Commonwealth of Kentucky
Division for Air Quality

PERMIT STATEMENT OF BASIS

TITLE V (DRAFT PERMIT) NO. V-05-048
JAMES MARINE INC.
476 RIVERSIDE DR., CALVERT CITY KY.
DECEMBER 20, 2005
BRIAN BALLARD, REVIEWER

SOURCE I.D. #:	021-157-00048
SOURCE A.I. #:	2938
ACTIVITY #:	APE20040001

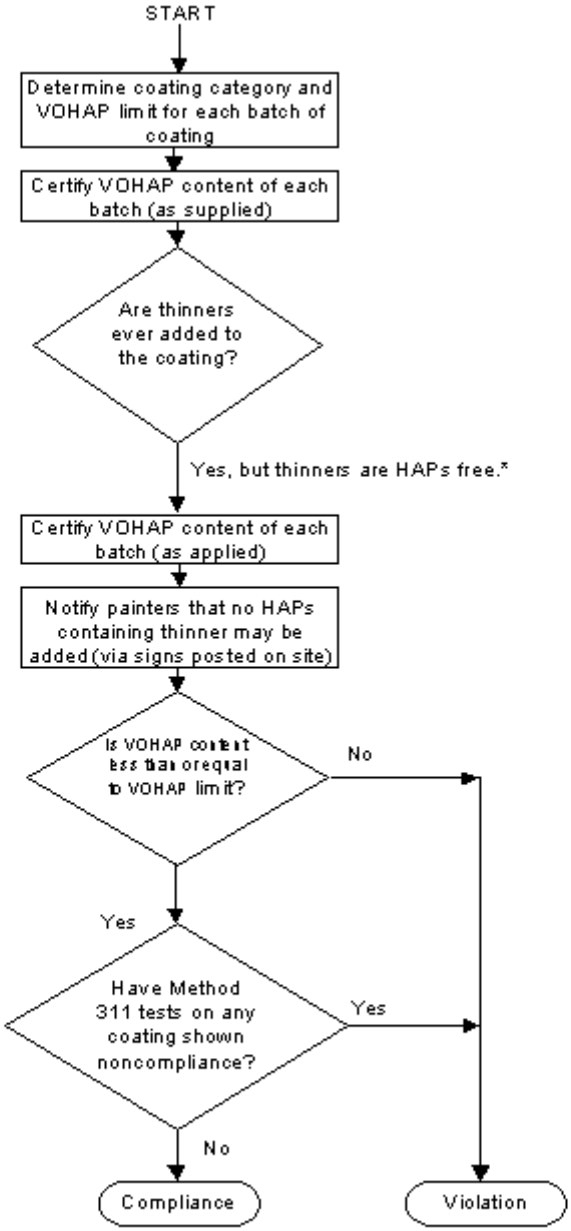
SOURCE DESCRIPTION:

Paducah River Painting, Inc. is a facility located on the Tennessee River in Marshall County, Kentucky, which cleans and refurbishes marine barges. The facility was originally known as Hite Painting, Inc. (Hite). In 1996, Hite submitted an application to the Division for a conditional major permit in order to preclude the applicability of 40 CFR 63, Subpart II, National Emission Standards for Shipbuilding and Ship Repair (Surface Coating). In 2000, Hite was purchased by James Marine – Paducah River Service and renamed Paducah River Painting, Inc. The appropriate application forms were submitted to the Division at that time requesting that the original application be processed under the new facility name. The Division, to date has not taken action on either of these applications.

Permit V-05-048 is based on the following submittals: Title V application requesting major source status for hazardous air pollutants (HAPS) (making the source subject to the requirements of 40 CFR 63, Subpart II), received November 10, 2003, additional information for the 11/10/2003 application received on December 18, 2003, additional information for the 11/10/2003 application received on February 2, 2004, initial notification and implementation plan as required by 40 CFR 63.787 received on February 20, 2004, additional information for the 11/10/2003 application received on May 10, 2004, revised implementation plan for 40 CFR 63, Subpart II received on July 19, 2005 and revised request for source wide emission caps for NO_X and VOC received on August 11, 2005.

The implementation plan specifies which coating compliance procedures, record keeping procedures and transfer, handling, and storage procedures will be used at the facility to demonstrate compliance with the requirements of 40 CFR 63, Subpart II. These procedures are reflected in permit V-05-048. The implementation plan specifies that the compliance procedures in 40 CFR 63.785 (c)(1) (Option 1 in Figure 1 to 40 CFR 63.785) and 40 CFR 63.785 (c)(4) (Option 4 as explained in the side note of Figure 1 to 40 CFR 63.785) will be used to document the as-supplied volatile organic hazardous air pollutant (VOHAP) content of each coating through the manufacturer's certification. The compliance procedures of 40 CFR 63.785(c)(1) are for coatings to which thinning solvent (or any other material) will not be added under any circumstance or to which only water is added. The Division has contacted the U.S. EPA and made the determination that a HAPS-free formulation, is the equivalent of water for compliance purposes. As explained in 40 CFR 63.785 (b)(1) "In lieu of testing each batch of coating, as applied, the owner or operator may determine compliance with the VOHAP limits using any combination of the procedures described in paragraphs (c)(1), (c)(2), (c)(3), and (c)(4) of this section." The permittee has specified that the compliance procedures specified in 40 CFR 63.785 (c)(1) and (c)(4) will be used.

As explained in the side note of Figure 1 of 40 CFR Subpart II, Option 4 shall follow the same procedures shown for Options 1 through 3, depending on whether or not and how thinners are used. When using Option 4, the term "VOHAP shall be used in lieu of the term VOC. The alternate test methodology required per 40 CFR 63.786 (b) shall be "Method 311-Analysis of Hazardous Air Pollutants in Paints and Coatings by Direct Injection Into a Gas Chromatograph."



Outdoor Barge Painting (EU02) and Enclosed Barge Painting (EU04) are subject to the following operating limitation: "All coatings used shall be formulated as-supplied to meet the VOHAP limits contained in Table 2 to 40 CFR 63, Subpart II." Table 2 to 40 CFR 63, Subpart II contains a listing of VOHAP limits for various coating categories. According to the November 10, 2003 application submitted by James Marine Inc., Paducah River Painting, the coatings used at EU02 and EU04 are in the "General Use" coating category listed in Table 2 to 40 CFR 63, Subpart II. The corresponding VOHAP limits for General Use coatings are 340 grams/liter of coating (minus water and exempt compounds) and 571 grams/liter of solids (for temperatures ≥ 4.5˚C (40.1˚F)).

As mentioned previously, the permittee has specified that the compliance procedures specified in 40 CFR 63.785 (c)(1) and (c)(4) will be used. The key difference between these two compliance options is the test method used to determine the VOHAP content of the as-applied coating. In the case of 63.785(c)(1), the test method is Method 24 of Appendix A to 40 CFR part 60. Method 24 is a test for VOC. Using this compliance option, VOC is used as surrogate for VOHAP. In the case of 63.785 (c)(4), an alternative test method is used to determine VOHAP content. The facility has specified this alternative test in the implementation plan. The alternative test method is "Method 311-Analysis of Hazardous Air Pollutants in Paints and Coatings by Direct Injection Into a Gas Chromatograph." Method 311 can be used to directly determine the VOHAP content of a coating and does not use VOC as a surrogate. The 63.785 (c)(4) compliance option has been included in the implementation plan and permit so that the facility has the option of using coatings that are above 340 grams of VOC per liter of coating but are compliant with the VOHAP limit in Table 2 of Subpart II.

As specified in 63.786 (c) – Test Methods and Procedures, a coating manufacturer or the owner or operator of an affected source may use batch formulation data as a test method in lieu of Method 24 of Appendix A to 40 CFR part 60 to certify the as-supplied VOC content of a coating if the manufacturer or the owner or operator has determined that batch formulation data have a consistent and quantitatively known relationship to Method 24 results. This determination shall consider the role of cure volatiles, which may cause emissions to exceed an amount based solely upon coating formulation data. Notwithstanding such determination, in the event of conflicting results, Method 24 of appendix A of 40 CFR part 60 shall take precedence.

In the case where the facility is using the 63.785 (c)(4) compliance option, the terms VOC and Method 24 in the paragraph above shall be replaced with VOHAP and Method 311.

The verification of VOC content or VOHAP content by Method 24 or Method 311 will be necessary under circumstances where there is reason to believe that compliance with the emission limitations in Table 2 of Subpart II are not being met, otherwise compliance with emission limitations in Table 2 of Subpart II will be demonstrated using batch formulation data provided by the coating manufacturer or the owner or operator of the affected source.

COMMENTS:

The emissions of particulate matter (PM) from EU01, outdoor barge blasting, are calculated using an emission factor of 0.01 lb/lb grit used (20 lb/ton). The emissions of particulate matter 10 microns or less (PM_{10}) are assumed to equal the emissions of PM. The applicable regulation is 401 KAR 63:010, Fugitive Emissions. The emissions of PM from EU03, enclosed barge blasting are calculated using an emission factor of 0.004 lb/lb shot used (8.0 lb/ton). The emissions of PM_{10} are assumed to equal the emissions of PM. EU03 is equipped with two (2) cartridge filter type dust collectors for control of PM. The control efficiency used for the purpose of calculating PM/PM_{10} emissions is 99.99 %. The applicable regulation is 401 KAR 59:010, New Process Operations.

The emissions of volatile organic compounds (VOC), volatile organic hazardous air pollutants (VOHAP) and PM/PM_{10} from EU02, outdoor barge painting and EU04, enclosed barge painting are calculated using a material balance. The maximum ton/hr of coating applied is based on a maximum coating applicator rate of 12.5 gal/hr. Each of EU02 and EU04 are equipped with four (4) airless spray applicators. For the purpose of calculating potential to emit, it is assumed that all applicators are operating at the maximum rate 8,760 hours per year. A density of 11.53 lb/gal is used for all coatings for the purpose of calculating emissions. The potential VOHAP emissions are from ethyl benzene, xylene, bis (2-ethylhexyl) phthalate and methyl isobutyl ketone. A transfer efficiency of 45 % is used for determining PM/PM_{10} emission factors. EU04 is equipped with four (4) air handling units with twenty-one (21) filter panels each.

COMMENTS (CONTINUED):

Each panel is a 20" x 20" x 1" square non-woven synthetic pad. The control efficiency used for the purpose of calculating PM/PM_{10} emissions is 99.76 %. The thinner and clean-up solvent used is a 100% VOC, HAPS-free formulation.

The applicable regulations for EU02 are 401 KAR 63:010, Fugitive Emissions, 401 KAR 63:020, Potentially Hazardous Matter or Toxic Substances and 40 CFR 63.780 to 63.788 (Subpart II), National Emission Standards for Shipbuilding and Ship Repair. The applicable regulations for EU04 are 401 KAR 59:010, New Process Operations, 401 KAR 63:020, Potentially Hazardous Matter or Toxic Substances and 40 CFR 63.780 to 63.788 (Subpart II), National Emission Standards for Shipbuilding and Ship Repair.

The emissions of criteria pollutants from diesel fuel combustion in the diesel powered air compressors (EU05) are calculated using emission factors from AP-42, Table 3.3-1. The heat capacity of diesel fuel is assumed to be 140,000 BTU/gal. The average brake-specific fuel consumption is assumed to equal 7,000 BTU/hp-hr. Emission factors are in units of lb of pollutant per 1000 gallons of fuel consumed. The total organic compound (TOC) emission factor in Table 3.3-1 is assumed to equal the VOC emission factor.

The emissions of criteria pollutants and HAPS from waste oil combustion in the two (2) space heaters (Insignificant Activity #1) are calculated using emission factors from AP-42, Tables 1.11-1, 1.11-2, 1.11-3 and 1.11-4. A heat capacity of 145,450 BTU/gal is assumed for the waste oil. Emission factors are in units of lb of pollutant per 1000 gallons of fuel consumed. The weight % of ash in the fuel is assumed to equal 0.54 % and the weight % of sulfur in the fuel is assumed to equal 0.36 % based on *Table 1 – Used Oil Samples Average Analytical Results* in the November 10, 2003 James Marine Inc., Title V application.

EMISSION AND OPERATING CAPS DESCRIPTION:

The facility has requested a self-imposed source-wide limit of 98.0 tons per year for VOC emissions and 35.0 tons per year for NO_X emissions. The abrasive used for outdoor barge blasting (EU01) shall be Black Beauty blasting agent or equivalent. Outdoor blasting and outdoor painting operations shall cease if there are visible fugitive emissions beyond the lot line of the property. All coatings used shall be formulated as-supplied to meet the VOHAP limits contained in Table 2 to 40 CFR 63, Subpart II. All thinner used in coating operations, outdoor barge painting (EU02) and enclosed barge painting (EU04) shall be a HAPS-free formulation. Any thinner(s) containing listed VOHAPS shall be made unavailable. For EU04, filters shall be in place at all times during coating operations and shall be replaced when determined to be inefficient (as determined through visual inspection).

PERIODIC MONITORING:

Fugitive emissions shall be monitored during all periods of outdoor abrasive blasting operations and outdoor painting operations. The blast booth (EU03) filter pressure drop shall be monitored daily on days when the unit is in operation. A qualitative visual observation of the opacity of emissions is required weekly for EU03 and EU04. The amount of diesel fuel consumed by each diesel powered air compressor shall be monitored on a monthly basis.

CREDIBLE EVIDENCE:

This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has only adopted the provisions of 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12 into its air quality regulations.