TAMPA SHIP, LLC

BEST MANAGEMENT PRACTICES

FOR

SHIPBUILDING & REPAIR WORK

PREPARED FOR:
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SUMMARY

Tampa Ship, LLC (formerly Tampa Bay Shipbuilding & Repair Co.) contracted with its environmental consultant, Environeering, Inc., to complete the site specific Best Management Practices (BMPs) Plan for the Title V–Air Permit renewal for Tampa Ship's facility located on McClosky Boulevard within the Port of Tampa (the "Facility"). The implementation of these Best Management Practices will help ensure compliance with current and future air pollution regulations and site-specific permit conditions under National Emissions Standards for Hazardous Air Pollutants (NESHAP) regulations and the Tampa Ship Title V Operating Permit.

1.0 INTRODUCTION

1.1 Purpose

The implementation of this BMP will ensure Tampa Ship's compliance with current and future air pollution regulations and site-specific permit conditions under National Emissions Standards for Hazardous Air Pollutants (NESHAP) regulations and the TAMPA SHIP Title V Operating Permit.

The BMPs cover surface preparation, application, and clean-up of surface coatings by pressure washing, hydroblasting, surface preparation with black beauty, surface preparation with steel shot and painting in the graving docks, production areas and within the erection facility. The applicable BMPs shall be performed in a manner that limits blasting material, such as paint particulates, and other potential pollutant material, from commingling with, and being discarded with shipboard water originating from the vessel, stormwater or other potential process waters and discharged directly to surface water bodies.

1.2 Previous Permits

The Tampa Ship initial Title V Air Permit 0570286-009-AV was issued on 10/2/2000. The permit was revised on 5/30/2001 with revision 0570286-022-AV and was again revised on 11/5/2002 with revision 0570286-024-AV. The Title V Permit was revised again on 1/22/08 to incorporate the blasting/coating booth with Permit No. 0570286-028-AV. On 2/5/2009 the permit was transferred to Tampa Ship, LLC from Tampa Bay Shipbuilding & Repair Co (0570286-029-AV). No site-specific BMP Plan was prepared or implemented as part of these preceding permits.

2.0 UNIT PROCESS PROCEDURES

The unit processes used by TAMPA SHIP to prepare surfaces and apply surface coatings include: pressure washing, hydroblasting, surface preparation with black beauty, surface preparation with steel shot and painting. All material drops to the concrete floor of the graving dock or work area where it is swept up and collected for proper disposal. The graving docks have trench drain collection systems that have two trenches that run down the sides of the graving dock. The trenches are approximately three (3') feet wide with a sloped bottom for gravity drainage. The trenches have three (3) catch traps (sediment traps) each with a triple filter system that removes suspended solids. A "deep sump" catch basin is also included in the trench drain system. The sediment traps and drainage trenches will be routinely inspected and cleaned to insure containment of spent abrasive blasting material and paint particles in accordance with the procedures in the most current version of the TAMPA SHIP Stormwater Management Plan.

2.1 Pressure Washing

Pressure washing activities are normally conducted at a pressure of less than 5,000 pound per square inch gauge (psig) to remove marine growth and prepare surfaces for various surface coatings. The existing surface coating may be in good to poor condition prior to pressure washing activities. The spent wash water shall be managed to prevent or minimize the discharge of paint solids to water bodies. Pressure wash water in small quantities shall be allowed to evaporate on a concrete or other impervious surface within the graving docks or other work areas. The work area shall be swept up to remove residual paint solids on a routine basis.

2.1.1 Graving Dock

Pressure washing activities shall be conducted to minimize any potential impact to the graving docks' discharge. The graving docks have a trench drain system to remove groundwater, rainwater and surface water that leaks or precipitates into the graving dock. The trench drain system continually collects and removes water from the graving dock. The trench drain system operates by gravity flow and is sloped toward the collection basin prior to any potential discharge. Sediment traps are built into the drain system to remove suspended solids from the discharge. Additionally, filters may be installed into the trench drains at the discharge point to capture suspended solids during coating and blasting operations.

2.1.2 Yard Blasting Area

The spent wash water shall be managed to prevent or minimize the discharge of paint solids or other solids to the ground surface or groundwater. Pressure washing activities shall be conducted to minimize any potential impact to the yard

blasting area. The yard blasting area has a concrete slab under the work area where pressure washing activities are completed. Limited quantities of water are used so that the water evaporates on the concrete pad. No discharge of water from the surface of the concrete occurs. Impervious materials are used elsewhere in the yard when pressure washing to allow the water to evaporate. The residual solids are swept up from the surface of the impervious material or the impervious material is rolled up with the solids and is disposed of as solid waste.

2.1.3 Pressure Washing Best Management Practices:

A. Management of spent pressure wash water for vessel removal of marine growth and to prepare surfaces for various surface coatings shall include any of the following as applicable:

    - Enclosing, covering or filtering drains or openings where wash water could run off in the work area.
    - Enclosing, covering or filtering open areas of a vessel that drain overboard, including but not limited to scuppers, railings, freeing ports, ladders or doorways.
    - Preventing or minimizing the contact of spent blast media and paint solids with water that flows into the trench collection system for the graving dock or accumulation on the slab for the yard blasting area.
    - Using a filter system to remove solids from the work area water prior to discharge.
    - Using the existing trough system to remove solids from the work area water discharge.
    - Require clean up of residual spent blast media and paint solids from the graving dock floor on at least a bi-weekly basis and immediately prior to flooding of the graving dock.
    - Pressure wash water will be allowed to evaporate on the bottom of the graving dock and the residual paint solids will be cleaned up prior to flooding the graving dock.

B. Only biodegradable and phosphate free detergents or additives shall be added to the pressure wash water.
C. Traditional sudsing cleaners that must be rinsed off are prohibited from use unless the wastewater is collected for off site treatment and disposal.
D. Detergents containing ammonia, sodium hypochlorite, chlorinated solvents, petroleum distillates or lye will be used after consulting with the Environmental Manager or Environmental Coordinator for proper use and disposal of waste on a case-by-case basis.
E. The minimum amount of detergent or additive that is necessary to complete the job shall be used in accordance with the manufacturer's recommendations (2).

2.2 Hydroblasting

Hydroblasting activities are normally conducted at a pressure of greater than or equal to 5,000 pound per square inch gauge (psig) to remove marine growth and prepare surfaces for various surface coatings. The pressure used may be as high as 80,000 psig, however pressures in the range of 20,000 to 40,000 psig are most commonly used. The existing surface coating may be in good to poor condition prior to hydroblasting activities. The hydroblast waste water shall be managed to prevent or minimize the discharge of spent blast media and paint solids to surface water bodies as discussed above.

Spent hydroblast water normally evaporates due to the high temperature and velocity at which the compressed water exits the blast nozzle. The spent hydroblast water shall be allowed to evaporate on a concrete or other impervious surface. A small puddle of spent hydroblast water may accumulate under a shaded work area. The work area shall be swept up to remove residual spent blast media and paint solids.

2.2.1 Graving Dock

Hydroblasting activities shall be conducted to minimize any potential impact to the graving docks' discharge of water. The trench water is discharged after it has already passed through the system of triple filtered catch or sediment traps in the trench drains and the deep sump or catch basin. The graving docks have a drain system to continually collect and remove groundwater, rainwater and surface water that leaks or precipitates into the work area during ship work activities.

2.2.2 Yard Blasting Area

The spent hydroblast water shall be managed to prevent or minimize the discharge of spent blast media and paint solids to the ground surface or groundwater. The existing surface coating may be in good to poor condition prior to hydroblasting activities. The yard blasting area has a concrete slab under the work area where hydroblasting activities are completed.

2.2.3 Hydroblasting Best Management Practices

A. Management of spent hydroblast water for vessel removal of marine growth and to prepare surfaces for various surface coatings shall include any of the following:

- Enclosing, covering or filtering drains or openings where wash water could run off in the work area.
- Enclosing, covering or filtering open areas of a vessel that drain overboard, including but not limited to scuppers, railings, freeing ports, ladders or doorways.

- Preventing or minimizing the contact of spent blast media and paint solids with water that flows into the trench collection system for the graving dock or accumulation on the slab for the yard blasting area.
- Using a filter system to remove solids from the work area water prior to discharge.
- Using the existing trough system to remove solids from the work area water discharge.
- Require clean up of residual spent blast media and paint solids from the graving dock floor on at least a bi-weekly basis and immediately prior to flooding of the graving dock.
- Spent hydroblast water will be allowed to evaporate on the bottom of the graving dock and the residual spent blast media and paint solids will be cleaned up prior to flooding the graving dock or will be cleaned up on a routine basis for the yard blasting area.

2.3 Surface Preparation/Abrasive Blasting with Black Beauty

This section covers surface preparation work and clean-up inside and outside vessels using abrasive black beauty grit in the graving docks and the yard blast area. In general, facility employees working in the surface preparation field shall remain alert for the possibility of abrasive blasting material or paint particles reaching the air or water bodies and take necessary action to prevent or minimize such discharges to help ensure compliance with current regulations and best management practices. The observation of a potential discharge shall be brought to the attention of the blasting crew by the observer. The blasting crew shall quickly take appropriate corrective action, if deemed necessary.

2.3.1. Black Beauty Surface Preparation

A. Abrasive blasting container filling.

- Particulate suppression devices or a dust suppressant will be used on vents or will be added to the media when filling containers with abrasive blasting material to ensure emissions of abrasive blast material from the vents do not exceed five percent (5%) external opacity at the container vent opening. The particulate suppression devices or dust suppressant shall be capable of reducing the emission of abrasive blast material from the vents to five percent (5%) external opacity or less at the container vent opening. To help ensure compliance throughout the duration of operations, a compliance level below the regulatory level shall be aimed at as a target value. TAMPA SHIP will pursue no visible emissions, or a maximum 5% opacity level, as a target value for abrasive blasting container filling.

B. Abrasive blasting emissions.

- Particulate suppression devices will be used on vents from the interior or the exterior of a vessel when abrasive blasting is performed to ensure that emissions of abrasive blast material from vents do not exceed twenty percent (20%) external opacity. TAMPA SHIP identifies a maximum of 5% opacity as its target value and strives to limit emissions to this level as a regular operating practice.
- Blasting should be directed from the top of the vessel downward, except when blasting underneath the vessel or on small parts where it is physically impractical to do so. The work shall be completed so that spent blast media will be directed to the bottom of the graving dock.
- Blasting equipment shall be properly maintained to prevent or minimize leaks or fugitive emissions on a routine basis.
- The handling, transfer or movement of abrasive blast materials shall be kept to a minimum by handling the material only one time. Double handling will be avoided. Abrasive blast materials will be delivered directly into service pots or silos.
- Spent blast media shall be stored in containment away from drains, ditches, piers and water bodies and in a manner that prevents it from becoming airborne.
- Spent blast media shall be stored so that contact with stormwater is minimized.
- Total enclosure using 95% shade factor tarps with sufficient physical integrity, physical barriers or other air pollution control devices such as cyclone separators, baghouses, electrostatic precipitators, particulate socks, dust suppressants etc. shall be used to ensure visual emissions do not exceed permitted levels.
- Spent blast media is to be removed using dry removal technology such as manual dry sweeping, vacuum removal or other mechanical removal. Blowers are not permitted for collecting spent blast media.
- If the sustained wind speed exceeds ten (10) miles per hour (mph), TAMPA SHIP will inspect and evaluate the blasting nozzles and the integrity of the tarps to reduce the generation of particular matter. Corrective action, up to and including ceasing blasting operations, will be taken as needed to minimize emissions.
- When feasible, the abrasive blast material will contain less than 1% fines that would pass through an 80# sieve.

2.4 Surface Preparation with Steel Shot

Surface preparation work with steel shot is conducted in the Surface Preparation Building. The steel shot blasting is conducted inside a fully enclosed building with a steel shot recycling system and air pollution control technology.

2.4.1 Steel Shot Best Management Practices:

A. Management of steel shot to prepare surfaces for various surface coatings shall include any of the following;
   - Sheet shot surface preparation work will be completed inside a total enclosure - the Surface Preparation Building.
   - Sheet shot will be recycled inside the Surface Preparation Building until it is not longer usable.
   - Spent blast media, paint solids and debris will be collected and removed on a routine basis.
   - Steel shot blasting will be conducted on a steel or concrete floor surface.
   - Steel shot shall be stored in a dry location.

B. The opacity of the Surface Preparation Building discharge shall not exceed five percent (5%).

2.5 Painting - Coating Application BMPs

Coating applications or painting at TAMPA SHIP shall be conducted in accordance with the BMPs as detailed in this section to ensure compliance with the current Title V air permit.

2.5.1 Painting Best Management Practices

A. Painting emissions.
   - Particulate suppression devices will be used on vents from the interior of a vessel when painting is performed inside the vessel. The particulate suppression devices shall be capable of minimizing or eliminating external overspray outside the graving dock or vessel.
   - Painting should be conducted from the top of the vessel downward, except when painting underneath the vessel or on small parts where it is physically impractical to do so.
   - Application nozzles should be pointed 90 degrees horizontally toward the surface being coated or down as much as possible to minimize overspray where practical.
   - High volume low-pressure water based or low solvent technology shall be used for painting or coating application whenever possible.
   - Painting equipment shall be properly maintained to prevent or minimize leaks or fugitive emissions.
   - The handling, transfer or movement of paints and solvents shall be kept to a minimum.
   - Paints and solvents shall be stored and mixed in areas of secondary containment where practical.
   - Paints and solvents shall be stored in a manner that prevents or minimizes contact with storm water.

- Paint and solvent material and waste containers shall be kept closed except when actively added or removing contents from the container.
- When coating with airless applicators, tarps (95% shade factor) or barriers shall surround to fully enclose and extend above the level of the painting. When painting below dock level, the tarps or barriers are needed from a point 10 feet below the dock to above the level of painting. When coating below that level tarps are not needed.

2.6 Training

Employees and contractors shall be trained on the BMPs related to their job responsibilities. The training time per position trained will vary from fifteen (15) minutes for awareness level training to a maximum of four (4) hours for a professional painter/blaster.

2.6.1 Training Best Management Practices

- 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 and good housekeeping practices for the facility.
- Employees and contractors shall receive refresher training at least once a year or when significant changes are made to the BMPs that affect their job responsibilities. Refresher training may also be provided on a more frequent basis, as needed.
- Contractors and subcontractors shall be notified of and required to perform in accordance with BMPs applicable to activities related to their contract.
- Employees, contractors and customer representatives shall be instructed in proper disposal of waste materials at TAMPA SHIP.

2.7 BMP Updates

This procedure shall be updated when new BMPs are found to be available for use in the Shipbuilding and Repair Industry. This procedure shall be reviewed for potential updates a minimum of once per year. The BMP Update Form in **Appendix A-BMP** shall be used to record changes to this document.

2.8 Inspection

The facility shall be inspected on a quarterly basis for proper BMP implementation at TAMPA SHIP. The inspection will be documented by a Memorandum to the Record, which is dated and signed by the inspector. Corrective actions identified by the inspection shall be corrected within thirty (30) days for non-violation items. Violation

related correction action items that are procedure implementation related shall be corrected the day they are observed.

3.0 CONCLUSIONS

The implementation of these BMPs will help ensure compliance with current and future air pollution regulations and site-specific permit conditions under National Emissions Standards for Hazardous Air Pollutants (NESHAP) regulations and the TAMPA SHIP Title V Operating Permit. The unit processes used by TAMPA SHIP to prepare surfaces and apply surface coatings include: pressure washing, hydroblasting, surface preparation with black beauty, surface preparation with steel shot, and painting. BMPs for each of the activities were discussed in this plan in detail. This procedure has a review and update component that requires for reviews and changes on a periodic basis to ensure the procedure stays current. This procedure also has an inspection component to verify and document on a quarterly basis the correct implementation of these BMPs.

REFERENCES

1. Bruder Stephens, Incorporated, 1999, Tampa Bay Shipbuilding and Repair Company Environmental & Hazardous Material Contingency Plan

2. Florida Department of Environmental Protection, 2001, Best Management Practices for Boatyards. Page 27.

3. Environmental Protection Commission of Hillsborough County, 2005, Shipyard Abrasive Blasting Best Management Practices (BMP)

4. Environmental Protection Agency, June 1994, Surface Coating Operations at Shipbuilding and Repair Facilities – Background Information for Proposed Standards. EPA-453-D-94-011a.

5. Environmental Protection Agency, January 1997, A Guidebook on How to Comply with the Shipbuilding and Ship Repair 9Surface Coating) Operations National Emission Standards for Hazardous Air Pollutants. EPA-453/B-97-001.

6. Environmental Protection Agency, July 1999, Evaluation of Application for Approval of Alternative Methodology for Compliance with the NESHAP for Shipbuilding and Ship Repair and Recommended Requirements for Compliance. EPA 453/R 99-005.

APPENDIX A-BMP

BMP UPDATE LOG

BMP UPDATE LOG
Tampa Ship, LLC
1130 McClosky Blvd.
Tampa, Florida 33605

Change Number	Date	Type of Change	Page Number
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