facility demonstrates that a longer storage time is necessary to meet management standards in OAR 340-101-040 (1), and the waste is recycled, disposed of at a Subtitle D (40 CFR 258.40) permitted landfill, or disposed of at a hazardous waste facility or other facility authorized to receive such waste. Every effort should be made to recycle this material.

Segregation of used abrasive materials should be done. Used abrasive used on bare metal and above water-line painted areas, which normally do not contain pesticides or leachable metals, is a solid waste.

## BMP 4.4 Abrasive Blast Material Disposal

### *General*

Anyone who generates abrasive blasting material must determine if this waste is hazardous, either by testing or by using "knowledge of process." Anyone generating a hazardous waste is subject to hazardous waste regulations, including penalties or mismanagement.

Nonhazardous waste is not subject to the same regulations as hazardous waste, however air, and water quality and solid waste regulations prohibit indiscriminate and careless management of nonhazardous waste, particularly near water.

### *BMP Objective*

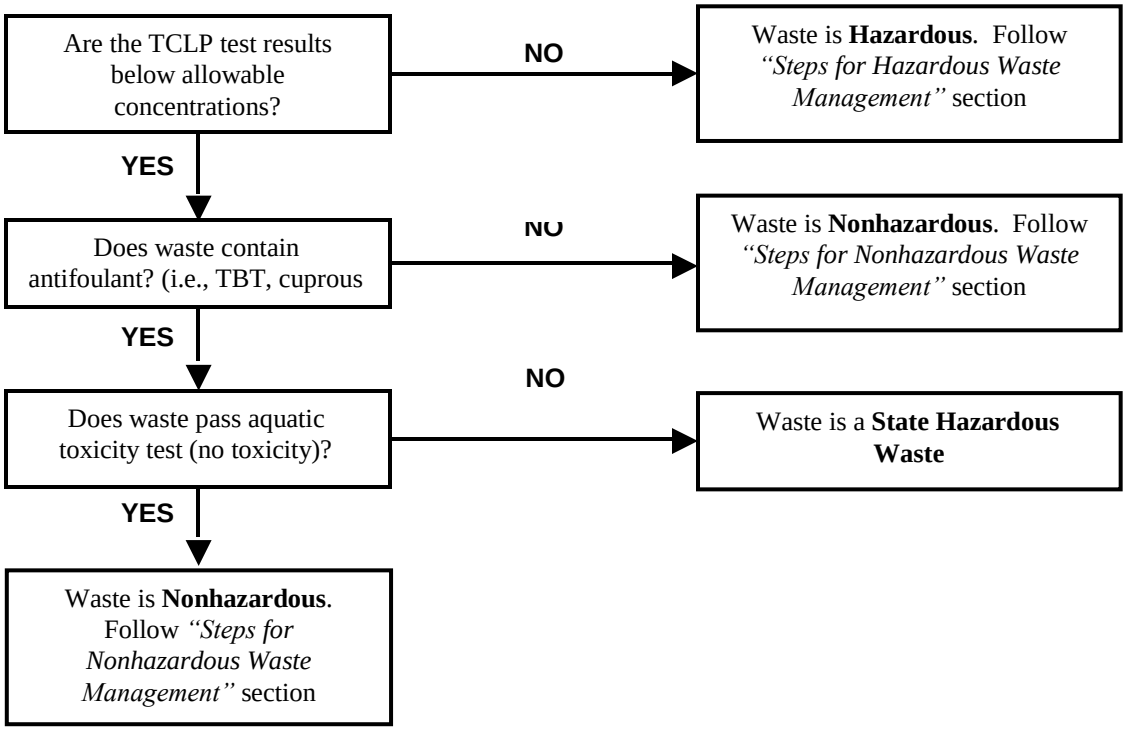
The objective is to ensure that all used blasting material is properly managed, recycled, and/or disposed of. Waste blasting material may be a Hazardous waste, State Hazardous Waste or a Solid Waste. Contact must be made with a Regional DEQ office for review and approval of any recycling option.

### *BMP*

### *Waste Determination*

1) Determine if waste is Hazardous.
   There are two ways to determine if a waste is hazardous: testing and knowledge of process. If testing is used, all waste must be tested using the Toxicity Characteristic Leaching Procedure (TCLP) test. The target hazardous constituents most often found are heavy metals, such as lead or chromium. Waste with antifoulants must be tested using TCLP (metals) and the Aquatic Toxicity test. Waste that "fails" either test is a hazardous waste and must be managed and disposed of according to hazardous waste regulations. For further information, obtain the following booklets from any DEQ office: Hazardous Waste Determination Handbook and Small Business and Hazardous Waste: What You Should Know or contact the Waste Reduction Assistance Program at 1-800-452-4011. A list of Laboratories and a Selection Guideline is attached as Appendix A.

   a) **Testing**
      If testing is performed, use the following diagram to determine how to proceed.



b) **"Knowledge of Process"**
If no testing is performed, the waste generator must have written documentation showing why the waste is not hazardous. As an example, for blasting abrasive waste from a vessel, this could be vessel records indicating the types of coatings used on the vessel to produce the waste. Material Safety Materials Data Sheets (MSDS), etc. If the waste material contains antifoulant paints, it can be assumed to be a State Hazardous Waste.

### *Steps for Nonhazardous Waste Management*

1) On-site Hazardous Waste Management
The key word for proper hazardous waste management is **CONTAINMENT** - containment while applying antifoulant paint, while blasting and after the waste is generated and awaiting to be shipped offsite. Containment is also following all other applicable BMPs.

2) On-Site Hazardous Waste Storage
All waste, hazardous or not, must be contained to prevent it from blowing away and from leaching into surface or groundwater. Hazardous waste must be in containers or tanks clearly labeled with the words "**Hazardous Waste**". Volumes and time limits for storing hazardous waste on-site vary by generator category. Please contact the nearest Regional DEQ office or call toll free: 1-800-454-4011 for a handbook describing the information on Hazardous Waste Procedures.

3) Reporting
Small and large quantity generators of hazardous waste must manifest their waste when it is shipped offsite, and need to submit annual reports of hazardous waste activities to the Department. State Hazardous Waste ,if properly managed, does not require manifesting or annual reports.

4) Hazardous Waste Disposal Options
**Hazardous Waste** must be managed and/or disposed of at a permitted hazardous waste facility or designated recycling facility.

**State Hazardous Waste** may be disposed of at a Lined Subtitle D permitted landfill or a permitted hazardous waste facility.

5) Recycling Options
Must contact the closest Regional DEQ Office for review and approval of any recycling plan.

### *Steps for Nonhazardous Waste Management*

1) Ensure the waste is nonhazardous (see previous *Waste Determination* section).

2) On-Site Nonhazardous Waste Management.

Management methods may include tarping, shrouding, berming, and all other BMPs, while blasting, spraying, and storing on-site. The objective is containment.

3) On-site Nonhazardous Waste Storage.
Non-hazardous waste needs to be removed from on-site at regular intervals to prevent release to the environment, and to avoid additional permit requirements. Nonhazardous waste and unused product such as new abrasive material, must be contained to prevent discharge to the air, or runoff to surrounding land or water.

4) Reporting
There are no hazardous waste reporting requirements for nonhazardous waste.

5) Disposal
Nonhazardous waste may be recycled or disposed of at permitted solid waste landfills, at the discretion of the landfill operator. If Recycling of this material is proposed, must contact the nearest Regional DEQ office for plan review and approval. Currently, these sites are: Hillsboro, Riverbend in Mc Minnville, Coffin Butte in Corvallis, Columbia Ridge in Arlington, and Finley Buttes in Boardman.

## BMP 4.5 Temporary Drip Pan and Drum Storage

### *General*

Maintenance is continually being conducted which requires pouring and mixing of fluids. In the process, the fluids may be transported a short distance and temporarily stored in open containers. Paints, thinners, oil, solvents and cleaners can be accidentally spilled and generally mishandled, creating an environmental hazard.

### *BMP Objective*

The drip pans and drum storage platforms ensure that spillage from fluid containers, such as paint buckets, do not soak into underlying soils or enter nearby surface waters. The pans and platforms are readily moveable. Therefore, they should be used in the immediate work area by any employee conducting the work task. Drip pans should be temporarily used when leaks are found at hose coupling connections. Hose leaks are to be repaired immediately.

### *BMP*

Drip pans and drum storage platforms should be used to hold containers of fluids which are used at the facility. Drop cloths should be placed underneath the drip pans and drum storage platforms to catch and soak up slop spillage. Once the task is completed, the pans and platforms should be immediately cleaned and stored in a designated and easily accessible location. The drop cloths should be stored with the drip pans.

Each drip pan should be used to contain only one type of fluid while in use and prior to cleaning. This will avoid the accidental mixing of incompatible fluids (i.e., acids, and caustics). Residues and cleaning waters from drip pans must be properly placed in designated containment tanks for

storage prior to ultimate disposal or disposed of in an approved oil/water separator as pretreatment. Ultimate disposal should be in compliance with state and federal requirements.

It is the responsibility of the yard supervisor and environmental supervisor to ensure that employees and contractors use drip pans and drum storage platforms. The tendency will be for the employee to begin the task without obtaining the drip pans and then placing the paint cans or other containers in them.

## BMP 4.6 Paint Can and Miscellaneous Container Disposal

### *General*

Boat and shipyards are a continual source of empty paint cans and oil or solvent containers. Some vessels may require as many as eight applications of primer and paints. Ship maintenance and shop fabrication of materials require solvents, paints, heavy lubricants and oil. General maintenance of boatyard vehicles, motors, generators, pumps, engines and boilers can also generate numerous leftover fluid containers and cans which must be discarded.

### *BMP Objective*

The objective is to ensure that waste cans and containers generated by boat and shipyard maintenance operations are disposed of in an appropriate and efficient manner. Therefore, the cans are not allowed to accumulate onsite and become a potential source of pollutants or leachate run off from stormwater. Prior to disposal, all cans should be used in drip pans or on drum storage platforms. The waste contents should be dry (not dripping) or wiped clean prior to being -placed in a disposal bin. Waste cans should always be placed in the disposal bins and not stacked or discarded in areas adjacent to or around the bins.

### *BMP*

Empty cans containing, but not limited to, paints, solvents, lubricants and oil must be disposed of daily in designated waste disposal bins. The disposal bins must be emptied or exchanged by company personnel or a professional refuse collection service per schedule and as the need arises. The disposal bins should be placed in designated area and should be large enough to adequately store waste cans generated on site between scheduled pickups. Excess paint in cans should be given to boat owner for use as touch-up paint.

The top of the waste disposal bin should remain closed to prevent rainwater from trickling over the discarded containers. T he rainwater could pick up potential pollutants and leak from the disposal bin. Regular disposal of waste cans and containers should be conducted. Incompatible or reactive waste materials and waste containers should be disposed of using segregated disposal methods.

# BMP 4.7 Storm Drain Protection

### *General*

Storm drain inlets can be prevalent throughout the facility. The drains are fed by stormwater runoff within the yard and possible adjoining properties. When present, pollutants (i.e., trash, construction materials, loose grit, sediment and oil) are easily picked up and carried to the storm drain system. These pollutants will then be discharged from waterfront outfalls. The outfalls must be identified, numbered and sampled under the NPDES permitting system.

### *BMP Objective*

The filter media will provide filtering and absorbent action for the pollutants while the filter fence will enhance the filtering action. The protected storm drain inlets should be inspected frequently to determine the need for filter/absorbent replacement or repairs. Post-storm inspection should also be conducted to determine if any subsequent ponding of stormwater is excessive or a threat to adjacent properties. Weekly or post storm cleaning may be necessary to keep the inlet protection functional.

### *BMP*

Provide and install filter media (i.e. straw bales) and filter fences around the storm drain inlets to restrict the movement of pollutants into the storm drain system while allowing the stormwater to enter. For storm drain inlets in the center of roadways, a sediment chamber or a basket lined with filter fabric should be hung from the grate to limit the amount of sediment entering the storm sewer system.

The filter fence may be of woven or non-woven burlap, nylon, polyester, polypropylene or numerous other fabrics. Support posts should be placed on the inside of the filter material around the outside of storm grate with the straw bales formed around the filter fence. The filter fabric should be cleaned and/or replaced as necessary. Care should be taken when placing the basket so that it does not hang below the normal high tide level (where applicable). All used filtering material and absorbent materials must be disposed of in appropriately marked trash receptacles.

Oil/water separators, booms, skimmers or other methods should be employed to minimize oil contaminated storm water discharge. Whenever possible, stormwater should be diverted away from materials manufacturing, storage and other areas of potential storm water contaminants.

**Addition treatment may be required if discharge limitations (Schedule A) are not met.**

# 5.0 Administrative

## BMP 5.1 Record Keeping

### *General*

Due to the nature of the boat/ship yard business, BMP installations are in constant need of repair, replacement, inspection and cleanup. Records indicating a history of maintenance will provide a good indication of the current reliability of existing BMPs.

### *BMP Objective*

Record keeping is necessary to show that all BMPs are being met and for use as an educational tool. Good record keeping can also aid in compliance questions and in worker safety criteria.

### *BMP*

Records should be maintained to document BMPs at the facility. The type of records which should be maintained include, but are not limited to, the following:

1) Quantities, source and type of petroleum containing wastes which are collected for treatment or disposal.

2) Quantities of abrasive which are used for blasting and quantities which are retrieved through cleanup and disposed of.

3) Date of installation of a BMP control, inspections and subsequent repairs replacements to the BMP. Include such items as how often straw bales, absorbent booms and other filtering devices are replaced and/or cleaned.

4) A listing of BMP equipment, and supplies.

5) Date, time, description and action taken for any spills.

6) The location, quantifies, destination and hauler of vessel discharge waters (black, gray, bilge, etc.) and spent abrasive material.

## BMP 5.2 Spill Prevention Control and Countermeasure Plan

### *General*

Most of the boat and ship yards are involved in either the pumping, tank truck storage, barge storage, containment or treatment of petroleum products. The U. S. Environmental Protection Agency (EPA) mandates (40 CFR 112) that facilities having above ground storage capacity of 1,320 gallons or greater of petroleum product, or those having more than 42,000 gallons below ground capacity must have an approved SPCC plan. Most shipyards are subject to this regulation.

### *BMP Objective*

In the vent of an oil spill or other pollutant spill emergency, an on-site SPCC Plan greatly enhances the prospect for an adequate response, containment and cleanup of the pollutant before environmental damage is done.

### *BMP*

Each facility governed by the "Oil Pollution Prevention" regulation stated in 40 CFR 112 should have an approved SPCC Plan. Any facility not specially meeting the applicability requirements of is regulation should develop and have on site an approved SPCC Plan even though it is not required. The SPCC Plan should be posted in a centralized location for all employees to read.

Each SPCC Plan should include:

1) A prediction of the direction, rate of flow and total quantity of oil which could be discharged from a storage or containment area;
2) Appropriate containment and/or diversionary structures or equipment to prevent discharged oil from reaching waters of the state; and
3) A concise and step-by-step explanation of employee notification procedures, responsibility and action in the event of a petroleum spill.

A Pollution Control Plan (PCP) is required under this permit. This plan should identify where potential spills of significant materials can impact storm water runoff and their associated drainage points. Methods of spill prevention along with cleanup and notification procedures should be identified in PCP. It is recommended that the following oil spill containment and cleanup materials are kept on site for spill emergencies:

- Permanent Boom - 1000 feet
- Temporary Absorbent Boom
- Deployment Boat
- Vermiculite
- Absorbent blankets and pillows
- Empty Drums
- Sand Bags
- Filter Fence Material
- Miscellaneous Items such as: Rope, Flashlights, Metal Fence Stakes, Straw Bales, and Weighted spill mats (for covering storm drains).

In the event of a spill; immediately stop the spill, collect and remove spilled materials unless not feasible, proceed to correct, and notify the Department through the Oregon Emergency Response System (OERS) at **1-800-452-0311**. No chemicals can be utilized to disperse, coagulate, or otherwise treat oil spills unless specifically approved by the Department.

## BMP 5.3 Training and Education

### *General*

Due to the nature of the ship/boat yard business, BMP structures are in constant need of repair, replacement, inspection and cleanup. Employees must be aware of the purpose of BMP procedures or structures and how they should be implemented or maintained.

### *BMP Objective*

The objective is to have educated and trained employees which are familiar with BMPs for the facility and understand the purpose of BMPs and prevention of pollution.

### *BMP*

Management should provide all employees with regularly scheduled Best Management Practices seminars and discussions relating to pollutants and pollution prevention. The training should emphasize procedures, BMP techniques and supervisory responsibility and accountability. Subcontracting firms should be strongly encouraged to participate in the BMP training program. New employees should be made aware of BMPs on the first day of work and be regularly reminded of them.

# Appendix A

## OAR 340-101-0040
## Wastes Requiring Special Management

340-101-0040
Wastes Requiring Special Management

1) Abrasive Blast Waste Containing Pesticides. Abrasive blast waste which contains pesticides that do not meet the criteria specified in **40 CFR Part 261**, **Subpart C**, is not a federal hazardous waste for any other reason, and fails the "Department of Environmental Quality Aquatic Toxicity Test," whereby a representative sample of a pesticide residue exhibits a 96-hour aquatic toxicity LC50 equal to or less than 250 mg/l, are not subject to OAR 340, divisions 100 to 106, 109 and 142 provided:

(a) The waste is prevented from entering the environment; and:

[**NOTE**: The practices described in Appendix 1, "Best Pollution Prevention Practices for Abrasive Blast Media Waste from Shipyard Repair Facilities," provide guidance. The guidance in Appendix 1 or equivalent Best Pollution Prevention Practices should be used.]

(b) The waste is not stored for more than six months unless the generator demonstrates that a longer storage time is necessary to meet the management standards in OAR 340-101-0040(1)(c); and,

(c) The waste is recycled, disposed of according to OAR 340-093-0190(1)(f), or disposed of at a hazardous waste facility or other facility authorized to receive such waste.