U. S. ENVIRONMENTAL PROTECTION AGENCY
PREAMBLE BACKGROUND
40 CFR Part 63

[AD-FRL-]

National Emission Standards for Hazardous Air Pollutants; Proposed Standards for Shipbuilding and Ship Repair

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule and notice of public hearing.

SUMMARY: The proposed standards would limit emissions of hazardous air pollutants (HAP) from surface coating operations from any new or existing shipbuilding and ship repair facilities at a major source (defined in part V, A).

The proposed standards implement section 112(d) of the Clean Air Act (Act), which requires the Administrator to regulate emissions of those chemicals designated as HAP in section 112(b). The intent of the proposed standards is to protect the public health by requiring new and existing major sources to limit HAP emissions to levels attainable by use of maximum achievable control technology (MACT).

In addition, this document contains draft recommended best available control measures (BACM) for volatile organic compound (VOC) and particulate emissions from this category. The draft BACM implements section 183(b)(4) of the Act.

DATES: Comments. Comments must be received on or before _____ [Insert date 60 days after publication in the Federal Register].

Public Hearing. If anyone contacts the EPA requesting to speak at a public hearing by _____ [Insert date 3 weeks after publication in the Federal Register], a public hearing will be held on _____ [Insert date 30 days from date of publication], beginning at _____.

ADDRESSES: Comments. Interested parties may submit written comments (in duplicate if possible) to Public Docket No. A-92-11 at the following address: U. S. Environmental Protection Agency, Air and Radiation Docket and Information Center (6102), 401 M Street, SW., Washington, DC 20460. The Agency requests that a separate copy also be sent to the contact person listed below.

Public Hearing. If anyone contacts the EPA requesting a public hearing, the hearing will be held at the EPA Office of Administration Auditorium in Research Triangle Park, North Carolina. Persons interested in attending the hearing or wishing to present oral testimony should notify Ms. Kim Teal, Coatings and Consumer Products Group (MD-13), U. S. Environmental Protection Agency, Research

Triangle Park, North Carolina 27711, telephone number (919) 541-5580.

Background Information Document . The background information document (BID) and other documents supporting the proposed standards may be obtained from the docket or from the U. S. EPA Library (MD-35), Research Triangle Park, North Carolina 27711, telephone number (919) 541-2777. Please refer to "Surface Coating Operations at Shipbuilding and Ship Repair Facilities--Background Information for Proposed Standards," EPA-450/-D-94-011a.

Docket . Docket No. A-92-11, containing supporting information used in developing the proposed standards, is located at the EPA's Air and Radiation Docket and Information Center at the above address in Room M-1500, Waterside Mall (ground floor), and may be inspected from 8 a.m. to 4 p.m., Monday through Friday. The proposed regulatory text and other materials related to this rulemaking are available for review in the docket. A reasonable fee may be charged for copying docket materials.

FOR FURTHER INFORMATION CONTACT: For information concerning regulatory decisions and the proposed standards, contact Dr. Mohamed Serageldin, Coatings and Consumer Products Group, Emission Standards Division

(MD-13), U. S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711, telephone number (919) 541-2379.

SUPPLEMENTARY INFORMATION: The information presented in this preamble is organized as follows:

The proposed regulatory text is not included in this Federal Register notice, but is available in Docket No. A-92-11 or by request from the EPA contact persons designated earlier in this notice, free of charge. The proposed regulatory language is also available on the Technology Transfer Network (TTN), one of the EPA's electronic bulletin boards. The TTN provides information and technology exchange in various areas of air pollution control. The service is free, except for the cost of a phone call. Dial (919) 541-5742 for up to a 14,400-bps modem. If more information on TTN is needed, call the HELP line at (919) 541-5384.

I. Description of the Source Category

Section 112 of the Act requires the EPA to evaluate and control emissions of HAP. The control of HAP is to be achieved through promulgation of emission standards under sections 112(d) and (f) for major source categories and such minor sources as deemed appropriate that emit HAP. Pursuant to section 112(c) of the Act, the EPA published in the Federal Register the initial list of source categories that emit HAP on July 16, 1992 (57 FR 31576). This list includes both "major" and "area" sources (as defined by the Act) that the EPA intends to regulate before November of the year 2000. The initial list of source categories includes "Shipbuilding and Ship Repair (Surface Coating)," the major sources only, as a source category.

For the purpose of the proposed rule, shipbuilding and ship repair refers to all facilities that build, repair, paint, repaint, convert, or alter ships. (Hereafter, this industry will be referred to as "shipbuilding.") A ship is defined as any marine or fresh-water vessel used for military or commercial operations, including self-propelled vessels, those towed by other craft (barges), and navigational aids (buoys). This definition includes, but is not limited to, all

military vessels, commercial cargo and passenger (cruise) ships, ferries, barges, tankers, container ships, patrol and pilot boats, and dredges. It does not include offshore oil and gas drilling platforms, although it is believed that identical coating systems would be appropriate for them also.

II. Background

The proposed rule represents the EPA's first extensive regulation of air pollutants from the shipbuilding and ship repair industry. Essentially all volatile organic hazardous air pollutants (VOHAP) are a subset of a category of pollutants referred to as volatile organic compounds (VOC). The VOC is a class of pollutants that are photochemically reactive precursors of ozone. Emissions of VOC (and consequently VOHAP as well) from "marine coating operations" have been regulated by some State and local district rules. California and Louisiana have defined VOC limits for a wide range of marine coating categories. The California limits being generally more stringent than those of Louisiana. Other States have limited VOC emissions from the industry's spray booths as one of many "miscellaneous metal coating operations," using guidance presented in the EPA's control techniques guidelines (CTG) document

"Control of Volatile Organic Emissions from Existing Stationary Sources, Volume VI: Surface Coating of Miscellaneous Metal Parts and Products" (June 1978) EPA 450/2-78-015. Outdoor painting of ships' hulls was specifically exempt from this guidance, but some States have rules that limit shipyard painting done inside buildings and on the interior of ships based on the guidance.

Control Techniques Guidelines

Section 183(b)(4) of the Act, as amended in 1990 (1990 Amendments), requires the Administrator to issue CTG's for VOC and particulate emissions from coatings (paints) and solvents used in shipbuilding and ship repair facilities, to such level as the Administrator determines may be achieved through the adoption of BACM. Volatile organic compounds react in the atmosphere to form ozone, a criteria air pollutant for which primary and secondary ambient air quality standards have been established. The EPA is required to take into account the applicable requirements of section 112 in developing the guidelines.

The organic HAP emissions described in the remainder of this document are, with only one exception, a subset of the VOC emissions from coatings and solvents used in

shipbuilding and ship repair facilities. Thus the control techniques evaluated for the MACT standard are also applicable to VOC emissions.

The EPA has traditionally issued draft CTG's containing recommended control levels for public comment. Rather than issue a separate draft CTG in this case, the EPA is using this document to request public comment on a draft recommended by BACM. The recommended BACM is identical to the proposed MACT for coatings and solvents, stated in terms of VOC units rather than VOHAP units (where a VOHAP means any compound of carbon, excluding metallic carbides and carbonates, that is listed in or pursuant to section 112(b) of the Act; this includes both VOC and exempt compounds that are listed as HAP). For those options using VOC as a surrogate for VOHAP for the MACT standard, compliance would be based on the Agency's reference Method 24. For any compliance option involving measurement of actual VOHAP content, the test method used by the source must be documented and approved by the Administrator. Comments received on the proposed MACT rule will also be considered in formulating a final recommended BACM and vice-versa.

Meanwhile, States are in the process of developing VOC rules for these sources to meet other Act

requirements. The EPA published an alternative control techniques (ACT) document in February 1994 to provide guidance to the States for these efforts. The recommended BACM described here is consistent with information in the ACT. Also, as explained in the ACT, although control technologies for particulate emissions at shipyards are in development, none are sufficiently demonstrated at this time to recommend as BACM. Therefore, the Agency has no recommendation for BACM for particulate emissions at this time.

III. Summary of the Proposed Rule

A. Applicability

1. Description of the Source Category

The proposed rule would apply to each shipbuilding facility whose total activities emit or have the potential to emit, considering controls, 9.1 megagrams per year (Mg/yr) (10 tons per year [tons/yr]) or more of any HAP or 22.7 Mg/yr (25 tons/yr) or more of any combination of HAP. In general, the shipbuilding industry covered by the proposed rule is represented by SIC Code 3731, "Shipbuilding and Repairing." This industry consists of establishments that build, repair, repaint, convert, and alter ships. However, SIC Code 3731 includes the manufacture of both offshore oil

and gas well drilling and production platforms; marine coatings used on such platforms will not be subject to this rule, but rather to limitations imposed by the EPA's Federal rule on Architectural and Industrial Maintenance Coatings.

Based on information obtained through the U. S. Maritime Directory Listings (June 1992), there are an estimated 437 facilities of varying capabilities involved in the construction and repair of ships in the United States. Of the 437 facilities, an estimated 25 qualify as major sources of HAP emissions and would be subject to the proposed rule. The total VOHAP emissions from surface coating operations at the 25 facilities that would be subject to the proposed rule are estimated at 1,155 Mg/yr (1,272 tons/yr).

The EPA requests comment on the appropriate timing of the shipbuilding and ship repair facility's applicability determination, and on whether all facilities, regardless of their past emissions or HAP usage, should be eligible to qualify as area sources under the HAP usage limits. The Agency also seeks comment on whether a facility that is initially determined to be subject to the rule should be able

subsequently to escape applicability, and if so, under what circumstances.

2. Affected Sources

For purposes of this rulemaking, the affected source would be considered the aggregate of all operations at a shipbuilding facility. A new operation at a shipbuilding facility would not be considered a new source. Instead, it may qualify as a modification of the existing source.

The proposed standards would limit VOHAP emissions from indoor and outdoor coating operations. The VOHAP emissions result largely from solvent evaporation from the coatings. These emissions occur during application and drying/curing. Due to the size of ships and their components, most coatings are applied outdoors.

The proposed standards would also reduce VOHAP emissions from handling, transfer, use, and storage of VOHAP-containing materials through work practice measures. These emissions also occur as a result of solvent evaporation.

B. Standards

The proposed standards would be the same for new and existing facilities. (See section VII.B. for discussion on the basis for the standards.) The proposed standards would impose limits on the VOHAP content of 23 types of

coatings used at shipbuilding facilities. (See section VII.C. for a list of the proposed limits.) The limits would be stated in terms of mass of VOHAP per volume of coating less water and less negligibly photochemically reactive (exempt) compounds. Compliance with the VOHAP limits must be demonstrated on a monthly basis.

The proposed standards would allow for an alternative means of compliance other than using compliant coatings, if approved by the Administrator.

The proposed standards would also require that all handling and transfer of VOHAP containing materials to and from containers, tanks, vats, vessels, and piping systems be conducted in a manner that minimizes spills and other factors leading to emissions. In addition, containers of thinning solvent or waste that hold any VOHAP must be normally closed (to minimize evaporation) unless materials are being added to or removed from them.

C. Compliance Dates

The proposed rule would require compliance for existing affected sources within 1 year after the effective date of the rule. An existing unaffected area source that increases its HAP emissions (or potential to emit) such that it becomes a major source would be

required to comply within 1 year after becoming a major source.

Any new or reconstructed sources would be required to adhere to the compliance schedule in the General Provisions § 63.6(b) of subpart A without any modification. For new or reconstructed affected sources whose startup date is before the effective date of the rule, the compliance date is the effective date of the rule. For new or reconstructed affected sources whose startup date is after the effective date of the rule, the compliance date is the startup date. A new unaffected area source that increases its emissions (or potential to emit) such that it becomes a major source would be required to comply immediately upon becoming a major source.

D. Compliance Procedures

The proposed rule would allow affected sources to choose among five options for demonstrating compliance with the VOHAP standards. Their choice will be influenced by the perceived need to add "thinning" solvent (thinner) to alter the viscosity of the coating in order to spray effectively. (For the purposes of this proposed regulation, thinner is defined as any liquid material added to a coating.) Regardless of the option(s)

chosen, affected sources would first be required to determine the coating category (e.g., general use, air flask, antenna, etc.), the applicable VOHAP limit, and the VOC content for each batch of coating received from the manufacturer.

A source may demonstrate compliance either by showing that the VOC content is less than the VOHAP limit (options 1-4) or by the use of option 5 (discussed below) which would measure the actual VOHAP content. If the shipyard is subject to regulatory limits on the VOC content of its coatings, the primary compliance method for this rule would be to certify the VOC content of each container of coating, as applied. (That information would then be used to determine compliance with the applicable VOHAP limit using any of the options 1-4.) Certification of VOC content is done by: (1) using Method 24 of 40 CFR part 60, appendix A; (2) using forms similar to those included in the certification procedure published in EPA-450/3-84-019 (revised 6/86), "Procedures for Certifying Quantity of Volatile Organic Compounds Emitted by Paint, Ink, and Other Coatings"; or (3) an alternative method approved by the Administrator. Option 5 may be used for demonstrating compliance when a shipyard is not subject to VOC limits.

Affected sources would be allowed to use the following methods to demonstrate compliance to avoid testing every container of coating; however, any analysis of an individual container of coating using the Agency's Method 24 would take precedence to determine or to verify a violation. Paragraphs (i) through (iii) are summaries of options 1, 2, and 3.

(i) Shipyards can demonstrate compliance of the as-supplied VOC content as certified by the manufacturer. If the as-supplied coating is used without adding thinning solvent, shipyards can certify that the as-applied VOC content of the batch of coating is identical to the as-supplied VOC content, if it were certified by the manufacturer. If the certified VOC content is less than the VOHAP limit, compliance is demonstrated. ("As applied" means after any thinning by the user or just prior to application to the substrate. "As supplied" means as supplied by the coating manufacturer.)

(ii) Shipyards can demonstrate compliance if the actual volume of thinner used is less than the maximum allowable volume of thinner on a coating-by-coating basis.

(iii) Shipyards can demonstrate compliance by comparing the actual volume of thinner used to the

maximum allowable volume on a "group" basis. A group of coatings would be defined as those which use the same thinner. (See section VII.E. for more explanation.)

Compliance with options 1 through 4 is based on the VOC content of each container of coating, as applied. If the as-applied VOC content is less than or equal to the VOHAP limit, then compliance would be demonstrated (See part III.E. for how "exempt" compounds which are HAP are considered in compliance determinations and other details).

Shipyards can also demonstrate compliance by measuring the actual VOHAP content of a coating. If the as-applied VOHAP content is less than or equal to the alternate VOHAP limit, then compliance would be demonstrated. (See II.E., Option 5, for how alternate VOHAP limits are determined). (Concurrently with this rule, the Agency is preparing requirements for sample preparation and the performance specifications required of an acceptable analytical procedure.)

An affected source may choose to use only one of the options for all coatings at the facility or a combination of options. Each option is discussed in more detail below.

E. Test Methods and Procedures

The proposed rule would require Method 24 be used as the reference method to determine compliance if the VOC content is used as a surrogate for VOHAP. Manufacturers whose coatings do not release reaction by-products may request an alternative or equivalent method to be approved by the Administrator. If it is demonstrated to the satisfaction of the Administrator that a specific coating does not release VOC by-products from the cure reaction (all VOC emissions are evaporated solvent), then she may approve use of batch solvent formulation data to certify the as-supplied VOC content of that paint. In the event of any inconsistency between the VOC content as measured by Method 24 and formulation data, however, the Method 24 test shall govern.

A few coatings may contain HAP which are (or through subsequent formal action may become) excluded from EPA's definition of VOC because these HAP have negligible photochemical reactivity and do not contribute to tropospheric ozone formation. These non-VOC HAP are nonetheless of regulatory concern as toxic chemicals. Therefore, for the purposes of this rule the mass of VOHAP determined by Method 24 would be the mass of VOC plus exempt compounds; hence, unlike for a VOC determination, the total mass loss of these organic

volatiles must be used in subsequent calculations. However, the volume of exempt compounds should be subtracted (from the total coating volume) just as water, as indicated by the units for VOHAP presented in Method 24. Manufacturers and affected sources would be required to certify the VOHAP of paints using a form similar to that published in the EPA's "Procedures for Certifying Quantity of Volatile Organic Compounds Emitted by Paint, Ink, and Other Coatings" (Revised June 1986) EPA-450/3-84-019 [Docket A-92-11, II-B-27]. If the shipyard chooses to demonstrate compliance using the VOHAP content of the coating(s), the manufacturer or affected source would need to provide details on how the VOHAP values were determined.

F. Monitoring Requirements

Section 114(a)(3) of the amended CAA requires enhanced monitoring and compliance certifications of all major stationary sources. The annual compliance certifications certify whether compliance has been continuous or intermittent. Enhanced monitoring shall be capable of detecting deviations from each applicable emission limitation or standard with sufficient representativeness, accuracy, precision, reliability, frequency and timeliness to determine if compliance is

continuous during a reporting period. The monitoring in this regulation satisfies the requirements of enhanced monitoring.

The test methods and procedures described in the previous section will be used to determine compliance. Failure to meet the emission limits as measured by these procedures would be an enforceable violation of the emission limits of the standard. When add-on controls are used, monitoring shall be capable of detecting deviations from each applicable emission limitation or other standard with sufficient reliability and timeliness to determine continuous compliance over the applicable reporting period.

Although the term "continuous" generally means at all times, the Agency has determined that less frequent measurements or determinations of compliance can ensure continuous compliance. The potential variability of the emissions or parameters is a primary factor in establishing the frequency of measurements.

G. Notification Requirements

The proposed rule would require affected sources to follow the notification requirements in §§ 63.9(a)-(d) and (h)-(j) of subpart A of the general provisions. In addition to the initial notification requirements in

§§ 63.9(b)(2) and (3) of subpart A, sources would be required to include in the initial notification: (1) the compliance procedure(s) that they intend to use; (2) procedures for ensuring compliance with the handling, transfer, and storage standard; and (3) procedures for maintaining records. These are subject to the approval of the Administrator. In addition, they would be required to submit a notification of compliance status on a quarterly basis, with any exceedances reported on a quarterly basis. Following the first year, the owner or operator of a source that has had no exceedances for a full year (can be any year after the first year), may request Administrator approval to reduce the frequency of notification to semiannual.

H. Recordkeeping and Reporting Requirements

The proposed rule would require affected sources to follow the general recordkeeping and reporting requirements in §§ 63.10(a)-(b) and (f) of subpart A of the general provisions. Sections 63.10(c)-(e) of subpart A do not apply unless a source uses a control device to comply with the standards except for the excess emission report required by 63.10(e)(3) which applies regardless of how emissions are controlled.

In addition, each owner or operator of an affected source would be required to certify annually that all personnel involved with coatings, thinning of coatings, keeping coating records, or handling/transferring VOHAP-containing materials have received the training required by the regulation. A record of the certification is required, but no report is required. The purpose of the certification is to ensure that the training does occur at least once per year, and that documentation does exit for an enforcement official to review.

Affected sources would be required to keep all records needed to demonstrate compliance with the standards, including calculations and records of any Method 24 or alternate VOHAP tests. All records would be compiled each calendar month and compliance status determined every month. In addition, a source is required to report on a quarterly basis any exceedances to the EPA and to provide in the excess emissions report the data needed to confirm and quantify the reported exceedance. All records must be maintained for a minimum of 5 years.

The quarterly report should include:

1. A summary of the number and duration of deviations during the reporting period classified by reason, including known causes for which a Federally-approved or promulgated exemption from an emission limitation or standard may apply;

2. Identification of the data availability achieved during the reporting period, including a summary of the number and total duration of incidents during which the monitoring protocol failed to operate in accordance with design or produced data that did not meet minimum data accuracy and precision requirements (classified by reason);

3. Identification of the compliance status as of the last day of the reporting period and whether compliance was continuous or intermittent during the reporting period;

4. If, pursuant to (2) of this section, the owner or operator identifies any deviation as resulting from a known cause for which no Federally-approved or promulgated exemption from an emission limitation or standard applies, the monitoring report shall also include all records that the source is required to

maintain that pertain to the periods during which such deviation occurred and:

a. The magnitude of each deviation;

b. The reason for each deviation;

c. A description of the corrective action taken for each deviation, including action taken to both minimize it and prevent recurrence; and

d. All quality assurance activities performed on any element of the monitoring protocol.

IV. Summary of Estimated Environmental, Energy, and Economic Impacts of the Proposed Standards

The nationwide impacts presented below are the impacts the proposed standards would have on existing facilities. Because of downsizing of military forces, no new major sources are expected to be built in the next five years. Therefore, impacts on new sources are expected to be zero.

A. Number and Type of Affected Facilities

Approximately 437 facilities (shipyards) are involved in the construction and repair of ships nationwide. Based on industry information and data reported in the U.S. Department of Commerce's "U.S. Industrial Outlook '92 -- Shipbuilding and Repair" (January 1992) and the U.S. Maritime Directory Listings

(June 1992). It is estimated that only 25 qualify as major sources of HAP emissions and would be affected by the proposed rule.

B. Air Emission Reductions

The nationwide baseline VOHAP emissions for the approximately 25 major shipbuilding facilities from surface coating operations are estimated to be 1,155 Mg/yr (1,272 tons/yr). Implementation of the proposed standards would reduce these emissions by approximately 24 percent to 883 Mg/yr (972 tons/yr).

C. Secondary Environmental Impacts

No environmental impacts to water, solid waste, noise, or secondary air impacts are associated with implementation of the proposed standards, as explained below.

1. Water

There are no negative water pollution impacts resulting from transition to compliant coatings.

2. Solid Waste

There are no negative solid waste impacts associated with the proposed standards. No additional or new types of solid or hazardous waste will be generated. Because the compliant (higher solid) coatings are more

concentrated, fewer containers will require disposal when the same volume of solids is applied.

3. Noise

There is no additional noise associated with the proposed standards. Pumps and compressors, the source of the majority of the noise in paint operations, is not expected to change.

4. Secondary Air Impacts

There are no significant secondary air pollution impacts. Use of compliant coatings avoids use of any type of control device or equipment that would consume large amounts of energy. Furthermore, any reduction in VOC emissions that result from compliance with the HAP rule will reduce both ozone formation and CO_2, a greenhouse gas (VOC that remain airborne react to form ozone and are ultimately oxidized to CO_2).

D. Energy Impacts

Paint heaters are now used in some shipyards. Some sources may use paint heaters in lieu of solvent to reduce paint viscosity. Although some secondary air impacts would result from the power requirements of the electrical heaters, the amount of electricity that they draw is insignificant.

E. Cost Impacts

The incremental nationwide annual costs associated with the proposed standards (MACT cost minus baseline cost) is approximately $1.7 million per year. The use of compliant coatings will not require different equipment. Because lower-VOC (and presumably lower-VOHAP) coatings are more concentrated, less coating volume is required to cover the same surface area to the same dry film thickness. Some of these compliant coatings, however, may be more expensive both on a dollar-per-gallon basis, but also in cost-per-volume solids (nonvolatiles). Therefore, the annual costs associated with the proposed standards reflect the difference between the costs of higher-priced coatings and the savings associated with the decreased volume of coatings (because of the higher solids content) and labor to apply them.

Minor costs would be incurred by any source that purchases paint heaters or other minor equipment necessary to comply with the handling, transfer, and storage standard. These costs are expected to be insignificant.

F. Economic Impacts

Economic impacts were calculated on a facility-specific basis as well as on a market segment basis (i.e., military construction, commercial repair, etc.). Economic impact indicators examined included price, output, and employment impacts. The economic impact analysis calculated economic impacts for six market segments within the shipbuilding and repair industry. Two methods were used to calculate the potential price impacts; therefore, these impacts will be provided in terms of ranges.

Twenty major-source yards were identified as first-tier shipyards (facilities that have the capability to construct, drydock, and/or topside repair vessels with a minimum overall length of 400 feet). Two market segments in the first tier, facilities engaging in construction of military ships and privately owned facilities engaging in repair of military ships, are each estimated to increase their prices 0.1 percent or less to recover increased costs of the rule. The cost for the third market segment, government-owned shipyards engaging in repairing military ships, will be negligible.

The remaining five major-source shipyards are categorized into the "second tier" (facilities building

and repairing ships less than 400 feet in length). Within this tier, the market segment consisting of facilities constructing ships for the military is estimated to require a price increase between 0.1 and 0.2 percent. The market segment consisting of facilities engaging in construction of ships for the commercial sector is estimated to require a price increase of 0.3 percent or less. Lastly, the market segment consisting of facilities performing repair on ships in the commercial sector is expected to require little or no price increase.

The facility-specific impact calculations estimate the maximum price increase necessary for a regulated facility to fully recoup its annualized control costs. For the purposes of the analysis, a facility's price increase was considered significant if greater than 1 percent and deviated considerably from its corresponding market segment price increase.

The facility-specific price increase calculations indicated that 23 of the 25 major-source shipyards are expected to experience price increases of 0.1 percent or less. Of the two remaining, one is expected to experience a 0.2 percent price increase and the other, 0.3 percent.

The above data indicate that none of the regulated facilities are expected to experience price increases greater than 1 percent. In addition, a comparison of each facility's price increase to its corresponding market segment price increase reveals that the results of each analysis are not significantly different. Therefore, implementation of the NESHAP is not expected to have a significant impact on the 25 major-source facilities in the shipbuilding and repair industry.

The economic analysis also examined the impact of the NESHAP on industry output and employment. The industry is expected to experience a negligible reduction in output as a result of implementing the regulation. Assuming a one-to-one relationship between output and employment, the same conclusion can be applied to the NESHAP impact on the industry's employment level.

V. National Emission Standards for Hazardous Air Pollutants (NESHAP) Decision Process

A. Source of Authority for NESHAP Development

Section 112 of the Act gives the EPA the authority to establish national standards to reduce HAP emissions from sources that emit one or more HAP. Section 112(b) contains a list of the specific HAP to be regulated by NESHAP. Section 112(c) directs the EPA to use this

pollutant list to develop and publish a list of source categories for which NESHAP will be developed. The Act defines major sources as those that emit or have the potential to emit considering controls, in the aggregate, 9.1 Mg/yr (10 tons/yr) or greater of individual HAP or 22.7 Mg/yr (25 tons/yr) or greater of any combination of HAP. The initial list of source categories was published on July 16, 1992 (57 FR 31576). Shipyards (major sources only) appear on this list.

Area sources are those sources that are not major sources. Area source categories selected by the EPA for NESHAP development will be based on the Administrator's judgment that the sources in a category, individually or in the aggregate, pose a "threat of adverse effects to health and the environment." The EPA will continue to evaluate whether area source shipyards should be added to the list of area source categories.

B. Criteria for Development of NESHAP

The NESHAP are to be developed to control HAP emissions from both new and existing sources according section 112(d) of the Act. The standards are to reflect the maximum degree of reduction that is achievable for new or existing sources. The NESHAP must reflect consideration of the cost of achieving the emission

reduction, nonair quality health and environmental impacts, and energy requirements for control levels more stringent than the MACT floor (described below). The Act specifies that emission reduction may be accomplished through application of measures, processes, methods, systems or techniques, including, but not limited to, measures which:

1. Reduce the volume of, or eliminate emissions of, such pollutants through process changes, substitution of materials, or other modifications;

2. Enclose systems or processes to eliminate emissions;

3. Collect, capture, or treat such pollutants when released from a process, stack, storage, or fugitive emission point;

4. Are design, equipment, work practice, or operational standards including requirements for operator training or certification as provided in section 112(h); or

5. Any combination of the above [section 112(d)(2)].

To develop NESHAP, the EPA collects information about the industry, including information on emission source characteristics, control technologies, data from

HAP emission tests at well-controlled facilities, and information on the cost, energy, and other environmental impacts of emission control techniques. The EPA uses this information to analyze possible regulatory approaches.

Although NESHAP are normally structured in terms of numerical emission limits, alternative approaches are sometimes necessary. In some cases, physically measuring emissions from a source may be impossible or at least impracticable due to technological and economic limitations. Section 112(h) authorizes the Administrator to promulgate a design, equipment, work practice, or operational standard or combination thereof, in those cases where it is not feasible to prescribe or enforce an emissions standard.

If any sources in the source category are considered major (based on their emissions), then a MACT standard is required. To establish a MACT standard, the level of control corresponding to the MACT floor needs to be determined as a starting point for developing the regulatory alternatives.

C. Categorization/Subcategorization: Determining MACT "Floors"

Section 112 of the Act provides certain very specific directives to guide the EPA in the process for establishing MACT standards. It states that the EPA shall establish standards that require "the maximum degree of reduction in emissions of the hazardous air pollutants...that the Administrator, taking into consideration the cost of achieving such emission reduction, and any nonair quality health and environmental impacts and energy requirements, determines is achievable..." [section 112(d)(2)]. In addition, a minimum baseline or "floor" for a standard is specified. For new sources, the standard for a source category or subcategory "shall not be less stringent than the emission control that is achieved in practice by the best controlled similar source, as determined by the Administrator" [section 112(d)(3)].

Further, standards for existing sources shall be no less stringent than: (1) the average emission limitation achieved by the best performing 12 percent of the existing sources in the category or subcategory for categories and subcategories with 30 or more sources; or (2) the best performing five sources for categories or

subcategories with fewer than 30 sources [section 112(d)(3)].

Once the floor has been determined for new or existing sources for a category or subcategory, the Administrator must set MACT standards no less stringent. Such standards must then be met by all sources within the category or subcategory. However, in establishing standards, the Administrator may distinguish among classes, types, and sizes of sources within a category or subcategory and establish a different emission standard for each class, provided all standards are at least as stringent as the MACT floor.

The EPA has determined that there are less than 30 major shipbuilding sources. Consequently, the MACT floor for existing categories or subcategories was calculated to be the arithmetic average (the mean) of the emission limitation achieved by the best performing five sources.

D. Regulatory Approach and Regulatory Alternatives

The next step in establishing standards is the investigation of regulatory alternatives. With MACT standards, only alternatives at least as stringent as the floor may be considered. Information about the industry is analyzed to develop model plant populations for

projecting national impacts, including HAP emission reduction levels, costs, energy, and secondary impacts. Several regulatory alternative levels (which may be different levels of emissions control or different levels of applicability or both) are then evaluated to determine the most appropriate regulatory alternative to serve as the basis for the standard.

The regulatory alternatives for new versus existing sources may be different, and separate regulatory decisions must be made for new and existing sources. For both source types, the selected alternative may be more stringent than the MACT floor. However, the control level selected as the name maximum achievable control technology indicates, must be available, i.e., technically achievable. In selecting a regulatory alternative, the Agency considers the achievable reduction in emissions of HAP (and possibly other pollutants that are co-controlled), the cost and economic impacts, the energy requirements, and other environmental impacts.

The selected regulatory alternative is then translated into a proposed regulation. The regulation implementing the decision typically includes the following sections: applicability, standards, test

methods, compliance demonstration, monitoring, reporting, and recordkeeping. The preamble to the proposed regulation provides an explanation of the rationale for the decisions embodied in the rule. The public is invited to comment on the proposed regulation. Based on an evaluation of these comments, the EPA promulgates the final standard.

VI. Process Description and Control Technologies

This section describes the painting process and technologies that can be used to control organic HAP emissions from painting operations at shipyards. For more detailed description of the process and control technologies, consult the BID for the proposed standards (see ADDRESSES at the beginning of this Preamble).

Over 99 percent of HAP emissions at shipyards are organic solvents associated with paints and cleaning. Other activities that collectively contribute the remaining 1 percent include welding, metal forming/cutting, and abrasive blasting. The proposed standards will affect operations involving the use of paint and organic solvents.

A. Painting Process

Marine coatings are applied to the surface of ship components to form a protective, functional or decorative films. The basic components of a coating are the vehicle (resin or binder), solvent, pigment (except in clear coatings), and a variety of additives. Different coatings are used for different purposes; depending on where it is applied, the intended use of the ship, ship activity, travel routes, desired time between coatings (service life), aesthetic desires of the ship owner or commanding officer, and fuel costs.

Marine coatings are vital for protecting the ship from corrosive and biotic attacks from the water environment. Many marine coatings serve specific functions, such as corrosion protection, heat/fire resistance, or antifouling (to prevent the settlement and growth of marine organisms on the ship's underwater hull).

The most popular techniques for applying coatings to marine vessels are brushing, rolling, air-atomizing, and airless spraying. Brushing and rolling are primarily used for touchup and recessed surfaces where spraying is not practical. Spraying is used for all other surfaces because of its high application speed.

Thinning solvent is sometimes added to coatings before application even though paint manufacturers state that it is unnecessary. Temperature, reportedly can play a big part in the decision to thin; cold increases paint viscosity. For such cases, the appropriate solvent to use for each coating is specified by the manufacturer. Typically these paints and thinning solvents contain one or more of the following HAP: xylene, toluene, and/or methyl ethyl ketone.

B. Control Technologies for Painting Operations

Emissions of VOHAP result primarily from solvent evaporation--both solvent in the paint "as supplied" by the manufacturer and any solvent used by the shipyard to thin the paint. Reaction by-products released during the cure of some coatings may also contain HAP. Essentially, all organic solvents, including those which are HAP, are emitted either as the paint is applied or when it dries/cures. The shipyard may limit emissions of HAP from, "as supplied" or "as applied," coatings as discussed below.

1. Paints As-Supplied by the Manufacturer

Since the Agency began its program to reduce emissions of volatile organics in the late 1970's, the coating industry has made significant progress in

research of new products with increased solids: organic solvent ratios. These liquid paints are of two primary types: waterborne and higher solids. Although many new waterborne products have been developed, manufacturers of marine coatings have reduced solvent primarily by increasing the solids (nonvolatile) content of their products. Use of these concentrated or "higher solids" coatings reduce solvent emissions per surface area painted (at same film thickness). Because most hazardous air pollutants are also volatile organics, the VOC program has tended to also reduce HAP.

In addition, some coating manufacturers have reportedly been able to reduce the HAP content of certain paints by merely substituting a solvent not on the HAP list yielding paints that contain little or no HAP solvents. A coating reformulated in this manner may have the same or even higher VOC content than the one it replaces. In some cases, the HAP to VOC ratio may even increase when a company develops a new reformulation with lower VOC. (Note, the absolute HAP emissions are likely to go down.)

2. Paints As-Applied by the Shipyard

There are several alternatives a shipyard may follow to minimize HAP emissions from as-applied paints. One is to avoid diluting the paint and apply it as-supplied. Another is to only use thinners that contain little or no HAP. A third is to reduce paint viscosity by heating the paint to avoid or minimize the need for thinning. (Paint heaters are heating elements placed in the paint delivery line upstream of the spray gun. Depending on the length of the delivery line, the coating characteristics, and ambient temperature, multiple paint heaters may be required at intervals along the line. These decrease the ease of portability and flexibility of the application system.)

"Add-on" pollution control systems are often used to control emissions from spray booths when coatings are applied in factory operations. Such systems are not now a practical alternative for many shipyard operations because the size of ship components is too large to enable capturing of the emissions with an enclosure. (There is currently under development a mobile enclosure that, if successful, will offer shipyards a method of capturing both particulate and volatile organics. Metro Machine shipyard in Norfolk, Virginia has developed a

prototype portable enclosure that mounts adjacent to the ship and supports an omni-directional elevator platform used by the operator to abrasive blast and paint ship's hulls. The method shows promise of containing particulate and volatile organics of concentrations great enough to make recovery available at reasonable cost. It also provides weather protection thereby allowing work to continued in inclement weather. Final evaluation will likely be completed in 1996.)

C. Handling, Transfer, and Storage of VOHAP Containing Material

Volatile organic emissions (including HAP) result from storage, handling, and transfer of solvents and paint wastes that contain VOHAP. These solvents, typically stored in 55-gallon drums, are frequently transferred by pump or spigot into small buckets or 1 gallon containers for transport to the painting site. Waste solvent and HAP also evaporate from solvent-laden rags and spent solvent used in cleaning activities and coating operations.

These HAP emissions may be minimized with appropriate work practices including managed chemical (paint and solvent) distribution systems designed to curb the volume of material exposed to the atmosphere and the

length of the exposure. For example, solvent-soaked cleaning rags should be kept in impervious bags or containers that are normally closed when not in use.

VII. Selection Rationale

A. Selection of Emission Points to be Covered

The proposed standards would limit VOHAP emissions from surface coating operations at shipbuilding facilities that are major sources in accordance with the EPA's list of source categories published in the Federal Register on July 16, 1992 (57 FR 31576). Standards are being proposed to limit the VOHAP content of 23 categories of coatings used in shipyards. In addition, the proposed standards would require work practice measures for handling, transfer, and storage of solvent and paint wastes.

Welding, gas freeing (tank degassing), metal fabrication, fuel combustion, flame cutting, cooling towers, asbestos removal, and cleaning would not be regulated under the proposed rule, although their emissions must be included in determining if a facility qualifies as a major source. Asbestos removal is covered in 40 CFR part 61, subpart M; cooling towers are treated in the industrial process cooling tower rule proposed on August 12, 1993; and chromium emissions by the rule for

hard and decorative electroplating and anodizing operations proposed on November 30, 1993. Methodology for determining and managing emissions from cleaning solvents is detailed in the ACT document--Industrial Cleaning Solvents, EPA-453/R-94-015.

B. Selection of the Basis for the Proposed Standards

The general methodology for selecting the basis for MACT standards was discussed in section V. A more detailed discussion specific to this industry is presented below.

1. Coating Operations

No emission control measures are known to have previously been implemented specifically to reduce HAP emissions from this industry. Regulations that reduce VOC emissions will limit HAP emissions since almost all organic HAP are VOC.

At shipyards, the only VOC control measure that has been fully demonstrated for outdoor coating operations is the use of coatings with inherently lower emissions. Such coatings have and are being developed by an enlightened industry to reduce its environmental impact. The new products are used for compliance with VOC regulations in Louisiana and some California

jurisdictions. There are as yet no known cases where add-on pollution control systems have been used to control VOC emissions from outdoor coating operations at shipyards.

The California and Louisiana regulations limit the allowable quantity of VOC in each of several categories of coatings, as applied. Because VOHAP are VOC (with the exception noted above), such regulations also reduce, or at a minimum, put a ceiling on the allowable HAP content of these coatings.

The California regulations (VOC limits) are more stringent than those in Louisiana. Thus, the major sources subject to those California rules represent the "best controlled sources." Because three major source facilities are located in California, the single best controlled facility and the median facility of the best performing five sources are both subject to the stringent California regulations. Therefore, the Agency has determined that the MACT floor for both new and existing sources is identical to the current California VOC limits on marine coatings, except for one additional paint category [weld-through (shop) primer].

A variety of more stringent alternatives were considered, including more restrictive limits based on

HAP content (rather than VOC content), more stringent VOC limits, and requiring use of pollution control equipment. These alternatives are discussed below.

To evaluate other potential limits, the EPA gathered existing data on HAP content from marine coating manufacturers and shipyards. Information compiled from a material safety data sheet (MSDS) was used to determine (estimate) the HAP content of each paint. Most of the data came from MSDSs and product data sheets. Based on these data, the percentage of VOC in marine coatings that are HAP varies from zero to 100 percent and averaged 30 percent by weight for all paints in the project data base. (The HAP content could exceed the VOC content in coatings containing non-VOC HAP.)

Industry subsequently informed EPA that the quality of HAP-specific data on MSDSs is poor. The MSDSs are prepared primarily to meet Occupational Health and Safety Administration (OSHA) requirements. Although one section addresses hazardous constituents, the industry indicated that information and format required for OSHA purposes are not as detailed or accurate as would be desired for development of a regulation. Further, the list of hazardous materials that OSHA regulations require must be addressed in MSDSs is different from the HAP list in

§ 112(b) of the Act. In addition, it is acceptable to give a concentration range on the MSDS, rather than a specific value. Finally, many entries on the MSDS are generic petroleum solvents, such as mineral spirits, which are mixtures of many organics (some of which may be HAP) and vary in composition from lot to lot.

Because of these drawbacks in MSDS data, the EPA considered it not accurate enough to be used in setting limits for VOHAP. The Agency believes, however, that the resulting data base is sufficiently accurate for use in estimating broad parameters, such as the potential reduction associated with limitations on VOC content.

Enforcement of a limit on HAP content would require an EPA reference test method. Although one is under development by the Agency, it has not yet been published. Based on the quality of the HAP content data on the MSDSs and the lack of an approved test method for speciating and quantifying HAP, the EPA has determined that VOC will be used as a surrogate to limit HAP emissions. Consequently, the proposed rule would establish the VOHAP limit at the VOC limit of the California rules using VOC as a surrogate for HAP and the Agency's VOC test method, Method 24, for determining compliance.

The EPA considered requiring limits more stringent than the existing California limits. The data base indicates that within each category of coatings there are coatings with VOC contents below the California limit. (Some may have been developed in response to the technology-forcing provisions of the California regulations that provide for more stringent limits to come into effect in September 1994 for some coating categories.)

Although coatings with lower VOC contents than the rule requires are marketed in each category, they reportedly would not perform for the full range of potential applications within a coating category.

An important consideration in examining control requirements for this industry is U.S. Navy military specifications or "milspecs." Because of the need for coatings for specialized applications and the demand for predictable performance, the Navy oversees exhaustive performance testing procedures. Naval personnel indicate an ongoing program to qualify lower VOC coatings. The California rules were developed with considerable input from the Navy, and according to a Naval representative, reflect the "state of the art" for lower-VOC shipbuilding coatings. Volatile organic compound limits more

stringent than proposed would require that the Navy use paints for which they have not yet completed long term testing, hence are not milspec approved. Given these considerations, the EPA is proposing MACT emission levels based on the 1992 California regulations that limit the total VOC as-applied paint.

The EPA also evaluated the potential of add-on VOC control devices (i.e., carbon adsorbers and incinerators). Although no cases are known where add-on controls are used for outdoor painting at shipyards, they have been used to reduce spraybooth emissions by many other industries. Most coating operations at shipyards take place outdoors, primarily because of the size of parts painted. This makes capture of emissions difficult and expensive. Use of add-on controls for outdoor painting was not selected as the basis for MACT for these reasons. It should be noted, however, that a portable enclosure that will contain particulate and VOC during abrasive blasting and coating of ships' hulls is under commercial development. Should these enclosures prove technically and economically feasible, their performance should be considered by any State or the Federal Government in developing future rules for this industry.

Two types of coating operations at shipyards where emissions are more available to capture were examined more closely for the feasibility of add-on controls: indoor coating operations and painting inside of ship's tanks or other internal enclosed spaces. Based on a brief screening analyses, using the limited available data that assumes all spray areas are continually drafted to the control device (whether painting operations are underway in all areas or not), add-on control was estimated to be on the order of $150,000/Mg of VOHAP removed. The EPA believes that this cost is not reasonable for this source category. As a result, add-on controls were not investigated further nor selected as the basis for MACT.

In reality, the amount of VOC and HAP controlled at a site is dependent on the rate of paint application, the concentration of these compounds in the exhaust air stream during the painting operation, the flow rate of the air stream flowing into the add-on control unit and a host of other factors. The suitability of add-on controls can only be determined on a case-by-case basis.

After review of alternatives more stringent than the MACT floor, the EPA is proposing to set the MACT standard at the floor based on the California marine coatings rule

which is for both new and existing sources. The costs of the control option for new and existing sources is expected to be the same. The Agency solicits comments on this determination.

"Models" of shipyards were developed to help determine the need to differentiate among classes of shipyards in identifying the MACT." Models were developed for classes of yards based on market segment (yards that construct ships versus those that only repair) and size (large versus medium). The EPA concluded there is no basis for differentiating among classes of major source shipyards, but specifically solicits comments on whether this category should be subcategorized; and if so, how.

2. Handling, Transfer, and Storage of VOHAP Containing Material

Based on information received from industry, a variety of "work practice" measures are used to reduce evaporative losses of VOC from transfer, handling, and storage of solvent and paint wastes. These include spill minimization techniques (use of spouts, funnels, or catch basins during transfer of liquids from one container to another), the use of normally closed containers or piping to transport liquids, and the use of close-fitting or

tight covers on containers for solvent, wet rags, and waste.

Many more than five facilities employ some type of work practice measures. Facilities in California are subject to regulations to minimize evaporative emissions; other facilities employ such measures to decrease solvent usage or to minimize exposure of workers. However, data to quantify accurately the emission reductions achievable by different work practice measures is unavailable. The beneficial effect of a specific change is largely a function of the previous plant practice being remedied. As a result, even though such activities obviously reduce emissions, there is no way to distinguish between the "best controlled source" and the "best performing five existing sources." Therefore, the EPA has designated the same select work practice measures as the MACT floor for control of emissions from handling and transfer of VOHAP containing material at both new and existing facilities. For emissions from storage containers, the MACT floor is use of tight-fitting covers that must be normally closed; that is, in place except when materials are being added to or withdrawn. The Agency believes that this is a reasonable approach. Because work practice measures typically entail negligible cost, any emission reduction

that is achieved is believed to be worthwhile. The EPA specifically solicits comments on this determination.

No other more effective control options for these VOHAP emissions from cleaning activities were found. Use of lower-HAP or lower-vapor-pressure substitutes to minimize evaporative losses may be feasible, although this option depends on the availability of a suitable replacement cleaning material.

Capture and control of fugitive emissions from the many transfer, handling, and storage of solvents (and operation wastes) although conceivable, is impractical, making it difficult to invoke any quantifiable standard other than work practice requirements. Associated monitoring and recordkeeping are included for determining compliance. In an attempt to ensure that employees understand and comply with the requirements, the proposed standards also require each source to implement a training program for all involved personnel.

C. Selection of the Format of the Proposed Standards

1. Coating Operations

Most HAP emissions from coating operations in this industry occur outdoors where the technology for their capture has not been demonstrated. As a result the only

available technology for reducing emissions is to require use of coatings with lower volatile content. Virtually all of the HAP and VOC contained in marine coatings are emitted to the atmosphere during the course of application and drying. Thus, an emission standard based on limiting both HAP and VOC content of the coatings, as applied, is appropriate for these operations, particularly because any additional HAP and VOC that may be formed and emitted during the curing process are detected and measured by the reference measurement methodology.

As a result, the types of coatings used by the industry were identified and maximum, never-to-be-exceeded HAP limits were selected for each of the several coating categories. To allow additional flexibility, the ability to average limits across categories was also considered. Under an averaging approach, any coating regardless of volatile organic content, can be used as long as the volume weighted average as applied VOHAP content, i.e., as measured by the reference method, of all coatings does not exceed the average calculated from their individual limits. In developing the limits, the Agency considered two types of averages: (1) separate averages for coating within each of the coating

categories and (2) a single average for all coatings used by a facility. The option of establishing limits based on weighted averages of various coatings of different pollution content was abandoned when the industry indicated that time and effort to plan, track, and demonstrate compliance would be too burdensome. As a result, the limits are based on never-to-be-exceeded VOHAP contents for 23 categories of coatings and permits "averaging" for purposes of compliance under certain conditions. The proposed coating categories and associated HAP limits are presented in Table 1.

TABLE 1. PROPOSED VOLATILE ORGANIC HAP (VOHAP) CONTENT LIMITS FOR MARINE COATINGS

Coating category	VOHAP limits[a,d]		$VOHAP_{alt}$ limits[c,d]	
	Grams per liter (g/L)	Pounds per gallon (lb/gal)[b]	Grams per liter (g/L)	Pounds per gallon (lb/gal)[b]
General use	340	2.83	571	4.76
Specialty	--	--	--	--
Air flask	340	2.83	571	4.76
Antenna	530	4.42	1,439	12.00
Antifoulant	400	3.33	765	6.38
Heat resistant	420	3.50	841	7.00
High gloss	420	3.50	841	7.00
High temperature	500	4.17	1,237	10.31
Inorganic zinc high-build primer	340	2.83	571	4.76
Military exterior	340	2.83	571	4.76
Mist	610	5.08	2,235	18.63
Navigational aids	550	4.58	1,597	13.31
Nonskid	340	2.83	571	4.76
Nuclear	420	3.50	841	7.00
Organic zinc	360	3.00	630	5.25
Pre-treatment wash primer	780	6.50	11,095	92.46
Repair and maintenance of thermoplastic coating of commercial vessels	550	4.58	1,597	13.31
Rubber camouflage	340	2.83	571	4.76
Sealant coat for thermal spray aluminum	610	5.08	2,235	18.63
Special marking	490	4.08	1,178	9.82
Specialty interior	340	2.83	571	4.76
Tack coat	610	5.08	2,235	18.63
Undersea weapons systems	340	2.83	571	4.76
Weld-through (shop) primer	650	5.42	2,885	24.04

[a]Volatile organic HAP limits (for compliance options 1 through 4) are expressed in units of mass of VOHAP per volume of coating less water and non-HAP "exempt" solvents, as applied. Volatile compounds classified by EPA as having negligible photochemical reactivity are listed as "exempt" in 40 CFR 51.100(s) (except those on the HAP list).

[b]To convert from g/L to lb/gal, multiply by:
[(3.785 L/gal)(lb/453.6 g)] or (lb-L/120 g-gal).

[c]Alternate volatile organic HAP ($VOHAP_{alt}$) limits (for compliance option 5) are expressed in units of mass of VOHAP per volume of solids, a value that assumes the volumes of all components within a coating are additive.

[d]For compliance purposes, the metric limits are the standard.

2. Handling, Transfer, and Storage of VOHAP Containing Material

The proposed work practice standards require that these operations be carried out in such a manner that minimizes spills. For storage and transport, the proposed standards require use of containers that are normally closed.

To provide a measure of enforceability to these standards, each source will be required to indicate how it intends to comply with the standards as part of the initial notification that is required of all sources under the part 63 general provisions. After the Administrator or her designee negotiates and approves these compliance measures as part of the operating permit program, each source will have a specific set of requirements for which compliance can be determined by monitoring, observation and/or inspection.

D. Selection of Compliance Dates

The proposed rule would require that existing sources comply within 1 year after the effective date of the rule. This provides time for shipyards and coating manufacturers to deplete most existing inventories of contemporary coatings. An existing unaffected area source that increases its emissions (or potential to emit) such that it becomes a major source would be required to comply within 1 year after becoming a major source.

Any new or reconstructed sources would be required to adhere to the compliance schedule in § 63.6(b) of subpart A of the general provisions. For new or reconstructed sources whose startup date is before the effective date of the rule, the compliance date would be the effective date of the rule. For new or reconstructed sources whose startup date is after the effective date of the rule, the compliance date would be the startup date. A new unaffected area source that increases its emissions (or potential to emit) such that it becomes a major source would be required to comply immediately upon becoming a major source.

Many shipyards in California have been complying with VOC limits equal to those in the proposed BACM since

September 1991. Hence, coatings that meet the limits should be readily available.

E. Selection of Compliance Procedures

The proposed rule would allow affected sources to choose from five options for demonstrating compliance with the VOHAP standards. Regardless of the option(s) chosen, for each coating, affected sources would be required to first determine: (1) its coating category in Table 1 (e.g., general use, air flask, antenna, etc.), (2) the applicable VOHAP limit, and (3) the VOC (or VOHAP) content for each manufactured batch of coating. The VOC (or VOHAP) content of the batch would be determined through certification as explained in part III.D. (It is in the best interest of affected sources to use manufacturers that certify their coatings.)

For options 1 through 4 involving VOC content determinations, the compliance method is the Agency's Method 24. Affected sources would be allowed any of the methods described below to avoid testing every container. The ultimate referee method, however, is Method 24. Option 5 involves VOHAP content determinations; the compliance method has to be approved by the Administrator and comply with EPA requirements for sample preparation.

The proposed rule does not specify compliance procedures for the handling, transfer, and storage standard. Each affected source would be required to develop and include specific compliance procedures for their facility in the initial notification to the Administrator.

An affected source would be allowed to select any of the following methods for compliance and may choose to use only one of the options for all coatings at the facility or use a combination of options.

Option 1. Certification of Each Container or Coating, As- Applied

Procedures for certifying the quantity of VOC emitted by paints, ink, and other coatings are combined in the EPA publication 450/3-84-019 (revised 6/86). Compliance with the VOHAP content limits would be achieved by sampling, testing, and certifying the VOC content of each container of coating, as applied. If the as-applied VOC content is less than or equal to the VOHAP limit in Table 1, the coating complies.

Option 2. Coatings To Which Thinning Solvent Will Not Be Added

If thinning solvents will not be added to the coating under any circumstances, the affected source may

demonstrate compliance with the VOHAP content limit by certifying the as-applied VOC content by manufacturer's batch. The as-applied certification may be based on a coating that has been certified by the manufacturer as to the as-supplied content and simply requires documentation that no thinning solvent was added to the coating. No additional testing would be necessary.

All painters would have to be notified that no thinning solvent may be added to the coating before application. This notification may be accomplished through a label affixed to each container in the batch or through another means of notification specified in the source's initial notification that is required in § 63.9(b) of subpart A of the general provisions. Other means of notifying painters may include use of a bar coding system or posting of a list of coatings that should not have thinning solvents added.

This option is the least burdensome to affected sources, but it may only be used for coatings that will not be thinned. However, any Method 24 tests on individual containers of coating, as applied, that show noncompliance with the standards would take precedence and indicate a violation.

Option 3. Coatings To Which Thinning Solvent is Added--Coating-By-Coating Compliance

If thinning solvents are added to the coating, the affected source could determine the allowed level of dilution for purpose of demonstrating compliance on a coating-by-coating basis. The source would determine the as-supplied VOC content of each type of thinning solvent. Then, using the as-supplied certification for the coating and the maximum allowable limit from Table 1, the source would calculate the maximum allowable thinning ratio that would not violate the VOHAP content limit.

The persons responsible for applying each coating shall be notified of the designated thinner and maximum allowable dilution ratio for that coating by affixing a label to each container of coating in the batch or through another means as discussed in the rule.

(A) For coatings and thinning solvents that do not contain water or exempt compounds, use Equation 1 as follows:

$$R^{\dagger}_{d} = \frac{HAP_{a} - VOC_{s}}{D^{\dagger}_{d} - HAP_{a}} \qquad \text{Equation 1}$$

where:

$R^{\dagger}_{d}$ =

Maximum allowable thinning ratio (L thinner/L coating as supplied);

$VOC_{,s}$ =

As-supplied VOC content of the coating (g VOC/L coating as supplied, less water and exempt solvents);

HAP_{a} =

Allowable as-applied VOHAP content of the coating (g VOHAP/L coating as applied, less water and exempt solvents);

$D^{\dagger}_{d}$ =

Density of the thinners (g thinner/L thinner);

(B) For coatings or thinners that contain water or exempt compound(s), use Equation 2 as follows:

$$R^{\dagger}_{d} = \frac{[1-(V_w)_r]\ (HAP_a - VOC_s)}{D^{\dagger}_{d}\ [1-(W_w)_d] - HAP_a\ [1-(V_w)_d]} \qquad \text{Equation 2}$$

where:

$(V_w)_s$ =

Volume fraction of water and exempt solvents in the coating as supplied (L water and exempt solvents/L coating as supplied);

$(V_w)_d$ =

Volume fraction of water and exempt solvents in the thinner (L water and exempt solvents/L thinner); and

$(W_w)_d$ =

Weight fraction of water and exempt solvents in the thinner (g water and exempt solvents/g thinner).

(C) The procedures specified under test methods and procedures may be used to determine the values of variables defined in this paragraph, as necessary.

A source is to determine the total allowable volume of thinner for each coating for the month using the following equation.

$$V_d = \sum_{i=1}^{n} (R^{\dagger}_d \times V_c)_i \qquad \text{Equation 3}$$

where:

V_d =

Total allowable volume of thinner for the coating for the previous month (L thinner);

V_c =

Volume of each batch of the coating, as supplied, used during the month (L coating as supplied);

i =

Each batch of coating; and

n =

Total number of batches of the coating.

If the actual thinner volume used for a coating is less than or equal to the total allowable thinner volume for that coating then compliance is presumed for that coating for the month, unless a violation is revealed using Method 24. (If it is greater, the facility must report a violation.) Any Method 24 test on individual containers of coating, as applied, that shows noncompliance with the standards would take precedence and indicate a violation.

Option 4. A Group of Coatings To Which the Same Thinning Solvent is Added--Group Compliance

Inasmuch as shipyards may use the same solvent to reduce more than one category of coating, this option was created to minimize recordkeeping in such cases. The group compliance option is similar to the coating-by-coating compliance option, except the source does not need to maintain thinner usage by individual paint category; it would be allowed to calculate the total allowable volume of thinner used for a group of coatings. A group would be constituted based on use of common

thinner. A group could consist of two or more different batches of the same coating or different coatings. For example, a group may consist of a certain batch of antenna coating combined with all batches of general use coatings. However, a group may not contain any coating to which thinning solvent will not be added.

Affected sources would calculate the maximum allowable dilution ratio for each coating using equation 1 or 2. All painters would have to be notified of the maximum allowable dilution ratio for each coating. Beginning with the recorded amount of coating used during the previous month, the facility would calculate the net allowable volume of thinner that could have been used by each coating in the group. If the actual usage was less than or equal to the net allowable volume for the group, the source is in compliance. However, any Method 24 test on individual containers of coating, as applied, that shows noncompliance with the standards would take precedence and indicate a violation. Equations 1 through 3 were derived from the EPA's "Procedures for Certifying Quantity of Volatile Organic Compounds Emitted by Paint, Ink, and Other Coatings" (Revised June 1986), EPA--450/3-84-019.

Option 5. Coatings with Noncompliant VOC Contents Used in Areas Without VOC Limits

In those facilities located in areas without required VOC limits for marine coatings (i.e., ozone attainment areas; all 25 of the existing major source facilities are located in current ozone nonattainment areas), the affected source may measure the HAP content using the following techniques and using alternate limits derived from the limits in the regulation to demonstrate compliance on a coating-by-coating basis. The $VOHAP_{alt}$ limits were calculated using the maximum allowable VOHAP limits (see Table 1) and an assumed average density for all solvents. To demonstrate compliance, the source would determine (using formulation data from the coating manufacturer) the as-supplied VOC content and volume solids (V_s) of each coating.

Then, using the measured (via any approved test method) VOHAP content divided by the volume solids, compliance can then be determined with the calculated $VOHAP_{alt}$ limit. The following equations were used to calculate the alternate

VOHAP limits (for coatings that do not contain any exempt solvents or water):

$$V_s = 1 - \frac{VOC}{(D_{avg})}$$

Equation 5 *

*Equation 5 only applies to those coatings containing only VOC's and (volume) solids.

where:

V_s** =

Volume fraction of solids in the coating as supplied (L solids/L coating as applied);

VOC =

Applicable as-supplied VOC content of the coating (g VOC/L coating as supplied, less water and exempt solvents; and

D_{avg} =

Average density of solvents in the coating (to demonstrate compliance of a marine coating, use the solvent mixture in the coating to calculate D_{avg}.)

In order to calculate $VOHAP_{alt}$ limits, the VOC content was assumed to be equal to the VOHAP limit for each coating category in Table 1, therefore:

$$V_s = 1 - \frac{\text{VOHAP limit}}{D_{avg}}$$

where:

**For purposes of this general discussion and example calculations, volume solids (V_s) has been used interchangeably with the term "nonvolatiles."

$VOHAP_{limit}$ =

Applicable as-applied VOHAP limit of the coating category (g VOHAP/L coating as applied, less water and non-HAP exempt solvents);

D_{avg} =

840 g/L (for conversion purposes, the average density of solvents used in all marine coatings).

The $VOHAP_{alt}$ limits were then calculated using the following equation:

$$VOHAP_{alt} = \frac{VOHAP\ limit}{V_s} \qquad \text{Equation 6}$$

where:

$VOHAP_{alt}$ = Allowable as-applied alternate VOHAP content of the coating (g VOHAP/L solids as applied)

V_s = Volume fraction of solids in the as applied coating (L solids/L coating)

If the measured VOHAP contents for a coating divided by the volume solids (V_s) is less than or equal to the calculated $VOHAP_{alt}$ limit in Table 1, then compliance is demonstrated.

An example calculation for determining the $VOHAP_{alt}$ limit for a "general use" coating follows:

First, the VOHAP limit = 340 g/L and based on the assumption that the coating is only comprised of VOC and (volume) solids,

$$V_s = 1 - \frac{VOC}{840\ g/L}$$

Then,

$$V_s = 1 - \frac{340\ g/L}{840\ g/L} = 0.595$$

$$VOHAP_{alt} = \frac{VOHAP\ limit}{V_s}$$

$$VOHAP_{alt} = \frac{340\ g/L}{0.595} = \frac{571\ g\ VOHAP}{L\ solids}$$

When the as-applied coating contains thinner and/or exempt compounds, special allowances (calculations) must be used to determine $VOHAP_{alt}$ limits. These special allowances and procedures for compliance testing are covered in a June 30, 1994, memo to the project file [Docket A-92-11, II-B-26] from Dr. Mohamed Serageldin.

To further illustrate the $VOHAP_{alt}$ limit calculations, the following example is provided: A shipyard wants to use (demonstrate compliance using option 5) a general use coating with a VOC content of 392 g/L less water and

exempt solvents, a measured VOHAP content of 288 g/L less water, and an average solvent density of 880 g/L. Since the VOHAP limit for general use coatings is 340 g/L less water, the $VOHAP_{alt}$ limits were calculated to be 571 g VOHAP/L solids (see Table 1).

$$V_s = 1 - \frac{392 \text{ g/L}}{880 \text{ g/L}} = \frac{0.555 \text{ L solids}}{\text{L coating}}$$

$$\text{)HAP content} = \frac{288 \text{ g/L less water}}{V_s} = \frac{288 \text{ g/L less water}}{0.555 \text{ L solids/L coatin}}$$

VOHAP content = 519 g VOHAP/L solids

Compliance for the coating is therefore demonstrated because the VOHAP content of 519 g/L solids is less than the $VOHAP_{alt}$ limit of 571 g/L solids.

F. Selection of Test Methods and Procedures

Since the EPA does not yet have a published reference method for analyzing for the amount of VOHAP in a coating, the measure of total VOC is to be used as a surrogate. Method 24 is the Agency's reference method for determining the total volatile organic content (the total amount of VOHAP and other volatile organics). The proposed rule would use the VOC content of as-applied coatings to determine compliance with the VOHAP content limits (see section VII.B.1).

Most, if not all, major shipbuilding facilities are believed to be located in ozone nonattainment areas. These facilities are likely to be required to meet State VOC regulations requiring BACM. As explained earlier in this notice, the EPA's draft recommended BACM for the draft CTG contains VOC limits equivalent to the VOHAP limits being proposed. Thus, using Method 24 to measure compliance with both the VOC and HAP rules (i.e., one test to satisfy two concerns) should be the least burdensome route of any source having to meet VOC rules in addition to HAP rules. However, in case there are any sources which are not required to meet VOC rules and have a desire to determine compliance through measuring VOHAP instead of VOC, an approach as outlined in option 5 is being proposed. (Comments are requested.)

The proposed rule would require that affected sources use forms and procedures comparable to those in the EPA's "Procedures for Certifying Quantity of Volatile Organic Compounds Emitted by Paint, Ink and Other Coatings," (Revised June 1986) EPA-450/3-84-019 for all certifications needed for compliance demonstrations. Consistent use of these forms and procedures will provide uniform and complete records that will allow

determination of "continuous" compliance with the standards.

Procedures other than test methods would be required to demonstrate compliance with the handling, transfer, and storage standard. Each source is required to submit an implementation plan that will include specific procedures to ensure compliance.

G. Selection of Notification, Recordkeeping, and Reporting Requirements

1. Notification Requirements

The proposed rule would require affected sources to submit an initial notification and subsequent quarterly notifications of compliance status. Exceedances (violations) should be reported on a quarterly basis. The notification requirements in §§ 63.9(a)-(d) and (h)-(j) of subpart A would apply to all affected sources in addition to the source category-specific requirements in the proposed rule. Sections 63.9(e)-(g) of subpart A would not apply unless an affected source installs an add-on control device.

Section 63.9(b) of subpart A contains the initial notification requirements. The initial notification would alert the Administrator of: (1) the applicability for existing facilities or of construction for new

facilities, (2) how the source plans to comply with the proposed standards, and (3) if any delays in compliance are expected. This notification would be due no later than 120 calendar days after the effective date of the rule for existing sources; for new or reconstructed sources, the due date would be within 120 days after initial startup if approval of construction or reconstruction is not required under § 63.5(d) of subpart A. In addition to the items listed in § 63.9(b) of subpart A, sources would be required to include in the initial notification: (1) the compliance procedure(s) that they intend to use for the coating operation standards; (2) procedures for ensuring compliance with the handling, transfer, and storage standard; and (3) procedures for maintaining records.

Section 63.9(h) of subpart A contains the requirements for notification of compliance status. These would notify the Administrator of whether compliance has been achieved over the past 3 months. These notifications would be due before the 60th day following completion of each 3-month period. If there are no violations within the first year, compliant sources may request permission from the Administrator to go to 6-month notifications. Because records would be

compiled on a monthly basis, 60 days should provide sufficient time to prepare these notifications. In addition to the items listed in § 63.9(h) of subpart A, affected sources would be required to include in these notifications all other records that the source is required to maintain and compile on a monthly basis according to the proposed rule.

2. Recordkeeping and Reporting Requirements

The proposed rule would require affected sources to maintain adequate records to verify the compliance status of the source on a monthly basis. The recordkeeping and reporting requirements of the general provisions in §§ 63.10(a)-(b) and (f) of subpart A would apply to all affected sources. The source category-specific requirements in the proposed rule also apply. Sections 63.10(c)-(e) of subpart A would not apply unless an affected source installs an add-on control.

Affected sources would be required to keep records for 5 years of all VOC content certifications, VOHAP content certifications, maximum allowable dilution ratios, quantities of coatings and thinner consumed, and compliance calculations needed to determine compliance with the standards. These records would vary slightly depending on the method(s) of determining compliance

under § 63.784 that the source chooses to use. Records of any Method 24 tests (or VOHAP tests) conducted on individual coatings, as applied, would also be maintained. These records are required in case the results of any such test conflicts with the results of any compliance determination conducted in accordance with the other allowable methods.

The Administrator believes that the records required under the proposed rule are necessary for a regulatory agency to determine the compliance status of an affected source efficiently and effectively. All records would be compiled each calendar month and maintained for a minimum of 5 years.

H. Operating Permit Program

Under the operating permit regulations codified at 40 CFR part 70, any source that is considered major under the Act or any nonmajor source subject to a standard under sections 111 or 112 of the Act must obtain an operating permit [see § 70.3(a)(1)]. Often, emission limits, monitoring, and reporting and recordkeeping requirements are scattered among numerous provisions of State implementation plans or Federal regulations. As discussed in the promulgated regulation for the operating permit program published on July 21, 1992 (57 FR 32250),

this new permit program includes all of the air pollution control requirements that pertain to a single major stationary source in a single document. Sources subject to the program are required to submit complete permit applications within a year after a State operating permit program is approved by the EPA; if a State program is not approved, sources will submit applications to the EPA within a year after the Federal program is promulgated.

I. Solicitation of Comments

The Administrator solicits comments on all aspects of this proposal. However, the Administrator is specifically requesting comment on the topics discussed in this section. Commenters should provide available data and rationale to support their comments on each topic.

The Administrator specifically requests comments on the MACT floor determination, subcategorization, and claims by some shipyards on the need for thinning solvents beyond levels indicated by the manufacturer because of viscosity problems attributable to extremely cold weather. Specifically, comments are requested on: (1) are such needs compulsory or more convenience, (2) why in-line heaters would not provide sufficient viscosity control, (3) what extreme climatic conditions

(e.g., temperature, humidity, etc.) would justify excess thinning, (4) how such additional solvent could be linked in quantity (e.g., dilution to a preapproved viscosity setpoint), and (5) any other information that would help the Agency in this matter.

The Administrator also requests comments on the timeframe for submitting items in the initial notification that are not required under the General Provisions §§ 63.9(b)(2) and (3) of subpart A. These items are the compliance procedure(s) that the source intends to use to demonstrate compliance; procedures for ensuring compliance with the handling, storage, and transfer standards; and procedures for maintaining records. Specifically, comments are requested on whether 120 days is sufficient time to prepare and submit these items.

VIII. Administrative Requirements

A. Public Hearing

A public hearing will be held, if requested, to discuss the proposed standards in accordance with section 307(d)(5) of the Act. Persons wishing to make oral presentation on the proposed standards for coating operations at shipbuilding facilities should contact the EPA at the address given in the ADDRESSES section of this

preamble. Oral presentations will be limited to 15 minutes each. Any member of the public may file a written statement before, during, or within 30 days after the hearing. Written statements should be addressed to the Air and Radiation Docket and Information Center address given in the ADDRESSES section of this preamble, and should refer to Docket No. A-92-11.

A transcript of the hearing and written statements will be available for public inspection and copying during normal working hours at the EPA's Air and Radiation Docket and Information Center in Washington, DC (see ADDRESSES section of this preamble).

B. Docket

The docket is an organized and complete file of all the information submitted to or otherwise considered by the EPA in the development of this proposed rulemaking. The principal purposes of the docket are: (1) to allow interested parties to readily identify and locate documents so that they can intelligently and effectively participate in the rulemaking process, and (2) to serve as the record in case of judicial review [except for interagency review materials (section 307(d)(7)(A))].

C. Executive Order 12866

Under Executive Order 12866 [58 FR 51735 (October 4, 1993)], the Agency must determine whether the regulatory action is "significant" and therefore subject to OMB review and the requirements of the Executive Order. The Order defines "significant regulatory action" as one that is likely to result in a rule that may:

1. Have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities;

2. Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;

3. Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or

4. Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.

The proposed rule for coating operations at shipbuilding facilities does not meet any of the criteria in the

Executive Order and is therefore not subject to the requirement for a regulatory impact analysis.

It has been determined that this rule is not a "significant regulatory action" under the terms of the E.O. 12866 and is therefore not subject to OMB review.

D. Paperwork Reduction Act

The information collection requirements in the proposed rule have been submitted for approval to OMB under the Paperwork Reduction Act, 44 U.S.C. 3501 et seq. An Information Collection Request document has been prepared by the EPA (ICR No. 1712.01), and a copy may be obtained from Ms. Sandy Farmer, Information Policy Branch, U. S. Environmental Protection Agency, 401 M Street SW. (Mail Code 2136), Washington, DC 20460 or by calling (202) 260-2740.

The public reporting burden for this collection of information is estimated to average 845 hours per source for the first year after the date of promulgation of the rule, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. The cost for this additional burden per source is estimated to be $27,158 during the first year.

Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing his burden, to Chief, Information Policy Branch, 2136, U. S. Environmental Protection Agency, 401 M Street SW., Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503, marked "Attention: Desk Officer for the EPA." The final rule will respond to any OMB or public comments on the information collection requirements contained in this proposal.

E. Regulatory Flexibility Act

The Regulatory Flexibility Act (5 U.S.C. 601 et seq.) requires the EPA to consider potential impacts of proposed regulations on small business "entities." If a preliminary analysis indicates that a proposed regulation would have a significant economic impact on 20 percent or more of small entities, then a regulatory flexibility analysis must be prepared.

Pursuant to section 605(b) of the Regulatory Flexibility Act, 5 U.S.C. 605(b), the Administrator certifies that this rule will not have a significant economic impact on a substantial number of small entities. Using the Small Business Administration's

definition of small business for SIC Code 3731 of less than 1,000 employees, and examining the result of the economic impact analysis it has been determined that no small entities will be affected by the proposed rule. Therefore, a preliminary assessment of the impact of today's proposed rule on small entities indicated that a regulatory flexibility analysis is not required.

F. Clean Air Act Section 117

In accordance with section 117 of the Act, publication of this proposal was preceded by consultation with appropriate advisory committees, independent experts, and Federal departments and agencies. The Administrator will welcome comments on all aspects of the proposed rule, including health, economic, technological, or other aspects.

G. Regulatory Review

In accordance with sections 112(d)(6) and 112(f)(2) of the Act, this regulation will be reviewed within 8 years from the date of promulgation. This review may include an assessment of such factors as evaluation of the residual health risk, any overlap with other programs, the existence of alternative methods, enforceability, improvements in emission control

technology and health data, and reporting and recordkeeping requirements.

List of Subjects in 40 CFR Part 63

Air pollution control, Environmental protection, Hazardous substances, Reporting and recordkeeping requirements, and Standard for shipbuilding and ship repair facilities.

X. Statutory Authority

The statutory authority for this proposal is provided by sections 101, 112, 114, 116, and 301 of the Clean Air Act, as amended; 42 U.S.C., 7401, 7412, 7414, 7416, and 7601.

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Dated

Carol M. Browner,
Administrator.

It is proposed that part 63, chapter I, title 40 of the Code of Federal Regulations is amended as follows:

PART 63 - [AMENDED]

1. The authority citation for part 63 continues to read as follows:

Authority: 42 U.S.C. 7401 et seq.

2. By adding a new subpart II to read as follows:

Subpart II--National Emission Standards for Shipbuilding and Ship Repair (Surface Coating)

Subpart II--National Emission Standards for Shipbuilding and Ship Repair (Surface Coating)

§ 63.780 Overview of Subpart II.

Table 1

table 1 at end of document

table 1 at end of document

provides a summary of the applicability of subpart A (the General Provisions to this part) to this subpart.

§ 63.781 Applicability.

(a) The provisions of this subpart apply to any shipbuilding or ship repair facility at a major source, i.e., a source which emits or has the potential to emit considering controls, in the aggregate, 9.1 megagrams per year (Mg/yr) (10 tons per year [tons/yr]) or more of any single hazardous air pollutant (HAP) or 22.7 Mg/yr (25 tons/yr) or more of any combination of HAP.

(b) Startup, shutdown, and malfunction provisions and continuous monitoring provisions in § 63.1 through § 63.15 of subpart A do not apply to this source category unless an add-on control system is used to comply with this subpart in accordance with § 63.783(c).

§ 63.782 Definitions.

Terms used in this subpart are defined in the Act, in subpart A of part 63, or in this section as follows:

Add-on control system means an air pollution control device such as a carbon absorber or incinerator that reduces pollution in an air stream by destruction or removal prior to discharge to the ambient air.

Affected source means any shipbuilding or ship repair facility subject to this subpart.

As applied means the condition of a coating at the time of application to the substrate, including any thinning solvent.

As supplied means the condition of a coating before any thinning, as sold and delivered by the coating manufacturer to the user.

Batch means the product of an individual production run of a coating manufacturer's process. A batch is characterized by uniform composition, which may vary slightly from other batches of the same product.

Bitumens mean black or brown materials that are soluble in carbon disulfide, which consist mainly of hydrocarbons. They are obtained from natural deposits or as residue from the distillation of crude petroleum or of low grade coal.

Bituminous resin coating means any coating that incorporates bitumens as a principal component and is formulated primarily to be applied to a substrate or surface to resist ultraviolet radiation and/or water.

Certify means, in reference to the volatile organic compound (VOC) content of a coating, to attest to the VOC content as determined through analysis by the U. S. Environmental Protection Agency (EPA) Method 24 (see part 60, appendix A, of this chapter) or through use of

the forms and procedures outlined in the EPA Publication EPA-450/3-84-019 (revised June 1986). In the case of conflicting results, the EPA Method 24 shall be the referee method.

Commercial vessel means any vessel not owned and operated by the U.S. military or the U.S. Coast Guard.

Container of coating means, for purposes of demonstrating compliance pursuant to § 63.785(b) and (c), the container from which the coating is applied, such as a bucket or pot.

Epoxy means any thermoset coating formed by reaction of an epoxy resin (i.e., a resin containing a reactive epoxide or oxirane function), such as the condensation product of epichlorohydrin and bisphenol A, with a curing agent, such as a polyamide or polyamine.

Exempt compounds means specified organic compounds that are not considered VOC due to negligible photochemical reactivity (and for purposes of this standard, are not listed as HAP). The exempt compounds are specified in § 51.100(s) of this chapter.

Facility means all contiguous or adjoining property that is under common ownership or control, including properties that are separated only by a road or other

public right-of-way, in which shipbuilding or ship repair is performed.

General use coating means any coating that is not a specialty coating, except unsaturated polyester resin (fiberglass) coatings, which are not subject to this subpart.

Hazardous air pollutant (HAP) means any air pollutant listed in or pursuant to section 112(b) of the Act.

Maximum allowable thinning ratio means the maximum volume of thinner that can be added per volume of coating without violating the standards of § 63.783(a) of this subpart, as determined using Equation 1 or 2 of § 63.785(c)(3) of this subpart. (Notwithstanding this definition, Method 24 test results are definitive for purposes of determining compliance.)

Nonvolatile means any substance that does not evaporate readily. For purposes of this subpart, this term is used interchangeably with "volume solids."

Normally closed means a container or piping system is closed unless an operator is actively engaged in adding or removing material.

Operating parameter value means a minimum or maximum value established for a control device or process

parameter which, if achieved by itself or in combination with one or more other operating parameter values, determines that an owner or operator has complied with an applicable emission limitation or standard.

Ship means any marine or fresh-water vessel used for military or commercial operations, including self-propelled vessels, those propelled by other craft (barges), and navigational aids (buoys). This definition includes, but is not limited to, all military and Coast Guard vessels, commercial cargo and passenger (cruise) ships, ferries, barges, tankers, container ships, patrol and pilot boats, and dredges. For purposes of this subpart, offshore oil and gas drilling platforms are not considered ships.

Shipbuilding or ship repair facility means any facility that builds, repairs, repaints, converts, or alters ships.

Specialty coating means any coating that is manufactured and used for one of the following specialized applications:

-- Air flask coating means any special composition coating applied to interior surfaces of high pressure breathing air flasks to provide corrosion resistance and

that is certified safe for use with breathing air supplies.

-- Antenna coating means any coating applied to equipment through which electromagnetic signals must pass for reception or transmission.

-- Antifoulant coating means any coating that is applied to the underwater portion of a vessel to prevent or reduce the attachment of biological organisms and that is registered with the EPA as a pesticide under the Federal Insecticide, Fungicide, and Rodenticide Act.

-- Heat resistant coating means any coating that during normal use must withstand a temperature of at least 204 °C (400 °F).

-- High-gloss coating means any coating that achieves at least 85 percent reflectance on a 60 degree meter when tested by ASTM Method D-523.

-- High-temperature coating means any coating that during normal use must withstand a temperature of at least 426 °C (800 °F).

-- Inorganic zinc (high-build) coating means a coating that contains 8 pounds or more elemental zinc incorporated into an inorganic silicate binder that is applied to steel to provide galvanic corrosion

resistance. These coatings are typically applied at more than 2 mil dry film thickness.

-- Military exterior coating means any exterior topcoat applied to military or U.S. Coast Guard vessels that are subject to specific chemical, biological, and radiological washdown requirements. These are also referred to as Chemical Agent Resistant Coatings ("CARC").

-- Mist coating means any low viscosity, thin film, epoxy coating applied to an inorganic zinc primer, which penetrates the porous zinc primer and allows the occluded air to escape through the paint film prior to curing, thus acting as a sealer coat and preventing formation of blisters or pinholes in the final coating system.

-- Navigational aids coating means any coating applied to Coast Guard buoys or other Coast Guard waterway markers when they are recoated aboard ship at their usage site and immediately returned to the water.

-- Nonskid coating means any coating applied to the horizontal surfaces of a marine vessel for the specific purpose of providing slip resistance for personnel, vehicles, or aircraft.

-- Nuclear coating means any protective coating used to seal porous surfaces such as steel (or concrete)

that otherwise would be subject to intrusion by radioactive materials. These coatings must be resistant to long-term (service life) cumulative radiation exposure (ASTM D4082-83), relatively easy to decontaminate (ASTM D4256-83), and resistant to various chemicals to which the coatings are likely to be exposed (ASTM 3912-80). General protective requirements outlined by the Department of Energy (formerly U.S. Atomic Energy Commission Regulatory Guide 1.54).

-- Organic zinc coating means any coating derived from zinc dust incorporated into an organic binder, that contains more than 8 pounds of elemental zinc per gallon of coating, as applied, and that is used for the express purpose of corrosion protection.

-- Pretreatment wash primer coating means any coating that contains a minimum of 0.5 percent acid, by weight, and is applied only to bare metal to etch the surface and enhance adhesion of subsequent coatings.

-- Repair and maintenance of thermoplastic coating of commercial vessels means any vinyl, chlorinated rubber, or bituminous resin coating that is applied over the same type of existing coating to perform the partial recoating of any in-use commercial vessel. (This

definition does not include coal tar epoxy coatings, which are considered "general use" coatings.)

-- Rubber camouflage coating means any specially formulated epoxy coating used as a camouflage topcoat for exterior submarine hulls and sonar domes.

-- Sealant coating for thermal spray aluminum means any epoxy coating applied to thermal spray aluminum surfaces at a maximum thickness of 1 dry mil.

-- Special marking coating means any coating that is used for safety or identification applications, such as markings on flight decks and ships' numbers.

-- Specialty interior coating means any coating used on interior surfaces aboard U.S. military vessels pursuant to a coating specification that requires that the coating have specified fire retardant properties and a toxicity index of less than 0.03, in addition to the otherwise applicable military physical and performance requirements.

-- Tack coating means any thin film epoxy coating applied at a maximum thickness of 2 dry mils to prepare an epoxy coating that has dried beyond the time limit specified by the manufacturer for the application of the next coat.

-- Undersea weapons systems coating means any coating applied to any component of a weapons system intended to be launched or fired from under the sea.

-- Weld-through (shop) preconstruction primer means a coating which provides temporary corrosion protection for steel during inventory, is typically applied at less than 1 mil dry film thickness, does not require removal prior to welding, is temperature resistant (burn back from a weld is less than 0.5 inch), and does not require removal before application of the film building primers including inorganic zinc high-build coatings.

Thinner means a liquid used to reduce the viscosity of a coating which will evaporate before or during the cure of a film.

Thinning ratio means the volumetric ratio of thinner to coating.

Thinning solvent : see Thinner.

Volatile organic compound (VOC) is as defined in § 51.100(s) of this chapter.

(aa) Volatile organic hazardous air pollutant (VOHAP) means any compound of carbon, excluding metallic carbides and carbonates, that is listed in or pursuant to section 112(b) of the Act. This definition includes both VOC and exempt compounds that are listed as HAP.

§ 63.783 Standards.

(a) On and after the compliance date specified in § 63.784, no owner or operator of any existing or new affected source shall cause or allow the application of any coating to a ship with an as-applied VOHAP content in excess of the applicable limit given in Table 2

TABLE 2. VOLATILE ORGANIC HAP (VOHAP) LIMITS FOR MARINE COATINGS

Coating category	VOHAP limits[a,d]		$VOHAP_{alt}$ limits[c,d]	
	Grams per liter (g/L)	Pounds per gallon (lb/gal)[b]	Grams per liter (g/L)	Pounds per gallon (lb/gal)[b]
General use	340	2.83	571	4.76
Specialty	--	--	--	--
Air flask	340	2.83	571	4.76
Antenna	530	4.42	1,439	12.00
Antifoulant	400	3.33	765	6.38
Heat resistant	420	3.50	841	7.00
High gloss	420	3.50	841	7.00
High temperature	500	4.17	1,237	10.31
Inorganic zinc high-build primer	340	2.83	571	4.76
Military exterior	340	2.83	571	4.76
Mist	610	5.08	2,235	18.63
Navigational aids	550	4.58	1,597	13.31
Nonskid	340	2.83	571	4.76
Nuclear	420	3.50	841	7.00
Organic zinc	360	3.00	630	5.25
Pre-treatment wash primer	780	6.50	11,095	92.46
Repair and maintenance of thermoplastic coating of commercial vessels	550	4.58	1,597	13.31
Rubber camouflage	340	2.83	571	4.76
Sealant coat for thermal spray aluminum	610	5.08	2,235	18.63
Special marking	490	4.08	1,178	9.82
Specialty interior	340	2.83	571	4.76
Tack coat	610	5.08	2,235	18.63
Undersea weapons systems	340	2.83	571	4.76
Weld-through (shop) primer	650	5.42	2,885	24.04

[a]Volatile organic HAP limits (for compliance options 1 through 4) are expressed in units of mass of VOHAP per volume of coating less water and non-HAP "exempt" solvents, as applied. Volatile compounds classified by EPA as having negligible photochemical reactivity are listed as "exempt" in 40 CFR 51.100(s) (except those on the HAP list).

[b]To convert from g/L to lb/gal, multiply by:
[(3.785 L/gal)(lb/453.6 g)] or (lb-L/120 g-gal).

[c]Alternate volatile organic HAP ($VOHAP_{alt}$) limits (for compliance option 5) are expressed in units of mass of VOHAP per volume of solids, a value that assumes the volumes of all components within a coating are additive.

[d]For compliance purposes, the metric limits are the standard.

below. For purposes of this subpart those compliance procedures described in § 63.785(c)(1)-(4), VOC shall be used as a surrogate for measurement of VOHAP, and the EPA Reference Method 24 shall be used to determine compliance. An approved test method to measure VOHAP content shall be used to determine compliance using the compliance procedure described in § 63.785(c)(5).

(b) On and after the compliance date specified in § 63.784, each owner or operator of a new or existing affected source shall ensure that:

(1) All handling and transfer of VOHAP-containing materials to and from containers, tanks, vats, drums, and piping systems is conducted in a manner that minimizes spills.

(2) All containers, tanks, vats, drums, and piping systems are free of cracks, holes, and other defects and must be closed unless materials are being added to or removed from them.

(c) Approval of alternative means of limiting emissions.

(1) The owner or operator of an affected source may apply to the Administrator for permission to use an alternative means of limiting emissions from coating operations (such as an add-on control system). The application shall include:

(i) An engineering evaluation that provides a comparison of the emissions that would be achieved using the alternative means to those that would result from using coatings that comply with the limits in Table 2 of this section, or the results from an emission test that accurately measures the capture efficiency and control

device efficiency achieved by the system and the composition of the associated coatings so that the emissions comparison can be made;

(ii) A proposed monitoring protocol that includes operating parameter values to be monitored for compliance and an explanation of how the operating parameter values will be established through a performance test; and

(iii) Details of appropriate recordkeeping and reporting provisions.

(2) The Administrator shall approve the alternative means of limiting emissions if, in the Administrator's judgement, emissions of VOHAP per volume of coating solids (nonvolatiles) applied will be no greater than those from the use of coatings that comply with the limits in Table 2 of this section.

(3) The Administrator may condition approval on operation, maintenance, and monitoring requirements to ensure that emissions from the source are no greater than those that would result from use of Table 2 coatings.

(d) Training. On and after the compliance date specified in § 63.784, each owner or operator of a new or existing affected source shall ensure that all new and existing personnel that are involved in thinning coatings, keeping coating records, or handling or

transferring VOHAP-containing materials have been trained in proper procedures. All personnel shall be given refresher training annually. (Contractors having any of these responsibilities shall also be subject to these training provisions.) The training shall include, at a minimum:

(1) Identification of the designated thinner and maximum allowable thinning ratio for each batch of coating;

(2) Proper coating and thinner recordkeeping procedures;

(3) Proper handling and transfer procedures for VOHAP-containing materials; and

(4) Proper procedures for maintaining containers, tanks, vats, drums, and piping systems are free of cracks, holes, and other defects and must be closed unless materials are being added to or removed from them.

§ 63.784 Compliance Dates.

(a) Each owner or operator of an existing affected source shall comply within 1 year after the effective date of this subpart.

(b) Each owner or operator of an existing unaffected area source that increases its emissions of (or its potential to emit) HAP such that the source

becomes a major source that is subject to this subpart shall comply within 1 year after the date of becoming a major source in accordance with § 63.6(c)(5) of subpart A.

(c) Each owner or operator of a new or reconstructed source shall comply with this subpart according to the schedule in § 63.6(b) of subpart A.

§ 63.785 Compliance procedures.

(a) For each batch of coating that is received by an affected source, the owner or operator shall (see Figure 1

Figure 1. Flow diagram of compliance procedures.

for a flow diagram of the compliance procedures):

(1) Determine the coating category and the applicable VOHAP or alternate VOHAP (VOHAP $_{alt}$) limit as specified in § 63.783(a).

(2) Certify the as-supplied VOC or VOHAP content of the batch of coating. The owner or operator may use a certification supplied by the manufacturer for the batch, although the owner or operator retains liability should subsequent testing reveal a violation. If the owner or operator performs the certification testing, only one of the containers in which the batch of coating was received is required to be tested. If the as-supplied VOC or VOHAP content for a batch of coating exceeds the applicable VOHAP limit in § 63.783(a), the coating shall not be applied.

(b)(1) The definitive method of determining compliance for any individual container of coating, as applied, is the use of the test method specified in § 63.786(a) or (b). When a coating or thinner contains exempt compounds that are VOHAP, the owner or operator shall ensure, when determining the VOHAP content of the as-applied coating, that the mass of these exempt compounds is included. If the VOC or VOHAP content of the container of coating, as applied, is less than or

equal to the applicable VOHAP limit in § 63.783(a), compliance is demonstrated.

(2) In lieu of testing each container of coating, as applied, the owner or operator may determine compliance with the VOHAP limits using any combination of the procedures in paragraphs (c)(1), (c)(2), (c)(3), (c)(4), and (c)(5) of this section. The procedures to be used for each coating for each calendar month shall be determined prior to the beginning of that month.

(3) The results of any compliance demonstration conducted by the affected source or any regulatory agency using Method 24 shall take precedence over the results using the procedures in paragraph (c)(1), (c)(2), (c)(3), or (c)(4) of this section.

(4) The results of any compliance demonstration conducted by the affected source or any regulatory agency using an approved test method to determine VOHAP content shall take precedence over the results using the procedures in paragraph (c)(5) of this section.

(c)(1) <u>Certification of each container of coating, as applied</u>. The owner or operator of an affected source shall determine compliance by certifying (via Method 24 data) the VOC content of each container of coating, as applied. If the VOC content of the coating, as applied,

is less than the applicable VOHAP limit in § 63.783(a), then compliance is demonstrated unless a violation is revealed using Method 24.

(2) Coatings to which thinning solvent will not be added. For as-supplied coatings to which thinning solvent (or any other material) will not be added during the calendar month under any circumstance prior to application or to which only water is added during the calendar month, the owner or operator of an affected source shall determine compliance as follows:

(i) Certify (via Method 24 data) the as-applied VOC content of each batch of as-supplied coating.

(ii) Notify the persons responsible for applying the coating that no thinning solvent may be added to the coating by affixing a label to each container of coating in the batch or through another means described in the implementation plan required in § 63.787(b).

(iii) If the certified as-applied VOC content of each batch of coating used during a calendar month is less than or equal to the applicable VOHAP limit in § 63.783(a), then compliance is demonstrated for that calendar month, unless a violation is revealed using Method 24.

(3) Coating-by-coating compliance--coatings to which thinning solvent is added . For only those as-supplied coatings to which thinning solvent is routinely or sometimes added, the owner or operator shall, by the 15th day of each calendar month, determine the compliance status for these coatings on a coating-by-coating basis for the previous month using the following procedures.

(i) Prior to each calendar month, for each thinner determine the density, weight fraction of water and exempt compounds, and volume fraction of water and exempt compounds according to the procedures specified in § 63.786(c).

(ii) Prior to each calendar month, designate a single thinner for each coating and calculate the maximum allowable thinning ratio for each batch of the coating using Equation 1 or 2 below, as appropriate.

(A) For coatings and thinners that do not contain water or exempt compounds, calculate the maximum allowable thinning ratio using Equation 1 as follows:

$$R^{\dagger}_{d} = \frac{HAP_{a} - VOC_{s}}{D^{\dagger}_{d} - HAP_{a}} \qquad \text{Equation 1}$$

where:

$R^{\dagger}_{d}$ = Maximum allowable thinning ratio (L thinner/L coating as supplied);

$VOC_{,s}$ = As-supplied VOC content of the coating (g VOC/L coating as supplied, less water and exempt solvents);

HAP_{a} = Allowable as-applied VOHAP content of the coating (g VOHAP/L coating as applied, less water and exempt solvents);

$D^{\dagger}_{d}$ = Density of the thinner (g thinner/L thinner);

(B) For coatings or thinners that contain water or exempt compound(s) in addition to VOC, calculate the maximum allowable thinning ratio using Equation 2 as follows:

$$R^{\dagger}_{d} = \frac{[1-(V_w)_s]\ (HAP_a - VOC_s)}{D^{\dagger}_{d}\ [1-(W_w)_d] - HAP_a\ [1-(V_w)_d]} \qquad \text{Equation 2}$$

where:

$(V_w)_s$ = Volume fraction of water and exempt solvents in the coating as supplied (L water and exempt solvents/L coating as supplied);

HAP_{a} = Allowable as-applied VOHAP content of the coating (g VOHAP/L coating as applied, less water and exempt solvents);

$VOC_{,s}$ = As-supplied VOC content of the coating

(g VOC/L coating as supplied, less water and exempt solvents);

$(V_w)_d$ = Volume fraction of water and exempt solvents in the thinner (L water and exempt solvents/L thinner); and

$(W_w)_d$ = Weight fraction of water and exempt solvents in the thinner (g water and exempt solvents/g thinner.

(C) The procedures specified in § 63.786(c) may be used to determine the values of variables defined in this paragraph, as necessary.

(iii) Prior to each calendar month, notify the persons responsible for applying each coating of the designated thinner and maximum allowable thinning ratio for that coating by affixing a label to each container of coating in the batch or through another means described in the implementation plan required in § 63.787(b).

(iv) At the end of each calendar month, determine the volume of each batch of coating used during the month.

(v) At the end of each calendar month, determine the total allowable volume of thinner for each coating for the previous month using the following equation:

$$V_d = \sum_{i=1}^{n} (R^{\dagger}_d \times V_c)_i \qquad \text{Equation 3}$$

where:

V_d = Total allowable volume of thinner for the coating for the previous month (L thinner);

V_c = Volume of each batch of the coating, as supplied, used during the month (L coating as supplied);

i = Each batch of coating; and

n = Total number of batches of the coating.

$R^{\dagger}_d$ = Maximum allowable thinning ratio (L thinner/L coating)

(vi) At the end of each calendar month, determine the volume of thinner actually used for each coating during the month.

(vii) If the volume of thinner actually used for a coating [paragraph (c)(3)(vi) of this section] is less than or equal to the total allowable volume for that coating [paragraph (c)(3)(v) of this section], then compliance is demonstrated for that coating for the month, unless a violation is revealed using Method 24.

(4) Group compliance--coatings to which the same thinning solvent is added. For coatings to which the same thinning solvent (or other material) is routinely or

sometimes added, the owner or operator shall, by the 15th day of each calendar month, determine the compliance status for these coatings for the previous month using the following procedures. The owner or operator shall not include in any "group" any coatings to which thinning solvent will not be added during the calendar month.

(i) Prior to each calendar month, for each thinner determine the density, weight fraction of water and exempt compounds, and volume fraction of water and exempt compounds according to the procedures specified in § 63.786(c).

(ii) Prior to each calendar month, designate a single thinner to be added to each coating during the month and group coatings according to their designated thinner.

(iii) Prior to each calendar month, calculate the maximum allowable thinning ratio for each batch of coating in each group using the procedures in paragraph (c)(3)(ii) of this section.

(iv) Prior to each calendar month, notify the persons responsible for applying each coating of the designated thinner and maximum allowable thinning ratio for that coating by affixing a label to each container of

coating in the batch or through another means described in the implementation plan required in § 63.787(b).

(v) At the end of each calendar month, determine the volume of each batch of coating used during the month.

(vi) At the end of each calendar month, determine the total allowable volume of thinner for the group for the month using the following equation:

$$(V_g)_d = \sum_{i=1}^{n} [R^{\dagger}_d \times (V_g)_c]_i \qquad \text{Equation 4}$$

where:

$(V_g)_d$ = Total allowable volume of thinner for the group for the month (L thinner);

$(V_g)_c$ = Volume of each batch of coating, as supplied, in the group used during the month (L coating as supplied);

i = Each batch of coating in the group; and

n = Total number of batches of coating in the group.

(vii) At the end of each calendar month, determine the volume of thinner actually used for the group during the month.

(viii) If the volume of thinner actually used for a group [paragraph (c)(4)(vii) of this section] is less than or equal to the total allowable volume for that

group [paragraph (c)(4)(vi) of this section], then compliance is demonstrated for that group for the month, unless a violation is revealed using Method 24.

(5) Coating-by-coating compliance--coatings with noncompliant VOC contents used in areas without VOC limits. For coatings with VOC contents exceeding the applicable VOHAP limit in § 63.783(a), the owner or operator shall determine the compliance status for these coatings using the following procedures and the alternate ($VOHAP_{alt}$) limits also listed in § 63.783(a).

(i) Certify the as-applied VOC content of each batch of as-applied coating.

(ii) Calculate the volume solids (V_s) of the as-applied coating using Equation 5 as follows:

$$V_s = 1 - \frac{VOC}{D_{avg}} \qquad \text{Equation 5}^{*}$$

where:

V_s** = Volume fraction of solids in the coating as supplied (L solids/L coating as supplied);

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*Equation 5 only applies to those coatings containing only VOC and (volume) solids.

**For purposes of this general discussion, volume solids (V_s) has been used interchangeably with the term "nonvolatiles."

VOC = Applicable as-supplied VOC content of the coating (g VOC/L coating as supplied, less water and exempt solvents); and

D_{avg} = Average density of solvents in the coating [To determine compliance with the limits, the solvent mixture in the coating should be used to calculate D_{avg}. For conversion of VOHAP to $VOHAP_{alt}$ limits in Table 2, the overall average density of solvents (840 g/L) was used.]

For a mixture of solvents, D_{avg} is determined as follows:

$$D_{avg} = \frac{V_1 D_1 + V_2 D_2 + V_3 D_3 + \cdots V_n D_n}{V_1 + V_2 + V_3 + \cdots V_n} = \sum \frac{V_i D_i}{V_t}$$

where:

D_{avg} =

lvent components, g/L

V_i =

volume of VOC solvent component i, L

D_i =

density of solvent component i, g/L

V_t =

total volume of solvent components, L

(iii) Measure or certify the as-applied VOHAP content of each batch of coating (via any approved test method).

(iv) If the measured as-applied VOHAP content divided by the calculated as applied volume solids is less than or equal to the applicable VOHAP $_{alt}$ limit in § 63.783(a), then compliance is demonstrated for that coating.

(d) The owner or operator shall monitor and record on a monthly basis whether containers meet the standard as described in § 63.783(b)(2).

§ 63.786 Test methods and procedures.

(a) For the compliance procedures described in § 63.785(c)(1)-(4), Method 24 of 40 CFR part 60, appendix A, is the definitive method for determining the VOC content of coatings, as supplied or as applied. When a coating or thinner contains exempt compounds that are HAP, the owner or operator shall ensure, when determining the VOC content of the as-applied coating, that the mass of these exempt compounds is included.

(b) For the compliance procedure described in § 63.785(c)(5), the Administrator must approve the test method for determining the VOHAP content of coatings (and thinners), as supplied or applied.

(c) A coating manufacturer or the owner or operator of an affected source may apply to the Administrator for permission to use formulation (certification) data as an equivalent test method in lieu of Method 24 to certify the as-supplied VOC content of a coating or type of coatings on a case-by-case basis. The Administrator shall grant permission if, in the Administrator's judgement, it has been adequately demonstrated that formulation data have a consistent and quantitatively known relationship to Method 24 results. Notwithstanding such permission, in the event of dispute, Method 24 shall be the referee method.

(d) Each owner or operator of an affected source shall use or ensure that the manufacturer uses the procedures specified in "Procedures for Certifying Quantity of Volatile Organic Compounds Emitted by Paint, Ink and Other Coatings" (Revised June 1986), EPA-450/3-84-019, to determine values for the thinner and coating parameters used in Equations 1 and 2 of § 63.785(c)(3).

§ 63.787 Notification requirements.

(a) Each owner or operator of an affected source shall comply with all applicable notification requirements in §§ 63.9(a)-(d) and (h)-(j) of subpart A (General Provisions). Any owner or operator that receives approval [pursuant to § 63.783(c) of this subpart] to use an add-on control system to control coating emissions shall also comply with the applicable requirements of §§ 63.9(e)-(g) of subpart A.

(b) Implementation plan . The provisions of § 63.9(a) (Notification requirements/Applicability and general information) of subpart A apply to the requirements of this paragraph.

(1) Each owner or operator of an affected source shall:

(i) Prepare a written implementation plan that addresses each of the subject areas specified in paragraph (b)(3) of this section; and

(ii) Submit the implementation plan to the Administrator for approval along with the notification required by § 63.9(b)(2) or (5) of subpart A, as applicable.

(2) The Administrator may require revisions to the initial plan where the Administrator finds that the plan does not adequately address each subject area listed in paragraph (b)(3) of this section or that the plan is unenforceable because the requirements it contains are unclear.

(3) Implementation plan contents . Each implementation plan shall address the following subject areas:

(i) Training program . The affected source shall submit a copy of the training program required by § 63.783(d) with the implementation plan. The training program shall include, at a minimum, the following:

(A) A list of all personnel by name and job description that are required to be trained;

(B) An outline of the subjects to be covered in the initial and refresher training for each person, or group of personnel;

(C) Lesson plans for courses to be given at the initial and the annual refresher training; and

(D) A description of the methods to be used at the completion of initial and refresher training to demonstrate and document successful completion.

(ii) Coating compliance procedures. The implementation plan shall include the compliance procedure(s) under § 63.785 that the source intends to use to determine compliance for each coating.

(iii) Recordkeeping procedures. The implementation plan shall include the procedures for maintaining the records required under § 63.788, including the procedures for gathering the necessary data and making the necessary calculations.

(iv) Transfer, handling, and storage procedures. The implementation plan shall include the procedures for ensuring compliance with § 63.783(b).

(c) Notification of compliance status.

(1) Before the 60th day following completion of each 3-month period after the compliance date specified in § 63.784, each owner or operator of an affected source

shall submit a notification of compliance status for each of the previous 3 months as described in § 63.9(h) of subpart A. Such notification shall include all records that the source is required to maintain as described in § 63.788.

(2) If an affected source reports noncompliance in the quarterly notification of compliance status, the source shall follow a quarterly notification format until a request to reduce notification frequency under paragraph (c)(2)(i) of this section is approved.

(i) An owner or operator who is required to follow a quarterly notification format may reduce the frequency of notification to semiannual if the following conditions are met:

(A) For 1 full year (i.e., four quarterly reporting periods) the affected source's compliance status notifications continually demonstrate that the source is in compliance with this subpart;

(B) The owner or operator continues to comply with all recordkeeping requirements in § 63.788; and

(C) The Administrator does not object to a reduced frequency of notification for the affected source, as provided in paragraph (c)(2)(ii) of this section.

(ii) The frequency of notification may be reduced only after the owner or operator notifies the Administrator in writing of his or her intention to make such a change and the Administrator does not object to the intended change. In deciding whether to approve a reduced frequency of compliance status notification (i.e., from quarterly to semiannual), the Administrator may review information concerning the source's entire previous performance history during the 5-year recordkeeping period prior to the intended change. Such information may be used by the Administrator to make a judgment about the source's potential for noncompliance in the future. If the Administrator disapproves the owner or operator's request to reduce the frequency of notification, the Administrator will notify the owner or operator in writing within 45 days after receiving notice of the owner or operator's intention. The notification from the Administrator to the owner or operator will specify the grounds on which the disapproval is based. In the absence of a notice of disapproval within 45 days, approval is automatically granted.

§ 63.788 Recordkeeping and reporting requirements.

(a) Each owner or operator of an affected source shall certify annually that all personnel involved with coatings, thinning of coatings, keeping coating records, or transferring/handling VOHAP-containing material received the training required by section 63.783(d). This certification shall be maintained as a record available for inspection for 5 years. No report is necessary.

(b) Each owner or operator of an affected source shall comply with the applicable recordkeeping and reporting requirements in §§ 63.10(a), (b), (d), and (f) of subpart A (General Provisions).

(c) Each owner or operator of an affected source shall compile the following records each calendar month and maintain the records for a minimum of 5 years:

(1) Certification of each container of coating, as applied. For facilities that demonstrate compliance using the procedures in § 63.785(c)(1):

(i) Identification of the coatings used and the applicable VOHAP limits per § 63.785(a)(1).

(ii) Certification of the as-supplied VOC content of each batch of coating.

(iii) Certification of the VOC content of each container of coating, as applied

(iv) The volume of each coating, as applied.

(v) Results of any Method 24 tests conducted on individual containers of coatings, as applied.

(2) Coatings to which thinning solvent will not be added. For facilities that demonstrate compliance using the procedures in § 63.785(c)(2):

(i) Identification of the coatings used and the applicable VOHAP limits per § 63.785(a)(1).

(ii) Certification of the as-supplied and as-applied VOC content of each batch of coating.

(iii) The volume of each coating, as applied.

(iv) Results of any Method 24 tests conducted on individual containers of coatings, as applied.

(3) Coating-by-coating compliance--coatings to which thinning solvent is added. For facilities that demonstrate compliance using the procedures in § 63.785(c)(3):

(i) Identification of the coatings used and the applicable VOHAP limits per § 63.785(a)(1).

(ii) Certification of the as-supplied VOC content of each batch of coating.

(iii) The density, weight fraction of water and exempt compounds, and volume fraction of water and exempt compounds of each thinner, including any calculations.

(iv) The maximum allowable thinning ratio for each batch of coating, including the designated thinner and calculations.

(v) The volume of each coating, as applied.

(vi) The total allowable volume of thinner for each coating (also provide calculations).

(vii) The actual volume of thinner used for each coating.

(viii) Results of any Method 24 tests conducted on individual containers of coatings, as applied.

(4) Group compliance--coatings to which the same thinning solvent is added. For facilities that demonstrate compliance using the procedures in § 63.785(c)(4):

(i) Identification of the coatings used and the applicable VOHAP limits per § 63.785(a)(1).

(ii) Certification of the as-supplied VOC content of each batch of coating.

(iii) The density, weight fraction of water and exempt compounds, and volume fraction of water and exempt compounds of each thinner, including any calculations.

(iv) The maximum allowable thinning ratio for each batch of coating, including calculations.

(v) Identification of each group of coatings and its designated thinner.

(vi) The volume used of each batch of coating in the group.

(vii) The allowable volume of thinner for each batch of coating (also provide calculations).

(viii) The total allowable volume of thinner for the group (also provide calculations).

(ix) The actual volume of thinner used for the group.

(x) Results of any Method 24 tests conducted on individual containers of coatings, as applied.

(5) Coating-By-Coating Compliance--Coatings With Noncompliance VOC contents used in areas without VOC limits. For facilities that demonstrate compliance using the procedures in § 63.785(c)(5):

(i) Identification of the coatings used and the applicable $VOHAP_{alt}$ limits per §63.785(a)(1).

(ii) Identification of the Administrator approved VOHAP test method or certification procedure.

(iii) Certification of the as-supplied VOC and VOHAP content of each batch of coating.

(iv) Certification of the VOC and VOHAP content of each container of coating, as applied.

(v) The volume solids and average solvent density for each container of coating, as applied, and any calculations.

(vi) The volume of each coating, as applied.

(vii) Results of any VOHAP measurement tests conducted on individual containers of coatings, as applied.

(d) Any owner or operator that receives approval [pursuant to § 63.783(c) of this subpart] to use an add-on control system to control coating emissions shall also comply with the applicable requirements of §§ 63.10(c) and (e) of subpart A.

(e) Each owner or operator of an affected source shall:

(1) Maintain all records in accordance with the recordkeeping requirements in the approved application for a minimum of 5 years.

(2) Submit all reports in accordance with the reporting requirements in the approved application.

(3) Submit a quarterly monitoring report which includes:

(i) A summary of the number and duration of deviations during the reporting period, classified by reason, including known causes for which a Federally-approved or promulgated exemption from an emission limitation or standard may apply;

(ii) Identification of the data availability achieved during the reporting period, including a summary of the number and total duration of incidents that the monitoring protocol failed to operate in accordance with the design of the protocol or produced data that did not meet minimum data accuracy and precision requirements, classified by reason;

(iii) Identification of the compliance status as of the last day of the reporting period and whether compliance was continuous or intermittent during the reporting period;

(iv) If, pursuant to paragraph (e)(3)(iii) of this section, the owner or operator identifies any deviation as resulting from a known cause for which no Federally-approved or promulgated exemption from an emission limitation or standard applies, the monitoring report shall also include all records that the source is required to maintain that pertain to the periods during which such deviation occurred and:

(A) The magnitude of each deviation;

(B) The reason for each deviation;

(C) A description of the corrective action taken for each deviation, including action taken to minimize each deviation and action taken to prevent recurrence; and

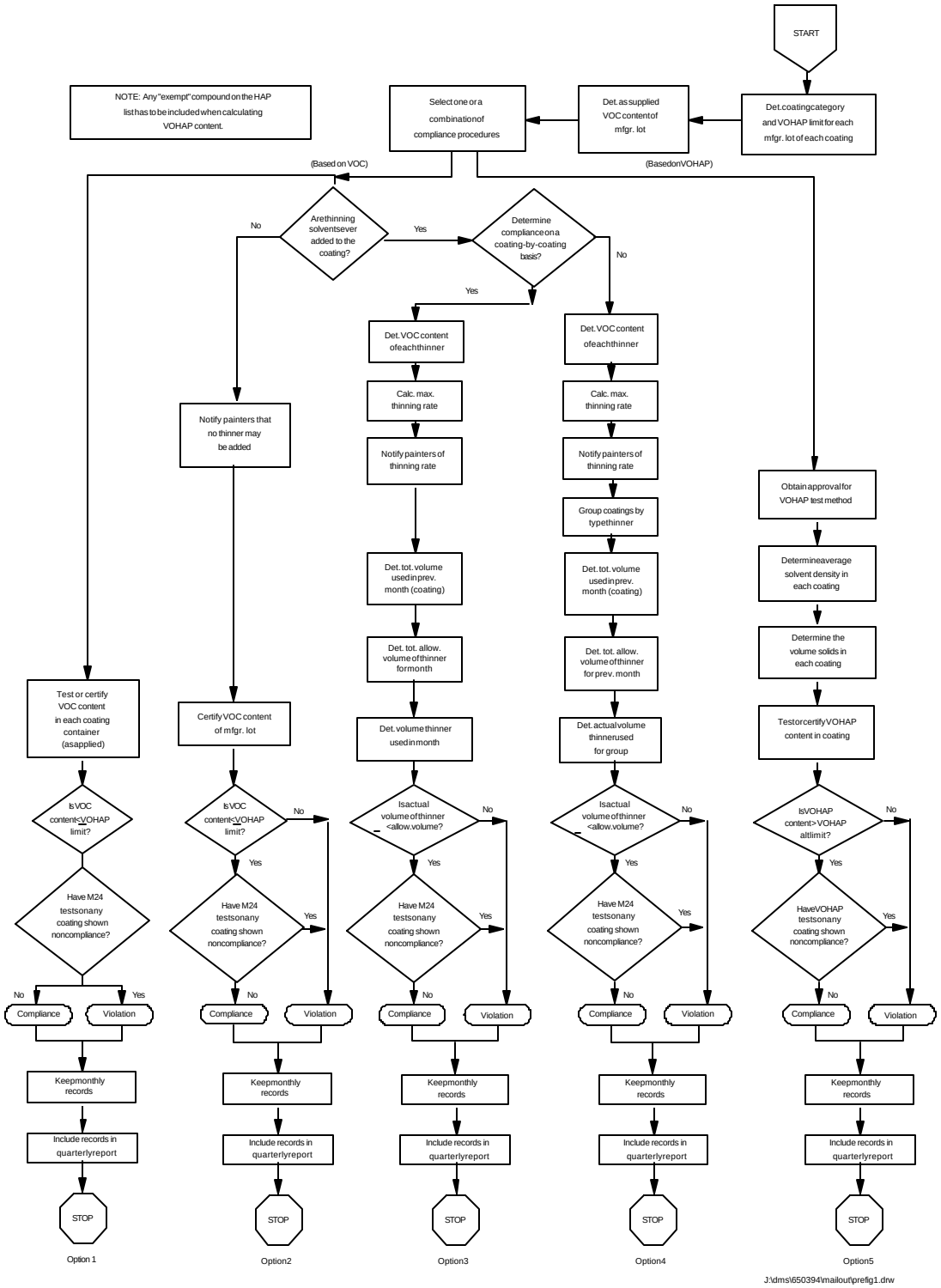
(D) All quality assurance activities performed on any element of the monitoring protocol.

TABLE 1. GENERAL PROVISIONS APPLICABILITY TO SUBPART II

Reference	Applies to Subpart II	Comment
63.1(a)(1)-(3)	Yes	
63.1(a)(4)	Yes	Subpart II clarifies the applicability of each paragraph in subpart A to sources subject to subpart II.
63.1(a)(5)-(7)	Yes	
63.1(a)(8)	No	Discusses State programs.
63.1(a)(9)-(14)	Yes	
63.1(b)(1)	Yes	§ 63.781 specifies applicability in more detail.
63.1(b)(2)-(3)	Yes	
63.1(c)-(e)	Yes	
63.2	Yes	Additional terms are defined in § 63.782; when overlap between subparts A and II occurs, subpart II takes precedence.
63.3	Yes	Other units used in subpart II are defined in that subpart.
63.4	Yes	
63.5(a)-(c)	Yes	
63.5(d)	Yes	Except information on control devices and control efficiencies should not be included in the application unless an add-on control system is or will be used to comply with subpart II in accordance with § 63.783(c).
63.5(e)-(f)	Yes	
63.6(a)-(b)	Yes	
63.6(c)-(d)	Yes	Except § 63.784(a) specifies the compliance date for existing affected sources.
63.6(e)-(f)	No	These paragraphs may be applicable if an alternative means of limiting emissions (e.g., an add-on control system) is used to comply with subpart II in accordance with § 63.783(c).
63.6(g)	No	§ 63.783(c) specifies procedures for application and approval of alternative means of limiting emissions.
63.6(h)	No	Subpart II does not contain any opacity or visible emission standards.
63.6(i)-(j)	Yes	
63.7	No	This paragraph may be applicable if an alternative means of limiting emissions (e.g., an add-on control system) is used to comply with subpart II in accordance with § 63.783(c).
63.8	No	This paragraph may be applicable if an alternative means of limiting emissions (e.g., an add-on control system) is used to comply with subpart II in accordance with § 63.783(c).
63.9(a)-(d)	Yes	§ 63.787(b) requires an implementation plan to be submitted with the initial notification.
63.9(e)	No	This paragraph may be applicable if an alternative means of limiting emissions (e.g., an add-on control system) is used to comply with subpart II in accordance with § 63.783(c).
63.9(f)	No	Subpart II does not contain any opacity or visible emission standards.
63.9(g)	No	This paragraph may be applicable if an alternative means of limiting emissions (e.g., an add-on control system) is used to comply with subpart II in accordance with § 63.783(c).
63.9(h)	Yes	§ 63.787(c) lists additional items to be submitted with the notification of compliance status.

TABLE 1. (continued)

Reference	Applies to Subpart II	Comment
63.9(i)-(j)	Yes	
63.10(a)-(b)	Yes	§ 63.788(b) lists additional recordkeeping requirements.
63.10(c)	No	This paragraph may be applicable if an alternative means of limiting emissions (e.g., an add-on control system) is used to comply with subpart II in accordance with § 63.783(c).
63.10(d)	Yes	
63.10(e)	No	This paragraph may be applicable if an alternative means of limiting emissions (e.g., an add-on control system) is used to comply with subpart II in accordance with § 63.783(c).
63.10(f)	Yes	
63.11	No	This section may be applicable if an alternative means of limiting emissions (e.g., an add-on control system) is used to comply with subpart II in accordance with § 63.783(c).
63.12-63.15	Yes	


START
Det. coating category and VOHAP limit for each mfgr. lot of each coating
Det. as supplied VOC content of mfgr. lot
Select one or a combination of compliance procedures
NOTE: Any "exempt" compound on the HAP list has to be included when calculating VOHAP content.
(Based on VOC)
(Based on VOHAP)
Are thinning solvents ever added to the coating?
No
Yes
Determine compliance on a coating-by-coating basis?
No
Yes
Det. VOC content of each thinner
Calc. max. thinning rate
Notify painters of thinning rate
Det. tot. volume used in prev. month (coating)
Det. tot. allow. volume of thinner for month
Det. volume thinner used in month
Is actual volume of thinner ≤ allow. volume?
No
Yes
Have M24 tests on any coating shown noncompliance?
Yes
No
Compliance
Violation
Keep monthly records
Include records in quarterly report
STOP
Option3
Det. VOC content of each thinner
Calc. max. thinning rate
Notify painters of thinning rate
Group coatings by type thinner
Det. tot. volume used in prev. month (coating)
Det. tot. allow. volume of thinner for prev. month
Det. actual volume thinner used for group
Is actual volume of thinner ≤ allow. volume?
No
Yes
Have M24 tests on any coating shown noncompliance?
Yes
No
Compliance
Violation
Keep monthly records
Include records in quarterly report
STOP
Option4
Notify painters that no thinner may be added
Certify VOC content of mfgr. lot
Is VOC content ≤ VOHAP limit?
No
Yes
Have M24 tests on any coating shown noncompliance?
Yes
No
Compliance
Violation
Keep monthly records
Include records in quarterly report
STOP
Option2
Test or certify VOC content in each coating container (as applied)
Is VOC content ≤ VOHAP limit?
Yes
Have M24 tests on any coating shown noncompliance?
No
Yes
Compliance
Violation
Keep monthly records
Include records in quarterly report
STOP
Option 1
Obtain approval for VOHAP test method
Determine average solvent density in each coating
Determine the volume solids in each coating
Test or certify VOHAP content in coating
Is VOHAP content > VOHAP alt limit?
No
Yes
Have VOHAP tests on any coating shown noncompliance?
Yes
No
Compliance
Violation
Keep monthly records
Include records in quarterly report
STOP
Option5
J:\dms\650394\mailout\prefig1.drw