UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
RESEARCH TRIANGLE PARK, NC 27711

JUN 4 1999

OFFICE OF
AIR QUALITY PLANNING
AND STANDARDS

Mr. Charles Garland, Vice President
Metro Machine Corporation
Post Office Box 1860
Norfolk, Virginia 23501

Dear Mr. Garland:

This letter informs you of our approval (with conditions) for Metro Machine Corporation (MMC) to use an alternative means for meeting the requirements of the "National Emission Standards for Hazardous Air Pollutants for Shipbuilding and Ship Repair (Surface Coating) Operations," 40 CFR Part 63, Subpart II. The Application for Approval was originally submitted to Region III and a copy was later forwarded to the Office of Air Quality Planning and Standards (OAQPS) for review and comment.

1. Requirements

The shipbuilding and ship repair national emission standards for hazardous air pollutants (NESHAP) in §63.783, requires each owner or operator of a new or existing affected source to apply to a "ship" only coatings with an as-applied volatile organic hazardous air pollutant (VOHAP) content that does not exceed the applicable VOHAP limit on a solids basis (nonvolatiles). In its application to the Environmental Protection Agency (EPA), MMC requested that it be permitted to use non-complying coatings within an enclosure (CAPE) where all the exhaust air from the enclosure would be directed to a regenerative thermal oxidizer (RTO). The CAPE+RTO System would be used in lieu of using complying coatings. Section 63.783 of the NESHAP contains procedures for approval of an alternative means of limiting emissions.

The MMC application was reviewed by our office to determine if it met the criteria in §63.783, which includes the following three main statements.

Requirement §63.783(c)(1) states, "*The owner or operator of an affected source may apply to the Administrator for permission to use an alternative means such as (an add-on control system) of limiting emissions from coating operations.*" It also specifies the information that must be included in the application.

Requirement §63.783(c)(2) states, *"The Administrator shall approve the alternative means of limiting emissions if, in the Administrator's judgment, post control emissions of VOHAP per volume applied solids will be no greater than those from the use of coatings that comply with the limits in Table 2 of this subpart."*

Requirement §63.783(c)(3) states, *"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 otherwise result from this subpart."*

2. Application for Approval

The MMC application included three reports. The reports and the communications between the EPA and MMC or its consultant were used to evaluate its Application for Approval and to arrive at the final requirements given in the Attachment. The original application included the following reports:

1. *Application for Approval of Alternative Methodology for Compliance with The NESHAP for Shipbuilding and Ship Repair*; submitted by Metro Machine Corporation, Norfolk, VA, June 12, 1996 (Revised October 31, 1996); prepared with Pacific Environmental Services, Inc., Herndon, VA.

2. *Implementation Plan for Compliance with the NESHAP for Shipbuilding and Ship Repair Metro Machine Corporation*; prepared by Eric Lasalle, November 1, 1996; Metro Machine Corporation, Norfolk, VA.

3. *Air Emission Evaluation Total Gaseous Organic Compounds and Filterable Particulate Emissions Compliant All Position Enclosure (CAPE) System USS SCOTT DDG-995*; prepared by Pacific Environmental Services, Inc. Herndon, VA, September 1996 for Metro Machine Corporation, Norfolk, VA (Air Emission Test).

The OAQPS reviewed these materials and our detailed evaluation is presented in the enclosed report. We approved MMC's application to operate at the Norfolk, Virginia site with two conditions discussed below.

3. Evaluation of Application for Approval

We found the CAPE+RTO System to be a useful technology because it would achieve substantial emission reductions and would allow coaters to work on the hull of a ship within an environment that can be controlled for both temperature and air flow. Both parameters influence the drying rate of a coating on the hull. The CAPE+RTO System is composed of a capture (CAPE + air management system) unit operation and a destruction (RTO) unit operation. The CAPE itself is not one piece. It includes a series of interconnected towers that follow the contours of a ship hull to cover about one quarter of the ship. A tight seal against the hull is

maintained using special seals. The CAPE's air management system and RTO are set on a barge that can be relocated according to the needs of the operator.

MMC may use the CAPE+RTO System at the Norfolk, Virginia site or other sites it owns or operates, as an alternative means of limiting emissions, if it meets an overall control efficiency of 95 percent and if the conditions below are met. The approval for using the CAPE+RTO System at a facility is conditioned on:

1. Proper operation of the enclosure (CAPE), air management system, and oxidizer (RTO).

2. Adherence to operation, maintenance, monitoring, and recordkeeping and reporting requirements indicated in the Attachment. It is also contingent on the company consolidating all the required information in one document, the revised implementation plan.

This approval is based on the performance test conducted at MMC's Norfolk, Virginia shipyard. Our evaluation, on the basis of the Application for Approval, only addressed the volatile emissions resulting from the application of coatings, namely volatile organic compound (VOC) material being used by MMC as a surrogate for VOHAP material. We did not evaluate the results dealing with capture of particulate emissions from abrasive cleaning of the hull, since this is beyond the scope of this evaluation, but it is certainly another benefit.

Operating parameters established during the Norfolk, Virginia performance test have been incorporated in the Attachment to set requirements that will provide quality assurance and quality control. Operation within the parameters specified in the Attachment will ensure that postcontrol emissions of VOHAPs are no greater than the emissions from complying coatings. The 1996 Application for Approval included a protocol for performance testing of the control system if the CAPE+RTO System were moved to different sites. MMC subsequently requested that the EPA approve its use of the CAPE+RTO System at different sites on the basis of the Norfolk, Virginia performance test. Because adherence to the operating parameters established during the Norfolk, Virginia performance test and other requirements in the attachment will ensure that the source is in compliance with the standard, we will not require a new performance test if the barge carrying the RTO and air management system is moved to different facilities. Hence, MMC may use the CAPE+RTO System at other sites as an alternative means of limiting emissions, if the required conditions are met. A new performance test will be required if the volatile emissions from other operations are also directed to the RTO. Each facility using the CAPE+RTO System as an alternative means of limiting emissions must comply with the standard and obtain approval of its implementation plan.

We are satisfied that the use by MMC of the CAPE+RTO System is acceptable as an alternative means of limiting the emissions of VOHAP per volume of applied solids (nonvolatiles). When operated according to the specified procedures in the Attachment, the post control

emissions level is considered no greater than that from the use of coatings that comply with the limits in Table 2 of 40 CFR Part 63, Subpart II.

The CAPE+RTO System may be used during the interim until the revised implementation plan is submitted to the Air Protection Division in EPA Region III where the Application for Approval was originally submitted. Please send a copy of the revised implementation plan to Dr. Mohamed Serageldin at OAQPS. MMC should submit the revised plan within 3 months from today's date.

Sincerely,

John S. Seitz
Director
Office of Air Quality Planning
and Standards

Enclosure

cc : Judith Katz, Director, Air Protection Division
EPA Region III (3AP00)
Kathleen Henry, Chief, Permit and Technology
Assessment Branch, EPA Region III (3AP11)

Attachment

This document provides details on the maintenance, monitoring, recordkeeping and operating requirements necessary for the CAPE + RTO System to qualify as an "alternative means of limiting emissions" under §63.783(c) of 40 CFR Part 63, Subpart II. The CAPE + RTO System consists of two main unit operations, an enclosure (the CAPE) plus air management system and a regenerative thermal oxidizer (RTO). In brief, when a non-complying paint is applied within the CAPE, the system must be operated at a minimum of 95 percent overall control efficiency. In addition, the CAPE must be operated at a vacuum equal to or greater than 0.013 mm Hg (0.007 in. of water) gauge, the value presented in EPA Method 204. The RTO must operate with an air flow between 284 and 397 standard m^3/min (10,000 and 14,000 standard ft^3/min), and a combustion temperature greater than 760°C (1400°F). In addition, the CAPE+RTO System must be operated for the required amount of time. When the conditions and requirements contained in this document are met, the control system qualifies as "an alternative means of limiting emissions."

The requirements in this alternative apply when the CAPE+RTO System is operated. If coatings are applied when the System is not operated, then the compliance procedures of §63.785 and all relevant monitoring, recordkeeping, and reporting requirements of 40 CFR Part 63, Subpart II apply.

The EPA's evaluation of the Application for Approval (dated November 1998 and revised May 1999) provides background information that support these requirements [1].

1. Overview of requirements

The EPA establishes the following operational parameters in approving the alternative means of compliance with the VOHAP limits for 40 CFR Part 63, Subpart II:

(1) an overall control efficiency (considering both the capture efficiency of the enclosure and the destruction efficiency of the add-on control unit) of at least 95 percent, and

(2) the amount of time (t_2), in hours, the RTO needs to be operated after application of coating ceases, presented in Table 1.

Table 1. Additional hours of RTO Operation for Compliance with Subpart II

CAPE Air Temperature	32°C 90°F	27°C 80°F	20°C 68°F	18°C 60°F	14°C 55°F	10°C 50 °F
Hours of RTO Operation (t_2) after Coating Ceases	0 hr	2 hr	3 hr	4 hr	5 hr	6 hr

Note: For temperatures between 4.5°C (40 °F) and 10°C (50 °F), t_2 = 6 hours. Do not operate the CAPE + RTO System if the CAPE air temperature is below 4.5 °C (40 °F).

The facility must also meet the detailed operating, monitoring, and recordkeeping requirements presented in Sections 2 and 3 of this appendix. In addition, the RTO shall only receive pollutants generated within the CAPE enclosure. New performance test data will be required if volatile emissions from other operations outside the CAPE are also directed to the RTO. Furthermore, the owner or operator shall provide to the implementing agency a plan based on the recommended maintenance practices provided by the manufacturers for the CAPE+RTO System.

Considerations in establishing requirements:

The format of the standard is an important consideration in establishing equivalency and, specifically, the amount of time the CAPE+RTO System needs to be operated after the application of coatings ceases (Item 2 above). The VOHAP limits in the shipbuilding and ship repair regulation are specified in grams per liter of solids (nonvolatiles) and the regulation prohibits an owner or operator from allowing application of any coating with an as-applied VOHAP limit exceeding the value of a complying coating. Furthermore, a coating continues to emit while it is drying. Since the VOHAP limits are on a not-to-be-exceeded basis, the coating cycle was examined.

It takes several days to complete the coating of the portion of the hull surface area enclosed in the CAPE. Generally, a coating cycle, regardless of the number of painters involved, may take 2 or more hours to complete. Figure 1 contains a plot of the data points presented by Metro Machine Corporation (MMC) in the (June 1996) Emission Test Report [2]. The first complete curve reflects the results for a coating cycle that lasted over 3 hours. The time it takes to reach the maximum concentration point provides a measure of the time it takes to apply the coating (coating application time (t_1)), which was around 2 hours in this case. Some of the coating cycles overlap if more than one coater was involved. The concentration is high when the solvent is evaporating while the coating dries.

One issue in this analysis was determining that amount of time (t_2) after coating ceases that the CAPE+RTO System must continue to operate. Operating parameters and environmental conditions such as temperature, humidity, and pollutant concentration in the enclosure determine the length of time it takes for the necessary mass of pollutants released from the enclosure environment to reach the RTO inlet. The operator must not shut down the flow to the CAPE or the RTO before the emissions from the enclosure, referenced on a solids basis, are equal to or are below those for a complying coating which occurs at t_2. Should the enclosure be instantaneously removed at or after this point-in-time (t_2), the grams of VOHAP on the hull plus those in the enclosure atmosphere divided by the solids deposited from a coating on the hull would not exceed the value resulting from applying a complying coating. As a result, the owner or operator shall not turn off the RTO before the completion of each coatings cycle, time (t_1) plus the time (t_2) indicated in Table 1 (in hours). The coating cycle time begins when application begins.

$$\text{Total RTO Time} = t_1 + t_2; \text{ hours} \qquad (1)$$

Hence, the length of operation of the air flow and RTO for a coating application period is not based on the time it takes to oxidize a given mass of VOHAP from a coating. Instead, it is based on ensuring that the emission value (in g VOHAP inside the enclosure/L solids on the hull) does not exceed at any time the limits for a complying coating before the flow to the RTO or the RTO itself is turned off.

Figure 1: Change of concentration of volatiles at the exit of the CAPE (Data used was from 1996 Emission Test, Ref. 2)

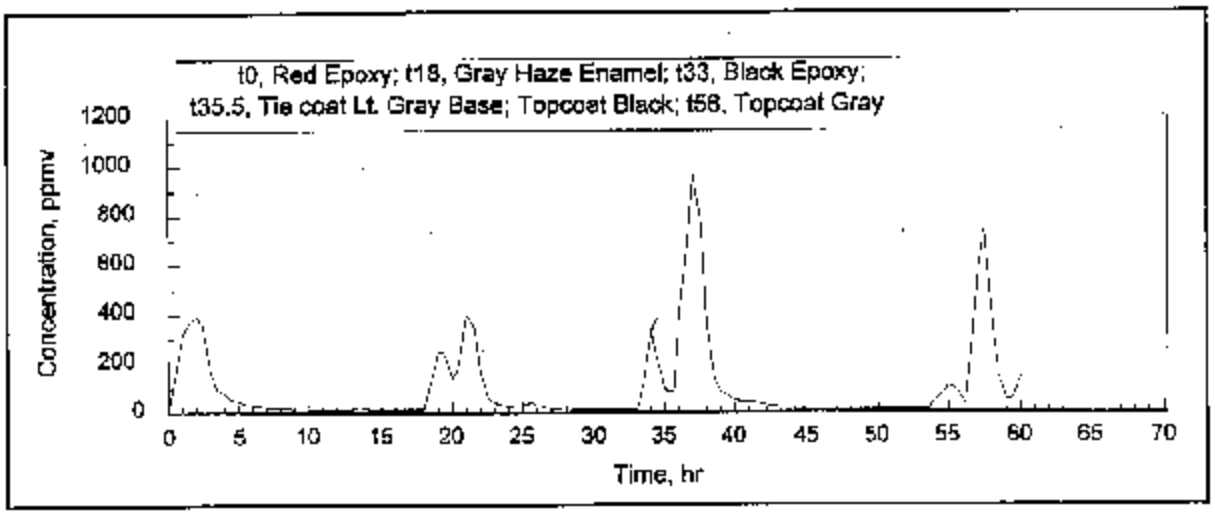
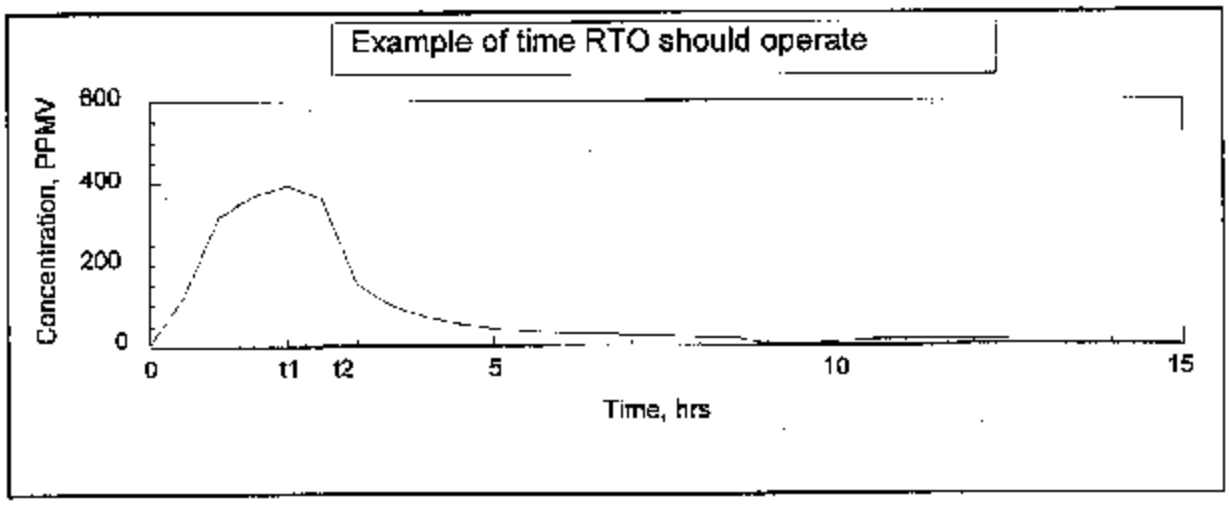


Figure 2. Illustration of a Coating-cycle



2. Detailed Requirements

This section includes the detailed requirements, including Quality Assurance/Quality Control provisions, from the General Provisions and Subpart II.

2.1. General Provisions, 40 CFR Part 63, Subpart A

The following requirements of the General Provisions (40 CFR Part 63, Subpart A) apply to this approval:

TABLE 1. Applicability of the General Provisions to this Approval

Reference	Applies	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	Information on add-on control devices and control efficiencies should be included in the application 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)	Yes	These paragraphs are applicable because an alternative means of limiting emissions 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	Yes	This section is applicable because an alternative means of limiting emissions is used to comply with Subpart II in accordance with §63.783(c).
63.8	Yes	This section is applicable because an alternative means of limiting emissions is used to comply with Subpart II in accordance with §63.783(c).

Reference	Applies	Comment
63.9(a)-(d)	Yes	§63.787(a) extends the initial notification deadline to 180 days. §63.787(b) requires an implementation plan to be submitted.
63.9(e)	Yes	This paragraph is applicable because an alternative means of limiting emissions 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)-(h)	Yes	This paragraph is applicable because an alternative means of limiting emissions is used to comply with Subpart II in accordance with §63.783(c).
63.9(i)-(j)	Yes	
63.10(a)-(b)	Yes	§63.788(b)-(c) list additional recordkeeping and reporting requirements.
63.10(c)	Yes	This section is applicable because an alternative means of limiting emissions is used to comply with Subpart II in accordance with §63.783(c).
63.10(d)	Yes	
63.10(e)	Yes	This paragraph is applicable because an alternative means of limiting emissions is used to comply with Subpart II in accordance with §63.783(c).
63.10(f)	Yes	
63.11	Yes	This section is applicable because an alternative means of limiting emissions is used to comply with Subpart II in accordance with §63.783(c).
63.12--63.15	Yes	

40 CFR 63, Subpart II

The following requirements of 40 CFR 63, Subpart II apply:

TABLE 2. Applicability of 40 CFR Part 63, Subpart II to this Approval

Reference	Applies to Subpart II	Comment
63.781	Yes	Applicability.
63.782	Yes	Definitions.
63.783 (a)	No	Except if a coating is applied when the alternative means of limiting emissions is not operating, then this paragraph applies.
63.783 (b)	Yes	Work practice requirements for reducing emissions.
63.783 (c)	Yes	No owner or operator of an existing or newly affected source shall exceed the applicable limits given in Table 2 of Subpart II, as determined by the procedures described in Table 3 of this appendix.
63.784	Yes	Compliance dates.
63.785	No	Except if a coating is applied when the alternative means of limiting emissions is not operating, then this section applies.
63.786	No	Except if a coating is applied when the alternative means of limiting emissions is not operating, then this section applies.
63.787 (a)	Yes	Notification Requirements.
63.787 (b)	Yes	
63.787 (b)(1)	Yes	

Reference	Applies to Subpart II	Comment
63.787 (b)(3)	Yes	The implementation plan shall address the subject areas indicated in this appendix, especially Table 3 in addition to those listed in the regulation, as indicated below. The implementation plan will serve to provide guidance and will assist in enforcement of the regulation. It is not the mechanism for enforcing the regulation.
63.787 (b)(3)(i)	No	Except if a coating is applied when the alternative means of limiting emissions is not operating, then this section applies.
63.787 (b)(3)(ii)	Yes	The implementation plan shall include the procedures for maintaining the records required under Table 4 of this appendix, as well as the procedures for maintaining the records required under the applicable sections of §63.788.
63.787(b)(3)(iii)	Yes	Transfer, handling, and storage procedures.
63.788 (a)	Yes	Applicable recordkeeping and reporting requirements.
63.788 (b)(1)	No	Except if a coating is applied when the alternative means of limiting emissions is not operating, then this section applies.
63.788 (b)(2)	Yes	Only paragraphs (b)(2) (i) through (iii), and paragraph (b)(2)(vi) apply except if a coating is applied when the alternative means of limiting emissions is not operating, then all of paragraph (b)(2) applies.
63.788 (b)(3)	No	Except if a coating is applied when the alternative means of limiting emissions is not operating, then this section applies.
63.788 (b)(4)	Yes	
63.788 (c)	Yes	When the alternative means of limiting emissions is operating with the compliance procedures presented in Table 3 of this appendix pursuant to §63.783(c), the applicable reporting requirements, for each 6-month period, are those that are relevant to the compliance procedure in Table 3. The reporting requirements also include those stated in Table 4 of this appendix. When the alternative means of limiting emissions is not operating, the compliance procedures under §63.785 are applicable and the applicable reporting requirements in Subpart II should be used.

3. Operating and Monitoring Requirements

Table 3 identifies the operating and monitoring requirements that apply when using the CAPE+RTO System as an alternative means of emission limitation to satisfy the VOHAP limits requirements of 40 CFR Part 63, Subpart II. Note that for all five of the operating and monitoring specifications, no averages shall be calculated (except for Item 5 in Table 3, VOHAP concentration at exit to RTO). In addition, the instructions contained in the operator's manual of the manufacturer shall be observed.

A flow diagram representing the control system shall be provided to the implementing agency identifying the positions of all temperature and flow measuring instruments. The measurements shall be carried out in such a way that the results are representative, accurate, and within the precision defined below.

Table 3. Operating and Monitoring Requirements for the CAPE+RTO System (Parameters were selected to achieve 95% overall control)

Operating Requirements	Operating Parameters	Monitoring Specifications		Excursions or Exceedences
1. Assembly of (CAPE) The enclosure shall be inspected following assembly of the sections.	Visual inspection	Inspect for tears and goodness of fit around the contour of the portion of the ship hull.		Not Applicable. (Make necessary repair and adjustments)
2. Vacuum in Enclosure (CAPE) The vacuum in the enclosure shall be equal to or greater than 0.013 mm Hg (0.007 in. of H_2O) gauge. The door shall normally be kept closed. Any air passing through seams or openings must be going into the enclosure.	Enclosure vacuum.	Instrument	Indicating differential manometer.	Upon excursion from the minimum required vacuum, stop applying coatings. Resume application of coatings after the required minumum vacuum is reestablished. A vacuum measurement of less than 0.013 mm Hg due to normal opening of the access door to allow entry and exit of personnel and equipment does not constitute an excursion. Report an excursion as specified in Table 4.
		Location	The internal sensing probe shall be toward the mid-point of the enclosure away from any direct draft, air flow, or doors that might interfere with the reading.	
		Performance specifications	The manometer must include the range of -0.557 to 0.0 mm Hg (-0.030 to 0.0 in. H_2O), and shall be readable to the nearest 0.002 mm Hg (0.001 in. H_2O).	
		QA/QC	The manometer shall be zeroed each quarter. Conduct a daily check for plugging or other interferences by verifying that the pressure reading is typical and fluctuating in a typical manner.	
		Monitoring frequency	The pressure within the enclosure shall be recorded at two hour intervals. This may be done manually.	
3. Chamber Temperature The RTO combustion chamber temperature shall operate at 760 °C (1400 °F) or higher.	The RTO combustion chamber temperature shall be monitored with a thermocouple.	Instrument	The thermocouple shall be connected to an alarm set at 760°C (1400°F)	Upon excursion fom the range (i.e., sounding of the alarm), stop applying coatings. Do not apply coatings until the problem is fixed. Report an excursion as specified in Table 4.
		Location	In the combustion chamber. The thermocouple is an integral part of the RTO design.	
		Performance specification	The thermocouple sensitivity shall be ± 0.1%. The minimum chart division shall be 10°C or 20°F.	
		QA/QC Practices	Automatic self-check of the thermocouple is part of the RTO internal auditing process. A periodic electrical continuity check shall be made according to manufacturer's instructions but no less frequently than once each year.	
		Monitoring frequency	Continuous	

Operating Requirements	Operating Parameters	Monitoring Specifications		Excursions or Exceedences
4. Flow rate to the RTO The flow rate during RTO operation shall be between 284 and 397 standard* m^3/min (10,000 - 14,000 standard ft^3/min). The CAPE+RTO System shall be visually inspected prior to start up after each assembly to ensure it is properly assembled and that no damage has occured.	The flow rate to the RTO.	Instrument	A flow measuring instrument.	Upon excursion from the range stop applying coatings. Do not resume the application of coatings before the flow is brought within the allowed range. Report an excursion as specified in Table 4. Report any repair or adjustments of the CAPE + RTO System as specified in Table 4.
		Location	The instrument shall be positioned near the inlet of the RTO such that flow disturbances do not influence the readings.	
		Performance Specification	The flow sensor shall be within = 0.5 % and the indicating instrument shall be within ± 2% of full scale. The indicating instrument must be calibrated to measure a range of flow, from 0 to 426 actual m^3/min (0 to 15,000 actual cfm).	
		QA/QC	A periodic electrical calibrations check shall be made according the manufacturer's instructions, but no less frequently than once each year. After the CAPE+RTO System is assembled the reading from the flow measuring instrument shall be compared with the fan speed reading measured within the first 2 hours. A difference of more than 10 percent requires re-calibration of the flow measuring instrument.	
		Monitoring frequency	Flow reading shall be recorded every two hours.[1]	

*NOTE: Standard conditions = 20 ° C and 101 kPa (68 ° F and 29.92 in Hg).

Operating Requirements	Operating Parameters	Monitoring Specifications		Excursions or Exceedences
5. VOHAP Concentration at exit to RTO. After assembling the CAPE the concentration of VOHAPs from the RTO outlet shall be less than 30 ppmv, measured as propane, while the concentration of VOHAPs to the RTO is greater than 120 ppmv.	RTO inlet and exit concentrations	Instrument	Portable flame ionization detector.	Upon excursion from the range, application of coatings shall cease. Do not apply coatings until the operating requirements are satisfied. Report an excursion as specified in Table 4.
		Location	At the inlet and outlet of the RTO.	
		Performance specification	Instrument range from zero to 500 ppmv, readable to within 5 ppmv. The maximum calibration value of the instrument should exceed that of the maximum output concentration reading (ppmv) by at least 15 percent.	
		QA/QC	The instrument shall be zeroed and calibrated using zero, 250, and 500 ppmv standard gases the day of the use of the instrument.	
		Monitoring frequency	The inlet and exit concentrations shall each be measured 3 times during the first coating cycle after each assembly of the CAPE+RTO System, between 45 minutes after the beginning of the first coating cycle and 30 minutes after completion of the coating cycle. The triplicate measures of a concentration shall be arithmetically averaged to calculate a single inlet and a single outlet concentration.	
6. RTO Operating Time /Air Temperature The time of RTO operation after coating application ceases shall be t_2. This time t_2 shall be determined according to Table 1 from the enclosure air temperature.	The RTO time, t_2, is based on the temperature in the enclosure or duct work.	Instrument	An air temperature measuring instrument.	Turning off the RTO before the required time will result in an exceedance of the standard. Report all exceedences in accordance with Table 4 and §63.788, paragraphs (b)(4) and (c).
		Location	The instrument shall be located in the middle of the enclosure or in the duct work near the recirculation exhaust, away from flow disturbances.	
		Performance specifications	The temperature measurement instrument range shall include values from -1.1 °C to 43.3 °C (30°F to 110°F). Sensitivity of the instrument shall be within 0.1%. The instrument must be readable in increments of 0.5 °C (1°F).	
		QA/QC	A periodic check shall be conducted according to the manufacturer's instructions but no less frequently than annually.	
		Monitoring frequency	The temperatue shall be measured within 2 hours after the start of the fast coating- cycle.	

Operating Requirements	Operating Parameters	Monitoring Specifications	Excursions or Exceedences
7. The CAPE+RTO shall operate during the time a coating is applied (t_1) plus the additional time (t_2) determined from Table 1 above.	t_1 and t_2	Properly operating a watch or clock.	Turning off the flow from the CAPE to the RTO or the RTO itself before the required time will result in an exceedance of the standard. (See recordkeeping and reporting requirements below.)
8. All monitoring instruments shall operate according to the monitoring specifications.			Stop application of coatings until the problem is fixed.

4. Recordkeeping and Reporting Requirements

Tables 2 and 4 identify the recordkeeping and reporting requirements that apply when using the CAPE+RTO System as an alternative means of emission limitation to meet the requirements of 40 CFR Part 63, Subpart II.

Table 4. Recordkeeping and Reporting Requirements for the CAPE+RTO System (in addition to applicable requirements in §63.788 identified in Table 2 of this Appendix)

Recordkeeping	Semiannual Reporting
1. Dates of visual inspection following assembly of CAPE sections to fit contour of a portion of a ship hull.	Any repair or adjustments made.
2. Values of the measured vacuum inside enclosure, every 2 hours. Record the time and date of each measurement.	Times and dates that vacuum of the enclosure are less than the minimum vacuum required; action taken.
3. Values of RTO combustion chamber temperature measurements. Record the date of the of the measurements.	Times and dates that the RTO temperature was not operating at or above the minimum temperature; action taken.
4. Values of the air flow rate to the RTO every 2 hours. Record the time and date of each measurement.	Times and dates that the flow to the RTO falls outside of the operating range of 284 and 397 standard m^3/min (10,000 - 14,000 ft^3/min); reasons and action taken.
5. Values of the VOHAP concentrations at RTO inlet and outlet, following assembly of CAPE sections and connection to RTO; and date and time of each measurement.	Times and dates the RTO average concentration of VOHAPs from the RTO was above minimum vacuum required; reasons and actions taken. Dates the measuring instruments were not operating properly; actions taken
6. *Operating Time/Air temperature in the CAPE:* Record the date, start time (t_0) and end time (t_1) for the coating period; CAPE air temperature reading within two hours after the start of the last coating-cycle and the extra time (t_2) needed to run the RTO after application of the last coating.	Time and dates that the RTO was turned off before the extra time, t_2; the reasons and action taken.
7. Value of required CAPE + RTO operating time, $t_1 + t_2$	Time and dates that the RTO was turned off before the required operating time, $t_1 + t_2$; reasons and action taken.
8. Start and end times and dates of RTO operation.	Start and end times and dates of RTO operation.
9. A copy of the manufacturer's QA/QC recommendation and procedures for the instruments and units applicable to Table 3 of this appendix. Dates of each QA/QC check.	N/A

Recordkeeping	Semiannual Reporting
10. A copy of the operation and maintenance procedures to be followed in relation to Table 3 of this appendix to minimize operational problems.	N/A
11. A copy of the application for approval including supporting documentation.	N/A
12. Records shall be compiled on a monthly basis and shall be maintained on-site for at least 5 years.	Applicable records or reports may be submitted in paper or electronic format.

N/A = Not applicable

REFERENCES

1. *Evaluation of Application for Approval of an Alternative Methodology for Compliance with the NESHAP for Shipbuilding and Ship Repair: Submitted by Metro Machine Corporation, Norfolk, Virginia, June 16, 1996 and Recommended Requirements for Compliance*; November 1998 (Revised May 1999), Office of Air Quality Planning and Standards, Research Triangle Park, NC 27711.

2. *Air Emission Evaluation Total Gaseous Organic Compounds and Filterable Particulate Emissions Compliant All Position Enclosure (CAPE) System USS SCOTT DDG-995*; prepared by Pacific Environmental Services, Inc. Herndon, VA, September 1996 for Metro Machine Corporation, Norfolk, VA. (Air Emission Test).