# Environmental Protection Commission of Hillsborough County
# Shipyard Abrasive Blasting

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# BEST MANAGEMENT PRACTICES (BMP)

# INTRODUCTION

The Port of Tampa in Hillsborough County, Florida is home to the nation's seventh largest port. It includes a very diverse number of industrial and commercial sources, as well as the Shipbuilding & Ship Repair Industry. The Port is also located in downtown Tampa, which serves as the financial and business center of the County. There are four shipyards located in Tampa. Three are major sources of air pollution and have Title V Operating Permits, while the fourth is a Synthetic Minor with a federally enforceable State of Florida Construction and Operating Permit. Because of their close proximity to the downtown area and the fact that they are located along Tampa Bay, the shipyard's abrasive blasting and spray painting activities are a significant source of hazardous waste, air and water pollution.

Over the years, our Agency has received numerous complaints from nearby businesses and industry regarding fugitive dust and paint overspray. Initially, these sources were unpermitted and uncontrolled. However, in order to control these emissions and minimize their impact on the Bay, our Agency worked with the industry to develop a Model Permit, which included reasonable precautions that would minimize air emissions. The precautions included conditions that required the use of tarps and screens to control fugitive dust and paint overspray. These conditions were then incorporated into their Title V Permits, and have been very effective in reducing emissions. However, there is still a significant amount of emissions from these sources deposited into the Bay. In addition to our partnering efforts with our local shipyards, the EPC has been working with regulatory representatives from the Gulf Coast States, the US-EPA, the US Coast Guard and the US Maritime Administration to develop innovative technologies and Best Management Practices (BMPs) that will further reduce emissions and go beyond compliance. To date, most of the Gulf Coast State's shipyards continue to operate uncontrolled, thus providing them with an economic advantage over the Tampa Bay shipyards. However, this BMP has been developed by the EPC to further assist our shipyards in dealing with the multi-media aspects of their pollution.

# DEFINITIONS

1. **Abrasive Blasting Material**
   A non-hazardous material used in blasting to remove paint or rust scale.

2. **Air**
   The air outside the outer fence line or other point of compliance in a facility performing abrasive blasting or painting.

3. **Manage**
   To perform or control abrasive blasting or painting in a manner that prevents or minimizes abrasive blasting material and paint particles from being discharged to water bodies or emitted to air.

4. **Floatable Solids**
   Floatable or other low density trash or waste.

5. **Discharge or Emission**
   Discharges or emissions to air and water bodies not otherwise allowed by permit or law.

6. **Docksides**
   A dock alongside which abrasive blasting or painting is performed on a vessel while afloat.

7. **Employees**
   Management and other workers employed by the facility and engaged in the activity subject to the Best Management Practice.

8. **Enclose or Shroud**
   To use plastic sheeting, tarpaulins or other appropriate barriers to prevent or minimize abrasive blasting material and paint particles from being discharged to water bodies or emitted to air.

9. **Hydro-Blasting**
   High-pressure water cleaning using pressures in excess of 5000 psi.

10. **Paint Particles**

Paint particulate matter from paint over spray or paint chips in non-hazardous spent abrasive blasting material.

**11. Practices**

Activities that will prevent or minimize emissions or discharges of abrasive blasting material or paint particles to air and water bodies. A practice may be used alone or in combination with other practices to accomplish the desired result.

## DEFINITIONS

**12. Pressure Washing**

Pressure water cleaning to remove marine growth using pressures not to exceed 5000 psi.

**13. Prevent or Minimize**

To reduce emissions or discharges of abrasive blasting material or paint particles to the maximum extent when technically and economically practicable.

**14. Shade Factor**

The percentage of an area impermeable to particles.

**15. Shipyard**

A facility engaged in shipbuilding or repair from which abrasive blasting material or paint particles may be discharged to water bodies or emitted to air.

**16. Non-Hazardous Spent Abrasive Blasting Material**

The non-hazardous mixture of abrasive blasting material and paint particles resulting from abrasive blasting to remove paint or rust scale.

**17. Water Bodies**

Waters of the state.

## BEST MANAGEMENT PRACTIVE #1
## GENERAL SHIPYARD MAINTENANCE

Facilities shall routinely perform general facility maintenance to prevent or minimize abrasive blasting material or paint particles from reaching air and water bodies.

**Practices:**

1. Facility employees shall remain alert for the possibility of abrasive blasting material or paint particles reaching air or water bodies and take necessary action to prevent or minimize such emissions or discharges.

2. Non-hazardous spent abrasive blasting material shall be stored in covered containers and in a manner that prevents or minimizes it from blowing offsite or otherwise creating a nuisance offsite.

3. Sediment traps and drains shall be routinely inspected and cleaned to insure containment of non-hazardous spent abrasive blasting material.

4. Drainage channels and trenches shall be routinely inspected and cleaned or non-hazardous spent abrasive blasting material.

5. Unauthorized materials shall not be disposed or to air or water bodies or to drains, drainage channels or trenches that lead to water bodies.

6. Hazardous waste, toxic industrial waste, medical waste, municipal waste, and materials derived from these wastes shall not be used as an abrasive blasting material.

## BEST MANAGEMENT PRACTICE #2
## FLOATABLE SOLIDS

Facility practices shall prevent or minimize floatable solids from reaching air and water bodies.

**Practices:**

1. Facility employees shall remain alert for the possibility of floatable solids reaching air or water bodies and take necessary actions to prevent or minimize such emission or discharges.

2. Floatable solids shall be routinely collected and disposed of.

3. Floatable solids shall not be allowed to blow offsite or otherwise create a nuisance offsite. Only manual sweeping and vacuum systems shall be used to clean-up spent blasting materials. No blowers are to be permitted.

4. Sediment traps and drains shall be covered and routinely inspected and cleaned of floatable solids.

5. Drainage channels and trenches shall be routinely inspected and cleaned of floatable solids.

6. Abrasive blasting and painting shall be performed in a manner that prevents or minimizes the emission or discharge of floatable solids to air or water bodies.

7. Dry-docks shall be cleaned of floatable solids prior to lowering to prevent or minimize the discharge of floatable solids to water bodies.

## BEST MANAGEMENT PRACTICE #3
## EMPLOYEE TRAINING

Employees and contractors shall be trained on the Best Management Practices related to their employment to prevent or minimize abrasive blasting material, paint particles and floatable solids from reaching air and water bodies.

**Practices:**

1. New employees and contractors in abrasive blasting or painting shall be trained on proper abrasive blasting and painting procedures, proper handling of non-hazardous spent abrasive blasting material, paint particles, floatable solids, and in general, good housekeeping practices for the facility.

2. Employees and contractors shall receive refresher training at least once a year or when significant changes are made to the Best Management Practices that affect their activities.

3. Contractors shall be notified of and required to perform in accordance with Best Management Practices applicable to activities related to their contract.

4. Employees, contractors and customer representatives shall be instructed not to dispose of unauthorized materials to air and water bodies or to drains, drainage channels, or trenches that lead to water bodies.

## BEST MANAGEMENT PRACTICE #4
## FILLING ABRASIVE BLASTING CONTAINERS
## WITH ABRASIVE BLASTING MATERIAL

Abrasive blasting containers shall be filled with abrasive blasting material in a manner that prevents or minimizes emissions of abrasive blasting material to air.

**Practices:**

Particulate suppression devices shall be required on vents when filling containers with abrasive blasting material if emissions of abrasive blast material from the vents exceed five percent (5%) external opacity at the container vent opening. The particulate suppression devices shall be

capable of reducing emission of abrasive blast material from the vents to five percent (5%) external opacity or less at the container vent opening.

## BEST MANAGEMENT PRACTICE #5
## VENT EMISSIONS FROM INDOOR
## ABRASIVE BLASTING AND PAINTING

Abrasive blasting or painting practices performed inside an enclosed building or structure shall be managed to prevent or minimize emissions of abrasive blasting material and paint particles to air.

**Practices:**

1. Particulate suppression devices shall be required on vents of an enclosed building or structure when abrasive blasting or painting is performed inside the building or structure and emissions of abrasive blast material or paint particles from vents exceed five percent (5%) external opacity outside the building or structure. The particulate suppression devices shall be capable of reducing emission of abrasive blast material or paint particles from the vents to five percent (5%) external opacity or less outside the building or structure.

## BEST MANAGEMENT PRACTICE #6
## EMISSIONS FROM OUTDOOR
## ABRASIVE BLASTING AND PAINTING

Abrasive blasting and painting performed outside shall be managed to prevent or minimize emissions of abrasive blasting material and paint particles to air and water bodies.

**Practices:**

Management shall include:

1. Require total enclosure and a shade factor of at least ninety-five percent (95%).

2. Require total enclosure of the vessel openings.

3. Instead of using practices 1 and 2 above, hydro-blasting may be used. Wet mixture blasting and CO2 pellet blasting can only be used in conjunction with the total enclosure activities of practices 1 and 2 above. Control techniques such as blasting with particulate suppressants can only be used in conjunction with practices 1 and 2 above.

4. Blasting or painting will stop if the wind speed exceeds ten- (10) mph when using shrouds.

5. Relocating the abrasive blasting or painting activity to a location that prevents or minimizes emissions of abrasive blasting material or paint particles to air.

6. Using abrasive blasting material containing less than one percent (1-%) fines that would pass through a #80 sieve.

7. Clean up of spent abrasive blast material and paint shall be conducted while maintaining total enclosure of the dry-dock and drains.

8. The blasting and painting should be conducted from the top of the vessel downward, except when blasting or painting underneath the vessel or on small parts where it is physically impractical to do so.

9. High volume low-pressure water based, or low solvent technology shall be used for painting application whenever possible.

## BEST MANAGEMENT PRACTICE #7
## EMISSIONS OR DISCHARGES FROM HANDLING OF
## ABRASIVE BLASTING MATERIAL, PAINTS AND SOLVENTS

Abrasive blasting material, paints and solvents shall be handled in a manner that prevents or minimizes emissions or discharges of abrasive blasting material, paint particles and solvents to air and water bodies.

**Practices:**

1. Abrasive blasting and painting equipment shall be properly maintained to prevent or minimize leaks or fugitive emissions.

2. The handling, transfer or movement of abrasive blasting material, paints and solvents shall be kept to a minimum.

3. Particulate suppressants shall be used in handling, transfer or movement of abrasive blasting material as appropriate.

4. Paints and solvents shall be stored and mixed in areas of secondary containment or away from drains, ditches, piers, and water bodies.

5. Non-hazardous spent abrasives shall be stored in covered containers away from drains, ditches, piers, and water bodies, and in a manner that prevents it from blowing offsite or becoming a nuisance offsite.

6. Abrasive blasting materials, paints and solvents shall be stored in a manner that prevents or minimizes contact with storm water.

7. All lids on containers of paints and solvents shall be kept closed when not in use.

# BEST MANAGEMENT PRACTICE #8
# DISCHARGES FROM DRY-DOCKS

Abrasive blasting and painting practices performed on dry-docks shall be managed to prevent or minimize discharges of abrasive blasting material and paint particles to water bodies.

**Practices:**

1. Management shall include:

    a) Require total enclosure of the dry-dock and the covering or filtering of the dry-dock drains.

    b) Enclosing, covering or filtering open areas of a vessel (e.g. scuppers, railings, freeing ports, ladders or doorways) from which a discharge may occur directly to water bodies.

    c) Preventing or minimizing the contact of non-hazardous spent abrasive blasting material or paint particles with water to be discharged directly to water bodies. The spent abrasive blasting material's contact with discharge water shall be prevented and minimized by cleaning up all spent abrasive blasting material prior to submerging the dry-dock.

    d) Using only manual sweeping and vacuum systems to clean-up spent blasting materials. No blowers are to be permitted.

    e) Require use of a system to filter solids from the discharge or water when the dry-dock is raised or lowered.

    f) Require use of a trough system to remove solids from the discharge of water when the dry-dock is raised or lowered.

    g) Require removal of oil, grease and fuel spills from the dry-dock before raising or lowering. Removal shall be by dry absorbent only.

2. Hosing a dry-dock to remove abrasive blasting material and paint particles shall not be considered an acceptable practice unless:

    a) The hosing is done as an integral part of another best management practice to prevent or minimize the discharge of abrasive blasting material and paint particles to water bodies;

    b) The dry-dock is hosed after the abrasive blasting material and paint particles have been removed to prevent or minimize discharge to water bodies; or

    c) The discharge is treated in accordance with all applicable water discharge regulations

## BEST MANAGEMENT PRACTICE #9
## CONTACT WITH SHIPBOARD WATER

Abrasive blasting and painting practices shall be performed in a manner that prevents or minimizes contact of abrasive blasting material and paint particles with bilge water, cooling water, ballast water and other waters originating from a vessel and discharged directly to water bodies.

## BEST MANAGEMENT PRACTICE #10
## PRESSURE WASHING AND HYDRO BLASTING

Pressure washing and/or hydro blasting shall be performed for vessel maintenance and removal of marine growth where the paint is properly adhering to the hull of a vessel and only incidental amounts are disturbed by the pressure washing and/or hydro-blasting provided the wash water is managed to prevent or minimize the discharge of abrasive blasting material and paint particles to water bodies.

Blasting with water to remove paint particles shall not be performed unless the wash water is collected and solids removed prior to discharge to a sewer system or a water body in accordance with a water discharge permit.

**Practices:**

1. Management for pressure washing and hydro-blasting for vessel maintenance to remove marine growth and paint shall include:

    a) Enclosing, covering or filtering drains or openings in the work area.

    b) Enclosing, covering or filtering open areas of a vessel (e.g. scuppers, railings, freeing ports, ladders or doorways) from which a discharge may occur directly to water bodies.

    c) Preventing or minimizing the contact of non-hazardous spent abrasive material or paint particles with water to be discharged directly to water bodies.

    d) Using a system to filter solids from the discharge of water from the work area.

    e) Using a trough system to remove solids from the discharge of water from the work area.

    f) Require clean up of all the residual paint and solids from the dry-dock prior to submerging.

2. If detergents or additives are added to pressure wash and/or hydro blasting water, they shall be biodegradable and free of phosphate.

## BEST MANAGEMENT PRACTICE #11
## MARINE RAILWAYS

Abrasive blasting and painting practices performed in a marine railway shall be managed to prevent or minimize discharges of abrasive blasting material and paint particles to water bodies.

**Practices:**
Management for a marine railway shall include:

1. Routinely cleaning land areas in the marine railways of abrasive blasting material and paint particles.

2. Filtering storm water discharges of abrasive blasting material and paint particles from the marine railway.

3. Performing abrasive blasting or painting over water in accordance with Best Management Practice Number 13.

## BEST MANAGEMENT PRACTICE #12
## WASHING DOCKSIDES

Water from the washing of docksides shall be managed to prevent or minimize abrasive blasting material and paint particles from being discharged to water bodies.

**Practices:**
Management for washing of docksides shall include:

1. Enclosing, covering or filtering drains or openings of docksides.

2. Using a system to filter solids from the discharge or water from docksides.

3. Using a trough system to remove solids from the water discharged from docksides.

4. Wash water shall be treated in accordance with all applicable water discharge regulations.

5. All spent abrasive blasting material should be cleaned up prior to washing.

## BEST MANAGEMENT PRACTICE #13
## ABRASIVE BLASTING AND PAINTING
## AWAY FROM DOCKS AND WATER BODIES

Abrasive blasting or painting performed in a shipyard away from docks or water bodies shall be performed to prevent or minimize the emission or discharge of abrasive blasting material and paint particles to air and water bodies.

**Practices:**
Activities away from docks or water bodies shall include:

1. Require total enclosure.

2. Routinely collecting and removing non-hazardous spent abrasive blasting material from area where abrasive blasting or painting is performed.

3. All painting and blasting be conducted on sealed asphalt or concrete floors.

## BEST MANAGEMENT PRACTICE #14
## DISPOSAL OF NON-HAZARDOUS
## SPENT ABRASIVE BLASTING MATERIAL

Non-hazardous spent abrasive blasting material shall be handled, recycled or disposed of in accordance with the law.

Records shall be kept of where the spent abrasive blasting material is handled, recycled or disposed of including the facilities used.