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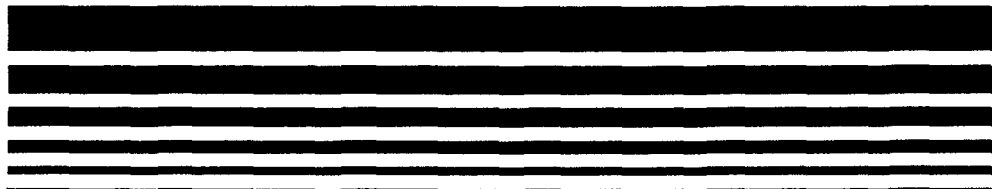
EPA-453/R-95-014
July 1995

Air



**FEDERAL STANDARDS FOR MARINE TANK
VESSEL LOADING OPERATIONS AND
NATIONAL EMISSION STANDARDS FOR
HAZARDOUS AIR POLLUTANTS FOR MARINE
TANK VESSEL LOADING OPERATIONS**

**Technical Support Document for Final
Standards:
Summary of Public Comments and
Responses**



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**FEDERAL STANDARDS FOR MARINE TANK
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AND
NATIONAL EMISSION STANDARDS
FOR HAZARDOUS AIR POLLUTANTS FOR
MARINE TANK VESSEL LOADING OPERATIONS**

**TECHNICAL SUPPORT DOCUMENT FOR
FINAL STANDARDS**

OCLO # 222-149

FEDERAL STANDARDS FOR MARINE TANK VESSEL LOADING OPERATIONS
AND NATIONAL EMISSIONS STANDARDS FOR HAZARDOUS AIR POLLUTANTS FOR
MARINE TANK VESSEL LOADING OPERATIONS--
TECHNICAL SUPPORT DOCUMENT FOR FINAL STANDARDS

Summary of Public Comments and Responses

Emission Standards Division

U.S. Environmental Protection Agency
Office of Air and Radiation
Office of Air Quality Planning and Standards
Research Triangle Park, NC 27711

July 1995

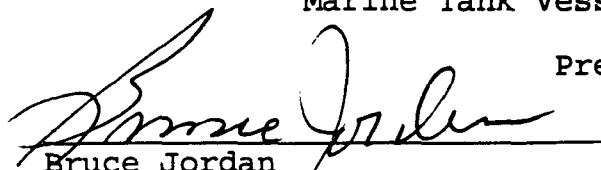
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ENVIRONMENTAL PROTECTION AGENCY

Background Information for Final Standards
Marine Tank Vessel Loading Operations

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7/27/95
(Date)

1. The final federal standards and national emissions standards limit emissions of VOC and HAP from existing and new marine tank vessel loading operations. The final standards implement Section 183(f) and Section 112 of the Clean Air Act as amended in 1990.
2. Copies of this document have been sent to the following Federal Departments: Labor, Health and Human Services, Defense, Transportation, Agriculture, Commerce, Interior, and Energy; the National Science Foundation; the Council on Environmental Quality; members of the State and Territorial Air Pollution Program Administrators; the Association of Local Air Pollution Control Officials; EPA Regional Administrators; Office of Management and Budget; and other interested parties.
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TABLE OF CONTENTS

	<u>Page</u>
1.0 SUMMARY	1-1
1.1 SUMMARY OF CHANGES SINCE PROPOSAL	1-2
1.1.1 Removal of unloading operations (ballasting) from the source category	1-2
1.1.2 Extension of the compliance schedule for section 183(f) ("Title I") and section 112 ("Title III") standards	1-3
1.1.3 Addition of new subcategories under the section 112 regulations for offshore terminals and for the Alyeska Pipeline Service Corporation's Valdez Marine Terminal	1-5
1.1.4 Expansion of the petroleum refineries source category to include marine tank vessel loading operations collocated at petroleum refinery operations	1-8
1.1.5 Revision to the subcategories established based on annual HAP emissions from 1 ton per year to 10 tons per year of any single HAP or 25 tons per year of total HAP . . .	1-10
1.1.6 Incorporation of minimum vapor pressure limit	1-11
1.1.7 Recalculation of the MACT floors . . .	1-12
1.1.8 Incorporation of additional flexibility to the monitoring requirements and compliance provisions	1-16
1.1.9 Minor Changes	1-17
1.2 SUMMARY OF IMPACTS OF PROMULGATED ACTION . . .	1-18
1.3 REFERENCES	1-20
2.0 SUMMARY OF PUBLIC COMMENTS	2-1
2.1 APPLICABILITY	2-12
2.1.1 Loading/Unloading Operations	2-12
2.1.2 Potential to Emit	2-14
2.1.3 Titles I and III	2-17
2.1.4 Vapor Pressure Limit	2-30
2.1.5 Commodity Type	2-34
2.1.6 Valdez Marine Terminal (VMT)	2-36
2.1.7 Ballasting and Bunkering	2-41
2.1.8 Regeneration of Carbon Beds	2-46

TABLE OF CONTENTS (continued)

	<u>Page</u>
2.2 INCLUSION WITH THE PETROLEUM REFINERY SOURCE	
CATEGORY AND CONTIGUITY	2-47
2.2.1 General	2-47
2.2.2 Contiguity and Collocation	2-50
2.2.3 Emissions Averaging	2-52
2.2.4 Exposure Spikes	2-56
2.2.5 Other Impacts	2-58
2.3 SUBCATEGORIZATION	2-61
2.3.1 Subcategories Based on Size	2-61
2.3.2 Offshore Terminals/Offshore	
Production	2-65
2.3.3 Parcel Tankers	2-70
2.3.4 VMT	2-71
2.4 RACT/MACT	2-73
2.4.1 MACT Floor	2-73
2.4.2 Stringency of MACT/RACT	2-80
2.4.3 Partial Control of Commodities	2-89
2.4.4 New/Existing Sources and Requirements	2-90
2.4.5 Area Sources	2-93
2.4.6 Recovery	2-94
2.4.7 Incineration	2-95
2.4.8 Format of the Standards	2-96
2.4.9 Regulation of Two Berths within VMT .	2-98
2.4.10 RACT and MACT in Same/Separate Rules .	2-102
2.4.11 Parallel With The HON	2-103
2.4.12 Alternative Standard	2-104
2.5 COMPLIANCE SCHEDULE FOR TITLES I AND III . . .	2-106
2.6 COMPLIANCE, PERFORMANCE TESTING, AND	
MONITORING	2-119
2.6.1 Compliance	2-119
2.6.2 Performance Testing Requirements	
and Procedures	2-125
2.6.3 Establishing Operating Parameters . .	2-128
2.6.4 Monitoring Requirements	2-135
2.6.5 Emission Estimating Procedures	2-139
2.6.6 Emissions Averaging	2-151
2.6.7 Exemptions from Performance Testing .	2-154
2.7 VAPOR TIGHTNESS REQUIREMENTS	2-156
2.8 LEAK DETECTION AND REPAIR	2-168
2.9 REPORTING AND RECORDKEEPING REQUIREMENTS . . .	2-173
2.10 GENERAL PROVISIONS	2-179
2.11 WORDING OF REGULATION	2-181
2.11.1 General	2-181
2.11.2 Definitions	2-188
2.11.3 Overlap With Other Standards	2-196
2.12 ADMINISTRATIVE RECORD/SOURCES OF INFORMATION .	2-201
2.13 COST EFFECTIVENESS/IMPACTS	2-211
2.13.1 Cost Effectiveness	2-211

TABLE OF CONTENTS (continued)

	<u>Page</u>
2.13.2 Other Cost-Related Impacts	2-218
2.14 MISCELLANEOUS	2-224
2.14.1 Private Citizens (Groups)	2-224
2.14.2 Publication of Regulation in the Federal Register	2-225
2.14.3 National Security	2-229
2.14.4 Other Miscellaneous Comments	2-231
2.15 COMMENTS ON PROPOSED APPENDICES TO 40 CFR PART 64	2-235

LIST OF TABLES

	<u>Page</u>
TABLE 1-1 MACT FLOORS, EMISSION REDUCTIONS, AND NATIONAL COSTS	1-13
TABLE 2-1. COMMENTS RECEIVED ON THE PROPOSED MARINE TANK VESSEL LOADING OPERATIONS FEDERAL RULES AND NESHP	2-4

1.0 SUMMARY

On May 13, 1994, the Environmental Protection Agency (EPA) proposed federal rules and national emissions standards for hazardous air pollutants (NESHAP) for marine tank vessel loading operations (59 FR 10591) under authority of Section 183(f) and Section 112 of the amended Clean Air Act (Act). Public comments were requested on the proposal in the Federal Register. The Agency also reopened the public comment period for specific comments on two occasions -- August 31, 1994 (59 FR 44955) and March 8, 1995 (60 FR 12723). One hundred forty commenters, composed of States, environmental groups, control equipment vendors, trade groups, marine tank vessel owners/operators, and marine tank vessel terminal owners/operators responded to the request.

The comments that were submitted and the responses to these comments are summarized in this document. The summary of comments and responses serves as the basis for the revisions made to the standards between proposal and promulgation.

1.1 SUMMARY OF CHANGES SINCE PROPOSAL

Several changes have been made since the proposal of these standards. A discussion of these changes is provided in the preamble to the final rule. The majority of the changes have been made to clarify portions of the rule that were unclear to the commenters. A summary of the major changes is presented below.

1.1.1 Removal of unloading operations (ballasting) from the source category

In the proposed rule, the Agency included regulations proscribing emissions from ballasting of vessels following unloading of vessels. Comments asserted that ballasting operations are performed by vessel operators, not by the regulated terminal sources (see Section 2.1.1). The Agency agreed with this interpretation of the affected source. The Agency also agreed that regulating ballasting operations would be difficult to enforce. Moreover, EPA agreed that the relatively low amount of actual emissions associated with ballasting did not justify dual regulation of ballasting.¹ As discussed in the Section 2.1.1, the total VOC emissions from crude oil tankship ballasting were estimated to be approximately 950 Mg/yr. Based on the portion of HAP in crude oil vapor, total HAP emissions from ballasting would be less than 120 Mg/yr. The Agency noted that ballasting emissions are likely to diminish in the future because tankships built since 1980 are required by domestic law and international agreement to use segregated ballast tanks that do not emit vapors during ballasting. Therefore, in order to prevent confusion in the regulated community, the Agency decided to not address ballasting or bunkering emissions in the final regulation. The Agency elected to defer to the U.S. Coast Guard's existing standards (33 CFR parts 155 and 157; and 46 CFR parts 30 et al.).

1.1.2 Extension of the compliance schedule for section 183(f) ("Title I") and section 112 ("Title III") standards

The Agency proposed to establish compliance deadlines of 2 years for the Section 183(f) standards, and 3 years for the Section 112 standards. The Agency received numerous comments in response to the proposed rule and the Agency subsequently published a request for comment dealing specifically with whether the compliance periods for the RACT and MACT regulations should be extended [published in the Federal Register on March 8, 1995, (60 FR 12723)]. Most of these commenters stated that the length of the compliance periods was insufficient to comply with the standards (see Section 2.5). The Agency agreed with the commenters that permitting and safety approvals from permitting authorities and the Coast Guard, the dearth of skilled engineering and construction firms, and the history of facilities being unable to comply with existing regulations compelled the Agency to extend the date for full compliance with the RACT and MACT rules.

In the final standards, EPA allowed sources regulated under section 183(f) 3 years to be in full compliance with the emission control requirements promulgated under section 183(f). In addition, RACT sources may request a waiver of up to 1 year to achieve full compliance with the requirements if they can show that the additional period is necessary for the installation of controls. The Agency believes that this result was consistent with section 183(f) requirements for the application of "reasonably available" control technology, considering costs, any non-air quality benefits, environmental impacts, energy requirements, and safety factors. The Agency also believes that the imprecision of the term "effective date" provided EPA with the ability to allow compliance after 2 years. [The distinction between "effective dates" of regulations and "compliance dates" is important and has been a clear part of administrative procedure for many years. See, e.g., section 112(i)(3); Natural Resources Defense Council v. Environmental Protection Agency,

22 F. 3d 1125, 1138 (D.C. Cir. 1994).] In the final rule, the Agency required regulated RACT sources to provide proof that they have commenced construction of vapor collection systems and air pollution control devices within 2 years after promulgation of the final standards. The Agency believes that these actions could reasonably be achieved within 2 years of promulgation.

The EPA allowed existing sources regulated solely under section 112 four years to be in full compliance with the emission control requirements promulgated under section 112. Section 112(i) of the Act specifically allows EPA to provide sources with a waiver of up to 1 year to achieve full compliance with the requirements if they can show that the additional period is necessary for installing the controls. The Agency determined that the sources controlled under section 112 not controlled under section 183(f) should automatically receive a waiver of 1 year allowing a total of four years to comply with the MACT emission reduction requirements. The Agency believes that this total of 4 years is sufficient time for the estimated 20 sources presently uncontrolled to design and install control technologies sufficient to meet the MACT standards.

The Agency believes that the staggered compliance schedule (i.e., 3 years for RACT terminals and 4 years for MACT terminals) coupled with the reduced number of terminals required to control emissions under the final rule would alleviate commenters' concerns about the scarcity of qualified installation consultants and vendors. This extended schedule was also expected to address concerns regarding permitting delays.

The Agency provided the VMT with 30 months to be in full compliance with these regulations. The Agency believes, per its discussions with APSC, that this extension provided sufficient time to comply with the promulgated rule.

1.1.3 Addition of new subcategories under the section 112 regulations for offshore terminals and for the Alyeska Pipeline Service Corporation's Valdez Marine Terminal

In the proposed rule, the Agency established two subcategories based on size for the section 112 MACT regulations.² The Agency also solicited comments on whether additional subcategories should be established under the MACT regulations for specific types of terminals based on particular characteristics of those types of terminals of which the Agency had no information at that time. Based on the public comments, the Agency determined that two additional subcategories exist within the marine tank vessel loading operation source category.

1.1.3.1 Subcategory for offshore terminals. In the proposed rule, the Agency stated that it did not believe a facility at least one-half mile offshore is part of a land-based contiguous site, and believed that such offshore terminals present unique regulatory challenges such as costs, environmental impacts, and/or size constraints. The Agency requested information regarding the feasibility and costs of controlling emissions from offshore terminals, and inquired whether offshore terminals should be grouped into a separate subcategory and what the control status of terminals in such a subcategory should be. Several comments were received in response to this request (Section 2.3.2). These comments indicated that these types of vessel loading operations face significant and unique challenges in controlling emissions that were different from land-based, contiguous loading operations. Based on these comments, the Agency determined that a subcategory for these types of terminals was justified and based its definition for offshore terminals on a minimum distance of one-half mile from the terminal's furthest loading point to the shore, regardless of the existence of subsea lines.

1.1.3.2 Subcategory for Alyeska Pipeline Service Company's Valdez Marine Terminal. In the proposed rule, the Agency

solicited comment on the possibility of placing the VMT in a separate subcategory. Comments were received from APSC and several other commenters representing State and local governments, industry, private citizens, and environmental groups. The Agency determined that the VMT should be placed in a separate subcategory for the following reasons: (1) the VMT is the largest (by a significant amount) crude oil loading operation in the U.S.; (2) special circumstances, including climatic and economic conditions, require keeping the oil moving through the pipeline; (3) severe meteorological conditions result in increased loading irregularity; and (4) the VMT throughput projections show declining throughput over the next several years. Several comments from environmental groups, State and local agencies, and private citizens in the Valdez area did not object to placing VMT in a separate subcategory provided that emissions were controlled. After review of all of these factors, the Agency placed APSC's VMT in a separate subcategory. Emissions from all throughput loaded from at least two berths at VMT will be reduced by 98 percent efficiency under both MACT and RACT standards. Maximum limits for total throughput and throughput at uncontrolled berths (above which all VMT loading berths would be required to reduce emissions by 98 percent) were included as part of these standards. These throughput limits address the projected decreasing throughput that would necessitate the use of only two berths for routine loading after 2001. Provisions to allow for scheduled maintenance of the controlled berths were also established in the VMT standards.

The selected approach for regulating VMT under MACT was more stringent than the MACT floor.³ The Agency selected this approach after review of the cost effectiveness of controlling VOC at this terminal (i.e., approximately \$1,050 per Mg for controlling VOC or approximately \$8,000 per Mg for controlling HAP). (Note: the data for this cost effectiveness analysis were supplied by the APSC in their public comments.) The Agency

initially received comments stating that the cost of controlling VOC at this terminal was high relative to the benefits of controlling VOC at a remote site in an Arctic ozone attainment area. Additionally, some commenters initially stated that the benefits of controlling HAP did not appear to justify the costs. However, later comments from the APSC, the State of Alaska, the Prince William Sound Regional Citizens Advisory Committee (a local citizens group) and private citizens agreed that a Federal rule mandating control of the primary emissions at the APSC was acceptable.

1.1.4 Expansion of the petroleum refineries source category to include marine tank vessel loading operations collocated at petroleum refinery operations

[Note: Please refer to the Summary of Public Comments and Responses: National Emission Standards for Hazardous Air Pollutants -- Petroleum Refineries -- Background Information for Final Standards, EPA-453/R-95-015b for additional information on the expansion of the petroleum refineries source category.]

The preamble to the proposed petroleum refinery NESHAP published in the Federal Register on July 15, 1994 (59 FR 36130) requested comments on whether marine tank vessel loading operations at refineries should be included in emissions averaging. On August 31, 1994, the EPA also reopened the comment period for the proposed NESHAP for Marine Tank Vessel Loading Operations (59 FR 44955) to request comment on whether marine terminals collocated at refineries should be moved to the petroleum refinery source category. Several commenters responding to the marine tank vessel loading operations proposed standards supported averaging of refinery process unit emissions with emissions from marine terminals and gasoline distribution operations that are located at refineries. The commenters cited more cost effective emission reduction as the advantage of including these emission points in emissions averaging and specifically commented that the costs per Mg emission reduction of the marine tank vessel loading emission controls are high. These commenters also claimed that emission calculation procedures for loading are well established and that adding marine loading to the averaging provisions will not appreciably increase the complexity of enforcement. Other commenters opposed including marine tank vessel loading and gasoline distribution in emissions averaging. Some commenters claimed that these are separate source categories, and the Act does not permit averaging across source categories. Others were concerned that including marine loading in averages could result in uncontrolled peak emissions.

In the final rules, emissions from marine tank vessel loading operations as well as those from bulk gasoline terminal or pipeline breakout station storage vessels, and bulk gasoline terminal loading racks at petroleum refineries are allowed to be included in emissions averages. The petroleum refinery source category and source definitions were changed to include marine tank vessel loading operations among others. However, this redefinition only applied to MACT marine tank vessel operations; all terminals subject to section 183(f) regardless of location cannot average emissions with petroleum refinery sources.

In redefining the petroleum refinery source category, the Agency determined that a marine tank vessel loading operation that is collocated at a petroleum refinery could be considered part of the same source as the refinery subject to this rule. Because these operations were redefined to be part of the source subject to the rule, the prohibition against intersource averaging was not violated. This decision was made to provide more opportunities to average and allow owners or operators of petroleum refineries to find the optimal control strategy for their particular situation.

The Agency noted that including emissions from marine tank vessel loading operations in emissions averages will result in equivalent or greater overall HAP emission reduction at each refinery. The averaging provisions (see Petroleum Refinery NESHAP final rule) are structured such that "debits" generated by not controlling an emission point that otherwise would require control must be balanced by achieving extra control at other refinery emission points covered by the NESHAP.

1.1.5 Revision to the subcategories established based on annual HAP emissions from 1 ton per year to 10 tons per year of any single HAP or 25 tons per year of total HAP

The proposed standards grouped major source terminals into two subcategories based on HAP emissions: terminals with HAP emissions of 1 ton per year or more and terminals having HAP emissions of less than 1 ton per year. In the preamble of the proposed rule, the Agency requested comment on establishing these subcategories based on size (i.e., HAP emissions). In the final rule, supported by general support from the comments, the Agency has retained the use of HAP emissions to group major source terminals into two subcategories. However, the subcategories were changed to terminals having emissions of 10 tons per year or more of any single HAP or 25 tons per year or more of total HAP and terminals having HAP emissions of less than 10 tons per year of all single HAP or less than 25 tons per year of total HAP (see Section 2.3.1, and Reference 3).

1.1.6 Incorporation of minimum vapor pressure limit

The proposed rule enabled individual facilities to determine which products to control to achieve a 93 percent mass limit.² However, the format of the final MACT standards has been altered to explicitly exempt low vapor pressure liquids (i.e., liquids having a vapor pressure below 1.5 psia).³ Commenters noted that EPA had based its calculation of the MACT floors on existing State rules^{2,3} and stated that existing State regulations exempt these liquids from emissions control requirements. Therefore EPA decided that only liquids having a vapor pressure 1.5 psia or greater should be controlled under the final rule. The format of the final standards were changed to an efficiency format to reflect the new approach.

1.1.7 Recalculation of the MACT floors

The MACT floors determined for this final rulemaking are different than those in the proposed rule. These final rule MACT floors reflected changes in the Agency's regulation of marine tank vessel loading including: (1) the establishment of subcategories for offshore terminals and the VMT terminal; (2) the incorporation of a 1.5 psia minimum vapor pressure limit instead of the weighted average as was proposed; and (3) the increase of the levels of the subcategories based on size (i.e., HAP emissions) from 1 ton per year to 10/25 tons per year. The MACT floors for the final rule also reflected comments on the proposed rule, including comments on the number of controlled and affected terminals. However, the Agency did not change the way in which the MACT floors for the final rule were calculated.^{2,3} The MACT floors for existing and new sources in the marine tank vessel loading source category are shown in Table 1-1.³ The MACT floors for existing and new major source terminals included with the petroleum refineries source category are also shown in Table 1-1.

The MACT floors for existing sources were calculated using the criteria established in section 112(d)(3)(A) of the Act the Additional information on the determination of these MACT floors is in the docket.³ There are approximately 44 major source terminals (not including the VMT) that emit 10 tons per year or more of any one hazardous air pollutant (HAP) or 25 tons per year or more of any combination of HAP. Twenty-three of these terminals are controlled. The resulting MACT floor level of control (i.e., average of the best performing 5 sources) is a 97 percent reduction of HAP emissions. There are approximately 1,435 terminals that emit less than 10 tons per year of all individual HAP and less than 25 tons per year of combined HAP. Seventy-nine of these terminals reduce emissions from marine tank vessel loading. The resulting MACT floor level of control is no reduction in HAP emissions (Note: The average of the best

TABLE 1-1. MACT FLOORS, EMISSION REDUCTIONS, AND NATIONAL COSTS¹

Subcategory	Standard	Emission reduction, Mg/yr	Annual cost, \$MM
Alyeska Pipeline Service Company's Valdez Marine Terminal	No Control	None	None
Existing major source terminals located 0.8 kilometers (0.5 miles) or more offshore.	No Control	None	None
Existing major source terminals having HAP emissions of less than 10/25 tons per year from loading of marine tank vessels.	No Control	None	None
Existing major source terminals having emissions of hazardous air pollutants (HAP) of 10/25 tons per year or more from loading of marine tank vessels.	97 percent reduction in HAP emissions.	7,000 (VOC) 750 (HAP)	20-40
New major source terminals located 0.8 kilometers (0.5 miles) or more offshore having HAP emissions of 10/25 tons per year or more from loading of marine tank vessels.	95 percent reduction in HAP emissions.	None	None
New onshore major source terminals regardless of HAP emissions from marine tank vessel loading	98 percent reduction in HAP emissions.	None	None
Existing major source terminals collocated at petroleum refineries having HAP emissions of less than 10/25 tons per year from loading of marine tank vessels (sources are regulated under the Gasoline Refineries NESHAP).	No control	None	None
Existing major source terminals collocated at petroleum refineries having HAP emissions of 10/25 tons per year or more from loading of marine tank vessels (sources are regulated under the Gasoline Refineries NESHAP).	97 percent reduction in HAP emissions; emissions averaging with petroleum refinery emissions points is allowed	Included in impacts for existing non-refinery terminals.	Included in impacts for non-refinery terminals.
New major source terminals collocated at petroleum refineries regardless of HAP emissions from marine tank vessel loading (sources are regulated under the Gasoline Refineries NESHAP).	98 percent reduction in HAP emissions; emissions averaging with petroleum refinery emissions points is allowed	None	None

¹ Impacts do not reflect the additional costs and emission reduction achieved by Title I standards.

performing 172 sources resulted in 74 percent control. Since this did not match a known control technology, the median of the best performing 12 percent of sources, the 86th facility, was used to calculate the MACT floor. This terminal has a calculated emission reduction of 0 percent.)³

The Agency estimated that there are less than 30 offshore terminals (i.e., loading terminals located 0.5 miles or more from shore). The Agency was aware of only 2 controlled offshore terminals. The resulting MACT floor is no reduction in HAP emissions. (Note: Since the mean of the best performing 5 sources produces a result that did not match a control technology -- 38 percent -- the median of the best performing 5 sources was used to calculate the MACT floor. This calculation resulted in a MACT floor of no control.) The VMT was uncontrolled. Since this was the only terminal in the VMT source category, the MACT floor level of control is no control.³

The MACT floors for new source marine terminal subcategories subject to regulation under Title III of the Act were also calculated following the criteria in section 112(d)(3)(A) of the Act. The resulting new source MACT floors are listed in Table 1-1. There was no benefit in establishing two MACT floors for new sources above and below the 10/25 subcategory for onshore major sources since the MACT floors would be identical. Therefore, terminals in these subcategories were combined for new source MACT in the regulation. For new major source onshore terminals (not including the VMT) regardless of the marine tank vessel loading HAP emissions, the best performing source achieved a 98 percent reduction of HAP emissions. Therefore, the resulting MACT floor for these sources is 98 percent reduction of HAP emissions. For new major source offshore terminals whose marine tank vessel loading HAP emissions exceeded the limits for a major source (i.e., 10 tons of any one HAP, or 25 tons of total HAP), the best controlled similar source achieved a 95 percent reduction of HAP emissions. The resulting MACT floor for new

offshore major sources is therefore a 95 percent reduction in emissions. Since the VMT subcategory only contains a single source, and it is not possible for an additional source to be added to this subcategory, no new source MACT floor was calculated for the VMT subcategory.³

1.1.8 Incorporation of additional flexibility to the monitoring requirements and compliance provisions

The proposed rule required parametric monitoring or continuous emissions monitoring (CEM) as a means of showing compliance with the standards. Any exceedance of the parameters or concentration limits established during a performance test would have resulted in a violation of the standard. Comments indicated that this approach was too severe and warranted additional flexibility. In consideration of the lack of test data establishing the relationship between marine tank vessel loading emissions control efficiency and parametric monitoring and because of the batch nature of marine tank vessel loading operations, the Agency thoroughly revised the monitoring requirements and compliance provisions of the final rule. A requirement for an operation and maintenance (O & M) plan was added to the final regulation to ensure proper operation of the air pollution control and monitoring equipment. The O & M plan contains an inspection schedule for each component of the control and monitoring equipment. The "compliance" language that appeared in § 63.563 of the proposed rule was removed. In its place, the final rule contained provisions that require an unscheduled inspection and corrective actions when operating parameters exceed the applicable baseline parameters.

Flexibility was also added to the methods for determining baseline parameters. Owners or operators of a source required to reduce emissions may establish baseline parameters during a performance test or may choose to set the applicable baseline based on a manufacturer's recommended baseline operating parameter.

Additional operating parameters were added to the final regulation for several control devices. A cross reference to the general provisions found in 40 CFR part 63 (containing requirements for establishing alternative monitoring procedures) was provided to assist sources seeking approval of alternative monitoring procedures.

1.1.9 Minor Changes

(1) Revisions were made to definitions and phrasing to clarify the regulation.

(2) The reporting requirements were changed to require the following one-time reports as specified in the general provisions found in 40 CFR part 63, subpart A: report of startup, construction or modification; notification and report of emissions tests and results and/or initial notification of compliance status; notification and report of physical/operational changes; notification and report of waiver applications; and an engineering report describing the vent system used to vent each vent stream to a control device. Owners or operators must submit yearly summary reports and yearly reports of excess emissions and monitoring system performance reports instead of the quarterly reports required under the proposed rule. However, good-performing sources need only submit the summary report found in 40 CFR part 63 subpart A instead of both the summary report and the full excess emissions and continuous monitoring system performance report found in § 63.567(d)(2).

(3) A table identifying the relationship of the final General Provisions requirements was added to the final regulation. Language similar to that in the General Provisions was added to subpart Y in cases where a direct reference to the General Provisions was not appropriate.

(4) References to the proposed Performance Specifications 101 and 102 were updated to incorporate the Agency's promulgation of Performance Specifications 8 and 9 (see 59 FR 64580, Docket Number A-90-44, Item Number IV-I-4).

1.2 SUMMARY OF IMPACTS OF PROMULGATED ACTION

These standards will reduce nationwide emissions of hazardous air pollutants (HAP) from marine tank vessel loading operations by approximately 4,150 Mg (4,565 tons) after 1999 compared to the emissions that would result in the absence of the standards.⁵ These standards will reduce emissions of volatile organic compounds (VOC) from marine tank vessel loading operations by approximately 39,000 Mg (42,900 tons) after 1999 compared to the emissions that would result in the absence of the standards.⁵ No significant adverse secondary air, water, solid waste, or energy impacts are anticipated from the promulgation of these standards (59 FR 25004).

The implementation of this regulation is expected to result in nationwide annualized costs for existing marine tank vessel loading operations of \$60 million to \$100 million beyond baseline based on an analysis of applying controls to all existing facilities not currently controlled to the level of the standards.⁵ Nationwide capital costs expected to result from these regulations are approximately \$266 million to \$440 million.⁵

The economic impact analysis performed for this rulemaking showed that the estimated maximum price increases for the affected products varied, but were not large (less than 1%). These price-increase estimates reflect the control cost increases for transporting crude and products. Because these increases are small and because the elasticities of demand for petroleum products are small, estimated percent output reductions were minimal. Correspondingly, estimated employment reductions were also relatively small.⁴

Potentially significant economic impacts on some of the smaller affected terminal operations were identified, although the decision not to require emission controls for existing smaller operations greatly reduces the potential for adverse economic impacts on small terminal operations. These potential

impacts would result from the high per barrel control cost differential between the smaller and larger terminal operations that would need to control emissions. Some of these smaller terminal operations, to the extent that they are competing with nearby larger or unaffected terminal operations, could have had difficulty raising prices to cover cost increases and could have been significantly adversely impacted by this rule.⁴

The potential economic impact on marine tank vessel owners was substantially reduced because of the decision not to require emission controls on small existing terminals in this rulemaking. Because only a small percentage of U.S. marine transported volume of products will be impacted by the standard, only a relatively small percentage of U.S. marine tank vessels will need to retrofit. Thus, only the vessels that will need the least cost to retrofit (most likely the larger, newer, double-skin vessels) will do so, leading to some degree of dedicated service. It is expected that vessel owners that do retrofit will be able to pass most retrofit costs forward in terms of higher prices.⁴

1.3 REFERENCES

1. U.S. Environmental Protection Agency. Technical Support Document For the Development of a VOC Rule for Marine Vessel Loading Operations. Research Triangle Park, North Carolina. May 1992 (Revised December 1993). Docket Number A-90-44, Docket Item II-A-3.
2. Memorandum from T. Campbell, Midwest Research Institute. to D. Markwordt, U.S. Environmental Protection Agency. Calculation of a MACT Floor for Title III Rulemaking for Marine Vessel Loading Operations. September 30, 1993. Docket Number A-90-44, Item Number II-A-34.
3. Memorandum from D. Hearne, Midwest Research Institute. to D. Markwordt, U.S. Environmental Protection Agency. Recalculation of MACT Floors for Title III Rulemaking for Marine Vessel Loading Operations. July 14, 1995. Docket Number A-90-44, Item Number IV-B-2.
4. U.S. Environmental Protection Agency. Final Federal Standards for Marine Tank Vessel Loading Operations and Final National Emission Standards for Hazardous Air Pollutants for Marine Tank Vessel Loading Operations: Regulatory Impact Analysis. July 1995. Docket Number A-90-44, Item Number IV-A-2.
5. U.S. Environmental Protection Agency. Marine Tank Vessels Data Base: Final Federal Standards for Marine Tank Vessel Loading Operations and Final National Emission Standards for Hazardous Air Pollutants for Marine Tank Vessel Loading Operations. July 1995. Docket Number A-90-44, Item Number IV-A-1.

2.0 SUMMARY OF PUBLIC COMMENTS

A total of 140 letters (including six duplicate entries) commenting on the proposed standards and the technical support document (TSD) for the proposed standard were received. A list of commenters, their affiliations, and the EPA tracking number assigned to their correspondence is given in Table 2-1.

For the purpose of presentation, the comments have been categorized under the following topics:

2.1 APPLICABILITY

1. Loading/unloading operations
2. Potential to emit
3. Titles I and III
4. Vapor pressure limit
5. Commodity type
6. Valdez Marine Terminal (VMT)
7. Ballasting and bunkering
8. Regeneration of carbon beds

2.2 INCLUSION WITH THE PETROLEUM REFINERY SOURCE CATEGORY AND CONTIGUITY

1. General
2. Contiguity and collocation
3. Emissions averaging
4. Exposure spikes
5. Other impacts

2.3 SUBCATEGORIZATION

1. Subcategories based on size
2. Offshore terminals/offshore production
3. Parcel Tankers
4. VMT

2.4 RACT/MACT

1. MACT floor
2. Stringency of MACT/RACT
3. Partial control of commodities
4. New/existing sources and requirements
5. Area sources
6. Recovery
7. Incineration
8. Format of the standards
9. Regulation of two berths within VMT
10. RACT and MACT in same/separate rules
11. Parallel with the HON
12. Alternative standard

2.5 COMPLIANCE SCHEDULE FOR TITLES I AND III

2.6 COMPLIANCE, PERFORMANCE TESTING, AND MONITORING

1. Compliance
2. Performance testing requirements and procedures
3. Establishing operating parameters
4. Monitoring requirements
5. Emission estimating procedures
6. Emissions averaging
7. Exemptions from performance testing

2.7 VAPOR TIGHTNESS REQUIREMENTS

2.8 LEAK DETECTION AND REPAIR

2.9 REPORTING AND RECORDKEEPING REQUIREMENTS

2.10 GENERAL PROVISIONS TO 40 CFR Part 63

2.11 WORDING OF REGULATION

1. General
2. Definitions
3. Overlap with other standards

- 2.12 ADMINISTRATIVE RECORD/SOURCES OF INFORMATION
- 2.13 COST EFFECTIVENESS/IMPACTS
 - 1. Cost effectiveness
 - 2. Other cost-related impacts
- 2.14 MISCELLANEOUS
 - 1. Private citizens (Groups)
 - 2. Publication of regulation in the Federal Register
 - 3. National security
 - 4. Other miscellaneous comments
- 2.15 COMMENTS ON PROPOSED APPENDICES TO 40 CFR Part 64

TABLE 2-1. LIST OF COMMENTERS ON PROPOSED STANDARDS OF PERFORMANCE FOR MARINE TANK VESSEL LOADING OPERATIONS

Docket item ^a	Commenter and affiliation	Docket item ^a	Commenter and affiliation
IV-D-01	Paul McCollum P.O. Box 2016 Homer, Alaska 99603	IV-D-09	Terry Hermach Prince William Sound Conservation Alliance P.O. Box 1697 Valdez, Alaska 99686
IV-D-02	Michael J. Wax, Ph.D. Institute of Clean Air Companies 1707 L. Street, NW Suite 570 Washington, D.C. 20036-4201	IV-D-10	Robert Colby Donald Theiler STAPPA/ALAPCO 444 North Capitol Street, Northwest Washington, D.C. 20001
IV-D-03	Elsie L. Munsell Department of the Navy Office of the Assistant Secretary (Installations and Environment) Washington, D.C. 20360-5000	IV-D-11	Kari Gustafson P.O. Box 750962 Fairbanks, Alaska 99775-0962
IV-D-04	John W. Casey Shell Oil Company One Shell Plaza P.O. Box 4320 Houston, Texas 77210-4320	IV-D-12	Dan Moeller Box 571 Valdez, Alaska 99686
IV-D-05	David W. Haugen Lynden Incorporated 1029 W. Third Ave., Suite 150 Anchorage, Alaska 99501-1981	IV-D-13	James G. Lachance, Jr. P.O. Box 1224 Valdez, Alaska 99686
IV-D-06	Stan Stephens Prince William Sound Regional Citizens' Advisory Council Royal Center, 310 Egan Street Room 210, Box 3470 Valdez, Alaska 99686	IV-D-14	Lilian D. Dillon Box 1297 Valdez, Alaska 99686
IV-D-07	Becky L. Gay Resource Development Council for Alaska, Inc. 121 West Fireweed Lane, Suite 250 Anchorage, Alaska 99503-2035	IV-D-15	Priscilla and Terry Gregg P.O. Box 1458 Valdez, Alaska 99686
IV-D-08	Martin King The Alliance 4220 'B' Street, Suite 200 Anchorage, Alaska 99503-5911	IV-D-16	William and Cleo Wyatt P.O. Box 93 Valdez, Alaska 99686
		IV-D-17	Kristine Gresham 881 No. Cottonwood Valdez, Alaska 99686
		IV-D-18	Jenna Stephens P.O. Box 1297 Valdez, Alaska 99686

TABLE 2-1. (continued)

Docket item*	Commenter and affiliation	Docket item*	Commenter and affiliation
IV-D-19	Gary and Roberta Thurow P.O. Box 2569 Valdez, Alaska 99686	IV-D-27	William R. Ludt Hvide Shipping, Incorporated 2200 Eller Drive, Building 27 P.O. Box 13038 Port Everglades Station Fort Lauderdale, Florida 33316
IV-D-20	David S. Kircher Puget Sound Air Pollution Control Agency 110 Union Street, Suite 500 Seattle, Washington 98101-2038	IV-D-28	William S. Dickinson ARCO Products Company P.O. Box 61004 Anaheim, California 92803-6104
IV-D-21	John W. Walton, P.E. Tennessee Air Pollution Control Board Department of Environment and Conservation 401 Church Street L & C Annex, 9th Floor Nashville, Tennessee 37243-1531	IV-D-29	Charles D. Malloch Monsanto Company 800 N. Lindbergh Boulevard St. Louis, Missouri 63167
IV-D-22	W. N. Tuttle, P.E. John Zink Company International Headquarters P.O. Box 21220 Tulsa, Oklahoma 74121-1220	IV-D-30	Duane B. Bordvick Tosco Refining Company 2300 Clayton Road Suite 1100 Concord, California 94520-2100
IV-D-23	Arthur Lee Texaco, Inc. P.O. Box 509 Beacon, NY 12508	IV-D-31	Toby A. Threet The Dow Chemical Company 2030 Dow Center Midland, Michigan 48674
IV-D-24	Allen R. Ellett BP Oil Company 200 Public Square Cleveland, Ohio 44114-2375	IV-D-32	Alyeska Pipeline Service Company 1835 South Bragaw Street Anchorage, Alaska 99512
IV-D-25	David C. Copeland Occidental Chemical Corporation Occidental Chemical Center 360 Rainbow Boulevard South P.O. Box 728 Niagara Falls, New York 14302-0728	IV-D-33	Captain E. N. George West Coast Shipping Company 1201 West 5th Street Los Angeles, California 90017
IV-D-26	Ann Farner Tosco Refining Company 2300 Clayton Road Suite 1100 Concord, California 94520-2100	IV-D-34	Paul Bailey American Petroleum Institute 1220 L. Street, Northwest Washington, D.C. 20005
		IV-D-35	Richard Halluska OMI Corp. 90 Park Avenue New York, New York 10016

TABLE 2-1. (continued)

Docket item*	Commenter and affiliation	Docket item*	Commenter and affiliation
IV-D-36	Andrea Grant Counsel to the Independent Fuel Terminal Operators Association Verner, Liipfert, Bernhard, McPherson and Hand 901-15th Street, NW Washington, D.C. 20005-2301	IV-D-45	Norbert Dee, Ph.D. National Petroleum Refiners Association Suite 1000, 1899 L Street, N.W. Washington, D.C. 20036
IV-D-37	W. T. Flis Exxon Company, U.S.A. Post Office Box 2180 Houston, Texas 77252-2180	IV-D-46	Deborah W. Gates Ashland Petroleum Company Division of Ashland Oil, Inc. P.O. Box 391 Ashland, Kentucky 41114
IV-D-38	Beverly Hartsock Texas Natural Resource Conservation Commission P.O. Box 13087 Austin, Texas 78711-3087	IV-D-47	James Udelhoven Udelhoven Oilfield System Services, Incorporated 11401 Olive Lane Anchorage, Alaska 99515
IV-D-39	Barbara J. Price Phillips Petroleum Company Bartlesville, Oklahoma 74004	IV-D-48	Richard N. Schok Flowline Alaska 1881 Livengood Fairbanks, Alaska 99701
IV-D-40	Duplicate Entry	IV-D-49	Harry McDonald Carlile Enterprises, Inc. 1524 Ship Avenue Anchorage, Alaska 99501
IV-D-41	Melanie S. Kelley Total Petroleum, Inc. P.O. Box 500 Denver, Colorado 80201-0500	IV-D-50	George A. Walker Unocal Corporation 1201 West 5th Street P.O. Box 7600 Los Angeles, California 90051
IV-D-42	William J. Doyle, Ph.D. Marathon Oil Company 539 South Main Street Findlay, Ohio 45840-3295	IV-D-51	David Beck, et. al. Valdez Chamber of Commerce P.O. Box 512 Valdez, Alaska 99686
IV-D-43	Gregory A. Green Department of Environmental Quality State of Oregon 811 SW Sixth Avenue Portland, Oregon 97204-1390	IV-D-52	John A. Sandor State of Alaska Department of Environmental Conservation 410 Willoughby Avenue, Suite 105 Juneau, Alaska 99801-1795
IV-D-44	D. A. Woodring BP Chemicals, Inc. 200 Public Square Cleveland, Ohio 44114-2375		

TABLE 2-1. (continued)

Docket item ^a	Commenter and affiliation	Docket item ^a	Commenter and affiliation
IV-D-53	Judith M. Brady Alaska Oil and Gas Association 121 West Fireweed Lane, Suite 207 Anchorage, Alaska 99503-2035	IV-D-62	Nancy R. Lethco Alaska Wilderness Recreation and Tourism Association P.O. Box 1353 Valdez, Alaska 99686
IV-D-54	John Prokop Independent Liquid Terminals Association 1133 16th Street, N.W., Suite 650 Washington, D.C. 20005	IV-D-63	Connie Rodgers Prince William Sound College Dorms Valdez, Alaska 99686
IV-D-55	Wesley P. Nason H.C. Price Company 301 W. Northern Lights Blvd., Suite 300 Anchorage, Alaska 99503	IV-D-64	Dawn Box Valdez, Alaska 99686
IV-D-56	Brian M. Harney Mobil Oil Corporation 3225 Gallows Road Fairfax, Virginia 22037-0001	IV-D-65	Mary Helen Stephens P.O. Box 1272 Valdez, Alaska 99686
IV-D-57	Val J. Molyneux Norcon, Inc. Post Office Box 190947 Anchorage, Alaska 99519	IV-D-66	Riki Ott, Ph.D. Box 1430 Cordova, Alaska 99574
IV-D-58	Nathan S. Bergerbest Doyon, Limited 201 First Avenue, Suite 300 Fairbanks, Alaska 99701	IV-D-67	Richard A. Fineberg P.O. Box 416 Ester, Alaska 99725
IV-D-59	James P. Varley Stolt Parcel Tankers, Inc. 15635 Jacintoport Boulevard Houston, Texas 77015-6534	IV-D-68	Walter Quanstrom Amoco Corporation 200 East Randolph Drive Post Office Box 87703 Chicago, Illinois 60680-0703
IV-D-60	Margaret Kaigh Doyle The Chemical Carriers' Association, Inc. 1700 North Moore Street, Suite 1805 Arlington, Virginia 22209	IV-D-69	Jennifer A. Kelly The American Waterways Operators 1600 Wilson Boulevard Suite 1000 Arlington, Virginia 22209
IV-D-61	R. James Lethcoe P.O. Box 1313 Valdez, Alaska 99686	IV-D-70	Arthur J. Volkle, Jr. Maritrans One Logan Square Philadelphia, Pennsylvania 19103
		IV-D-71	Norman L. Morrow Exxon Chemical Americas P.O. Box 3272 Houston, Texas 77253-3272

TABLE 2-1. (continued)

Docket item ^a	Commenter and affiliation	Docket item ^a	Commenter and affiliation
IV-D-72	P.M. Bitten The Chevron Corporation 1401 Eye Street NW, Suite 1200 Washington, D.C. 20005	IV-D-80	Milton Feldstein Bay Area Air Quality Management District 939 Ellis Street San Francisco, California 94109
IV-D-73	M. L. Mullins Chemical Manufacturers Association 2501 M Street, N.W. Washington, D.C. 20037	IV-D-81	Kenneth Adams Cordova, Alaska 44214
IV-D-74	Nancy A. Wildeboer Sun Company, Inc. Ten Penn Center 1801 Market Street Philadelphia, PA 19103-1699	IV-D-82	Duplicate Entry
IV-D-75	Sarosh J. H. Manekshaw Pennzoil Company Pennzoil Place P.O. Box 2967 Houston, Texas 77252-2967	IV-D-83	Duplicate Entry
IV-D-76	William C. O'Brien BF Goodrich P.O. Box 527 Calvert City, Kentucky 42029-0527	IV-D-84	Duplicate Entry
IV-D-77	Ellen Siegler American Petroleum Institute 1220 L Street, Northwest Washington, D.C. 20005	IV-D-85	Joseph J. Cox American Institute of Merchant Shipping 1000 16th Street, N.W., Suite 511 Washington, D.C. 20036-5705
IV-D-78	J. C. Hovious Union Carbide Corporation Health, Safety and Environment 39 Old Ridgebury Road Danbury, Connecticut 06817-0001	IV-D-86	Duplicate Entry
IV-D-79	William O'Sullivan, P.E. State of New Jersey Department of Environmental Protection and Energy 401 East State Street, CN027 Trenton, New Jersey 08625	IV-D-87	Duplicate Entry
		IV-D-88	Normon L. Morrow Exxon Chemical Americas P.O. Box 3272 Houston, Texas 77253-3272
		IV-D-89	Robert P. Strieter American Petroleum Institute 1220 L Street, Northwest Washington, D.C. 20005
		IV-D-90	Susan F. Tierney U.S. Department of Energy Office of Policy Washington, D.C. 20585
		IV-D-91	William J. Doyle Marathon Oil Company 539 South Main Street Findlay, Ohio 45840-3295

TABLE 2-1. (continued)

Docket item ^a	Commenter and affiliation	Docket item ^a	Commenter and affiliation
IV-D-92	Paul Bailey American Petroleum Institute 1220 L Street, Northwest Washington, D.C. 20005	IV-D-100	Beverly Hartsock Texas Natural Resource Conservation Commission Post Office Box 13087 Austin, Texas 78711-3087
IV-D-93	Brian M. Harney Mobil Oil Corporation 3225 Gallows Road Fairfax, Virginia 22037-0001	IV-D-101	Norman Ingram Alyeska Pipeline Service Company 1835 South Bragaw Street Anchorage, Alaska 99512
IV-D-94	Stan Stephens Prince William Sound Regional Citizen's Advisory Council 601 West Fifth Avenue Suite 500 Anchorage, Alaska 99501-2254	IV-D-102	Stan Stephens Prince William Sound Regional Citizens' Advisory Council 601 West Fifth Avenue Suite 500 Anchorage, Alaska 99501-2254
IV-D-95	Ann Farmer Tosco Refining Company 2300 Clayton Road Suite 1100 Concord, California 94520-2100	IV-D-103	Ellen Siegler American Petroleum Institute 1200 L Street Northwest Washington, D.C. 20005
IV-D-96	Philip T. Cavanaugh Chevron Corporation 1401 Eye Street, NW Suite 1200 Washington, D.C. 20005	IV-D-104	Philip T. Cavanaugh Chevron Corporation 1401 Eye Street, NW Suite 1200 Washington, D.C. 20005
IV-D-97	Norbert Dee National Petroleum Refiners Association, Suite 1000 1899 L Street, NW Washington, D.C. 20036	IV-D-105	Charles Keffer Monsanto Company 800 N. Lindbergh Boulevard St. Louis, Missouri 63167
IV-D-98	David Driesen Natural Resources Defense Council 1350 New York Avenue, NW Washington, D.C. 20005	IV-D-106	Philip Cavanaugh The Chevron Companies 1401 Eye Street, NW, Suite 1200 Washington, D.C. 20005
IV-D-99	Deborah W. Gates Ashland Petroleum Company Post Office Box 391 Ashland, Kentucky 41114	IV-D-107	Bliss Higgins Louisiana Department of Environment Quality Office of Air Quality Post Office Box 82135 Baton Rouge, Louisiana 70884

TABLE 2-1. (continued)

Docket item ^a	Commenter and affiliation	Docket item ^a	Commenter and affiliation
IV-D-108	Duane B. Bordvick Tosco Refining Company 2300 Clayton Road Suite 1100 Concord, California 94520-2100	IV-D-117	John Prokop Independent Liquid Terminals Association 1133 15th Street, NW, Suite 650 Washington, D.C. 20005
IV-D-109	Marc Phillips Enron Operations Corporation Post Office Box 1188 Houston, Texas 77251	IV-D-118	William Walker Prince William Sound Regional Citizen's Advisory Council 750 West 2nd Avenue Suite 100 Anchorage, Alaska 99501
IV-D-110	Norbert Dee National Petroleum Refiners Association Suite 1000 1899 L Street, NW Washington, D.C. 20036	IV-D-119	Brian Harney Mobil Oil Corporation 3225 Gallows Road Fairfax, VA 22037
IV-D-111	Paul Bailey American Petroleum Institute 1220 L. Street, Northwest Washington, D.C. 20005	IV-D-120	Ellen Siegler American Petroleum Institute 1200 L Street Northwest Washington, D.C. 20005
IV-D-112	William J. Doyle Marathon Oil Company 539 South Main Street Findlay, Ohio 45840-3295	IV-D-121	Bliss Higgins Louisiana Department of Environment Quality Office of Air Quality Post Office Box 82135 Baton Rouge, Louisiana 70884
IV-D-113	C. Barry Gipson Ashland Petroleum Company Post Office Box 391 Ashland, Kentucky 41114	IV-D-122	Paul Bailey American Petroleum Institute 1220 L. Street, Northwest Washington, D.C. 20005
IV-D-114	J.W. Collins 4223 W. Telephone Road Martinsburg, West Virginia	IV-D-123	Robert Freeman SeaRiver Maritime, Inc. Post Office Box 1512 Houston, Texas 77251
IV-D-115	Norman Ingram Alyeska Pipeline Service Company 1835 South Bragaw Street Anchorage, Alaska 99512	IV-D-124	John Harris, Mayor City of Valdez, Alaska Post Office Box 307 Valdez, Arkansas 99686
IV-D-116	Robert Colby Donald Theiler STAPPA/ALAPCO 444 North Capitol Street, Northwest Washington, D.C. 20001		

TABLE 2-1. (continued)

Docket item ^a	Commenter and affiliation	Docket item ^a	Commenter and affiliation
IV-D-125	Norman Ingram Alyeska Pipeline Service Company 1835 South Bragaw Street Anchorage, Alaska 99512	IV-D-133	David Smith ARCO Products Company 1055 West Seventh Street Post Office Box 2570 Los Angeles, California 90051
IV-D-126	Norman Ingram Alyeska Pipeline Service Company 1835 South Bragaw Street Anchorage, Alaska 99512	IV-D-134	Ellen Siegler American Petroleum Institute 1200 L Street Northwest Washington, D.C. 20005
IV-D-127	Thomas Allen New York State Department of Environment Conservation 50 Wolf Road Albany, New York 12233	IV-D-135	James Sample 2608 E. Meredith Drive Vienna, Virginia 22181
IV-D-128	Robert Reges State of Alaska Department of Law Capitol Building Post Office Box 110300 Juneau, AK 99811	IV-D-136	Mike Steinbrecher Chevron Corporation Federal Relations 575 Market Street, Room 968 San Francisco, California 94105
IV-D-129	Norman Ingram Alyeska Pipeline Service Company 1835 South Bragaw Street Anchorage, Alaska 99512	IV-D-137	Del Fogelquist Western States Petroleum Association 2201 Sixth Avenue Seattle, WA 98121
IV-D-130	Ronald Kiracofe ARCO Products Company 1055 West Seventh Street Post Office Box 2570 Los Angeles, California 90051	IV-D-138	Norman Ingram Alyeska Pipeline Service Company 1835 South Bragaw Street Anchorage, Alaska 99512
IV-D-131	Frank Murkowski Ted Stevens United States Senate Washington, D.C. 20510	IV-D-139	H. Nelson Meeks ARCO Pipe Line Company 5900 Cherry Avenue Post Office Box 787 Long Beach, California 90801
IV-D-132	V. M. Gonzales ARCO Products Company 1055 West Seventh Street Post Office Box 2570 Los Angeles, California 90051	IV-D-140	Robert Ehrlich Amerada Hess Corporation 1 Hess Plaza Woodbridge, New Jersey 07095

2.1 APPLICABILITY

2.1.1 Loading/Unloading Operations

Comment: While the rule indicates applicability to "loading and unloading operations," several commenters (04, 23, 29, 36, 43, 44, 59, 60, 73, 78) contended that unloading operation emissions occur at storage tanks, which are regulated under other regulations; this proposed rule does not establish any standards nor does it discuss emissions from unloading operations. The commenters stated the EPA should clarify the applicability of the regulation. Eight of the commenters (04, 23, 29, 43, 44, 59, 73, 78) suggested that the word "unloading" should be deleted from the package. One commenter (80) noted that the term "loading and unloading operations" is not defined in the rule. The commenter requested clarification on the definition of "major source" and believed that nonmajor individual loading and unloading operations within a major- or area-source facility should be subject to the standard.

Two commenters (34, 39) indicated the proposed rule does not specify that ballast operations are the only nonloading operation subject to control, leaving open the potential for further product unloading requirements; the EPA should clarify this position (39). Two commenters (31, 34) stated that the rule needs to specify that ballasting operations are the only nonloading operation required to be controlled and that product unloading should be deleted from further regulation. One commenter (42) requested that EPA provide clarification in the regulation requiring unloading emissions to be considered only in cases where ballast material is added to product storage tanks. Also, the emission factor for unloading operations that includes ballasting into the product storage tank is not appropriate for unloading operations that do not include the addition of ballast into the product storage tank.

Another commenter (23) stated that EPA should have requested comments on the feasibility of closed loading by certain barges. The commenter suggested reopening the comment period to address

the question of whether barges that are open-loaded can be closed-loaded as stated in the preamble.

Response: The Agency concurs with the comments stating the proposed standards were only applicable to marine tank vessel loading operations and ballasting operations. After further consideration, emissions from ballasting operations will not be covered by the standards (for further explanation, see 2.1.7). This exclusion will help clarify any confusion about applicability to any nonloading operations and limit applicability to loading activities only. Therefore, the word "unloading" was deleted from the final rule. The Agency has also included a definition for marine tank vessel loading operations in the final rule. The Agency has also clarified its interpretation of the term "major source" (see Sections 2.1.2 and 2.1.3 of this document for additional discussion of major source determination).

With regard to the issue of requiring certain open-loaded barges to be closed-loaded, the Agency believes that the commenter has not shown that the open loaded barges are different from other types of vessels loaded at affected terminals. The Agency disagrees with the comment that the loading of these types of barges is technically or economically infeasible.

2.1.2 Potential to Emit

Comment: One commenter (20) stated that the EPA needs to be explicit about how to determine (and to limit the said determination of) the potential to emit from marine tank vessel loading operations. The commenter recommended federally enforceable emissions limitations, including specific throughput limits for each product, emission standards for vapor recovery systems, the American Petroleum Institute's (API's) latest emission factors for storage tanks and fitting losses, and default HAP/VOC ratios for common products such as gasoline, distillate oil, residual oil, and crude oil.

Three commenters (28, 42, 56) indicated a marine facility's actual emissions should be regarded as its potential to emit when determining whether or not it is a major source. Requiring facilities to assume a 10,000 barrels/hr, 24 hr/d, 365 d/yr loading rate is unrealistic. The commenter stated a more realistic approach needs to be developed to limit the applicability of the "potential to emit" rule contained in the General Provisions to 40 CFR Part 63. Three commenters (34, 42, 56) suggested a tiered approach as developed for the Gasoline Marketing NESHAP. This approach bases major source status on actual emissions and by the facility committing to federally enforceable limitations established through the MACT standard. Six commenters (34, 50, 56, 68, 71, 75) pointed out that the proposed regulation's MACT floor determination and regulatory impact analysis have been developed based on actual emission estimates and actual throughput of products at facilities, not potential to emit. The commenters claimed that it is inconsistent to set standards based on one criterion and suggested that those standards be based on another, much broader, criterion. These commenters also noted the calculated impacts are understated because, under a "potential to emit" definition the regulation would apply to far more major sources than estimated.

One commenter (34) recommended arranging marine tank vessel facilities into one of three categories based on actual emission rates (of product loading and ballasting operations). The three categories included facilities exceeding the major source definition based on actual emissions, facilities with actual emissions of between 50 and 100 percent of the major source definition, and facilities with actual emissions of less than 50 percent of the major source definition. Two other commenters (50, 56) supported the three-category approach proposed by commenter 34 to overcome their problems with the potential to emit definition.

One commenter (24) stated the final rule needs to be modified to explicitly exempt marine terminals that actually emit less than 1.1 tons per year (tons/yr) of HAP from all controls, even if its potential to emit is greater than the definition of a major source. In addition, the commenter stated that any source that has installed controls to reduce emissions of VOC due to a State VOC rule should be allowed to calculate their actual emissions after such controls. This commenter noted that the Agency's current definition for "potential to emit" would result in even the smallest terminal being classified as a major source. It is not clear if sources having actual HAP emissions of greater than 1 ton/yr but less than 10 tons/yr would be subject to the emission reduction requirements of this regulation. The commenter asserted that the EPA should clarify its position on the potential to emit as it regards applicability of these smaller sources. Two commenters (45, 46) noted if EPA proceeds with promulgating this regulation under Section 112(d), the complicated issue of "potential to emit" becomes a factor in determining applicability. If EPA were to re-propose this regulation under Section 193(f), this issue would be avoided completely.

Response: The Agency has classified all major sources having actual HAP emissions from marine tank vessel loading operations of 10 tons/yr or more of any one HAP or 25 tons/yr or

more of total HAP as sources subject to the emissions standards under Section 112. Major sources having actual emissions from marine tank vessel loading operations of less than 10 tons/yr of all single HAP or less than 25 tons/yr of combined HAP are only required to comply with the recordkeeping and reporting requirements documenting that the source's emissions have not increased above the 10/25 tons/yr limits. Nonmajor sources (i.e., sources whose source-wide potential emissions are below 10 tons/yr of all individual HAP or 25 tons/yr of total HAP) are not affected by these standards. Since most facility-wide activities are non-batch operations, the major source/nonmajor source decision is based on a source's potential to emit as required by Section 112(a) and as defined in the General Provisions to 40 CFR Part 63 (59 FR 12408, March 16, 1994) rather than on actual emissions. If a facility is classified as a major source, actual emissions from marine loading operations are used to determine the subcategory to which the source belongs and, consequently, the applicability of the MACT standard to that source.

Several commenters supported the API-proposed, three-category approach based on actual emissions. EPA believes that Congress intended to distinguish between actual emissions and potential to emit in its decision to use both phrases in Section 112(a). EPA believes that the definition of Potential to Emit in the General Provisions is a better fulfillment of Congress's intent than API's proposal. (Any use of actual emissions to distinguish between major and nonmajor sources would have to be federally enforceable.) For a more detailed discussion of EPA's "potential to emit" definition, see the General Provisions rule.

2.1.3 Titles I and III

Comment: Ten commenters (04, 23, 30, 34, 45, 46, 56, 75, 120, 134) believed that EPA should not regulate marine loading operations under Section 112. According to commenters, while Section 183(f) is directed specifically at marine loading facilities and includes specific procedural and substantive requirements, Section 112 is a general provision that applies to many different sources of HAP. Furthermore, there is no indication from the legislative history that Congress intended, nor wanted, EPA to regulate marine loading operations under Section 112. The commenters noted that the EPA itself reached that conclusion when it developed the initial source category listing. One commenter (32) stated that if EPA had stuck with its decision to regulate vessel loading emissions exclusively under Section 183(f), the Agency would have reason to argue that reference to "any other air pollutant" in Section 183(f), thus giving EPA the authority to regulate indirectly those HAP emissions that are a subset of the VOC emissions. However, EPA abandoned that argument. The commenter added that it will be infeasible to comply with the specified compliance periods. As such, the Section 112 portion of the rule should be withdrawn. One commenter (04) elaborated on the conflicts between the two sections, maintaining that Congress meant for EPA to consider factors such as safety and cost effectiveness in 183(f) but that Section 112(d), in conflict, constrains EPA's consideration of cost and safety.

In addition, one commenter (134) claimed that the Agency is unable to give full consideration to legal issues regarding the appropriateness of Agency regulation under Section 112 because an existing consent decree requires EPA to take final action with regard to Section 112(d) by April 30, 1995. [This date has been revised to July 28, 1995.]

Three commenters (32, 39, and 75) stated that, in the proposed rule, there is no demonstration that VOC emissions in attainment areas for marine loading operations are detrimental to

human health. For this reason, applicability of Title I provisions to attainment areas should be dropped from the rule until EPA demonstrates the hazards to human health. Two commenters (42, 75) indicated that limiting the rule's requirements to terminals in nonattainment areas where RACT controls are likely to provide the greatest benefit and fewer subject facilities will improve the feasibility of these terminals to comply with the Title I regulations within 24 months. Another commenter stated that the final rule should consider a terminal's attainment/nonattainment status when thresholds for a terminal's applicability under RACT are established. The commenter also suggested using a terminal's HAP cost effectiveness rather than its VOC cost effectiveness when determining RACT for a given terminal.

One commenter (04) stated that Congress did not intend for EPA to apply marine vapor controls to all affected facilities without regard to their location relative to ozone attainment status. One commenter (23) took this assertion a step further by stating that it is clear that Congress directed EPA to issue marine tank vessel loading and unloading standards to reduce ozone only in nonattainment areas. The commenter stated that EPA exceeded its authority under the Act by requiring RACT standards for any existing or new marine tank vessel loading and unloading operations. One commenter (28) stated that if the ozone standard is being attained, the justification for imposing additional regulations on existing sources of ozone precursors is not apparent. This commenter's company operates a facility in an ozone attainment area that is 3 miles from the nearest community and that serves a refinery that is 1.5 miles away. The commenter believed that neither VOC controls or HAP controls should be imposed because the ozone standard is being attained and because facilities that are remote from populated areas should be in a separate subcategory and not combined with facilities that have an impact on communities. In any case, the regulation should allow for case-by-case review, and facility owners should have a

mechanism for securing relief from these rules through presentation of sound, technical justification.

One commenter (34) suggested EPA should do one of the following for the Section 183(f) rule: (1) limit the scope of the rule to facilities located in ozone nonattainment areas; (2) revise the technical requirements to control options that can be implemented within 2 years; or (3) defer issuing the final rule until the proposed control options can be achieved within 2 years from promulgation.

One commenter (56) asked if EPA should decide to keep marine tank vessel loading operations on the Section 112 source category list, that regulations not be promulgated before the year 2000. Another commenter (90) suggested EPA reconsider issuing regulations under Section 183(f) exclusively. Marine terminal VOC controls that apply to smaller terminals only in the more serious, nonattainment areas would be consistent with cost-benefit considerations. The commenter agreed with EPA that the result could be a complex regulation. According to the commenter, the best course might be to limit Federal regulation to RACT alternative I and leave to the States the option of regulating smaller terminals, as may be needed for ozone attainment demonstration, reasonable further progress, or maintenance under Title I.

One commenter (90) provided a possible basis for omitting or delaying MACT by using its recommended interpretation of the terms "best controlled" and "best performing," which leads to a conclusion that the "best" control is no control. Two other alternatives were also offered: either regulate emissions from marine tank vessel loading facilities solely under Section 183(f) rather than under both Sections 183(f) and 112 of the Clean Air Act, or defer promulgation of the Section 112 rule. The reasoning and justification for these alternatives were explained at length and involved the CAA sections differing significantly in purpose, scope, and regulatory approach.

Response: As stated in the preamble to the proposed rule, the Agency first intended to issue standards for marine tank vessel loading operations solely under Section 183(f) of the Clean Air Act. However, the Agency decided to issue standards under both Section 183(f) and Section 112 of the Act because EPA now believes that the best interpretation of the Clean Air Act requires that standards be issued under both. The language of Section 112 of the Act is clear: "[T]he Administrator shall publish. . . a list of all categories and subcategories of major sources and area sources of [HAP]." Clean Air Act Section 112(c)(1), 42 U.S.C. § 7412(c)(1) [emphasis added]. Further, the Administrator "shall promulgate regulations establishing emission standards for each category or subcategory of major sources and area sources of hazardous air pollutants listed for regulation pursuant to subsection (c)." Clean Air Act Section 112(d)(1), 42 U.S.C. § 7412(d)(1). The tank vessel loading operations source category is clearly a category of major sources, as defined in the Act. The Act is thus clear on its face that this source category be regulated under Section 112.

It is true that another section of the Act, Section 183(f), also regulates this category of sources. However, the fact that two separate sections of the Act regulate the same source category does not necessitate that one of the sections should be ignored. Unless the regulations promulgated under one section create an inescapable conflict with regulations promulgated under the other section, both sections must be followed. The regulations promulgated under the two sections are not in conflict. The safety provisions that EPA and the Coast Guard have required are equally applicable to sources regulated under either Section 183(f) or Section 112.

In addition, though Section 183(f) anticipates RACT standards, taking into account costs and other factors, whereas Section 112 requires MACT standards, which provide the Agency with less discretion to take costs into account, the regulations promulgated under Section 112 are not in inescapable conflict

with those promulgated under Section 183(f). The Agency believes that any source regulated under both sections would have no problem meeting the requirements of both standards at the same time. Therefore, there is no conflict between the two sets of requirements.

The Agency does not believe that it can ignore the specific requirements of Section 112 merely because regulations promulgated under that section are likely to be more stringent than those promulgated under Section 183(f). The fact that one set of regulations is more stringent than another does not mean that the two regulations are in inescapable conflict. Only when compliance with one set of necessary regulations prevents compliance with another should the Agency consider ignoring the clear language of the statute.

Moreover, the language of the statute itself and of the legislative history indicates that Congress did not intend, by its silence, to prevent regulations of marine tank vessel loading terminals under Section 112. First, Congress explicitly said where it wanted one section of the Clean Air Act to be exclusive of further regulation under Section 112(d): see Sections 129(h)(2) and 112(d)(9). Thus, Congress could have added specific language to Section 183(f) and prevented the Agency from regulating this source category under Section 112; however, it failed to do so.

Neither the statute nor the legislative history indicates that Congress intended EPA regulations under Section 183(f) to be the exclusive regulation of these sources. In fact, Section 183(f) explicitly provides that states may regulate marine tank vessel loading processes and, in fact, requires that any such regulations be as stringent or more stringent than the Agency's regulations under Section 183(f).

Moreover, the legislative history indicates that Congress was well aware that sources could be subject to dual regulation under the Act and presumed that Section 112 standards would be

more stringent than other standards. Page 167 of the Senate Committee Report (Report 101-228) states the following:

An emissions limitation based on Section 112(d) will, in most cases, be more stringent than a new source performance standard for the same category of sources or pollutants. It will also generally be more stringent than an emissions limitation based on reasonably available control technology imposed under part D as the emission limitation here must be equivalent to the most stringent degree of control achieved in practice. That is appropriate as this program is for control of extremely harmful air pollutants. . . (emphasis added).

Therefore, the legislative history seems clearly to indicate that regulations under Section 112 be in addition to any RACT regulations required under Part D of Title I (which includes Section 183(f)). (In any case, the commenter notes that EPA has previously stated that it has the discretion to regulate these sources under Section 112 of the Act)

In reference to the comment about EPA's ability to provide full consideration of comments regarding the appropriateness of regulation under Section 112, the Federal Register notice announcing EPA's decision to regulate this source category under Section 112 of the Act (58 FR 60021) stated that the public would be afforded an opportunity to comment on the listing of this source category under Section 112. The Agency notes that the comments summarized above include comments on the necessity and appropriateness of regulating these sources under the MACT standards of Section 112. The Agency believes that it has provided a complete and fair hearing on these issues and that it approached these issues fully prepared to provide full consideration to the comments. If EPA had been convinced by the comments regarding the appropriateness of regulation under Section 112, it could have requested revision of the consent decree to take such comments into account. In addition, it is arguable whether the consent decree requires promulgation of the standards under Section 112(d) or whether a final action determining that such standards are not appropriate would have

satisfied the mandate. In any case, after a full hearing on the issue of concern to the commenter, EPA continues to believe that regulation of marine tank vessel loading sources under Section 112 is appropriate. It is therefore unnecessary to broach the issue of whether the consent decree would have needed to be revised had EPA come to a different determination. It should be noted that, although the Agency did receive comment opposing the filing of the consent decree at the time the consent decree was issued, no commenter suggested that the consent decree be revised to require only that EPA reach a final decision regarding the appropriateness of regulation under Section 112.

The EPA disagrees with the comments stating that Section 183(f) should not apply in ozone attainment areas. The EPA notes that nothing in the text of Section 183(f) indicates that the regulations promulgated under Section 183(f) should be restricted to nonattainment areas. In fact, the references in subsection (5) to Section 111 indicate that Congress intended standards under Section 183(f) to be similar in scope to those under Section 111, which apply to any new sources in the United States, not just those in nonattainment areas.

Moreover, Section 183(f) requires EPA to "promulgate standards applicable to the emission of VOC and any other air pollutant from loading and unloading of tank vessels. . . which the Administrator find causes or contributes to air pollution that may be reasonably anticipated to endanger public health or welfare." [emphasis added] This language clearly presumes that EPA regulation would apply to ozone pollution and to other air pollution problems associated with emissions from marine tank vessel loading operations. The air pollution problem most associated with such emissions, aside from ozone pollution, is emissions of HAP.

Considerable evidence indicates that the HAP emissions associated with marine tank vessel loading operations cause or contribute to air pollution that can be reasonably anticipated to endanger public health or welfare. Current emissions of VOC from

marine tank vessel loading operations are estimated at approximately 75,000 megagrams per year (Mg/yr), of which approximately 8,000 Mg are HAP. The Agency has determined that public exposure to these HAP is likely to occur in many areas of the United States. As discussed below, exposure to such substances has the potential to cause adverse health effects, ranging from the minor symptoms of dizziness, fatigue, and nausea to more serious and significant manifestations, such as nonlymphocytic leukemia.

Approximately 53 different HAP are emitted from marine tank vessel loading operations. For example, benzene, hexane, toluene, xylenes, ethylbenzene, iso-octane, methyl tertiary butyl ether (MTBE), naphthalene, and cumene are HAP emitted when gasoline and crude oil are loaded into marine tank vessels. These nine chemicals represent approximately 96 percent of the total HAP emitted from marine tank vessels. Approximately 44 HAP comprise the remaining 4 percent of toxic emissions. Although liquids that are at least 70 percent by weight benzene are already regulated by EPA, roughly 700 Mg/yr of benzene are emitted from marine tank vessel loading operations that are not subject to current regulations; one facility alone emits approximately 410 Mg/yr of benzene. Approximately 6,900 Mg/yr of hexane, toluene, xylene compounds, ethyl benzene, iso-octane, MTBE, naphthalene, and cumene are emitted from marine tank vessel loading operations.

The following presents a discussion of different HAP and their adverse health affects.

Benzene is an important component of gasoline and crude oil. It is also a HAP for which adverse health effects are well documented. The EPA has classified benzene as a verified Group A, or known human carcinogen. This classification means that there is sufficient evidence to conclude that benzene causes an increased risk of cancer in humans. Chronic inhalation of the chemical has been demonstrated to increase the incidence of nonlymphocytic leukemia in occupationally exposed individuals.

Leukemias and lymphomas, as well as other tumor types, have been observed in experimental animals that have been exposed to benzene by inhalation or oral administration. A number of adverse, noncancer health effects have also been associated with exposure to benzene. Benzene exposure has been associated with significant increases in chromosomal aberrations of bone marrow cells and peripheral lymphocytes. Benzene is also known to cause disorders of the blood. People with long-term exposure to benzene at low to moderate concentrations may experience harmful effects on the blood-forming tissues, especially the bone marrow. These effects can disrupt normal blood production and cause a decrease in important blood components, such as red blood cells and blood platelets, leading to anemia and a reduced ability to clot. Chronic exposure to benzene at comparable or even lower levels can be harmful to the immune system, increasing the chance for infection and perhaps lowering the body's defense against tumors by altering the number and function of the body's white blood cells. Studies performed with pregnant animals show that benzene may also cause adverse effects to the developing fetus, including low birth weight, delayed bone formation, and bone marrow damage.

Although benzene is only one of several HAP emitted from marine tank vessel loading operations, it is the only one for which the threat of adverse health effects has been quantified. However, the other HAP identified above can exhibit adverse health effects that may potentially endanger human health and welfare. Toluene, another important component of marine tank vessel loading operations emissions, is one such example. Although the carcinogenic effects of this HAP cannot be evaluated at this time due to insufficient evidence (toluene is classified as a Group D carcinogen), toluene exposures have been associated with several adverse, noncarcinogenic effects. The primary impact from human inhalation of toluene is depression of the central nervous system, including central nervous system dysfunction, narcosis, impaired neuromuscular and cognitive

function, and permanent damage over longer periods of exposure. Case studies of exposed workers suggest that toluene can also cause upper respiratory tract and eye irritation. Toluene may also induce adverse developmental effects in laboratory animals, such as skeletal abnormalities, low fetal weights, and retarded skeletal growth.

Naphthalene, xylenes, and ethylbenzene--other HAP in gasoline vapors--are considered Class D carcinogens because the available data are inadequate to determine their carcinogenic potential. Available evidence suggests that some adverse, noncancer health effects are associated with exposure to naphthalene, xylenes, and ethylbenzene. Cumene, still another HAP in gasoline vapors, has yet to be investigated for its carcinogenicity and has no classification at this time.

The health effects associated with naphthalene inhalation have been examined on a limited basis. Exposure to acute levels has been documented to cause acute hemolytic anemia in exposed individuals. Recent studies have begun to reevaluate the carcinogenic effects resulting from naphthalene inhalation. Laboratory tests suggest that female mice exposed to elevated levels of naphthalene develop pulmonary alveolar/bronchiolar adenomas, and that for female mice there is some evidence of carcinogenic activity. In addition to these inhalation effects, many studies have examined health effects associated with oral administration of naphthalene. Naphthalene taken orally has been shown to produce cataracts and bronchiolar epithelial cell necrosis in laboratory animals. When inhaled, some naphthalene may enter the systemic circulation and eventually follow the same metabolic path as naphthalene taken orally. Given this information, it is possible that inhalation of naphthalene may also lead to cataracts and pulmonary cell damage.

Accounts of exposure to xylene vapor indicate there is little difference in toxicity between individual xylene isomers and xylenes (mixed). Occupational exposure to xylene at high levels indicates that xylene can have a narcotic effect as well

as cause liver and kidney damage. Additional toxicity tests support the findings that short-term xylene inhalation may lead to central nervous system depression and reversible kidney and liver damage. Xylene vapor has also been shown to be irritating to the eyes, nose, skin, mucous membranes, and throat. At high concentrations, these effects may be expressed as dizziness, staggering, drowsiness, and unconsciousness.

Subchronic and chronic exposures to ethylbenzene appears to target the liver and kidneys and is indicated through increased liver and kidney weight in animal inhalation studies. Additionally, studies have indicated that exposure to ethylbenzene at acute levels appears to target the central nervous system, causing loss of coordination, narcosis, and convulsions. Exposure to levels over 100 ppm can lead to fatigue, sleepiness, headaches, and eye and respiratory irritation. The limited reproductive studies done on ethylbenzene suggest that subchronic exposure may lead to testicular degeneration in some test animals.

Both cumene and MTBE are used as additives in high-octane gasoline and vary in concentration depending on the octane of the gasoline. Limited information is available for cumene; however, estimates of MTBE concentrations in gas can range from 2 to 8 volume percent, although concentrations reaching 11 volume percent have been approved.

The available information on cumene suggests that it may affect the central nervous system, causing dizziness, narcosis, and faintness. Exposure may also be linked to narcosis and faintness and to damage to the kidneys, liver and lungs. Over the short term, cumene has been reported to irritate the eyes, skin, nose, and throat.

The EPA continues to study the health effects associated with MTBE; however, results of acute and subchronic exposure studies suggest a potential peripheral neurotoxicity. This evidence is supported by animal experiments that report a disruption in motor activities in all acutely exposed rat groups.

At higher levels, MTBE has been shown to adversely affect fetal development in mice. Observed effects include reduced body weight, increases in incidence of cleft palate, and skeletal variations.

The EPA has determined that HAP emissions from marine tank vessel loading operations cause or contribute to air pollution that may be reasonably anticipated to endanger public and health welfare and, therefore, has decided to regulate HAP emissions from tank vessel loading operations as well as VOC emissions. As described above, such emissions have broadly been found to be a health hazard. The Agency need not show that emissions from each marine tank vessel loading facility regulated under Section 183(f) cause or contribute to such air pollution.

The Agency received a comment that the language in Section 183(f) referring to a finding that an emission "causes or contributes to air pollution that may be reasonably anticipated to endanger public health" is a phrase triggering regulation only of criteria pollutants, not hazardous pollutants. However, this argument is belied by the language of Clean Air Act Section 112(b), which is applicable to HAP and which is quite similar, to the language of Section 183(f). Moreover, prior to amendment in 1990, Clean Air Act Section 122 required EPA to review information on emissions of certain HAP to determine whether such emissions "cause or contribute to air pollution that may be reasonably anticipated to endanger public health. Similar language also appears in other sections of the Clean Air Act that require nationwide standards (See Sections 115, 202, 211, and 231.)

The Agency also notes that the location of Section 183(f) in a broad subpart called "Additional Provisions for Ozone Nonattainment Areas" does not demonstrate that Section 183(f) applies only in nonattainment areas. The title of an Act cannot contradict the more specific language contained in the body of the Act. See Mohegan Tribe v. Connecticut, 638 F.2d 612 (2d Cir.), cert. denied 452 U.S. 968 (1980). In fact, other sections

of Subpart 2 (e.g., Section 184) apply in areas beyond ozone nonattainment areas. While it is likely that Section 183(f)'s location is a result of Congress's concern about VOC emissions from tank vessel loading operations, the reference to "any other air pollutant" shows that such emissions were not Congress's only concern.¹

Regarding the comment that EPA should delay regulations under Section 112, EPA believes that it is most appropriate to promulgate regulations under Section 112 for marine tank vessel loading facilities at the same time it is promulgating Section 183(f) regulations. This provides regulated sources with a single, all-encompassing regulatory action and also allows EPA to coordinate the two regulations as much as possible.

¹The Agency notes that Representative Jones mentioned the possible association between emissions from tank vessel loading operations and hazardous air pollutants in the floor debates on the amendments. 149 Cong. Rec. H12929 (Oct. 26, 1990).

2.1.4 Vapor Pressure Limit

Comment: One commenter (04) stated the EPA should limit applicability to only volatile HAP; those with a negligible vapor pressure should be exempted from control on the basis of cost-effectiveness alone. The commenter suggested that there is currently no control in the industry of these compounds and challenged the Agency to prove otherwise.

Three commenters (34, 50, 75) recommended that the rule include a list of relevant volatile organic HAP (VOHAP) that should be controlled and for which testing and monitoring requirements would apply. The commenters suggested that the list of relevant VOHAP contained in the Technical Support Document be considered. The commenters also cited precedent set in the hazardous organic NESHAP (HON), in which EPA specified HAP of interest. One commenter (04) suggested that EPA examine existing State requirements upon which the Agency chose to base its floor determination to ascertain where the correct volatility limit should be. The commenter suggested that EPA set a minimum vapor pressure of no less than 0.5 psia.

Five commenters (34, 56, 71, 75, 78) stated that the Agency's MACT floor analysis failed to consider that the floor level of control does not apply to products with low vapor pressures. The commenters added that no statewide requirements are in existence for the loading of low vapor pressure materials. If EPA wishes to use three State rules as models to establish a MACT floor, it must also use all exemptions in the State rules. The commenters stated that EPA made a false assumption that products of all vapor pressures are controlled equally in facilities that are equipped with vapor control systems. The commenters also noted the inconsistency in regulatory approaches between this rule and in both the HON and Petroleum Refinery MACT standards, where EPA considered product vapor pressures in establishing floors. The EPA should eliminate control requirements for low vapor pressure products because the MACT floor for loading of these materials is zero and because it is

not cost effective to control these products. Also, new source MACT was incorrectly determined because it does not account for vapor pressure or HAP concentration.

Two commenters (34, 78) believed that for a vapor pressure limit to work, the vapor pressure exemption would need to be based on the partial pressure of HAP present. For the HON rule, EPA set for transfer operations a 10.3 kilopascal (1.5 psia) vapor pressure limit for transfer racks that contain organic HAP. In addition, EPA issued final rules for the floor definition, which set a vapor pressure limit of 13.1 kilopascals (1.9 psia) for Group 1 storage tanks of 75 to less than 151 cubic meters capacity and 5.2 kilopascals (0.75 psia) for Group 1 storage tanks of 151 cubic meters capacity or greater.

One commenter (78) noted that a low vapor pressure limit would be far simpler to use than the 93 percent overall HAP reduction efficiency approach selected in the proposal. No complicated calculations and projections of future material to be loaded in the compliance interval would be necessary.

Five commenters (39, 42, 56, 72, 75) stated EPA should eliminate requirements for low vapor pressure products because they account for very little of total HAP emissions from vessel loading and because it is not cost effective to control emission streams from the loading of these materials for very little environmental benefit. Additionally, some commenters cite a study conducted by Radian Corporation on the cost effectiveness of controlling low vapor pressure compounds and state that the results of the analysis indicate that the costs would lead EPA not to control such products. The results of this study have been offered to EPA in support of a low vapor pressure limit.

Four commenters (23, 68, 71, 78) believed that the cut-off value of 1.5 psia (at the loading temperature of the liquid) in Louisiana's marine tank vessel loading regulations is appropriate. Four commenters (28, 34, 50, 73) recommended that a low vapor pressure limit of 2 psia be adopted.

Six commenters (28, 34, 50, 56, 73, 75) stated recovery systems are primarily applicable to products with high vapor pressures, generally greater than 2 psia. Consequently, facilities loading products with lower vapor pressures would most likely install combustion devices. However, the extremely small emission reduction obtained in controlling vapors from low vapor pressure product loading operations would be offset by the increase in criteria pollutants associated with the combustion device.

One commenter (42) stated a calculation procedure needs to be established to estimate loading losses from low vapor pressure materials, such as No. 6 oil and asphalt.

One commenter (71) added that without adding a MACT applicability vapor pressure minimum, all of the 100 existing, controlled terminals that EPA indicates have uncontrolled loading emissions and all the terminals in Louisiana that just meet the State requirement of 90 percent control will have to add additional controls of little or no incremental benefit.

One commenter (23) stated that Section 63.565(d) does not list any exempted commodities nor does it contain explicit procedures that would apply in determining the exemption of any commodity, even though it is cross-referenced by 63.562(b) as having that purpose. The commenter urged EPA to provide explicit procedures whereby an owner or operator may seek exemption of a commodity in addition to those that should be exempted by a vapor pressure limit.

Two commenters (36, 46) suggested EPA narrow the scope of the rule to apply only to those facilities that load gasoline or crude oil. This limitation would be consistent with existing State rules and would be cost-effective. One commenter (90) stated that this issue is easily resolved because products other than gasoline and crude oil are not transferred in quantities over 1 million or 10 million barrels per year respectively at an individual terminal.

Response: The Agency acknowledges and agrees with those comments concerning no State regulations existing for loading low vapor pressure material. The proposed rule enabled individual facilities to determine which products to control to achieve the 93 percent mass limit. Therefore, facilities would not have had to control low vapor pressure liquids under the proposed rule if higher vapor pressure liquids were available for control. The promulgated rule explicitly exempts low vapor pressure liquids consistent with State requirements and recalculated the control requirement for liquids above the vapor pressure limit.

Therefore the MACT floor is no control for liquids having a vapor pressure below 1.5 psia and 97 percent control for liquids having a vapor pressure 1.5 psia or greater. The format of the standard was changed to an efficiency format to reflect the new approach.

The issue of cost effectiveness to control emission streams from the loading of these materials is also a realistic concern. As the MACT floor for regulation of such activities is no control, (because no State has regulated these activities), EPA has discretion, based on Section 112(d)'s criteria for going beyond the floor to institute a vapor pressure limit. Because of the high costs cited by commenters, the Agency elected not to require controls more stringent than the MACT floor for these low vapor pressure HAP. The Agency, therefore, selected a vapor pressure limit of 1.5 psia to be used in determining the HAP emissions reduction for the final standards. Control of HAP having vapor pressures below this limit is not required to meet the standards.

2.1.5 Commodity Type

Comment: One commenter (22) stated the proposed new standard apparently does not exclude methane and ethane, which can be present in blanketing systems, from the total VOC definition. Because vapor recovery units are not designed to remove these compounds, compliance with the emission standard could be difficult if these compounds are not excluded from the total VOC definition.

Response: The Agency's definition for VOC has not changed and does exclude methane and ethane (based on the fact that these compounds are not ozone precursors).

Comment: One commenter (78) stated the proposal does not consider loading of mixed materials or materials that may include small quantities of HAP as impurities.

One commenter (80) stated that although the HAP emission threshold may act as a surrogate in some cases, this threshold only applies to the MACT standard, and EPA has proposed a MACT level of control that is lower than the RACT level of control. An existing marine loading terminal at a SOCFI facility would therefore be subject to less stringent standards than a marine loading facility that only processes crude oil, for example, even if the products loaded at the SOCFI terminal were substantially more hazardous. The commenter urges EPA to consider total loading throughput for the purpose of determining applicability and suggests that products can be grouped according to relative toxicity.

Response: The Agency evaluated means to rank materials based on relative toxicity. However, there is currently no established procedure for ranking or comparing VOC and HAP. Therefore, for purposes of this standard, all HAP are treated similarly. Since many of the compounds on the HAP list are also VOC, there is no way to differentiate or group facilities for MACT and/or RACT applicability.

The Agency agrees with the commenter regarding the control of liquids with very low concentrations of HAP. A definition of

"impurities" similar to that used in the HON has been included in the final regulation, and an exemption from the MACT standards has been established for loading berths that only transfer liquids containing HAP as impurities.

Comment: One commenter (30) stated that, in setting standards, EPA should not penalize terminals that handle gasolines containing oxygenates (such as MTBE) for the express purpose of meeting the oxygenated and reformulated gasoline requirements of the CAA.

Response: The Agency is aware of the increasing use of gasolines containing oxygenates (such as MTBE). The Agency notes that Section 112 of the Act does not provide a mechanism for discounting HAP emissions because their presence is mandated by other regulations. Rather, the Act requires calculation of total HAP emitted by the source.

2.1.6 Valdez Marine Terminal (VMT)

Comment: One commenter (06) believed that the Alyeska Pipeline Service Company's Valdez Marine Terminal (VMT) allowable benzene emissions "may reasonably be anticipated to endanger public health or welfare," and, therefore, it is within the authority of the EPA under 183(f) to regulate HAP emissions under the provisions of the Section 183 RACT requirements. The commenter stated that previous efforts by the Alyeska Pipeline Service Company (Alyeska) to demonstrate that the ambient impacts from benzene emissions at the VMT are insignificant reinforce this point.

Another commenter (07) felt the VMT should be regulated under Title III of the regulations as opposed to both Titles I and III. Regulation under Title III would solve many of the concerns expressed by Alyeska, including the ambitious 2-year schedule.

One commenter (32) stated there is no basis in the Administrative Record to support a determination that emissions from the VMT present a risk to human health and welfare. Until EPA makes a determination, it cannot impose standards on the VMT under Section 183(f). Regulation under Section 112 does not eliminate the requirement to evaluate the health and welfare risks under Section 183(f). The EPA cannot simply ignore the threshold requirements of Section 183(f) by stating that it "would require intensive effort" to make threshold findings or that sources are covered by Section 112, especially since (1) the Section 183(f) RACT standard is more stringent than the Section 112 MACT standard, and (2) Section 183(f) has a shorter timetable for compliance. Finally, EPA must consider that the VMT will have to meet the Section 112 MACT standards for HAP within 1 year after the compliance deadline for the RACT standard under Section 183 (f). Under any set of assumptions, the incremental risk reduction achieved by controlling emissions for the 1-year period prior to the MACT standards will be negligible.

This commenter (32) further stated that ozone nonattainment is not a basis for regulating the VMT under Section 183(f) since the VMT is located in an ozone attainment area. The Valdez Air Study Review (VASR) concluded that benzene emissions would pose an average lifetime cancer risk of no greater than 2.5 chances in 1 million assuming that none of the VMT tanker loading berths had a vapor control system. Cancer risks drop to 0.72 in 1 million if berths 4 and 5 were controlled and berth 3 had operational limitations, and to 0.66 in 1 million when all three berths employed vapor control technology. The commenter concluded that: (1) the risks from the VMT, without controls, are negligible and within EPA's tolerable range of risk; (2) Alyeska's proposed vapor control strategy will reduce health risks even further; and (3) the incremental risk benefit of controlling Berth 3 is sufficiently small as to be of no medical consequence. The commenter disagreed with the VASR, which concluded that terminal emissions from the VMT contribute to 95 percent of the total benzene emissions in the Port of Valdez region, and insisted that if the VMT contribution of benzene emissions were as high as that estimated by the VASR, then the control strategy put forth by Alyeska would reduce benzene emissions to levels lower than the original, uncontrolled emissions estimated by Alyeska. Finally, the commenter recommended that EPA adopt a RACT standard for the VMT that requires Alyeska's proposed strategy.

One commenter (41) recommended that EPA not give Alyeska special treatment. Any concessions granted to Alyeska should be granted to the industry as a whole. Another commenter (06) stated that benzene emissions from crude oil marine terminals should be regulated under the Section 183(f) RACT provisions.

Response: The Agency reviewed all of the comments related to the Alyeska Pipeline Service Company's Valdez Marine Terminal (VMT). The Agency first notes that the Title III standards are technology driven and are not based on the risk posed by a particular source. In some ways, the comments regarding the applicability of the Title I regulation are similar to those

summarized in Section 2.1.3 of this document. As discussed above in Section 2.1.3 of this document, EPA need not make a determination of risk for each regulated source in order to regulate that source. As discussed above, marine tank vessel loading facilities emit several types of HAP, including benzene, that have been found to be harmful to human health or that can be reasonably anticipated to endanger public health or welfare. The VMT is by far the largest emitter of such HAP in this source category. In any case, a health study performed by the Alyeska Pipeline Service Company indicated a risk above 10^{-6} , which is higher than the acceptable risk used by the Agency in considering the delisting of source categories under Section 112. Therefore, EPA believes that regulation under both Section 112 and Section 183(f) is appropriate.

However, the Agency believes that this particular facility warrants careful consideration for the following reasons:

(1) the VMT is the only oil-loading facility of its size that would be subject to these standards; (2) special circumstances require keeping the oil moving (i.e., the limitations on storage capacity and the need to keep the oil moving through the pipeline); (3) periods of extreme bad weather complicate the loading schedule; and (4) information submitted by several commenters shows that the volume of oil loaded at the VMT has decreased and will continue to decrease in the future; therefore, infrequent and declining use of VMT's auxiliary loading berths (i.e., berths other than the two berths for which installation of control technologies is under development) is anticipated. These considerations will be discussed in more detail below under subcategorization.

Because of these reasons, and particularly because of the declining throughput anticipated at VMT, the Agency has determined that a phased-in approach is warranted for the Title I regulation of the VMT. This approach requires control of loading emissions at the primary loading berths (2 berths) and allows for

continued, uncontrolled use of remaining berths for a limited time, with throughput limits on the use of such berths to reflect declining throughput. By selecting this approach, the Agency reasserts its position detailed in the preamble to the proposed rule and in this document that the distinction of attainment area and nonattainment areas in these regulations is not warranted and is not the basis for this decision. The selected approach requires a reduction in emissions by 98 percent efficiency of all throughput loaded from at least two of the terminal's loading berths. Maximum throughput limits (above which other VMT loading berths would be required to reduce emissions by 98 percent) are included as part of the standards. These throughput limits address the projected decreasing throughput that would only necessitate the use of two berths for routine loading after 2001. Provisions to allow for scheduled maintenance of the controlled berths are also established in the VMT standards. The Agency notes that the allowance for scheduled maintenance is provided for by existing mechanisms that allow States to grant waivers for maintenance purposes. Indeed, such maintenance waivers are embedded in any MACT floor for such large marine tank vessel loading operations since these MACT floors were developed (in part) based on existing State regulations. The Agency established the 40 day maintenance allowance for VMT in order to provide needed flexibility to this source and to reduce the burden of requesting waivers for anticipated maintenance.

Some commenters initially noted that the cost of controlling VOC may be high relative to the benefits of controlling VOC at a remote site in an Arctic ozone attainment area. Additionally, some commenters initially stated that the benefits of controlling HAP would not appear to justify the costs. However, the Agency has also considered later comments from the APSC, the State of Alaska, the Prince William Sound Regional Citizens Advisory Committee (a local citizens group) and private citizens in determining MACT/RACT for the VMT. These commenters agreed that a Federal rule mandating control of primary emissions at the APSC

was acceptable. After careful consideration of the costs, the environmental impacts and the comments, the Agency decided that MACT for this subcategory was control beyond the level of the MACT floor (see Docket A-44-90, Item Number IV-B-2).

2.1.7 Ballasting and Bunkering

Comment: One commenter (80) agreed with the prohibition on ballasting and cited a similar prohibition in California's Bay Area. Another commenter (38) agreed that ballasting operations should be prohibited and stated that appropriate recordkeeping and, if possible, adequate monitoring should be required to certify that ballasting emissions do not occur; the final rule should also prohibit nonsegregated ballasting of HAP and VOC containing segments of transport vessels. This commenter indicated the regulations need to provide guidance as to how ballasting operations will be prevented by the facility. One commenter (79) suggested that the standard regulation state that only marine tank vessels with segregated ballast tanks can be used for affected facilities.

Several commenters (04, 23, 24, 27, 34, 35, 36, 59, 85) did not agree with the proposed ballasting requirements and provided the following arguments:

1. The marine terminal owner or operator should not be responsible for enforcing ballasting requirements because ballasting is done by the vessel operators (Commenter 24);

2. Coast Guard requirements already appropriately address this issue (Commenter 04); EPA should grandfather marine tank vessels built prior to 1980 to allow ballasting without the use of segregated compartments as has been done by the Coast Guard (Commenter 23); the rule should allow for the uncontrolled loading of ballast in accordance with the rules established by the Coast Guard until the phase-out of nonsegregated ballast vessels is complete (Commenters 24, 85, 59); the compliance period for ballasting control is not addressed, resulting in a 3-year compliance period which makes the rule incompatible with the second ballasting alternative for meeting Coast Guard Standards that do not go into effect until 2003 (Commenter 34);

3. The vapor control requirements will force many small and medium sized facilities out of business because they cannot afford vapor control systems but serve vessels that ballast

(Commenter 36); ballasting operations on all tank vessels would alter the competitive relationship between integrated tank barges (ITBs) and barges and cause an undue economic burden for certain operators because very few barges ballast, and ITBs and smaller tankships usually must ballast by design (Commenters 27, 35);

4. Emissions from ballasting are not significant because vessel tanks that do not contain segregated ballast are filled with inert gas, and no more than 50 percent of the tank is loaded with water during a ballasting operation, which means the last 20 percent of the headspace vapor thought to be most saturated with volatile compounds is not emitted (Commenter 36); the occurrence of ballast water entering a cargo tank is so rare not to warrant EPA's attention and only clutters the regulation (Commenter 04);

5. Ballasting is necessary for some vessels to acquire the necessary draft to maneuver through areas (Commenter 36); ballasting is an essential requirement for ship safety and cannot be avoided, and the option that the vessel not perform ballasting at any time is not realistic (Commenter 34); the only occasions when water enters cargo tanks is when safe operations of vessels require it, and EPA should not interfere in these matters (Commenter 04); at some time, generally shortly after departure, the ship has to be fully ballasted to limit stresses in heavy weather (Commenter 123); and

6. The rule fails to specify that ballasting operations are the only nonloading operation controlled, leaving open the issue of product unloading requirements (Commenter 34);

One of these commenters (23) recommended that EPA provide data to support their assertion that significant HAP emissions are generated during ballasting operations. One commenter (04) recommended that EPA delete all references to the control of vapor emissions due to the ballasting of cargo tanks. Two of the commenters (27, 35) recommended that vessels that are not required to have segregated ballast tanks, such as ITBs and small tankships (less than 30,000 dwt), be excluded from ballasting

vapor control requirements. Another commenter (36) recommended that the rule require that during a ballasting operation, no more than 50 percent of the vessel volume be filled with water. This commenter stated that the ballasting prohibition requirement should be eliminated altogether. One commenter (123) suggested an addition for the end of § 63.562(h): "while at the affected source."

Two commenters (31, 34) stated EPA should clearly indicate that unloading operations other than ballasting are exempt from the rule and should clearly indicate that calculation of major source status should include estimation of only ballasting emissions during unloading. These commenters also recommended that facilities not be required to assume that all vessels have nonsegregated ballast tanks at their facilities for purposes of determining applicability in the regulations. One commenter (06) explained that the preamble states that the decision to regulate emissions from ballasting was made as part of the RACT provisions. Therefore, the commenter (06) stated there should be corresponding sections limiting ballasting VOC emissions from ballasting operations 1 year sooner for sources subject to both RACT and MACT provisions.

Two commenters (23, 34) stated that recordkeeping for ballasting in vessels with segregated ballast tanks is unnecessary and a violation of the Paperwork Reduction Act, since there can be no environmental benefit from the requirement of obtaining documentation describing ballasting procedures. Another commenter (32) stated that ballasting records, if kept at all, would be more appropriately recorded and maintained by the vessel owner or operator, rather than the affected source; therefore, the requirement should be deleted from the proposed regulation. One commenter (31) suggested the ballasting requirement should specify what documentation will suffice for compliance with the ballasting requirement. The commenter feared that § 63.567(h)(10) could be misinterpreted to require a more detailed statement than the three general descriptions listed in

the preamble. The commenter (31) feared that enforcement personnel might interpret the rule as requiring something akin to the standard operating procedures (SOPs) used to run chemical plants. This commenter suggested rewording of § 63.567(h)(10) as follows: "Description of ballasting procedures. This paragraph is satisfied if the owner or operator has documentation either that the vessel does not perform ballasting at any time, that the vessel meets the Coast Guard standards, or that ballasting emissions are ducted to a control device."

One commenter (31) stated this rule should exempt cargo consolidation and bunkering activities on board ships or barges that are completed without interaction with the terminal.

Response: The Agency agrees that ballasting operations are performed by vessel operators, not by the regulated terminal sources. The Agency also agrees that regulating ballasting operations would be difficult to enforce. The Agency's intent in prohibiting ballasting emissions in the proposed regulation was to provide a cross-reference with existing Coast Guard regulations addressing ballasting in nonsegregated vessels. The Coast Guard rules require vessels to have segregated ballast tanks for crude oil loadings. The Agency sees no benefit to restating Coast Guard requirements for ballasting. Moreover, EPA agrees that the relatively low amount of actual emissions associated with ballasting does not justify dual regulation of ballasting. As discussed in the proposal TSD, the total VOC emissions from crude oil tankship ballasting were estimated to be approximately 950 Mg/yr. Based on the portion of HAP in crude oil vapor, total HAP emissions from ballasting are less than 120 Mg/yr. Ballasting emissions will diminish in the future because tankships built since 1980 are required by domestic law and international agreement to use segregated ballast tanks (SBT) that do not emit vapors during ballasting. Therefore, in order to prevent confusion in the regulated community, the Agency does not address ballasting or bunkering emissions in the final

regulation. The Agency defers to the U.S. Coast Guard's existing standards.

2.1.8 Regeneration of Carbon Beds

Comment: One commenter (41) recommended that EPA clarify the language in the final rule to prohibit direct emissions from steam stripping. The proposed rule prohibits emissions from steam stripping used to regenerate carbon beds. When these regeneration vapors are taken to either recovery or destruction, however, there will be an efficiency associated with the recovery or destruction device. One commenter (34) suggested that Section 63.562(i) state that the carbon bed regeneration vapors should be routed through the on-line bed and not vented to the atmosphere. One commenter (73) stated that other methods, such as steam stripping back to the process or to combustion devices, should be allowed as a means of determining compliance for carbon bed regeneration. Another commenter (38) noted there are steam stripping designs that route the noncondensables from the regenerating units back to absorbing units.

One commenter (06) explained that the preamble states that the decision to regulate emissions from carbon regeneration was made as part of the RACT provisions. Therefore, the commenter stated there should be corresponding sections limiting carbon regeneration VOC emissions carbon regeneration operations 1 year sooner for sources subject to both RACT and MACT provisions.

Response: The Agency agrees with the comments recommending changes to the steam-regeneration prohibition. The final rule states that the carbon bed regeneration vapors must be routed through the on-line bed and not vented to the atmosphere. The Agency also agrees with the commenter regarding the applicability date for sources subject to RACT.

2.2 INCLUSION WITH THE PETROLEUM REFINERY SOURCE CATEGORY AND CONTIGUITY

2.2.1 General

The EPA requested comments on the concept of expanding the petroleum refinery source category to include marine tank vessel loading and unloading operations. Under this approach, marine tank vessel loading operations subject to MACT would be split into two subparts-- those operations that are collocated at refineries and those that are not. The operations collocated at refineries would be combined with and become part of the refinery source category. Sources subject to RACT are not allowed to average emissions with petroleum refinery operations.

Comment: Five commenters (91, 92, 93, 96, 99) support the revision of the refinery source category to include collocated marine tank vessel loading operations. Three commenters (94, 98, 100) opposed such a revision and two others (95, 97) recommended that EPA allow an individual refiner the option of complying with the marine tank vessel loading and refinery MACT rules separately or complying with a combined terminal/refinery MACT rule to comply with the emission standards.

One commenter (94) was concerned that the proposed amendment could result in a relaxation of the proposed HAP emission control standards applicable to the VMT. The specific concerns involved:

- possible lower MACT floor requirements applicable to marine terminals not collocated at refineries;
- inconsistency with the requirements of Section 112(c)(1) of the CAA regarding identification of major source categories;
- relaxation of proposed HAP control standards applicable to nonrefinery marine terminals by allowing certain commodities or operating berths to be partially controlled; and
- allowing the VMT to average their marine tank vessel loading HAP emission reductions with on-site storage tanks and process vents in such a way that total emissions from the facility are higher than if the Marine Tank Vessel Loading Rule were implemented as currently proposed.

Response: The Agency agrees with the commenters who supported the position that the petroleum refinery source category should be expanded to include marine tank vessel loading operations at petroleum refineries. This expansion will enable emission reduction by either direct control of loading emissions or emission averaging with other emissions points at the refineries. Several commenters to the marine tank vessel loading operations proposed NESHAP supported averaging of refinery process unit emissions with emissions from marine terminals and gasoline distribution operations that are located at refineries. The commenters cited more cost effective emission reduction as the advantage of including these emission points in emissions averaging, and specifically commented that the costs per Mg emission reduction of the marine tank vessel loading emission controls are high. These commenters also claimed that emission calculation procedures for loading are well established and that adding marine loading to the averaging provisions will not appreciably increase the complexity of enforcement. Other commenters opposed including marine tank vessel loading and gasoline distribution in emissions averaging. Some commenters claimed that these are separate source categories and the Act does not permit averaging across source categories. Others were concerned that including marine loading in averages could result in uncontrolled peak emissions.

In the final rules, emissions from marine tank vessel loading operations, bulk gasoline terminal or pipeline breakout station storage vessels, and bulk gasoline terminal loading racks at petroleum refineries are allowed to be included in emissions averages. The definition of the petroleum refinery source category and source has been changed to include marine tank vessel loading operations, bulk gasoline terminal and pipeline breakout station storage vessels, equipment leaks, and bulk gasoline terminal loading racks classified under SIC codes 5171 (Petroleum Bulk Stations and Terminals) and 4613 (Refined Petroleum Pipelines) that are located at refinery plant sites.

Note that these operations are closely connected with refinery process unit operations since they transfer products of the refinery process units.

A marine tank vessel loading operation or gasoline terminal or pipeline breakout station that is collocated at a petroleum refinery can be considered part of the same source as the refinery subject to this rule. Because these operations are redefined to be part of the source subject to the rule, the prohibition against intersource averaging is not violated.

In keeping with the EPA's stated goal of increasing flexibility in rulemakings, this decision has been made to provide more opportunities to average. This optimizes the opportunities for refiners to find cost-effective emission reductions from overall facility operations on-site. Costs and cost-effectiveness of controlling a particular kind of emission point, such as marine tank vessel loading, will vary depending on many site-specific factors. Emissions averaging allows the owner and operator to find the optimal control strategy for their particular situation.

Regarding the comments received on the impact of the redefinition of the refineries source category on the regulation of the Alyeska Pipeline Service Company's Valdez Marine Terminal (VMT), the Agency notes that the VMT is not collocated at a refinery and would not be affected by this change.

2.2.2 Contiguity and Collocation

Comment: One commenter (92) stated that the use of emissions from the entire contiguous source to determine a terminal's major source status is not an optimal resolution, since it is likely that relatively few marine tank vessel terminals are collocated with refineries. The commenter (92) requested the term "collocated" be better defined, and two commenters (92, 96) suggested that additional clarification is needed for terminals that are collocated but noncontiguous. Another commenter (130) stated that its tank vessel loading operations are not contiguous to its other facilities and that EPA has not provided a definition of major source or contiguous and requested that a definition of "contiguous" be provided. Two commenters (28, 133) stated that the contiguous definition should be clarified for terminals that are not geographically close to the refineries or plants (sometimes greater than a mile apart) but are currently assumed to be "contiguous." Another commenter (72) suggested language for the definition of "contiguous area."

Response: Several comments indicated various levels of confusion about "collocated" and "contiguous". Contiguous means located on the same or adjacent properties. It includes properties that are divided by highways and rights-of-way and generally does not require that facilities physically touch one another. Please refer to the discussions in the General Provisions rule (59 FR 12412, March 16, 1994) and the HON (59 FR 19458, 19459, April 22, 1994). The EPA intended the term "collocated" to be synonymous with "part of the same major source," which presumes contiguity. Therefore, to avoid confusion, EPA is deleting the term collocated from the final regulations.

Regarding the comments on contiguity of offshore facilities to shoreside major sources, EPA has determined that any offshore tank vessel loading facility that is over one-half mile offshore is not contiguous to the onshore facility. The Agency believes that the considerable amount of distance between shore and land

and the numerous issues that arise as a result of this considerable distance make it clear that these facilities are, as a class, not contiguous with shoreside facilities.

However, EPA is not stating that, as a class, offshore terminals less than one-half mile from shore are contiguous to shoreside major sources. This determination must be done on a case-by-case basis, based on the factors pertinent to the definition of contiguous. In particular, EPA believes that key factors for this decision involve the extent to which the area between the shoreside facility and the offshore facility is used exclusively or generally by the shoreside facility, the extent to which others use the area, and the actual distance between the facilities.

Regarding the comments (130) from the company whose tank vessel loading facility is 0.45 miles from the shoreline and 1.5 miles from the refinery, which is inland, EPA agrees that the sources are not contiguous. The sources are over one mile apart, they do not share a boundary, and the intervening land is neither owned nor operated by the company.

2.2.3 Emissions Averaging

Comment: Six commenters (23, 91, 92, 97, 99, 101) supported and four commenters (94, 98, 100, 102) opposed the averaging of emissions between marine tank vessel loading facilities and petroleum refineries. Those opposed to such averaging stated that EPA should not allow averaging between separate source categories. One commenter (91) stated that in the long run, emission averaging will increase the operator's flexibility and increase cost effectiveness in complying with the emission standards promulgated under Section 112. Emissions averaging will encourage innovative control strategies which will likely result in more efficient (cost effective) control strategies and greater reductions in HAP emissions.

Three commenters (23, 92, 93) recommended expanding the averaging program to all HAP emission points within the site, regardless of source category. Two commenters (92, 101) stated that marine operations located at facilities other than refineries should be allowed to use emissions averaging as well.

While two commenters (92, 93) generally supported the concept of emissions averaging, they had many objections to this specific program. The strongest objections to the specifics of the proposed emissions averaging program are summarized as follows:

1. The equivalent risk demonstration has no place in a technology-based regulation;
2. The 10 percent discount on emission credits unfairly penalizes those who would utilize emissions averaging and will act as a deterrent to use;
3. Allowing State and local discretion to preclude averaging might effectively eliminate the utility of emissions averaging; and
4. The limitation on the number of emission points to be included in an averaging program has no sound basis, and its elimination will not produce significantly burdens on implementing agencies.

One commenter (93) stated EPA should recognize that there are marine loading operations at some facilities that will be subject to the Gasoline Distribution MACT rule. For the same reasons stated above, EPA should allow emissions averaging between these sources as well.

One commenter (98) opposed the proposal to average intermittent marine loading emissions with more constant emissions throughout the facility, stating, "the Act does not allow emissions averaging." In addition, EPA has not demonstrated that a 10 percent discount factor adequately compensates for the likely imprecision in estimation of emissions. The EPA has also not demonstrated that the emission reductions contemplated in the marine loading rule with a 10 percent discount factor is the maximum achievable emission reduction when averaging is employed.

The commenter (98) continued the argument by stating that the EPA has not provided for real-time monitoring of controlled or uncontrolled marine loading emissions. Hence, the rule offers no basis for accurately and reliably checking source estimates of likely future credits and debits.

One commenter (100) thought it was inappropriate to lessen the requirements for HAP or VOC reduction since averaging two or more emission points could lead to an emissions increase.

Two commenters (94, 102) expressed concern that emission averaging will allow the VMT to average marine tank vessel loading HAP emission reductions with reductions at on-site storage tanks and process vents in such a way that total emissions from the facility will be higher than if the marine tank vessel loading rule were implemented as currently proposed. The commenters stated any averaging provisions, including on-shore equipment, would be difficult to accurately monitor and enforce.

One commenter (102) specifically opposed an emissions averaging plan that would allow the Alyeska Pipeline Service Company to emissions average and not be required to control

emissions or be able to increase emissions that would be otherwise controlled under the proposed standards. This commenter was concerned that an emissions averaging approach could lower the MACT floor, confuse the requirements for specific source categories, result in partial control of commodities and uncontrolled berths, and delay compliance with the standards.

Response: The Agency agrees with commenters who stated that additional flexibility was justified and expanded the petroleum refineries source category to include HAP emissions from marine vessel loading operations contiguous with petroleum refineries. However, this expansion includes those sources subject only to the Title III standards (i.e., MACT standards). Because source categories are irrelevant to the applicability of Section 183(f), sources subject to the RACT standards are not eligible for emissions averaging. In order to minimize confusion between the two standards, all related issues for MACT sources (i.e., emissions averaging) were directed to the petroleum refinery NESHAP. Please refer to docket A-93-48 and/or the promulgation TSD (Volume II) for the petroleum refinery NESHAP for specific comments and responses. Regarding the request for emissions averaging at other collocated source categories, the Agency does not believe that averaging with other source categories is appropriate at this time [note that the averaging of HAP emissions from marine tank vessel loading with emissions from petroleum refineries is accomplished through a redefinition of the respective source categories], nor have any commenters produced information justifying any such change in source categories or emissions averaging.

Regarding the commenters who stated that the emissions averaging approach would allow the Alyeska Pipeline Service Corporation's Valdez Marine Terminal to average emissions with other emissions sources, the Agency notes that this terminal is not collocated at a petroleum refinery and therefore would not be addressed by this emissions averaging approach. The final regulations for VMT require control of the primary loading berths

and ultimately limits the uncontrolled throughput at other berths. If throughput subsequently increases beyond the projected levels, controls are required.

The Agency disagrees with the commenter regarding the allowance in the Act for emissions averaging. The Agency believes that the emissions averaging approach promulgated in the petroleum refinery standards represents the maximum achievable reduction in emissions in consideration of the costs of controlling these emissions and is therefore consistent with Section 112(d) of the Act. The Agency asserts that allowing emissions from marine tank vessel loading operations, bulk gasoline terminal or pipeline breakout station storage vessels, and bulk gasoline terminal loading racks to be included in emissions averages will result in equivalent or greater overall HAP emission reduction at each refinery. The averaging provisions are structured such that "debits" generated by not controlling an emission point that otherwise would require control must be balanced by achieving extra control at other refinery emission points covered by the NESHAP. (Please refer to the Petroleum Refineries Background Information Document (EPA-453/R-95-015b), Section 10 for additional discussion of the development of the emissions averaging approach.)

2.2.4 Exposure Spikes

Comment: One commenter (100) stated that intermittent process control may be allowed to offset a continuous process, but continuous processes should never be allowed to offset an intermittent process. The resulting exposure spike would likely exceed threshold criteria levels for health and environment equivalency. An intermittent process occurring once a month would average its emissions to a daily rate for that month. The commenter stated that if the intermittent daily average is offset by the daily emissions of a continuous process, the actual excess emissions for the 1-day intermittent process are 30 times the offset. This emissions spike would dramatically increase acute exposure and would occur repeatedly throughout the year. Unfavorable weather conditions and the location of the loading operation could severely increase the risk of public exposure. One other commenter (92) stated that concerns about potential exposure spikes were inappropriate in the context of the current rulemaking. The commenter further stated there are many factors that would need analysis before any conclusions could be made regarding exposure spikes and adverse health effects.

Response: The Agency notes that the standards developed for this source category are technology driven and have been developed to reflect control technologies currently in use. These control technologies account for exposure spikes inherent with batch operations, such as are found in marine tank vessel loading operations. The comments regarding the relationship of potential exposure spikes with the emissions averaging approach developed for marine loading operations collocated at petroleum refineries are addressed in the justification for the emissions averaging found in the petroleum refineries standard [citation provided above]. The emissions averaging approach allows the owners or operators to develop and implement their own emissions averaging plan subject to approval by the Administrator. Concerns with exposure spikes would be addressed under this plan. Furthermore, the quarterly cap on the ratio of debits to credits

established under the emissions averaging approach in the petroleum refineries standards is intended to limit the possibility of exposure peaks. Because loading operations occur fairly frequently and emissions from an individual vessel filling or loading event are relatively small, such emissions are not expected to cause significant exposure peaks. Moreover, no evidence has been presented that emissions averaging would permit a very different mix of emissions to occur than would point-by-point compliance. That is, peaks of exposures from batch streams, storage, and loading operations should be equally likely under point-by-point compliance as under emissions averaging, so emissions averaging does not represent a less effective control strategy. Furthermore, in order to receive approval for an emissions average, the owner or operator is required to demonstrate that the emissions average does not increase the risk or hazard relative to compliance without averaging.

2.2.5 Other Impacts

Comment: One commenter (91) stated that the addition of certain marine vessel loading operations to the petroleum refineries source category would delay promulgation of the emission standards applicable to collocated marine tank vessel loading operations, therefore providing additional time to install emission controls. One commenter (94) believed it was not appropriate to delay the compliance date for nonrefinery marine tank vessel loading operations in order to be consistent with compliance dates associated with the refinery rule unless there is a substantial, technical reason for doing so. The compliance date should follow rule promulgation by some reasonable time-frame (in this case, 3 years) which allows the source operators to design, purchase, and install control equipment.

One commenter (100) stated, in the event the EPA allows cross averaging between marine tank vessels and refineries, all deadlines based on promulgation should remain distinct for the two MACT's except the averaging deadlines. Averaging plans and compliance deadlines should not start until promulgation of the second MACT.

Response: The Agency asked for and received three additional months to promulgate the final standards for marine tank vessel loading operations. This decision was based on the significant issues that were contained in comments submitted by commenters on the proposed rule. Even with the allowance for emissions averaging between the two sources, the standards for marine tank vessel loading operations and petroleum refinery operations each contain their own separate compliance schedules.

Comment: One commenter (100) stated that there would be additional regulatory and enforcement complexities from the integrated source approach. If the U.S. Coast Guard finds that land-based emissions were to affect marine safety, how far into the refinery could they exercise influence? Another issue was raised involving setting a precedent for reopening MACT standards

to re-establish the affected source categories. This precedent could lead to overly burdensome administrative procedures that would hamper the efficiency of the State's operating permits program.

Response: The Agency notes that the current U.S. Coast Guard regulations affecting these sources address safety issues for marine loading. These safety regulations are independent of emissions reduction requirements established by the Agency. Any future decisions on the part of the Coast Guard to promulgate safety regulations for land-based refinery operations would take place regardless of EPA's redefinition of the petroleum refinery source category to include marine tank vessel loading.

Regarding the comments on potential reduction in a state's operating permit program, the Agency is not redefining any source categories for which standards have already been promulgated. Rather, as part of the regulatory development process for these two standards, modifying the definition of the two source categories would provide additional flexibility to sources subject to the emissions standards while providing no increase in emissions. The Agency, therefore, requested comment on the redefinition of the source categories and has decided to proceed with this definition in the promulgated standards for both rulemakings

Comment: Two commenters (95, 101) stated that EPA's marine vessels database does not identify which loading and unloading operations occur at refineries as opposed to other types of plants. Therefore, the commenter stated that there is not sufficient detail in EPA's database to determine if the movement of terminals associated with refineries out of the marine tank vessel loading MACT source category would impact the determination of the MACT floor for the marine tank vessel loading MACT rule.

Response: The Agency agrees with the commenter that the Agency is unable to determine with certainty which facilities in the data base are refineries. Therefore, the Agency could assume

that a certain percentage of controlled and uncontrolled facilities are refineries and then calculate a separate MACT "floor" for the refinery terminals. However, there is no assurance that this estimate would be any more correct than assuming that the floors for marine terminals in both source categories would be the same. Because of this uncertainty, and because there is no inherent reason to believe that there is any substantial difference in the MACT floors for the two types of marine terminals, the Agency is assuming that the MACT floor for marine terminals in the petroleum refinery source category is equal to that of the marine tank vessel loading source category. Therefore, marine tank vessel loading at refinery terminals will be referred to Subpart Y for control requirements or emission averaging limits. (See Docket No. A-90-44, item No. IV-B-2 for additional information on the determination of MACT floors for the final standards.)

2.3 SUBCATEGORIZATION

2.3.1 Subcategories Based on Size

Comment: One commenter (29) stated the 1 Mg/yr HAP emissions threshold is appropriate. Another commenter (44) stated that emissions reductions achieved by control devices should be included in the 1 Mg/yr applicability cut-off for sources currently equipped with emission control devices. The commenter asserted that controlled and uncontrolled sources having HAP emissions of less than 1 Mg/yr should be exempt from all other requirements of Subpart Y.

One commenter (04) noted that the preamble to the proposed rule did not elaborate on why the upper limit of 1.0 Mg/yr was selected as the final applicability determination. The commenter noted that EPA's cost-effectiveness data indicated that the 1.0 Mg/yr limit would result in costs to industry of approximately \$99,000 per ton of HAP removed. This commenter questioned why the Agency did not develop cost data for higher limits. The commenter encouraged EPA to raise the applicability limit.

One commenter (79) stated that the subcategorization of facilities emitting less than 1 Mg/yr is not necessary because these facilities are probably area sources. One commenter (80) suggested subcategories should be drawn around sources with similar operating cycles, not an arbitrary threshold. Some sources under 1 ton/yr may operate sporadically, and some may be area sources, not major sources.

One commenter (45) stated that the applicability determination [and therefore, the subcategory basis] the for this regulation should be 10 tons per year of a single HAP or 25 tons per year of a combination of HAP irrespective of where the marine facilities are located

Response: In the preamble of the proposed rule, the Agency requested comment on the establishment of these subcategories based on size (i.e., HAP emissions). In the public comments, the Agency found general, though not universal, agreement on the

establishment of subcategories based on size for this source category. However, some of the comments encouraged the Agency to raise the HAP emissions level of the controlled subcategory. The final standards continue to group major source terminals into subcategories based on HAP emissions; however these subcategories were changed to terminals with HAP emissions of 10 tons/yr or more of any single HAP or 25 tons/yr or more of total HAP, and terminals having HAP emissions of less than 10 tons/yr of all individual HAP and less than 25 tons/yr of combined HAP. The Agency based this decision on information found in the comments received and the high incremental cost effectiveness associated with requiring controls on these terminals having the lowest HAP emissions.

This decision raises the limit to the definition of major source found in the Act (i.e., 10 tons/yr or more of any single HAP or 25 tons/yr or more of combined HAP), and was suggested by several commenters. Other commenters favored leaving the cutoff as proposed or lowering it. Several commenters provided rationales based on economic concerns and prior regulation. However, none of the commenters provided any data to support their recommendations. Commenters noted that prior State regulations generally (though not invariably) had distinguished between large tank vessel loading facilities that are responsible for the vast majority of emissions and small tank vessel loading facilities that are substantially less cost-effective to regulate. Commenters also noted that the smaller marine terminals that would be regulated under the proposed delineation at 1 Mg would face considerable risk and may have to close. The commenters stated that such disruption is not justified given the small emissions benefit of regulating smaller terminals. [As discussed elsewhere in the docket, the incremental cost effectiveness shown when moving from the 25 ton per year limit to a 1 ton per year HAP emissions limit is approximately \$180,000 per Mg (i.e., approximately \$100 million in annual costs resulting in control of approximately 550 Mg of HAP). This ratio

is contrasted with the \$27,000 to \$53,000 per Mg cost effectiveness associated with the control of sources emitting 10 tons/yr or more of any single HAP or 25 tons/yr or more of total HAP (i.e, approximately \$20 million to \$40 million in annual costs resulting in control of approximately 750 Mg of HAP).]

Though Section 112 does not provide any language indicating the criteria for subcategorization, Section 112(d)(1) of the Act states that EPA may distinguish among classes, types, and sizes of sources in establishing standards. EPA believes that dividing this source category into two subcategories based on size is appropriate, especially given issues of frequency of use, cost-effectiveness, and amount of emissions connected with the subcategory of smaller facilities. (See Section 2.3.1 of the promulgation TSD for additional discussion of the subcategories based on size.)

The Agency agrees with the commenters who support changing the subcategories so that marine tank loading operations that emit more than 1 Mg/yr of HAP but that are not themselves major emitters of HAP are appropriately grouped with smaller facilities, rather than with the large facilities with which they had previously been grouped. However, EPA is unwilling to raise the subcategory limit above the 10 ton limit for determining major source status for single HAP emissions or above the 25 ton limit for determining major source status for multiple HAP emissions. The Agency believes that Congress's determination of 10 tons of emissions of any single HAP and 25 tons of emissions of total HAP as the outer limits of the major source determination is an indication that it is appropriate to distinguish sources that are above this level from those that are below this level and to ensure regulation of sources that emit beyond that level (regulation of sources having emissions below that level is based on a separate MACT determination). Therefore, the Agency selected 10 tons/yr as the HAP emissions

limit for single HAP emissions and 25 tons/yr as the HAP emission limit for total HAP emissions.

Comment: One commenter (45) indicated that no additional source categories should be added to the applicability determination. As proposed, marine tank vessel loading operations, which are located at major source refineries and chemical plants, are only subject to the proposed standards if they emit more than 1 ton/yr of HAP; however, independent marine tank vessel facilities are only subject to the rule if they emit 10 tons/yr of one HAP or 25 tons/yr of a combination of HAP. The commenter stated that the applicability determination section of this regulation should be 10 tons/yr of a single HAP or 25 tons/yr of a combination of HAP, irrespective of where marine facilities are located.

Response: Section 112 of the Act requires MACT for major sources of HAP, which are generally a collection of several emissions points, some of which individually may be below the 10/25 tons/yr limits contained in the Act but which collectively exceed these limits. The language of the Act and the legislative history clearly shows that any group of sources located within a contiguous area and under common control that collectively emit more than the 10/25 tons/yr limit shall be treated as a major source, and each emissions point within the major source shall be subject to major source MACT requirements, even if the emissions point does not itself exceed the 10/25 tons/yr limit. Area sources that only perform loading, while possibly having the same loading emissions as a terminal collocated at a major source, would not necessarily have the same health impacts as the collective emissions from all points at the major source. Under the urban air toxics program (Section 112(k) of the Act), the emissions from these sources will be analyzed to determine if their collective emissions pose a risk to the public that would necessitate future emissions standards.

2.3.2 Offshore Terminals/Offshore Production

Comment: Six commenters (28, 30, 34, 73, 127, 133) supported the creation of a separate subcategory for offshore facilities. One commenter (28) added that a significant reason not to require control at offshore facilities would be the lack of any population that would be impacted by HAP emissions from these operations. This commenter applied the same standard to facilities located in remote areas. Another commenter (30) described a host of factors relative to differing economic considerations associated with offshore terminals and provided a definition of "offshore terminal".

One commenter (36) recommended that terminal facilities that operate docks or platforms extending one-half mile or more into the water be classified as "on-shore terminals," consistent with Federal law, but that such terminals be exempted from the vapor control requirements proposed in this rulemaking.

Another commenter (130) stated that the grouping of offshore terminals into a subcategory is appropriate but stated that the Agency's use of a one-half mile limit is arbitrary. This commenter's terminal is less than one-half mile from shore, but is over two miles from a refinery. The commenter requested that the final regulations address such terminals so that they would not be required to control emissions. Another commenter (137) also stated that the one-half mile limit is arbitrary and maintained that the main consideration should be if a terminal is contiguous to a refinery.

One commenter (41) supported the proposed requirement that offshore terminals meet the same requirements as onshore terminals. This commenter continued by stating "unless it can be shown that emissions from such terminals have no risk to the most exposed person." Another commenter (87) did not support grouping offshore facilities into source categories unless the MACT requirements are at least as stringent as those for onshore facilities.

One commenter (73) stated HAP emissions from offshore terminals have a much lower potential for human exposure due to the distance from the emissions source to any receptors. Only if the terminal by itself is determined to be a major source should the terminal be subject to any applicable MACT standards.

Two commenters (28, 73) stated that noncontiguous marine loading/unloading facilities should not be regulated under the proposed MACT rules unless the marine terminal by itself is determined to be a major source.

One commenter (80) disagreed with the separate facility designation and cited two facilities with loading operations that occur more than 0.5 miles offshore; the commenter considers these sources "contiguous."

Several commenters (34, 72, 73) supported EPA's separate facility designation for offshore terminals that are one-half mile or greater from shore. One commenter (30) suggested EPA create subcategories within the offshore terminal source category to reflect the different sizes of terminals, the quantities of products handled, and the fundamental differences between crude oil production platforms and product terminal platforms. This commenter and one other (72) suggested language for the definition of the term "offshore terminal."

One commenter (127) stated that offshore terminals face significant control costs that are several times the national ceiling and many times higher than the national average. The commenter also stated that control requirements would result in significant technological difficulties that are not yet fully understood. The commenter stated that the State regulations governing the Riverhead, Long Island terminal do not require control of this offshore terminal and that Federal regulation should take a similar approach.

One commenter (136) stated that none of the offshore terminals of which the commenter is aware presently control emissions. Therefore, the commenter stated that the MACT floor for a subcategory of offshore terminals would be uncontrolled.

One commenter (140) favored the establishment of a subcategory for offshore terminals provided that the definition of "offshore terminal" be structured to include docks or piers having loading arms that are at least one-half mile from shore and may not necessarily incorporate subsea lines. The commenter stated that these types of terminals would face similar costs and technical difficulties in installing control equipment as the offshore terminals with subsea lines.

Response: The Agency is in agreement with many of the comments received. The Agency maintains its position as stated in the proposed rule that a marine tank vessel loading operation that is at least one-half mile offshore is not part of a land-based contiguous site. The Agency agrees with commenters that these offshore terminals should be considered separate (stand alone) sources because many are supplied solely by subsea lines and others, by definition, have at least one berth that is one-half mile or more beyond the shore line. Offshore loading operations with subsea lines in particular require the permitting of either additional subsea lines to carry vapors or permitting of docks or platforms. If permits are unavailable for these offshore terminals, compliance with the standards would be impossible. These factors result in significantly higher costs compared to onshore terminals. Additionally, these terminals pose less of a health risk to any surrounding population. The Agency also agrees with several of the commenters that these sources warrant the establishment of a separate subcategory because of the differences in the feasibility and cost of controlling emissions at these offshore terminals.

Once the Agency determined that a subcategory existed for these offshore terminals, a MACT floor determination was made and MACT selected. The data made available to the Agency indicates that there are fewer than 20 offshore terminals having subsea lines. None of these terminals presently control emissions from marine tank vessel loading. The Agency was also made aware of additional offshore terminals that do not have subsea lines. Two

of these terminals for which the Agency has information presently control emissions. Based on the information available to the Agency, the MACT floor for existing sources in this subcategory is no control of HAP emissions. The MACT floor for new offshore sources is 95 percent reduction of emissions. (See Docket A-90-44, Item Number IV-B-2 for additional discussion of the MACT floor determination for this subcategory). Data submitted by commenters show that the costs associated with the control of offshore terminals are between two and five times more expensive than comparable onshore control techniques (see Docket A-90-44, Item numbers IV-D-108 and IV-D-136). Because of the poor cost effectiveness resulting from these significantly higher costs, as well as the environmental and technical challenges (discussed above) associated with requiring control more efficient than the MACT floor, the Agency has selected the MACT floor level of no control for offshore marine tank vessel loading operations.

The Agency also determined that offshore terminals loading 10 million barrels per year or more of gasoline or 200 million barrels or more of crude oil should not be required to control emissions of VOC or HAP. The comments that noted the significantly higher costs and poor cost effectiveness of these sources (see previous paragraph) would make control requirements unreasonable for these offshore terminals (See Docket No. A-90-44, item No. IV-B-2 for additional information on the determination of MACT floors for the final standards.). Regarding the comment from Commenter 36, EPA is using the term "offshore terminals" solely for the sake of simplicity and practicality in this rulemaking. The use of the term in this rulemaking should not have any effect on other programs. This approach is more straightforward and practical than the approach suggested by Commenter 36.

Comment: One commenter (30) suggested EPA create subcategories within the offshore terminal source category to reflect the different sizes of terminals, the quantities of products handled, and the fundamental differences between crude

oil production platforms and product terminal platforms. The commenter was concerned that EPA, in setting standards, should not penalize terminals that handle gasolines containing oxygenates (such as MTBE) to the oxygenated and reformulated gasoline requirements of the CAA.

Response: The Agency agrees that offshore terminals could be further subcategorized based on the types of commodities loaded, the size of the terminal, or by the type of operation with which the terminal is associated. However, the comments received did not contain sufficient information to justify further subcategorization of offshore terminals.

2.3.3 Parcel Tankers

Comment: One commenter (31) stated the loading and unloading of parcel tankers presents unique challenges and costs that have not been addressed by EPA. There are economic and technical difficulties associated with the potential mixing of contained vapor streams from the simultaneous loading/unloading of multiple products (up to 15 types). Additionally, most parcel tankers are not owned by the same companies that own the terminals, therefore the burden of compliance with a rule is shifted from the terminal to the ship owners. Lastly, the EPA's own technical support document indicated that emissions from chemical product parcel tankers are small compared to those from petroleum tankers and that the costs to retrofit product tankers are the highest of all types of marine tank vessels. Until further studies have been done, the rule should not cover the loading and unloading of parcel tankers.

Response: The Agency is aware that parcel tankers as well as river barges may carry more than one product. The commenter did not provide sufficient data demonstrating the infeasibility of a control strategy system to handle multiple commodity streams. The Agency believes that a combustion device is capable of destroying multiple chemicals to a level sufficient to meet the final standards. Additionally, the commenter did not provide information to suggest inherent safety problems with the control of emissions from terminals loading these vessels. Therefore, the Agency has no technical basis to distinguish parcel tankers. However, if after promulgation, the U.S. Coast Guard determines that safety problems do exist with specific loading scenarios, then the Agency would reevaluate the standards applicable to terminals loading those types of vessels.

2.3.4 VMT

Comment: Three commenters (06, 10, 80) were opposed to creating a separate subcategory for the VMT because Alyeska has not presented any information that warrants a separate subcategory. However, in a later submittal (118), Commenter 06 agreed with the subcategorization of VMT. The mere fact that it may be more difficult and costly to control large volumes of crude oil vapors in a sub-Arctic climate does not warrant the creation of a new subcategory. The commenters supported reasonable, cost-effective controls for the VMT that are consistent with the cost effectiveness levels used for other MACT and RACT controlled sources. The commenters disagreed with all of the arguments put forth by EPA for considering the VMT as a separate subcategory. One commenter (06) further elaborated that, under Section 112, any control beyond the MACT floor must consider the cost of achieving reductions, as well as any nonair quality health and environmental impacts. If the VMT is a separate source category, then the MACT floor for the source category will be zero, and any control beyond this floor would require that EPA consider costs and nonair impacts. None of the issues VMT has raised (high vapor flow, complexity of vapors, declining throughput, low loading temperatures) differentiates VMT from other terminals with respect to health, environmental, or energy impacts of the proposed control measures. Therefore, there appears to be no reason to justify MACT controls at the VMT that are less stringent than other terminals.

One commenter (10) stated if EPA insists on a separate subcategorization for the VMT, regulatory alternatives should be negotiated with the State or local permitting authority, particularly if that agency has more stringent requirements.

Several commenters (07, 28, 32, 34, 49, 50, 53, 55, 58, 68, 80, 118, 129, 131) stated the VMT should be regulated under a separate source category due to its numerous unique characteristics, including size, technical and economic feasibility of and availability of controls, type of product

loaded, safety considerations associated with the control systems, and projected declining throughput.

Response: The Agency reviewed all of the comments received related to the potential subcategorization of Alyeska Pipeline Service Company's Valdez Marine Terminal (VMT). The Agency agrees with some of the commenters that this particular facility warrants the establishment of a subcategory for the following reasons: (1) special circumstances require keeping the oil moving (i.e., the limitations on storage capacity and the need to keep the oil moving through the pipeline); (2) periods of extreme bad weather complicate the loading schedule; (3) the amount of throughput loaded at VMT is much higher than other facilities in EPA's data base, dwarfing by several times the throughput loaded at other sources and creating special circumstances regarding the control devices that may be used at VMT; and (4) information submitted by several commenters shows that the volume of oil loaded at the VMT has decreased and will continue to decrease in the future; therefore, infrequent and declining use of VMT's third loading berth is anticipated. Because of these differences, the Agency has established a subcategory for Alyeska's Valdez Marine Terminal for the purposes of both the RACT and MACT standards.

2.4 RACT/MACT

2.4.1 MACT Floor

Comment: One commenter (32) stated that the preamble and supporting record show that MACT was calculated as an overall emission limitation rather than a limit on individual emission points. However, the commenter noted that the proposed standard applies to berths as individual emission points and not as an overall limitation.

Response: The Agency disagrees with the commenter's statement that the standards apply to berths as individual emission points. The standards apply to sources loading marine tank vessels. The emission limitation for a given commodity may be determined over several emission points.

Comment: One commenter (32) stated that the proposed regulations should be changed to permit terminals to demonstrate compliance with the requisite emission reduction standard by a combination of control technology and operating limitations.

Response: The proposed and final RACT standards contain throughput limits that are used in determining the applicability of these standards and would, therefore, allow sources to accept an operational limit on loading to avoid the additional control requirements associated with the RACT requirements. Operational limits could also be employed by a source to avoid having to control emissions under the MACT standards. The proposed and final MACT standards divide the marine tank vessel loading operations source category into two subcategories based on HAP emissions. The final rule used 10 tons/yr of any single HAP or 25 tons/yr of all HAP as the dividing line based on actual HAP emissions. A source demonstrating emissions below these limits and incorporating such limits in their Title V permit would avoid having to install additional control equipment. Additionally, a source could incorporate federally enforceable operational limitations on its HAP emissions and become a nonmajor source under its Title V permit.

Comment: One commenter (10) stated that the MACT floor in the proposed regulation was based on a weighted average of controlled and uncontrolled emission points at 43 facilities that comprise the best performing 12 percent of the terminals emitting greater than 1 ton/yr. The commenter stated that this average should not include the uncontrolled emission points at these facilities, since these points are not among the best performing 12 percent of sources.

Response: The Agency based the calculation of the MACT floors for the final standards on the available data for marine tank vessel loading sources subject to the standards. The Agency determined the overall emission reduction for the sources based on total throughput and the emissions reductions required by State regulations in order to avoid over-estimating the required control of these emissions. The Agency then ranked these sources in order of control. The MACT floors, therefore, represent the average emission limit achieved by the best performing 12 percent of similar sources. In cases where this average control did not approximate a control technology, the source at the 94th percentile was used to determine the MACT floor. (See Docket No. A-90-44, item No. IV-B-2 for additional discussion of the calculation of MACT floors for the final standards).

Comment: Three commenters (23, 30, 32) stated that the interpretation yielding an 88th percentile performance level is the interpretation intended by Congress for determining the MACT floor. One commenter (23) believes the use of an average emission reduction is incorrect because calculating the average of a set of numbers that are already representative of the average performance of each control technology being considered results in a technology that is no longer meaningful. The commenter stated that control technology considered at the 88th percentile would represent the emission control that is achieved in practice for the entire group.

Two commenters (10, 78) stated that if the mean level of control does not correspond to an actual technology, the MACT

limit should be selected from control technologies capable of performing better than the mean. The commenters generally objected to the finding of an uncontrolled MACT floor for the subcategory of sources having loading emissions of less than 1 ton per year.

One commenter (80) stated that the best reading of the Act requires the determination of the MACT floor based on the arithmetic mean.

Response: The Agency considered the approach suggested by the commenter regarding the use of the 88th percentile in calculating the MACT floor level of control. In a final rule published in the Federal Register on June 6, 1994 (59 FR 29196), the Agency discussed its conclusions regarding the best reading of the applicable statutory language. The Agency determined at that time that the use of either the arithmetic mean or the median of the best performing 12 percent of sources was the method intended by Congress for determining the MACT floor. Although the Agency also stated in this notice that it retained discretion within the statutory framework to set MACT floors at appropriate levels for other source categories, the Agency does not believe that comments submitted in response to the proposed rule for marine tank vessels loading and unloading operations have contained any new information or data sufficient to cause the Agency to alter its position as presented in the June 6, 1994 Federal Register notice. The use of the arithmetic mean and median of the best performing 12 percent of sources has, therefore, been used in determining the MACT floors in the final rule.

Regarding the use of the median of the best performing 12 percent of sources in calculating the MACT floor for sources having annual HAP emissions of less than 1 ton found in the proposed rule, the Agency stated in the preamble to the proposed rule that this approach best suits this subcategory of sources. During the development of the proposed rule, the Agency considered regulatory alternatives involving control beyond the

MACT floor level of control. These alternatives are discussed in the preamble to the proposed rule and in the docket (see docket reference II-A-34). The Agency did not receive data in the public comments that would cause it to alter this position on the calculation of the MACT floor for this subcategory, even though the level for this subcategory increased from 1 ton per year in the proposed rule to 10 tons/yr of any single HAP or 25 tons/yr of total HAP in the final rule. The calculation used to develop the MACT floor for this subcategory and the decision not to require control beyond the floor for this subcategory are found in Docket No. A-90-44, Item No. IV-B-2.

Comment: Four commenters (28, 45, 46, 50) stated that the data upon which the MACT floor is based were not included in the proposal or its technical support document. In some states cited as already requiring marine vapor recovery, VOC control systems at many facilities remain in the design stages and, thus, have never actually operated. It is not appropriate to include such facilities that do not have a proven performance history in the population of sources for which the MACT floor is determined. Three commenters (04, 34 71) stated that the floor determination was based on unfounded assumptions regarding the number of facilities that would have to install controls and the number that currently have controls in place. Two commenters (04, 71) noted that EPA did not develop the numerical basis to indicate that 12 percent of the impacted facilities are actually located in the referenced states. These commenters also noted that most State requirements have exemptions including, but not limited to, the loading of low vapor pressure materials, which would dramatically decrease the reduction efficiencies noted by EPA.

Response: The information on control technologies that was available to the Agency during the development of these standards is included in the docket supporting this rulemaking. A memorandum detailing the Agency's calculation of the MACT floors for this source category was included in the docket prior to proposal (docket reference II-A-34 in Air Docket A-90-44). The

data used in calculating the MACT floor was among the information included in the docket. Additionally, the Agency's entire data base (consisting of the data found in the docket for the proposed rule as well as a great deal of data that was not related to the calculation of the MACT floors or impacts of the standards) is in the docket (see Docket Number A-90-44, Item Number IV-A-1) and was made available to interested parties upon request. As stated in the preamble to the proposed rule, the Agency based its calculation of the MACT floor, in part, using State regulations that were effective prior to the development of the proposed rule. Other data on the extent of controls for this source category were not available.

Information submitted by commenters that specifies (by State) the numbers of controlled facilities was incorporated in the data base and was used to calculate the MACT floors for the final rule. These data (see Docket No. A-90-44, item No. IV-D-34 and IV-D-135) indicate that emissions from at least 114 facilities in several States are controlled. These data were combined with information on controls required by State regulations and were used in determining the MACT floors for the final standards (see Docket No. A-90-44, item No. IV-B-2).

Comment: Two commenters (34, 71) stated that the subcategorization scheme the Agency has developed has led to the erroneous conclusion that a floor exists for the source category as a whole. Another commenter (80) stated that the subcategorization of existing sources subject to the MACT requirements in this proposal is arbitrary and not defensible.

Response: As was stated in the proposed rule, the Agency based its decision to establish a subcategory based on size because sources emitting less than 1 ton of HAP emissions per year were likely to be area sources or facilities that would be represented by relatively minimal, episodic emissions. Therefore, there was no need to investigate the existence of a MACT floor for the entire source category. However, if area sources could have been excluded from the calculations, it is not

improbable that the entire source category may have been subject to a controlled floor. In the final rule, additional subcategories have been added for offshore terminals and for the Valdez Marine Terminal. Additionally, the petroleum refineries source category has been expanded to include marine tank vessel loading operations at petroleum refineries. In addition, based on data submitted by commenters, the subcategories based on size now contain sources whose HAP emissions are 10 tons/yr or more of any one HAP or 25 tons/yr or more of total HAP and less than 10 tons/yr for all single HAP and less than 25 tons/yr for total HAP. The MACT floors for all of the subcategories have, therefore, been recalculated based on these changes.

The Agency disagrees that the use of a measure of annual HAP emissions to delineate subcategories is arbitrary and not defensible. In establishing the subcategories, the Agency attempted to provide flexibility to the owners and operators of marine loading facilities located at major sources that load marine tank vessels sporadically or in small quantities. The use of annual HAP emissions as a deciding factor was based on the fact that emissions are a reasonable surrogate for size and, in fact, are likely the most appropriate measure to distinguish large HAP emitters from small HAP emitters, which is relevant to the purpose of Section 112. In addition, the Agency believes that this size distinction will provide relief from requirements to install expensive controls that would provide relatively insignificant environmental benefit.

Comment: Two commenters (34, 71) stated that the floor analysis fails to consider that the floor level of control does not apply to products with low vapor pressures.

Response: In response to this and other comments on low vapor pressure commodities, the Agency incorporated a low vapor pressure limit of 1.5 psia in the final rule. This vapor pressure limit was used when calculating the MACT floors for the final standards.

Comment: One commenter (34) believed EPA should address any requirements for existing sources under Section 112(d) based on cost effectiveness; EPA should reassess the proposed rule and find that there is no MACT floor. As such, any requirements for existing sources should be based on an assessment of cost-effectiveness because such controls would exceed the MACT floor for existing sources.

Response: The proposed standards were based on MACT floor level of control for all sources in this source category except for the VMT source (see discussion of the VMT standards in section 2.1.6 of this document). The Agency has reviewed data submitted by commenters and has included these data in the MACT floor determination for the final rule. Cost effectiveness was evaluated only as a criterion for selecting a regulatory alternative with a level of control more stringent than the MACT floor. For all subcategories except VMT, poor cost-effectiveness values were used as the bases for not requiring more stringent control beyond the MACT floor levels of control. The cost effectiveness of the final standards also was included as a means of determining the impacts of the final rule.

2.4.2 Stringency of MACT/RACT

Comment: Several commenters (38, 79, 80) submitted comments regarding the apparent higher stringency of RACT versus MACT. One commenter (38) noted that the RACT and MACT requirements may, in practice, be identical given that the associated equivalence of 95 percent efficient recovery devices and 98 percent efficient combustion devices is accepted. The commenter opposed lowering the RACT requirements to 93 percent control because it could lead to a lessening of control requirements. Several commenters (10, 38, 79, 80) opposed lowering the RACT control limit because MACT requirements would be less stringent than RACT requirements. One commenter (38) stated that MACT for one HAP should equal MACT for all. Therefore, HAP loaded at an affected facility should be subject to the same levels of control whether or not they are considered generic volatile organic compounds (VOC). Two commenters (79, 80) believed that existing sources subject to both RACT and MACT should be required to meet the 95 percent reduction in the RACT standard. One commenter (10) believes that the MACT standard should: (1) reflect the maximum achievable control efficiency of existing technologies, (2) not allow the exemption of certain commodities from regulation, and (3) be no less stringent than RACT. Three commenters (32, 34, 68) suggested that EPA reduce the RACT standard to 93 percent control to match the stringency of the MACT standard. One commenter (32) stated that the intent of the Clean Air Act was for RACT standards to be set at a more lenient level than MACT standards. This interpretation would also harmonize the two sections because smaller facilities that would not be covered by the MACT standard would be covered by the RACT standard. Under the current version, it is possible that some sources might not be covered by the less stringent MACT standard, yet could be covered by the more stringent RACT standard. The commenter stated that Congress did not intend such a result. One commenter (06) stated that a lower VOC standard should not be allowed as an excuse to operate recovery equipment improperly. The commenter stated that Alyeska

must demonstrate that a recovery system operating at a lower VOC control level would not result in a HAP control efficiency of less than 95 percent across the control system.

Response: The standards developed for RACT apply to the largest marine tank vessel loading sources (sources having an annual throughput of greater than 10 million barrels of gasoline or 200 million barrels of crude oil--approximately 18 sources) and have been developed to comply with Section 183(f) of the Clean Air Act. The MACT standards apply to both the facilities affected by Section 183(f) and to smaller sources. Therefore, the MACT standards are more stringent in a broader sense because a greater number of facilities would be affected. In addition, due to changes in the MACT floor determination caused by additional data received from commenters, the MACT standard appears to have been made more stringent on an individual facility basis by requiring an overall emissions reduction of at least 97 percent (Docket No. A-90-44, Item No. IV-B-2). However, the final standard for this subcategory also reflects a minimum vapor pressure limit of 1.5 psia that does not require control of low vapor pressure commodities. This change in format makes it appear as if the final standards are more stringent. The Agency anticipates that the same control technologies will be used to comply with the final standard as were expected to be used to comply with the proposed standards. The Agency also notes that the promulgated MACT standard is nationally less stringent than the proposed standard because it affects fewer facilities and does not regulate loading of products with vapor pressures below 1.5 psia.

Comment: One commenter (79) suggested lowering the threshold for RACT to make it consistent with New Jersey's adopted RACT rule, which is that facilities exceeding a threshold of 6 million gallons or greater annual throughput of 60,000 gal/d during the ozone season are required to attain a minimum VOC emission reduction of 95 percent by weight. Another commenter (24) stated that State requirements, which were driven by the

need to reduce VOC emissions, may require less than the RACT requirements specified in this rule. For example, Pennsylvania requires a 90 percent reduction in VOC emissions from marine tank vessels. A source that has installed controls to meet this requirement may be unable to meet the 93 percent reduction for MACT, much less the 95 to 98 percent reduction for RACT. The commenter stated that it is unfair for EPA to enter the regulatory arena after sources have spent money to comply with a State rule to reduce VOC emissions and require those sources to control further. One commenter (46) stated that EPA should establish a control efficiency standard no greater than that contained in many existing State rules--90 percent. One commenter (38) recommended that EPA consider a limitation of 2 lb per 1,000 barrels loaded and stated that fugitive emissions should be considered in determining uncontrolled and controlled emissions. One commenter (32) stated that EPA should consider not setting the same RACT standards on every marine tank vessel loading operation in the United States and, instead, allow for a case-by-case determination of whether a particular control technology is "technologically and economically feasible".

One commenter (80) indicated that the throughput thresholds for the RACT standard are too high. The 5 million barrels correspond to 100 tons/yr if it is assumed that the cargo tanks were all gas-free upon loading. The commenter cited an emission factor of 3.4 lbs VOC per 1,000 gallons loaded for loading of gasoline into a cargo tank that has not been purged of the previous cargo. The commenter supported the applicability thresholds as outlined in alternatives III or IV of Table 1 in the preamble to the rule. One commenter (43) recommended a RACT limit of 154 million liters (1 million barrels) of gasoline per year and 3 billion liters (20 million barrels) of crude oil. The higher limit proposed by EPA (5 million barrels/yr gasoline) would exclude all sources in Oregon and may require the issuance of individual RACT determinations. The commenter explained that several other states also have RACT criteria that require

controls at lower throughput levels. This commenter pointed out that excluding terminals below 1 tons/yr HAP emissions may conflict with existing State regulations that apply to small HAP sources. One commenter (36) suggested that the MACT and RACT requirement apply only to facilities that load more than 5 million barrels per year of gasoline or more than 100 million barrels per year of crude oil.

One commenter stated that the threshold for Title I applicability for gasoline terminals should be raised to 15 million barrels or more per year. The commenter supplied cost data for several terminals in California that showed higher costs than reported in the proposed rule.

Response: There are several State regulations that require control of loading emissions from marine tank vessel loading operations. The EPA agrees that there may be instances where the Federal RACT emissions standards could vary from an existing State or local standard. These Federal standards are intended to be representative of reasonably available control on a national basis, and the Agency recognizes that in some areas the standards may not address air pollution control needs of individual states or localities. While States are prohibited from adopting standards that are less stringent than a Federal requirement, they may go beyond the Federal requirement and adopt standards that are more stringent. Certain States use Federal rules as a baseline for their own regulations, and it is at the State's discretion to go beyond the Federal requirement.

The fact that a State currently regulates a particular source that is also the subject of Federal regulation does not predispose those facilities to exemption from the Federal regulation and its requirements. If a source is currently controlling emissions from marine tank vessel loading operations to comply with a State or local rule, they may have sufficient control in place to meet Federal standards as well. In addition, the reporting required for a State rule may also be submitted to fulfill the reporting requirements for these Federal rules given

that all of the appropriate information is contained in the State report. States will likely be delegated the authority for implementing rules for Part 63.

Regarding comments asserting that the RACT level of control found in the proposed rule is more stringent than the level of control found in some State regulations, the Agency notes that the economic analysis performed during its development of the proposed standards has indicated that the proposed RACT emissions reductions are reasonable for the facilities affected by the RACT standards. The Agency also notes that in some of the States where the emissions reduction is lower, the loading limits are either lower than those in the proposed rule or are nonexistent (i.e., more facilities in these States would be affected by the State regulations than under the Federal rule).

Regarding the comments that the emissions reduction required by RACT should be lowered, the Agency believes that the emission reduction requirements for RACT are justified. No commenter has provided sufficient data to indicate that the technology levels used to determine RACT are incorrect or unreasonable.

Comment: One commenter (79) cited current State permit requirements to control emissions by 95 to 99 percent (for gasoline), which is more stringent than the proposed MACT for existing sources, and stated that a 95 percent control level for loading operations is reasonably achievable for existing sources; another commenter (80) concurred and stated that it is equally cost-effective and as technically feasible to achieve 95 percent control rather than the proposed 93 percent. Another commenter (02) stated that control equipment suitable for controlling HAP emissions from marine tank vessel loading operations is widely available and that this equipment is capable of meeting or exceeding the proposed standard.

Response: The proposed MACT standard referred to by the commenter was developed from existing State regulations and is based on a mass emissions reduction calculation that produced a weighted average emission reduction of 93 percent. The

comparable MACT standards contained in the final rule are based on a 97 percent reduction in emissions for HAP having a vapor pressure of 1.5 psia or more. The Agency believes, based on the information provided in the docket, that the final standards reflect the maximum emission reduction currently achieved by similar sources (i.e., MACT floor). The Agency disagrees with the commenters regarding the higher emission reduction efficiency values that were cited and notes that these cited efficiency estimates do not indicate what compounds are being controlled (i.e., the estimates do not indicate the vapor pressure limit incorporated in the requirements). Because of this lack of data, the Agency was not compelled to raise the control level for these sources beyond the 97 percent level contained in the final rule.

Comment: One commenter (78) supported the inclusion of the 93 percent overall reduction as one method of considering the relative volatility of materials loaded and suggested that the concept be retained in the final rule. However, the commenter noted that this provision would be problematic for facilities loading a wide variety of materials because it requires a complex calculation of both past and future projected loading to estimate whether market demand for materials will exist such that high volatility materials loaded will achieve sufficient reductions to account for demand of low volatility materials that need to be loaded. This also occurs because 63.563(b)(4) indicates that partial control is not allowed as a means of achieving 93 percent control. The commenter noted that no averaging time limit is given for the 93 percent compliance requirement and suggested the use of a yearly averaging time. One commenter (10) stated that there is no distinction between Regulatory Alternative A (93 percent) or B (95 percent) in terms of the number of terminals, capital costs, annual costs and cost effectiveness. The commenter recommended that EPA require 95 percent control and not allow sources to exclude certain vessels or process lines from controls to reduce the overall level of control to 93 percent. One commenter (32) stated that there is no valid

reason for allowing some terminals to meet a 93 percent MACT standard while requiring others in the same subcategory to meet 95 percent or 98 percent. One commenter (31) supported the flexibility of the 93 percent cap and suggested that EPA refine the option by having the 93 percent control apply only to substances with a vapor pressure greater than 0.5 psia. Another commenter (06) suggested that 63.562(c) of the final regulation should require 93 percent of overall [emphasis added] HAP reductions.

One commenter (32) stated that the loss in efficiency between the capabilities of the technology operating at 95 percent or 98 percent efficiency and the MACT standard (93 percent efficiency) occurs before the emissions are captured, not after. As a result, it is incorrect to express the MACT standard in terms of captured emissions. The commenter suggested revising the MACT standard to require a 93 percent reduction of all HAP emissions rather than of captured emissions.

Response: The Agency agrees with commenters that a definitive vapor pressure limit is consistent with the proposed MACT floor determination for this source category. The proposed rule with a 93 percent mass limit and no vapor pressure limit is equivalent to the promulgated standard with the 97 percent emissions reduction requirement and a 1.5 psia vapor pressure limit. The Agency incorporated a 1.5 psia vapor pressure limit in the final rule and has recalculated the MACT floors in the final rule to include this approach. This approach clearly defines product categories not requiring control rather than setting a lower, overall MACT floor control level that incorporates no-control estimates for low-volatility products.

Comment: One commenter (61) stated that EPA should word its Title V permit in such a way as to guarantee that the berths not required to have emission capture equipment not be employed if their use would allow a terminal to violate the minimum capture requirement of 93 percent.

Response: The final rule generally requires the control of overall emissions rather than berth-by-berth emission reduction requirements. A terminal is in compliance with the emission reduction standards provided that the overall emission reductions contained in the standards are met, regardless of the control status of individual loading berths.

Comment: One commenter (29) stated that the wording of § 63.562(b) does not reflect the intent of the standard discussed in the preamble. The preamble language involving compliance with the proposed MACT standard is clear and unambiguous; however, the language in the regulation at proposed 63.562(b) does not reflect this preamble discussion and should be reworded. Nowhere in the 63.562 section of the regulation has EPA clearly required either the 95 percent efficient recovery device or the 98 percent efficient destruction device as a mode of the standard. Only the 93 weight-percent captured HAP emissions standard is mentioned at proposed 63.562(c).

On the other hand, at proposed 63.562(g), the Agency does address a 98 weight-percent/95 weight-percent value in relation to captured VOC emissions under the RACT standards. These percentages are misleading relative to the preamble discussion for MACT, hence the MACT standard needs to be further clarified.

For the purpose of clarity and to accurately reflect the preamble discussion, the commenter suggested rewording § 63.562(b) as follows:

"(b) The owner or operator of an affected source under § 63.560(a), MACT standards, shall **comply with one of the requirements described in paragraph(b) (i), (b) (ii), or (b) (iii) of this section.**

(i) Limit the loading of marine vessels to those vessels that are vapor-tight and are connected to the vapor collection system **which is routed to either a 95 percent efficient recovery device or a 98 percent efficient destruction device.**

(ii) Limit the loading of marine vessels to those vessels that are vapor-tight and are connected to the vapor collection system **which is routed to either a 95 percent efficient recovery device or a 98 percent efficient destruction device** unless the owner or operator is loading a vessel with a commodity for which the owner or operator has made a determination, pursuant to Section 63.565(d), that control of emissions from that commodity is not required to meet the emission limit specified in paragraph (c) of this section.

(iii) The loading of nonvapor-tight vessels may occur under the conditions specified in 63.563(a)(2)(iii)(B)."

Response: The Agency agrees with the commenter and has revised the final standards so that the perceived ambiguity has been corrected, although the commenter's approach of linking the standards to vapor collection was not selected. Section 63.563 of the final regulation has been clarified to address the commenter's concerns where such changes are practicable given other changes in the compliance provisions found in the final rulemaking.

2.4.3 Partial Control of Commodities

Comment: One commenter (72) stated that EPA should revise requirements proscribing partial control of a given commodity to incorporate additional flexibility. The commenter suggested either disallowing partial control of a given commodity only during a given loading operation or disallowing partial control of a given commodity at any dock or berth where vapor recovery equipment has been installed.

Another commenter (32) stated that since the penalty for using a particular control once would be a requirement to use that control forever after, the requirements to control all emissions from an emissions stream creates a substantial disincentive to control. The commenter recommended that the relevant language in 63.563(b)(4) be modified as follows: As a condition of compliance with 63.562(c), each control device must operate at an efficiency of at least 95 percent for recovery technologies and 98 percent for combustion technologies. Another commenter (78) suggested that the final rule be modified to allow existing sources with installed control systems in place that do not meet the 95 or 98 percent reduction efficiencies to use those installed controls in the 93 percent overall emission reduction calculation.

Response: The Agency agrees with commenters that partial control of commodities should be allowed provided that the overall emissions reductions are achieved by the source. However, the Agency does not believe that such an approach will be common given the overall average emission reduction used in the final rule and the incorporation of a minimum vapor pressure for controlled HAP. The Agency has removed the requirements for complete control of any given commodity from the final rule and has deferred the determination of what commodities will be controlled at a given facility to the designated authority to be developed as part of the Title V permitting program.

2.4.4 New/Existing Sources and Requirements

Comment: Several commenters (04, 06, 10, 23, 25, 31, 34, 38, 50, 68, 71, 73, 78, 80, 90) stated that EPA should allow new sources to use recovery devices to reduce HAP emissions. The commenters objected to the requirement that new sources use only combustion and must achieve 98 percent control. While this efficiency requirement is appropriate for those sources opting to use combustion, the commenters contend that sources should have the option to recover vapors and achieve a lower efficiency. The commenters noted that the use of recovery devices fulfills EPA support for pollution prevention practices. One commenter (90) stated that MACT less than 98 percent reduction could be allowed under Section 112(d)(3) if there are extenuating circumstances because of the statutory language that states MACT is to be based on the "best controlled similar source." One commenter (68) suggested that a two-tiered (destruction/recovery) standard be adopted for new source MACT, similar to that set for RACT. The recovery, new source standard should be set at 95 percent. Two commenters (23, 31) stated that EPA should allow new sources to use recovery devices, even if they may only achieve a 95 percent performance level, because the recovery of pollution is hierarchically superior to the treatment (or, in this case, destruction) of pollution pursuant to the Pollution Prevention Act. Further, product recovery is inherently an attractive cost-savings measure to the petrochemical industry, which would soften the impact of the retrofit cost. One commenter (71) believes that "best" control is clearly control by vapor balancing-condensing or absorbing which achieves a high level of reduction without generating new, secondary emissions and which recovers the emissions rather than destroying them. Particularly for low vapor pressure materials, the environmental benefit of recovering 3 percent less HAP emissions is easily outweighed by the environmental damage associated with burning 98 percent of the emissions rather than recovering 95 percent. The criteria pollutants generated and the emissions involved in obtaining or

manufacturing supplemental fuel and replacement product clearly make a recovery control system the "best" similarly controlled source. One commenter (04) stated that allowing sources to recover emissions is consistent with EPA policy decisions made relative to the HON, whereby EPA allowed sources far better terms in the emissions averaging provisions if the source achieved reductions through pollution prevention measures.

One commenter (38) opposed the adoption of condenser control technology as new source MACT because the commenter does not believe that condenser technology is a reliable form of control.

Response: The Agency has decided that the proposed new source MACT standard of 98 percent reduction should be finalized. The Agency believes that the best controlled similar sources in all subcategories except the VMT subcategory are those that reduce HAP emissions by 98 percent. The EPA understands that, at least for gasoline loading, it appears to be possible to construct a recovery system that meets the 98 percent reduction requirement. The Agency does not intend to prevent the use of recovery devices for new sources, but intends that such devices meet the 98 percent reduction threshold. The Agency has included alternative provisions for vapor balancing. These requirements do not require control of emissions that are reduced by the use of a vapor balancing system. However, the Agency has required owners or operators where vapor balancing systems are used to comply with the provisions pertaining to the vapor collection system, ship-to-shore compatibility, and vapor tightness of marine tank vessels. The Agency believes that such provisions for vapor balancing systems are appropriate because such systems typically result in near-zero emissions during loading, recover the emissions rather than destroy them, and reduce secondary emissions.

Comment: One commenter (31) stated that the proposed rule did not mention what controls would apply following modifications of existing marine tank vessel loading sources. The commenter stated that the modification of existing marine tank vessel

loading and unloading operations is covered by the 112(g) rule and will be subject to "existing source" MACT as defined by the Marine tank vessel loading standards.

Response: The General Provisions of 40 CFR Part 63 describe the applicability of new source requirements to modified sources. The final rule has incorporated a cross reference to these General Provisions to assist the regulated community in determining the applicable requirements.

2.4.5 Area Sources

Comment: One commenter (10) stated that a lack of information to determine adverse effects to human health or the environment does not justify not addressing area sources. Both the nature and scope of HAP emitted from marine tank vessel loading operations and the relatively large number of facilities (approximately 1,200) that may be considered area sources require that the impact of these area sources be further investigated.

Response: It is not the intent of this rulemaking to imply that area sources will not be considered in future regulatory activities. However, the Agency is unwilling to go beyond the MACT floor of no control for many of the subcategories for major sources. It is likely a similar conclusion would be reached concerning requirements for control of area sources. Moreover, Section 112(c)(3) requires a finding that a particular category of area sources presents a threat of adverse effects to human health or the environment (by such sources individually or in the aggregate) warranting regulation under Section 112. The Administrator has not made such a finding with regard to this category of area sources.

Comment: Three commenters (50, 75, 34) supported EPA's decision not to regulate area sources at this time.

Response: The Agency is in agreement with these commenters. The final rule (as in the proposed rule) does not require controls for area sources.

2.4.6 Recovery

Comment: One commenter (34) stated that the short compliance deadlines would potentially impact the technology chosen for complying with the vapor control requirements. As outlined in the proposed rule, vapor control can be achieved by recovery techniques that capture the displaced vapors or by destructive techniques that combust the vapors. Destructive techniques are simpler to install, as well as initially less expensive than recovery methods. With a short compliance deadline, facilities will probably opt for the destructive control techniques to aid in shortening the time needed to install the equipment. As a result, the short compliance periods will prejudice facilities to use destructive control techniques, a result that is contrary to EPA's pollution prevention goals.

Response: The Agency has extended the compliance date for affected sources, regardless of control technology employed, to 4 years for terminals effected by MACT requirements and 3 years for terminals effected by RACT requirements, with a 1-year waiver provision available for RACT sources.

Comment: One commenter (123) stated that the 95 percent requirement will probably discourage recovery, particularly for crude oil loading because the economics of recovery are not supportive of the technology until an emission reduction approaching 90 percent due to the investment necessary to recover the light ends. Even at 90 percent the economics are marginal.

Response: The Agency agrees with the commenter that in some cases site-specific factors at a given terminal may result in the selection of a nonrecovery control technology. However, the Agency notes that because these standards are technology driven and because the selected format of the standards is based on emissions reduction and not an equipment standard, the owners or operators of a source required to reduce emissions may select any control technology provided that the source achieves the standards.

2.4.7 Incineration

Comment: One commenter (39) stated that confusion exists as to what defines each of the combustion devices identified by the Agency. The commenter suggested that EPA define each combustion device and any and all applicable requirements in the final rule.

Response: The Agency agrees with the commenter regarding possible confusion associated with the proposed monitoring requirements and test methods and has streamlined these sections in the final rule. Separate requirements are included for combustion devices and flares, and the term combustion device is defined in section 63.560 of the final rule. In addition, there are provisions for owners or operators of affected sources utilizing other control devices to obtain approval for alternative test methods and monitoring protocols.

2.4.8 Format of the Standards

Comment: One commenter (36) objected to the use of a mass emissions reduction standard because compliance is difficult to measure, and the composition of gasoline constituents will change due to reformulations over the next few years, therefore creating lower volatility fuels and reduced total emissions resulting from loading operations. The commenter recommended that EPA adopt for both MACT and RACT a definitive numerical standard instead of the percentage of emission reductions. The standard for MACT should be a concentration of HAP in the exhaust stream of 6,300 ppm for new facilities (98 percent reduction) and 22,000 ppmv for existing facilities (95 percent reduction). The standard for RACT should be a concentration of VOC in the exhaust stream of 6,300 ppmv for new and existing terminals. Two commenters (20, 22) stated that emission standards for vapor control systems could be established for specific commodities in units of milligrams of HAP (or VOC) per liter of product transferred. Another commenter (36) suggested that EPA eliminate the use of a percentage of mass emissions reduction as a compliance standard and should instead mandate compliance with a definitive numerical standard, such as parts per million by volume of emissions concentration in the exhaust stream of a vapor control unit.

Two commenters (26, 34) noted that the limit of 1,000 ppmv on emissions on a dry basis corrected to 3 percent oxygen does not make sense for a recovery device and is only applicable to a combustion device. The commenter recommended that this sentence either be revised to a maximum vent concentration of 1,000 ppmv or correlated to mg of VOC's per volume of product loaded, as is the case in California standards. These comments also apply to Sections 63.563(b)(3)(ii), (iii), and (iii)(B) and 63.565(c)(ii) and 63.566(b)(1)(ii).

One commenter (78) supported the decision not to propose a mass per unit loaded alternative. The commenter stated that a standard based on removals using specified control or recovery

technologies is much preferred for simplicity to the regulated community.

Response: The Agency agrees with the commenter that there are various formats by which to structure the compliance test. The Agency has limited data from which to develop definitive mass rate requirements. Therefore, the Agency maintained the approach developed for the benzene transfer NESHAP (40 CFR Part 61, Subpart BB). This approach requires an efficiency determination during the last 20 percent of compartment loading (i.e., test during the highest concentration of pollutants in the emissions stream).

Regarding the comment about the correction to 3 percent oxygen, the Agency notes that the final rule requires Method 25A for determining and/or calculating efficiency. Method 25A does not require a correction to 3 percent oxygen.

2.4.9 Regulation of Two Berths within VMT

Comment: Several commenters (07, 08, 32, 53, 55, 58, 129, 131) supported Alyeska's proposal to install controls on two berths and to implement Federally-enforceable operational limitations on a third berth, which would have limited and temporary use due to declining throughput. One commenter (32) stated that because the VMT should be placed in a separate subcategory and because the MACT floor for this subcategory would be zero, regulatory alternatives above the floor must be considered. The commenter stated that the incremental costs and benefits of controlling VMT Berth 3 should, therefore, be considered when evaluating requirements for a vapor control system on Berth 3. The commenter recommended that the MACT standard require operating limitations on that berth.

The commenter (32) stated that Federally enforceable limitations on use of berth 3 would provide an adequate mechanism to ensure that the VMT will achieve compliance with applicable emission standards for three reasons: First, a limit on loaded quantity would correspond to the justification for relying on an operational limit. Second, the use of Berth 3 would not easily correlate to an emission reduction ratio because both total loading and loading over Berth 3 are declining. Finally, loaded quantity is easily quantifiable, and data on loading are already collected and are readily available, resulting in a readily enforceable loading limit.

Three commenters (06, 08, 62) were opposed to the exemption from control of operating berth No. 3 at the VMT. One commenter (62) requested that Alyeska be required to meet the 93 percent requirement and that emergency and upset conditions be calculated as part of this 93 percent. One commenter (06) stated that if Alyeska could demonstrate that the incremental cost effectiveness of controlling a third berth at VMT is disproportionate relative to the incremental cost-effectiveness values used in the EPA's MACT analysis then it may be appropriate to allow an uncontrolled berth. However, this berth would have to be subject to

throughput limits consistent with the values used in the cost effectiveness analysis and to stringent throughput monitoring requirements, including some form of non-resettable flow meter on the crude oil pipeline leading to the berth. Any violation of the regulation throughput limit should require that controls be installed within a specified period of time, regardless of berth throughput.

One commenter (67) noted that most North Slope oil field production forecasts understate future production prospects and that the Agency should not relax emission reduction standards based on these declining throughput data. The commenter also stated that the North Slope operations are so profitable--even at current oil prices--that there are no financial barriers to requiring full vapor recovery at Alyeska's VMT.

One commenter (52) noted that, in making a decision to regulate the third berth, EPA should ideally consider many factors, including those outside of the air program. The commenter does not believe that control of the third berth is the best use of capital funds given the scope of the environmental challenges facing the North Slope oil field, pipeline, and marine tank vessel loading terminal. The commenter suggested that if the third berth is not controlled in the final standards, EPA should provide for re-evaluation of the standards in the event of increased throughput from the North Slope oil field.

One commenter (32) suggested that, as part of approving Alyeska's proposed vapor control strategy, EPA should adopt a rolling 12-month average for measuring compliance with the RACT requirements. By using this approach, EPA would be able to determine on a monthly basis whether the annual loading averages delivered over Berth 3 are consistent with the throughput caps on the berth.

Response: The Agency has determined that the Alyeska Pipeline Service Company's (APSC's) Valdez Marine Terminal (VMT) is a separate subcategory (see discussion in Section 2.3.4 of this document). For this subcategory, the MACT floor is no

control, as one commenter stated in Section 2.3.4 of this document. However, as pointed out in the preamble to the proposed rule and by several of the commenters, the cost effectiveness for controls beyond the MACT floor is not prohibitive and is lower for the VMT than for other terminals in the source category. Therefore, the Agency has elected to require controls more stringent than the MACT floor for this subcategory (see Docket No. A-90-44, item No. IV-B-2).

In adopting this more stringent option for this subcategory, the Agency also recognizes that the same factors that contributed to the establishment of a subcategory also affect the selection of MACT (i.e., declining throughput, shortened construction season). Some commenters initially noted that the cost of controlling VOC may be high relative to the benefits of controlling VOC at a remote site in an Arctic ozone attainment area. Additionally, some commenters initially stated that the benefits of controlling HAP would not appear to justify the costs. However, the Agency has also considered later comments from the APSC, the State of Alaska, the Prince William Sound Regional Citizens Advisory Committee (a local citizens group) and private citizens in determining MACT/RACT for the VMT. These commenters agreed that a Federal rule mandating control of primary emissions at the APSC was acceptable. After careful consideration of the costs, the environmental impacts and the comments, the Agency decided that MACT for this subcategory was control beyond the level of the MACT floor (see Docket A-44-90, Item Number IV-B-2).

Because the VMT would be above any Title I applicability limits, the Agency reviewed both RACT and the selection of technology more stringent than the MACT floor for MACT (see Docket No. A-90-44, item No. IV-B-2).

The Agency concluded that both RACT and MACT require control of the primary berths (two berths) but allow uncontrolled emissions at the remaining berths; throughput at the uncontrolled berths would be gradually reduced to a minimal level (to allow

for maintenance) above which controls would be required. The average cost effectiveness of both VOC and HAP control at the primary berths was approximately \$1,000 and \$7,000 per Mg of pollutant reduced respectively. The Agency rejected control of the emissions at the remaining berths due to the high incremental cost effectiveness of approximately \$3,000 to \$6,000 per Mg of VOC and \$28,000 to \$55,000 per Mg of HAP and the limited time (estimated at 4 years) that a significant amount of pollution will be emitted from the uncontrolled berths. If at any time actual throughput from the uncontrolled berths are greater than that permitted under the regulations, emission control equipment must be put in place for the affected uncontrolled berth. In addition, controls at the VMT must be in place by December, 1997, six months earlier than at other sources.

Comment: One commenter (32) noted that there still will be the occasional need to use Berth 3 after it is retired from routine operations (either during maintenance on one of the other berths or due to malfunctions.) Therefore, Alyeska should be permitted to load using an operationally limited berth in cases of emergency or for short periods as necessary for maintenance. The commenter requested that EPA authorize the limited use of Berth 3 at the VMT during maintenance and malfunctions for a period not to exceed 40 days of loading time in any year. Such a limit should also be exclusive of any emergency needs.

Response: The Agency agrees that some limited use of the uncontrolled loading berths would be necessary following the implementation of the strictest emissions limits under the final rule. Therefore, the final rule allows the continued use of the uncontrolled berths for maintenance beginning in 2000 provided that the uncontrolled throughput limits (which take affect in 1998) established in the standards for this subcategory are adhered to by VMT.

2.4.10 RACT and MACT in Same/Separate Rules

Comment: One commenter (29) stated that attempting to understand the regulatory language in this proposal has been very difficult due to the intermix of the requirements for a RACT standard with the requirements for a MACT standard. The commenter recommended that the Agency separate these two rules in the final promulgation and place the MACT standards in Part 63, Subpart Y and the RACT standards in a different part/subpart.

Response: The Agency has streamlined the final regulation to make it more user friendly. The Agency does not believe that there is a need to separate the RACT and MACT rules given that they basically only differ in applicability.

2.4.11 Parallel With The HON

Comment: One commenter (29) noted that since the control devices, monitoring, performance testing, and other requirements contained in this proposal are related most directly to identical or similar requirements in the HON, the Agency should establish similar requirements to the HON in Subpart Y so that owners or operators are confronted with a consistent set of requirements for similar operations.

Response: The Agency agrees with the commenter's basic goal of making rules consistent where possible. The Agency has used approaches finalized in the HON rule where possible.

2.4.12 Alternative Standard

Comment: Two commenters (22, 36) stated that the requirement of reducing the vent to 1,000 ppmv is extremely severe and represents 99+ percent removal efficiency. One commenter (22) suggested a limit of 10,000 ppmv total hydrocarbon measured as propane and averaged over the test period. Another commenter (36) recommended that EPA adopt a definitive numerical standard for both RACT and MACT standards instead of the proposed percentage of emission reductions. The standard for MACT should be a concentration of HAP in the exhaust stream of 6,300 ppm for new facilities (98 percent reduction) and 22,000 ppmv for existing facilities (95 percent reduction). The standard for RACT should be a concentration of VOC in the exhaust stream of 6,300 ppmv for new and existing terminals. Also, EPA should specifically include "vapor balancing" as an appropriate means of controlling vapor emissions in the text of the final regulations.

Response: The Agency has provided as much flexibility in the final rule as possible given the underlying data available to the Agency. The commenter correctly states that the 1,000 ppmv concentration limit may only be achievable at facilities with gasoline vapors. The 1,000 ppmv limit was derived from test data from a facility controlling gasoline vapors. The Agency wanted to provide an alternative to the percent emission reduction requirements but had test data from only one facility from which to derive an alternative. Although the commenter has provided alternative concentration limits to the proposed 1,000 ppmv limit, no additional test data was provided to demonstrate the effectiveness of the alternative concentration limits. The limits imply a certain average inlet concentration, but no data were provided to substantiate the recommendations. Therefore, the Agency has retained the 1,000 ppm limit in the final rule for gasoline loading. The Agency has also included alternative compliance provisions in the final rule whereby an owner or operator of an affected source could, subject to the

Administrator's approval, demonstrate compliance with the emissions reductions standards at an alternative concentration limit during an initial performance test and employ continuous emissions monitors to show compliance thereafter. Sources required to reduce emissions also have the option for all control devices to establish a baseline VOC concentration limit during the performance test.

The Agency agrees with the commenter's request for requirements to address vapor balancing as a means of controlling emissions from marine tank vessel loading. The Agency has included requirements that do not require control of emissions that are reduced by the use of a vapor balancing system. However, the Agency has required owners or operators where vapor balancing systems are used to comply with the provisions pertaining to the vapor collection system, ship-to-shore compatibility, and vapor tightness of marine tank vessels. The Agency believes that such provisions for vapor balancing systems are appropriate because such systems typically result in near-zero emissions during loading, recover the emissions rather than destroy them, and reduce secondary emissions.

2.5 COMPLIANCE SCHEDULE FOR TITLES I AND III

Comment: Many commenters (04, 23, 24, 28, 29, 30, 31, 34, 36, 39, 41, 42, 47, 50, 51, 56, 68, 71, 75, 78, 102, 103, 104, 106, 107, 108, 109, 111, 112, 113, 115, 117, 119, 121) stated that the length of the compliance periods for RACT and MACT are not adequate. A number of these commenters stated that these rules do not allow adequate time for all affected marine loading and unloading operations to come into compliance. Three commenters (34, 75, 107) stated that compliance concerns are not limited to the installation of equipment; the lead time for facilities to meet permitting and safety approvals from permitting authorities and the U.S. Coast Guard within the limited compliance periods must also be considered. Potential delays could be associated with State permitting requirements, where other MACT rules, operating permits, and public review could further delay permit approvals. These administrative and permit review requirements will add to the time needed to comply with the provisions as proposed. Up to 6 months have been required to obtain safety certification and approvals from the Coast Guard for the vapor control system. Based on the proposed rule, the commenters believe that a significant number of facilities may need to curtail operations while waiting for construction completion, permit approvals, and safety certifications. Moreover, commenters stated that there are a limited number of contractors experienced in installing control equipment for marine tank vessel loading facilities. Given the limited availability of such contractors to work on numerous projects at once, terminals will need to wait for an experienced contractor to become available. Efforts to rush numerous facilities into compliance using inexperienced contractors would raise safety concerns. The commenters suggested that EPA show that the RACT requirements under Section 183(f) are exceeding (or, at 93 percent, matching) the proposed MACT requirements and grant a longer compliance period, at least matching the MACT compliance period of 3 years. The commenters also suggested that

if EPA promulgates the Section 112 rule in 1995, the Agency should grant all facilities subject to the control requirements 4 years from the promulgation date to comply.

Commenters also noted that over 2,000 vessels would likely require the installation of retrofit equipment to be compatible with marine terminals that have installed vapor collection equipment and emission controls. Commenters also noted that their experience with State regulation of marine tank vessel loading facilities indicated that, even with the smaller number of facilities regulated by individual states, deadlines of 2 years were routinely missed, and States were forced to grant extensions. In general, commenters believed that the 2-year deadline for RACT standards and the 3-year deadline for MACT standards are unrealistic and essentially impossible to meet, especially given the large number of sources that will need the services of a limited number of control equipment design and installation contractors.

Other commenters (36, 71, 110, 111) proposed a 4-year compliance date for MACT and RACT. One commenter (110) supported a 4-year compliance date for RACT and believes that the MACT standards are not defensible. One commenter (109) favored a 1-year extension available upon a source's determination that they were unable to meet the compliance date.

Three commenters (04, 23, 34) recognized the statutory constraint of a 2-year compliance period under RACT but believed that EPA has the discretion to extend this period. One commenter (23) stated that EPA's analysis of the retrofit activities fails to adequately consider the number of skilled engineering and construction firms experienced in doing such retrofits and believed that EPA has the discretion to relax the 2-year compliance period under the criterion of "reasonably available" by considering the supply of experienced engineering and construction personnel. The commenter requested a 3-year compliance period for RACT standards, with the allowance for sources to apply for an additional 1-year extension. Two

commenters (04, 34) suggested that Congress intended that the EPA address only those sources located in ozone nonattainment areas by locating the requirements of Section 183(f) in the part of the Act that concerns ozone nonattainment. The EPA should at least allow those sources located in attainment areas a longer compliance period. For MACT, one commenter (23) recognized the statutory constraint of a 3-year compliance period under MACT, but believed EPA has the discretion to set policy that would not unduly disrupt the operation of the marine tank vessel loading industry. Therefore, the commenter urged EPA to allow a 4-year compliance period. The commenter added that EPA should recognize that the 1-year extension application under the General Provisions to 40 CFR Part 63 is a cumbersome procedure with too many onerous, enforceable requirements in a 1-year period to serve as a realistic alternative. If the automatic extension is not granted, the EPA should streamline and relax the requirements for obtaining a 1-year extension under the MACT standards of the proposed rule. One commenter (105) stated that the extension language found in the General Provisions of 40 CFR 63.6(i) was sufficient for facilities requiring additional time for compliance. Another commenter (116) stated that since the standards are based on "achievable" control technologies, then the compliance dates as proposed should stand unless individual terminals require additional time to achieve compliance. If needed, this additional time should be provided through State and local regulations under the Title V permit program. Commenters (105, 108) also suggested a phased-in approach or a determination that "compliance" at the 3-year deadline could be interpreted to mean having contracts in place. However, one commenter (116) opposed the use of a phased-in regulatory approach that is related to a source's attainment/nonattainment status.

One commenter (32) pointed out that the Preamble says the deadline for compliance with MACT is 2 years after promulgation, yet the proposed regulation states that the deadline is 3 years after promulgation.

One commenter (78) recommended that EPA provide ways to allow at least a 3-year compliance timeframe for any marine facility required to install vapor control equipment. This commenter requested that EPA clarify in the preamble to the final rule that an extension is available when necessary.

One commenter (103) provided options whereby the Agency could extend the compliance date. The commenter's preferred options limited the number of facilities having to comply with the standards by eliminating the Section 112 rule and restricting the scope of the Section 183(f) rule to facilities located in nonattainment areas. The commenter also suggested that the Agency could interpret the "effective date" to mean that progress must be made towards achieving compliance at a future "compliance date." The commenter suggested that the Agency examine the approach used in a Section 211 rulemaking (59 FR 33047). Commenters also suggested phasing-in compliance so that Section 183(f) facilities in ozone nonattainment areas would be required to comply first, followed by Section 183(f) facilities in ozone attainment areas, then by smaller facilities subject to the Section 112 standards only. Commenters also suggested the deferred promulgation of these standards until 2000 so that contractors and vendors could gain sufficient expertise and capacity to satisfy the demand for control equipment. Another commenter (108) also favored delay of the standards, the establishment of additional subcategories, and a phased-in compliance schedule for the different subcategories as a means of improving the ability of sources to comply with the standards in the given time frame.

On March 8, 1995, the Agency reopened the comment period to solicit additional comments on the issue of whether the compliance periods for the RACT and MACT regulations should be extended. Numerous commenters indicated support for the extension of the compliance periods, generally reiterating the views expressed in earlier comments. They also indicated that EPA has the requisite legal authority to extend the compliance

periods, noting particularly Section 183(f)'s language concerning "reasonably available" technology, the imprecision of the term "effective date," and EPA's general authority to grant a 1-year waiver from MACT compliance under Section 112. Some commenters also noted that greater environmental benefits can be obtained by granting longer compliance periods. The commenters stated that longer compliance periods can sometimes allow for better designed, more robust, safer, and more advanced technologies. The commenters also noted that, in this instance, an extended compliance period could result in greater use of recovery technologies and less use of incineration. One commenter (139) provided a list of several marine loading terminals in California that had installed emission control equipment and indicated that almost all of the projects required a minimum of 3 years to complete.

Response: The Agency agrees with the commenters that permitting and safety approvals from permitting authorities, potential delays associated with State permitting requirements, the potential lack of skilled engineering and construction firms, and the history of facilities unable to comply with existing State regulations compel the Agency to extend the compliance times for both the RACT and MACT rules.

Therefore, the Agency recognizes the need to provide a 3-year compliance date for Title I facilities to achieve full compliance with the standards; facilities are required to meet commencement requirements within 2 years after promulgation. Further, the agency granted a blanket 1-year waiver for facilities subject only to the MACT requirements. This waiver recognizes the limited personnel to design and begin construction of all the facilities in the first 6 to 18 months after promulgation and enables facilities having the highest emissions to comply first and the smaller facilities second, as resources become available after the anticipated initial period of activity.

The EPA shall allow sources regulated under Section 183(f) 3 years to be in full compliance with the emission control requirements promulgated under Section 183(f). In addition, sources may request a waiver of up to 1 year to achieve full compliance with the requirements if they can show that special circumstances exist that require additional time for compliance with the RACT standards. The EPA believes that this result is consistent with Section 183(f). Section 183(f) requires the application of "reasonably available" control technology that considers costs, any nonair quality benefits, environmental impacts, energy requirements, and safety factors. Section 183(f) also requires that the effective date of any regulation shall be no more than 2 years after promulgation of such regulations.

The overwhelming evidence received by the Agency indicates that most, if not all, of the sources that must install emission control devices cannot do so within 2 years. States that have attempted to establish such a requirement have been forced to provide waivers to the regulated sources. In addition, given the relative scarcity of qualified contractors and the permitting and other requirements necessary for such construction, it is clear that the emission control technologies required by this rule will not be "reasonably available" within 2 years of the promulgation of this rule. Moreover, the information provided to the Agency indicates that a 2-year deadline may force regulated sources to install equipment that is less reliable and may cause safety concerns. Given the emphasis that Congress put on safety in this regulation and the fact that the Coast Guard will need to review such installations prior to operation, a 2-year deadline seems, based on the evidence, to be contrary to Congress's broad intent and may result in conflicts with Coast Guard requirements. Also, the 2-year deadline may force sources to install incineration devices, rather than recovery devices, because incineration devices are more straightforward to install, though they can cause more secondary pollution. Given the Agency's and Congress determination to encourage pollution prevention and other

programs to lessen pollution, EPA believes that forcing the use of incineration is not an environmentally beneficial approach.

The Agency is requiring that regulated sources undertake a continuous program of construction or that these sources enter into a contractual obligation to undertake and complete a continuous program of construction within 2 years after promulgation. Based on comments received on the proposed rule, the EPA believes that these actions can reasonably be achieved within 2 years of promulgation.

The EPA has in the past provided sources with reasonable time to complete actions required by the Clean Air Act. For example, in a rulemaking published on June 27, 1994 (59 FR 33042), EPA allowed regulated fuel/fuel additive manufacturers 6 years to complete certain testing required under Section 211. Section 211 requires that "requisite information" be provided within 3 years of promulgation. However, due to Agency concerns that the extensive testing requirements and limited laboratory facilities would mean that the regulated parties would not be able to complete testing in 3 years, the Agency allowed 6 years for completion of "Tier 2" testing but required "Tier 1" data and other materials to be provided within 3 years.

Moreover, EPA believes that the imprecision of the term "effective date" could also provide EPA with the ability to allow full compliance later than 2 years after promulgation. The effective date of this regulation will be the date of publication in the Federal Register, which obviously meets the 2-year requirement of the statute. Though it can be argued that the language of Section 183(f) may imply that the term "effective date" actually is referring to the date of source compliance, the distinction between "effective dates" of regulations and "compliance dates" is an important one and has been a clear part of administrative procedure for many years. See, e.g., Section 112(i)(3); Natural Resources Defense Council v.

Environmental Protection Agency, 22 F. 3d 1125, 1138 (D.C. Cir. 1994).

The EPA believes that the 3-year deadline in particular is appropriate because the terminals that will be subject to the RACT standards that are not yet controlled (based on commenter data) represent some of the largest of the terminals controlled under this final rule. It is expected that these terminals should be able to install control measures within the three year time period allotted under the final RACT standards. However, should additional time be required, there is an available 1-year waiver that would provide a total of 4 years to be in complete compliance with the final standards. The Agency believes that most RACT terminals will be able to meet the emissions reduction requirements contained in the final standards within the three years following the promulgation date. The Agency estimates that only 8 terminals subject to the RACT requirements are not presently controlling emissions to the level specified in the standards. These terminals are among the largest terminals in the U.S., and can reasonably be expected to have in-house staff capable of assisting in the design and installation of control technology. Furthermore, the Agency is aware that some of these terminals are already designing control equipment in anticipation of these final RACT requirements.

The EPA shall allow existing sources regulated under Section 112 4 years to be in full compliance with the emission control requirements promulgated under Section 112. Sources must generally comply with MACT standards under Section 112 within 3 years of promulgation. However, Section 112(i) of the Act specifically allows EPA to provide sources with a waiver of up to 1 year to achieve full compliance with the requirements if they can show that the additional period is necessary for the installation of controls. The Agency agrees with commenters who stated that standards containing similar compliance dates for a large number of sources would result in numerous facilities competing for a limited number of experienced contractors in

order to meet the standards at the same time. Several of these commenters suggested a staggered compliance schedule for the sources affected by the standards. The Agency notes the information supplied by commenters indicating that many source would require more than 3 years to install the required control equipment given the limited number of contractors experienced in installing control equipment in marine loading facilities and the lead time needed to meet permitting and safety requirements from permitting authorities and the U.S. Coast Guard.

The Agency agrees with the commenters that many MACT sources would probably require 1-year waivers if there was a three-year compliance date for MACT sources in the final rule. The Agency notes that these sources are typically smaller than the sources regulated under RACT, and would not be as likely to have in-house staff capable of assisting in the design and installation of control technology. Therefore, the Agency believes that the sources controlled under Section 112 that are not controlled under Section 183(f) should receive a waiver for 1 year. The Agency believes that this total of 4 years is sufficient time for the estimated 20 sources presently uncontrolled to design and install control technologies sufficient to meet the MACT standards. The Agency believes that the staggered compliance schedule (i.e., 3 years for RACT terminals and 4 years for MACT terminals) coupled with the reduced number of terminals required to control emissions under the final rule should alleviate commenters' concerns about the scarcity of qualified installation consultants and vendors. This extended schedule is also expected to address concerns regarding permitting delays.

The Agency is providing the Valdez Marine Terminal with 30 months to be in full compliance with these regulations. The Agency believes, per its discussions with Alyeska, that this extension provides sufficient time to comply with the promulgated rule.

Comment: One commenter (29) stated that the compliance date for existing sources is appropriate, but clarifications are

needed to § 63.560(d)(1) [as well as to § 63.567(b)] regarding when to file an initial notification. The MACT applicability thresholds would allow 2 years to comply with the existing source MACT standards. The wording of the rule at 63.560(d)(1)(i) and (ii), however, is confusing. Proposed 63.560(d)(1)(i) and (ii) appropriately provide that compliance be achieved in "3 years," not "2 years." The preamble discussion, however, does not reflect the "3 year" compliance timing of the CAA at CAA Section 112(i)(3)(A). It appears that the Agency intended to trigger the 3-year compliance date for an existing source after such source exceeded the 1 Mg/yr of HAP threshold required at proposed 63.560(b). The commenter concurred that this is an appropriate means of establishing compliance, particularly because most sources will not exceed the 1 Mg/yr of HAP emissions on the exact date that this rule is promulgated.

Two commenters (29, 30) proposed that the Agency eliminate 63.560(d)(1)(i), renumber the subsequent paragraphs, and modify the last paragraph for new sources so that the wording is consistent with the wording in the remaining paragraph for existing sources. The regulated community then will have a clear understanding of the requirements. Therefore, 63.560(d)(1) should be modified as shown below.

(d) Compliance dates.

(1) MACT standards compliance dates.

(i) Any source that exists as of the effective date of the standards that subsequently exceeds the applicability thresholds specified in § 63.560(b) shall be subject to existing source requirements and must be in compliance with the provisions of this subpart within 3 years from the month in which the source exceeded the threshold levels.

(ii) Any source affected under § 63.560(a) constructed or reconstructed after the date of promulgation shall be subject to new source requirements and must be in compliance with the provisions of this subpart upon startup.

Response: The Agency agrees with the commenter that the requirements for new and existing sources could be clarified and has done so in the final rule.

Comment: Several commenters submitted comments specifically applicable to the compliance schedule for VMT.

Seven commenters (06, 07, 32, 34, 115, 118, 131) stated that the compliance schedules are not sufficient for VMT to comply. Two commenters (06, 07) stated that the compliance schedule is too aggressive because VMT must install the largest vapor control system ever undertaken, handling large volumes of explosive vapors. One commenter (06) urged EPA to consider the means by which three construction seasons (ending September, 1997) could be allowed for the VMT to come into compliance with the provisions of Section 183(f). Another commenter (52) urged EPA to consider the shortened construction season when developing standards for Alaskan marine tank vessel loading operations.

Two commenters (32, 34) stated that EPA should exercise its discretion to regulate the VMT only under Section 112 in order to provide a reasonable and safe period for Alyeska to design and construct a vapor control system for Berths 4 and 5. One commenter (32) stated that a number of vapor control projects (for projects much smaller than VMT) completed in the last 2 years required 24 to 48 months to permit, design, construct, and begin operations. Projects much smaller than the proposed VMT vapor control system have required considerably more than 24 months from final rule promulgation to the compliance deadline. The EPA Administrative Record shows that a number of terminals in the United States that have installed vapor control equipment did not install their equipment within a 2-year time frame.

Five commenters (08, 09, 55, 58, 78) stated that the compliance schedules for the VMT are adequate and should not be changed. One commenter (09) strongly disagreed with any time extension on completing the VMT vapor recovery system, noting that the entire pipeline and terminal were built in 4½-years.

Furthermore, those residents who are concerned about long-term health are not willing to compromise their health another summer; 1996 is still too long from now. Four commenters (08, 55, 58, 78) stated that the Regulations under Title III will result in a 3-year compliance timeline, rather than the 2-year time frame proposed under Title I. Because of the short construction and maintenance season in Valdez, they believe that the 3-year timeline is more appropriate.

Response: As stated previously, the Agency has extended the compliance time for VMT to 30 months. The Agency believes, per its discussions with the Alyeska Pipeline Service Company, that this extension is sufficient time for the VMT to comply with the promulgated rule.

Comment: Two commenters (34, 75) stated that another problem with the near-term deadline for a final rule, combined with the short term compliance deadline, is that many vessels from foreign locations will not be equipped with appropriate vapor control equipment, thereby creating safety and distribution problems. As a result, marine tank vessels will be turned away, or they may attempt cargo transports with unsafe equipment. Obviously, more time is needed for foreign-flagged vessels to achieve the compliance requirements for this rule.

Response: The compliance schedule has been extended, and the Agency considers the schedule to allow adequate time for retrofit of vessels.

Comment: Two commenters (59, 60) recommended that implementation of the regulations be delayed until the U.S. Coast Guard can confirm that due consideration has been given to the safety aspects of controlling vapors other than crude oil, benzene, and gasoline. Chemical tankers differ from crude or product tankers. The constraints set forth in this proposed rule do not readily apply to the loading operations aboard these types of vessels.

Response: Pursuant to the language of Section 183(f) of the amended Clean Air Act, the Agency has worked closely with the

U.S. Coast Guard during all phases of the development of these standards. The final rule has been reviewed by the Coast Guard and addresses their safety concerns.

2.6 COMPLIANCE, PERFORMANCE TESTING, AND MONITORING

2.6.1 Compliance

Comment: One commenter (12) strongly suggested that the final regulation address the loading cycle startup and shutdown periods. Because the marine loading operation is a batch process, a time interval needs to be incorporated to allow for the normal control response for these process changes. The EPA has similar language and logic for process control response in the Refinery MACT preamble.

The recovered vapors will have varying BTU content and flow rates depending upon several factors: loading rate, product Reid vapor pressure (RVP) and temperature, and vapor growth during the loading cycle. Because of these variations, at least a one, 5-minute interval is required to allow for adjustments to the auxiliary fuel or quench air to stabilize the stack temperature during any loading cycle of 3 hours or less, or a maximum of 1 hour if the loading cycle is more than 3 hours. In addition to the normal startup and shutdown periods (except for excursions during startup), shutdown that meets the criteria for a malfunction specified in the General Provisions to 40 CFR Part 63 should also be included in the final rule. The temperatures during these startup and shutdown periods should not be included in the average temperature requirement for the loading cycle.

Response: Regarding concerns about excursions during loading cycle startup and shutdown periods, the Agency believes that short-term excursions should not affect the source's ability to meet the emissions standards. Monitoring of parameters (VOC concentration, temperature, pressure, flowrates, etc.) occurs at 15-minute intervals and is averaged over 3 cycles or 3 hours (depending on the baseline parameter established in § 63.565); it is not anticipated that a 5-minute excursion, as mentioned by the commenter, would prevent the source from meeting the baseline parameter. The Agency would like to note that the compliance violations related to exceedances of baseline parameters that these commenters are concerned about have been deleted from the

final regulation and have been replaced with requirements to perform an unscheduled inspection of the control equipment and monitoring device(s) when exceedances of the baseline parameters occur. The inspection is a component of the operation and maintenance plan specifically related to the control device and monitoring equipment developed to ensure that pollution control equipment and monitoring equipment functions properly and that variances of the control equipment and monitoring equipment are minimal [see § 63.562(e)]. The Agency also notes that the frequency of this component inspection should be determined based on the degree to which the improper operation of the component affects the efficiency of the control system, whether or not the component can be inspected while the control device is in operation, and the frequency with which the component must be repaired or replaced. The Agency has provided for a vendor-recommended inspection schedule (standard operating procedure) or an applicable schedule published in a technical publication regarding the operation of the control system that serve as a guide for establishing this part of the operation and maintenance plan.

As specified in § 63.6(e)(3) of the General Provisions, all sources in this source category have been waived from the requirement to develop a startup, shutdown, and malfunction (SSM) plan. While the Agency has not required sources to develop a SSM plan, a source may choose to voluntarily develop a startup, shutdown, and malfunction plan if they have a concern regarding the source's ability to meet the standards due to HAP being emitted during startups, shutdowns, and malfunctions.

Comment: One commenter (34) recommended that the final rule include provisions for a maintenance allowance when facilities need to conduct repairs to the loading berth or vapor control systems or are faced with unique compliance circumstances not otherwise addressed in this regulation. Such a variance would allow EPA to make case-by-case assessments, thus allowing facilities to continue operations, either at the berth being

repaired or, on a limited basis, at a stand-by berth at the facility not equipped with vapor controls. Further, a variance mechanism could provide a facility with a compliance extension when the compliance period available cannot be achieved due to limited equipment availability or other delays beyond the control of the facility owner or operator. Current regulations in New Jersey and California provide for such variances.

Response: The Agency agrees with the commenter that maintenance allowances may be requested and obtained. Since the State regulations do not apply during periods of repair (as mentioned by the commenter), the Agency has included language pertaining to a maintenance allowance in Sections 63.562(b)(5) and (c)(6) of the final rule whereby an owner or operator of an affected source may apply to the Administrator for a maintenance allowance. Additional provisions for relief are found under the General Provisions in 40 CFR Part 63. Under these General Provisions, each facility has the option to voluntarily develop a SSM plan that prescribes actions the facility will take if it is operating under conditions of malfunction (40 CFR 63.6(e)(3)), as discussed above.

The Agency agrees that additional time will be required for MACT sources to comply with the standards. The compliance date has been extended to four years after the date of promulgation. However, in doing this, the Agency has in essence already granted a one-year waiver per the General Provisions. No additional extensions of the compliance date are available for MACT sources.

Comment: One commenter (32) stated that, of the technologies available to recover liquid hydrocarbons, the Cool Sorption process would have the highest HAP and VOC recovery efficiencies and the lowest costs to build and operate. The Cool Sorption technology provides about 96 percent HAP and 79 percent VOC removal from the ship vapor collected in the two or three berth configuration. Another commenter (32) stated that SORBATHENE adsorption systems have a 99 percent HAP removal efficiency, and a VOC removal efficiency ranging from 32 to

79 percent. The capital cost of these configurations is relatively high. Also, the impact of hydrogen sulfide and other ship gas contaminants on activated carbon adsorbent performance can be significant. As a result, configurations based on the adsorption process are not practical for the VMT.

One commenter (34) stated that Section 63.564(c) of the proposed regulation (requirement for a vacuum pump for carbon bed regeneration) is unnecessary given the performance requirements for the system. The commenter believes that EPA should follow a performance standard approach for these regulations and avoid specifying technology requirements.

One commenter (32) stated that processes based on single stage refrigeration systems fail to achieve the target of 95 percent HAP removal efficiency, and they provide a very low overall VOC removal efficiency. Two stage refrigeration systems satisfy the 95 percent HAP removal efficiency but only provide about 50 percent overall VOC removal efficiency. All refrigeration based processes have the added risk of requiring a means to inhibit ice formation or providing a freeze-thaw design. The commenter's poor experience with glycol dehydration operations to remove water vapor reflects serious technology risks associated with this process. Refrigeration technology poses high process uncertainty due to freezing of the chiller because of poor dehydration and because of the remaining high moisture content of the collected ship vapor. Another commenter (38) noted the reliability of condenser/refrigeration units is highly suspect due to possible needs to defrost both the intercooler tubes within the condenser and the refrigeration equipment providing the cooling (if a dedicated refrigeration unit is applied). Vent condensers using cooling provided by unit or plant-wide refrigeration systems are often subject to downtime unrelated to the process being controlled. The commenter stated that the use of vent condensers as final control devices is unlikely to consistently provide what the reference control techniques call for and poses significant reliability problems.

Therefore, the commenter does not believe vent condensers should be an approved approach to provide emissions control under the Hazardous Organic NESHAP (HON) - National Emission Standards for Hazardous Air Pollutants. The commenter also stated that refrigeration units depend on the use of chlorofluorocarbons (CFC's), hydrochlorofluorocarbons (HCFC's), or ammonia (NH₃). The CFC's and HCFC's will not be in great supply in the coming years, and the use of pressurized NH₃ may lead to highly dangerous releases if NH₃ lines rupture during operation.

Response: The promulgated rule specifies performance standards rather than equipment standards or work practice standards. Therefore, facilities may select any technology that meets the performance standards. The Agency agrees with the commenters that, where possible, the Agency should refrain from specifying technology. However, while not specifying control technologies to be used, the Agency has included monitoring requirements and test methods for several types of control technologies currently used to control emissions at marine tank vessel loading operations. Requirements for developing and seeking approval of alternative monitoring protocols and test methods for alternative control technologies are also included in the final rule. For carbon bed regeneration systems, the Agency has specified that desorbed hydrocarbons must be vented to the on-line carbon bed.

Comment: One commenter (22) stated that elevated, open-flame flaring is the most cost effective pollution control technology for many applications, such as large emergency releases of combustible gases and vapors from petroleum refining and chemical manufacturing plants. It is a technology that certainly has a place in the overall plan to protect the environment. However, the commenter stated that open flame flaring is not a recommended technology for Marine Vapor Control applications because it appears to be inconsistent with the

intent of the proposed marine tank vessel loading and unloading emission standards.

Response: The Agency does not prohibit the use of flares in the promulgated standard. However, flares must be operated in accordance with standard operating and maintenance requirements specified in Section 63.11 of Subpart A of the General Provisions and the promulgated standards (see Sections 63.563(b)(5), 63.564(f) and 63.565(e) of the final rule).

Comment: One commenter (123) stated that any attempt by State or local authorities to regulate the normal operation of properly functioning pressure/vacuum (P/V) valves is inconsistent with U.S. Coast Guard authority and safety regulations. The commenter endorsed the statement that such inconsistent State or local regulations are "not likely to satisfy the objectives of the Act and would therefore be disapproved by the Administrator." However, some California districts have already had regulations approved that, under their interpretation of the regulations, prevent the normal operation of the P/V valves, even when no cargo or ballast operations are taking place. The commenter has recently paid settlements for Notices of Violations with one district for this type emission for liftings that occurred while at anchor or underway to the dock, even though the effect of the liftings did not cause a violation of the 95 percent recovery requirement.

A limitation of deliberate venting or purging of tanks, except under special conditions such as the need to enter tanks for emergency repairs, within the affected air shed might be appropriate as separate rule making if there is evidence of substantial impact from this practice.

Response: The Agency agrees with the commenter, and the final rule is consistent with the Coast Guard requirements for P/V vents.

2.6.2 Performance Testing Requirements and Procedures

Comment: Four commenters (23, 31, 36, 73) stated that the 75-day advance written notification and submission of a test plan proposed in 63.566(a) is too long and should be reduced to 30 days as set forth in the HON, 63.102(a). Another commenter (12) stated that the 75 days in § 63.566(a) should be changed to 60 days to be consistent with § 63.7(b) of the final General Provisions to 40 CFR Part 63 published in the Federal Register on March 16, 1994. These commenters also requested a period of 60 days or 90 days to report the performance test results rather than the proposed 30 days, consistent with § 63.7(g) of the General Provisions to 40 CFR Part 63, to allow adequate time for report preparation by contractors, review, and final compilation of the report by the owner/operator. One commenter (31) also stated that § 63.566(a) should not require the use of "registered mail" to submit the results. The General Provisions to 40 CFR Part 63 do not require registered mail (also the result of comments), which costs more and takes longer to arrive than first-class mail. Express services (such as Federal Express) or personal delivery should also be permitted; personal delivery is common for documents delivered to a State permitting authorities. In the future, facsimile transmission or other similarly speedy methods might be used. These other methods are permitted by the General Provisions at 40 CFR 63.1(a)(11), 59 FR 12431 (March 16, 1994). Section 63.566(a) should be amended by deleting the reference to registered mail. The General Provisions to 40 CFR Part 63 will then govern, thus allowing a variety of delivery methods.

Response: The notification time, report submittal time, and report submittal method(s) in the final rule are consistent with the General Provisions except in cases where additional time is allotted for report submittal or certain reports are not required under this final rule (e.g., the deadline for the initial notification requirements has been extended). The use of

delivery services and devices other than registered mail has also been incorporated into the final rule.

Comment: One commenter (32) stated that § 63.565(c)(2), as proposed, requires performance testing to include the last 20 percent of loading of a tank or compartment. When loading large, multicompartment vessels, the stability of the vessel often requires partial and sequenced loading of the compartments, such that filling the last 20 percent of a compartment may not be a single, continuous operation. The commenter recommended that the wording be changed as follows: **(proposed revisions in BOLD)**

(2) All testing shall be performed to include the last 20 percent of loading of a tank or compartment **vessel**.

Response: The Agency is requiring testing during the last 20 percent of compartment loading to ensure that control equipment can handle peak concentrations. The Agency, therefore, disagrees with the commenter's suggestion.

Comment: Two commenters (59, 60) stated that the maximum loading pressure indicated in § 63.563(a)(3) of the proposed rule will have an adverse effect on loading rates. The proposed rule requires "0.8 times the highest setting of any vessel relief valves." Maximum pressure settings assume a common tank system. Parcel tankers have individual tanks with separate vent and pressure/vacuum (P/V) valves for each tank. Operational pressures should be based on the P/V setting for individual tanks and not on the highest or lowest valve setting on the vessels.

Further, three commenters (69, 70, 78) stated that the proposed procedures for pressure testing in § 63.565(a)(1)(i), which would require that each product tank be pressurized with dry air or inert gas to not less than 1.0 psig and not more than the pressure of the lowest relief valve setting, is problematic because many of the tank barges that would be affected by the proposed rule are equipped with a 1.0 psig pressure/vacuum (P/V) relief valve. These valves begin to relieve at a pressure below the rated setting and are typically at their full rated relief capacity at the stated relief pressure. Thus, the technical

requirement to lift at 1 pound, but not more than 1 pound, will be very difficult, if not impossible, for these barges to meet. They recommended that this provision be modified to require a test pressure of 80 percent of the lowest P/V valve setting. This recommendation is consistent with U.S. Coast Guard regulations (46 CFR Part 39), which require that barge vapor recovery systems be designed and operated so that the pressure at any location on the barge is 80 percent or less of the P/V valve setting. A tightness test conducted at the reasonably anticipated worst-case operational condition is more practical than a test performed at an unanticipated condition. One commenter (35) agreed and stated that any vapor-tight testing should incorporate these standards, not create a new set of standards in addition to them.

Response: The Agency agrees with intent of this comment. Therefore Section 63.565(c)(1) of the final rule has been revised to address the commenter's concerns. The pressure test requires that each product tank be pressurized with dry air or inert gas to not more than the pressure of the lowest pressure relief valve setting. The U.S. Coast Guard has reviewed these changes and any safety concerns with these requirements have been addressed.

Response: The final rule incorporates additional flexibility regarding the selection of monitoring parameters and monitoring approaches by providing other options in Sections 63.563 and 63.564 of the final regulation. The Agency has provided additional options for monitoring parameters where commenters submitted the necessary information to allow the Agency to judge the suitability of a give parameter for this source category. The Agency notes that a monitoring parameter that is appropriate for another source category (e.g., the synthetic organic chemical manufacturing industry for which the hazardous organic NESHAP was written) may not be appropriate for the marine tank vessel loading source category.

In addition to the additional choices for monitoring parameters added to the final rule, owners and operators of sources subject to the emissions standards may use alternative monitoring parameters and monitoring approaches upon application and approval by the Administrator per § 63.564(j) of the regulation.

Comment: Seven commenters (26, 31, 32, 34, 36, 71, 74) stated that values for operating parameters that define compliance should not be established based on the values from the initial performance test. The initial performance test will establish parameters that correspond to control device operation in an as-new condition, which will likely exceed the standard, and the procedures in the proposed rule allow for no variations in performance based on normal variations during a single loading operation and normal deterioration. One commenter noted, for example, that carbon adsorbers operate over a range of efficiencies during various stages of the loading operation and are affected by variations in cargo concentrations; carbon bed performance also degrades over time. For these reasons, facilities are designed with extra capacity to assure continuous compliance. Another commenter (26) cited an example from test data in the docket that, if used as an initial compliance test, would establish a VOC reduction requirement of 99.4+ percent,

markedly higher than the 95 percent required by the standard. Another commenter (74) noted that the rule as proposed calls for establishing an average comprised of high, low, and intermediate values from the performance test; one of these values would be above the average and would, therefore, be out of compliance. Two of these commenters pointed out that the final HON rule includes "Transfer operations - reporting and recordkeeping for performance tests and notification of compliance status," in 63.126(c) provision for "each parameter monitored ... the owner or operator shall establish a range for the parameter that indicates proper operation of the control device." The EPA should include the HON provision in the final rule for marine tank vessel operations and delete the need to maintain the same operating parameters as attained in the initial performance test. The commenters recommended that the performance test be performed over a range of product loading rates and that the test data be used to establish a parameter value or range of values that correspond to compliance levels.

One commenter (26) questioned what exactly constitutes the "baseline VOC outlet concentration" (§ 63.653(b)(3)(i)(A)); for example, for a given set of test data, would it be the low value, the high value, some type of average value, or a time dependent value? Clearly, the inherent variability of the outlet VOC concentration means it cannot be used as a reliable indicator of compliance with a standard that calls for 95 weight percent reduction over a major portion of the loading operation.

Specific recommendations for revisions to the rule:

1. Delete the last sentence at 63.564(b)(2) and add words allowing a facility to determine the "VOC outlet concentration" from an examination of the performance test. A facility should be allowed to conduct performance tests at varied loading rates and determine from this data the VOC concentration at the loading rate representing 95 percent efficiency. Any future VOC concentration above this value would represent noncompliance, while a value below it would represent compliance (Commenter 74).

2.6.3 Establishing Operating Parameters

Comment: Many commenters felt that the proposed regulation does not provide enough flexibility for choosing parameters to use for parameter monitoring and test procedures to establish limits for these parameters that determine compliance. Two commenters (44, 68) stated that the rule should be flexible to allow operators to propose alternative monitoring schemes. One commenter (68) noted that §§ 63.563(b)(3)(v) and 63.564(f) require continuous monitoring of temperature and specific gravity of absorber systems. The commenter does not believe that these are necessarily the appropriate parameters for all absorber systems or that it is always necessary to continuously monitor these parameters. One commenter (44) stated that paragraph 63.564(f) should specify scrubber liquid flow rate as an acceptable parameter to monitor instead of liquid temperature and specific gravity and that 63.564(f) be rewritten to allow alternative monitoring parameters. More monitoring options would eliminate the need for additional approval steps otherwise required by 63.564(g).

Six commenters (04, 25, 34, 56, 73, 78) do not believe that there is any justification for mandating the use of CEM's [§ 63.563(b)(3)(i)] to monitor carbon adsorber performance by continuous measurement of VOC concentrations at the exhaust of each unit. The requirement to compute VOC concentrations every 5 minutes is unnecessary to demonstrate compliance and is not consistent with the monitoring intervals for other control devices. As allowed in the HON, CEM's should be a monitoring option, but parameter monitoring should also be acceptable for demonstrating compliance. The source should be allowed to establish appropriate parameters for monitoring carbon unit performance during the performance test. These parameters would then be used to ascertain compliance. One option is a monitor of vacuum on the carbon bed in the recovery cycle (i.e., the vacuum would certify that vapors are being extracted and recycled from the carbon bed during the recovery cycle following adsorption).

Conversely, one commenter (79) noted that the control device parameters and monitoring requirements set forth in Subpart Y are virtually the same as required by the NJDEP. These parameters include (but are not limited to): (1) installing, calibrating, maintaining and operating a continuous flow indicator to record the vent flow, or (2) a continuous emission monitor system (CEM) to monitor VOC concentrations at the exhaust of a carbon adsorber unit or the exhaust stream temperature on a refrigerated condenser unit. Based on the commenter's experience, these parameters are appropriate and enforceable. Additionally, the records that are to be maintained and the requirement that they be maintained for a minimum of 5 years are the same requirements as set forth by the NJDEP.

One commenter (22) agreed with the Agency that continuously monitoring an important process parameter of vapor processing devices may provide some assurance that the device is operating within the proposed emission standard. However, monitoring any single operating parameter (e.g. vent temperature, vent hydrocarbon concentration, firebox temperature, etc.), while useful as a guide to warn of potential problems and to gauge efficient operation, is not sufficient to assure compliance with the proposed emission standard. Failure to attain the specified value of the monitored process parameter would be cause for investigation, but a violation of the emission standard could not be determined without further data.

One commenter (38) stated that boilers and heaters should be required to establish an appropriate destruction and removal efficiency (DRE) through initial performance testing, regardless of the unit's heat duty. Testing should establish firebox exit temperature at 1200°F or greater and carbon monoxide (CO) concentration in the outlet stack gas at under 100 ppm(v), on a dry basis. Operational parameter monitoring should include firebox exit temperature and oxygen (O₂) and CO stack gas concentrations for the entire time of operation of the process.

2. To allow loading rates, etc., to be varied during the performance test, the EPA should delete the words "that meets the emission limits" from § 63.564(c)(2) and from any other section that uses those or similar words. (Commenter 31)

3. Add definitions of "baseline outlet VOC" and "baseline temperature" to 63.561 as follows:

"Baseline Outlet VOC Concentration" means the VOC concentration at the outlet of a control device that indicates the required VOC or HAP removal is being achieved. "Baseline Temperature" means the temperature that indicates that a control system is achieving the required VOC or HAP removal. This temperature may be a maximum, a minimum, or a range as appropriate (Commenter 71).

4. Delete the language in Section 63.564(c)(2) that requires operating parameters to remain the same until a new performance test is conducted (Commenter 32).

Four commenters (32, 38, 34, 41) saw no reason for an upper limit on the temperature of a combustion device as required in Section 63.563(b)(3)(ii) because higher combustion temperature indicates increased control efficiency. The commenters stated that EPA should change the requirement to operate combustion devices within +/-5.6°C to a requirement for incinerators to achieve a minimum operating temperature and residence time when captured vapors are being combusted by the incinerator.

The commenters recommend the following wording for Section 63.563(b)(3)(ii):

(ii) **Thermal or catalytic incinerators (deleted "Combustion device, except flare")**. For sources complying with Section 63.562(c), (d), or (g) through use of a **thermal or catalytic incinerator**, the control device shall achieve at least a 98 percent destruction efficiency during the initial performance test. In addition, the owner or operator shall establish as an operating parameter the baseline temperature using the procedures described in Section 63.565(c). Operation of the affected source **more than 5 percent (Fahrenheit scale) below the baseline temperature, as monitored in Section 63.564(c)(1), when captured vapors are being incinerated (deleted "in deviation of the baseline**

temperature, as monitored in Section 63.564(c)(1), in excess of $\pm 5.6^{\circ}\text{C}$ (10°F "), shall constitute noncompliance with the standard.

Response: The Agency continues to believe that parametric monitoring can be used to determine compliance if sufficient test data are available to establish the relationship between control performance and the associated parameters. The Agency carefully reviewed all the comments and determined that the docket contains no test data establishing the relationship between marine tank vessel loading emissions control and parametric monitoring. Because of the intermittent nature of marine tank vessel loading operations (i.e., wide variation in parameter readings is systemic for any process that cycles on and off routinely), the Agency has decided not to use parametric monitoring to determine compliance.

The Agency has eliminated the requirements directly linking parametric monitoring for marine tank vessel loading operations with compliance. Instead, the Agency has included a requirement for an operation and maintenance (O & M) plan to ensure proper operation of the air pollution control equipment and monitoring equipment. The O & M plan contains an inspection schedule for each component of the control and monitoring equipment. The "compliance" language that appeared in § 63.563 of the proposed rule has been removed. In its place, the final rule contains provisions that require an unscheduled inspection and corrective actions when continuously measured operating parameters exceed the applicable baseline parameters established during a performance test.

Comment: Two commenters (25, 41) stated that there is no justification for a lower limit on the temperature of a condenser. Therefore, the EPA should remove this end of the limit because lower condenser temperature indicates increased control efficiency.

Response: The EPA agrees with this comment. The final rule, therefore, does not require the establishment or monitoring

of lower temperature limit when a condenser is used to control emissions from marine tank vessel loading operations; an upper limit only is established for the baseline temperature .

2.6.4 Monitoring Requirements

Comment: One commenter (38) stated that average parameter values should be determined hourly and based on data gathered every 15 minutes. Compliance should be based on hourly averages.

Response: The Agency agrees with the commenter and has incorporated 15-minute data collection requirements in the final rule where applicable. Hourly averages or averages over a cycle (based on the same cycle as the performance test) are calculated and 3-hour or 3-cycle averages are then calculated for comparison to the baseline operation parameter.

Comment: One commenter (20) inquired how minimum operating temperatures can be established for boilers exempted from the performance test requirements.

Response: In the final rule, boilers with design heat input capacity of 44 MW or less where the vent stream is the primary fuel, boilers with design heat input capacity of 44 MW or greater, and boilers subject to 40 CFR Part 266, Subpart H are exempted from the requirements to establish baseline operating parameters for monitoring purposes.

Comment: Two commenters (06, 46) stated that EPA should require an annual or biannual source test to confirm the compliance status of control devices. One commenter (06) requested such scheduled testing for vapor combustion equipment, especially on larger incineration devices at marine tank vessel loading operations subject to the RACT requirements. Currently, § 63.564(c)(2) requires a performance test only when the operating temperature is established or changed. Variations in burner performance can cause mixing problems that lead to lower destruction efficiencies that may not show up on a temperature monitor. One commenter (46) stated that, as proposed, Section 63.565(b)(3) is unclear on the scheduling requirement for marine tank vessel performance tests and suggested it be revised as follows:

A performance test shall be conducted annually and properly documented for this pressure measurement by,

recording the pressure every 5 minutes while the test marine tank vessel is being loaded, and recording the highest instantaneous pressure that occurs during the test loading cycle.

Response: The Agency disagrees with the commenter regarding the need for annual performance testing. The commenter did not provide cost/benefit information supporting the request for additional testing requirements. The Agency believes that the ability to show compliance with the standards once a year during an annual compliance test do not justify the costs associated with annual tests (typically \$11,000 per facility in labor costs alone). Under the final regulation, after an initial performance test, either CEM's or parametric monitoring of the control system is required to indicate on-going compliance with the standards. Further, an operation and maintenance plan developed by the owners or operators of the affected source to assure proper operation of the control systems must be followed. Although nothing in the final standards precludes an owner or operator from conducting annual or periodic performance tests in addition to the (required) initial performance test, the Agency does not believe that the costs of requiring annual tests are warranted given the monitoring and compliance provisions (outlined above) contained in the final rule.

Comment: Two commenters (32, 71) noted that Section 63.564(c)(1) of the proposed regulations requires monthly accuracy checks of the temperature monitor with a monitor traceable to the National Institute of Standards and Technology. One commenter (32) stated that annual checks are sufficient for the following reasons:

1. Temperature measurement instrumentation is a mature and proven technology;
2. Experience shows that temperature measurement is reliable;
3. Calibration drift of temperature monitors is not significant;

4. Normal failure mode is burnout of the sensing element, which results in loss of temperature signal and would be promptly repaired;

5. No benefit is gained by monthly calibration; and

6. Monthly reference checks would jeopardize safe work practice because of need to access heights on the side of the incinerator stack, potentially during inclement weather.

Also, the language in Section 63.564(c)(1) should reference thermal or catalytic incinerators, rather than combustion devices.

Two commenters (71, 88) recommended replacing the requirement for monthly thermocouple checks with a requirement for dual thermocouples, which are to be repaired within 5 days if the temperature difference between them at operating conditions exceeds an amount established during the performance test. One of these commenters stated that the quality assurance provisions presented in the proposed rule were unnecessary and would, in fact, harm the devices, reduce the accuracy of the device, and could present a safety risk.

Response: The Agency agrees with the commenter. The final rule requires that owners or operators monitor and record continuously the presence of the flare pilot flame. The flare must meet the criteria specified in Section 63.11 of the General Provisions. Annual (instead of monthly) checks of the accuracy of thermocouples are required in the final rule.

Comment: One commenter (71) noted that proposed 40 CFR Part 64 will impose enhanced monitoring requirements on applicable RACT rules. However, the proposed Part 64 would not apply to MACT rules because each MACT rule will consider required monitoring enhancements during its development. The proposed Subpart Y has done that, but because it also implements RACT, there may be confusion about the applicability of Part 64. The Agency should clarify, preferably in 63.560 but possibly in the preamble, that Part 64 requirements do not apply to MACT or RACT facilities affected by Subpart Y.

Response: The Agency has revised the applicability of enhanced monitoring requirements as part of its thorough revision of the monitoring requirements and compliance provisions of the final rule. The Agency agrees that the requirements of 40 CFR Part 64 should not apply to sources only affected by Section 183(f) of the Act.

Comment: One commenter (20) asked why the proposed VOC monitoring data for carbon adsorbers has to be corrected to 3 percent oxygen and 0 percent water? Another commenter (22) stated the practice of correcting the vent stream to a given oxygen concentration is done for combustion systems to compensate for the amount of excess air drawn into the device by the combustion process. This correction is done for combustion equipment in-order to "place" each device on an equal basis for comparison. The commenter does not believe it makes sense to correct the vent from any noncombustion system (recovery systems) to an arbitrary oxygen concentration.

Response: The final rule requires the use of Method 25A for these measurements. Method 25A does not require correction to 3 percent oxygen and 0 percent water.

2.6.5 Emission Estimating Procedures

Comment: Two commenters (06, 38) noted that EPA is proposing to allow either actual source test data or API emission factors to calculate compliance with the 93 percent overall MACT control level. Actual emissions data should be the preferred method for determining emission factors, especially with multi-component liquids like crude oil. It should be clarified in the regulation and the preamble that actual test data acquired from EPA-approved test methods must be used when available and that API factors are to be used only when actual test data is not available.

Response: The Agency agrees with these commenters that actual emissions data are preferable to the use of emissions factors. Clarification has been included in the final rule stating that actual emissions data collected using EPA test methods will be used unless shown to misrepresent the emission stream/control device combination. The rule does not require emission testing to determine emission factors because no one has demonstrated that the improvement in accuracy merits the high costs associated with testing the vessels. Because of the complex emission characteristics of this source category, the Agency has provided sources with the flexibility to select the emission estimation factors and emissions estimates to be used at the source provided that these emission estimation factors and emission estimates are based on test data or on generally accepted industry standards of measurement or estimating techniques for maximum operating conditions at the source.

Comment: Five commenters (32, 34, 37, 39, 79) objected to the requirement to determine aggregate HAP emissions from loading on a calendar quarter basis. The commenters believe that the determination of compliance should be based on a calendar year efficiency requirement, with quarterly reporting that will allow the permit authority to monitor a facility's performance. The commenters stated that EPA did not take into account seasonal product changes, variations in crude and product slates, and

turnarounds that can impact these facilities. The commenters stated that an annual average period is necessary to provide operational flexibility and noted that quarterly reporting during the calendar year would provide the permit authority with the necessary information to monitor a facility's performance.

One commenter (32) stated that compliance should be based on annual averaging of HAP emissions and that a baseline period of either 2 or 5 years prior to implementation of controls should be established. For purposes of determining compliance with 40 CFR Part 63, Subpart Y, the commenter recommended that Section 63.565(d)(1), (d)(2), and (d)(3) be changed as follows:

- (1) The **average** amount loaded in the baseline years shall be multiplied by the appropriate emission factors and percent HAP to determine ~~[deleted "aggregate"]~~ initial HAP emissions from loading ~~[deleted "per calendar quarter"]~~ during the baseline years. The equation to be used is as follows:

$$H_T = \sum Q_i \times F_i \times P_i \quad (i = 1 \text{ to } m)$$

where:

H_T = **Average** total HAP emissions, ~~[deleted "Mg/quarter"]~~ **Mg/year**

Q_i = **Average** quantity of commodity loaded (per vessel type) **in the baseline years**, liters

F_i = **Average** emission factor **in the baseline years**, Mg/liter

P_i = **Average** percent HAP **in the baseline years**

m = number of combinations of commodities and vessel types loaded **during the baseline years**

- (2) The equation to calculate the quantity of HAP emissions controlled is as follows:

$$H_C = Q_j \times F_j \times P_j \times CE \quad (j = 1 \text{ to } n)$$

where:

H_c = Quantity of HAP emissions controlled, [deleted "Mg/quarter"] Mg/year (rolling 12-month period)

Q_j = Quantity of commodity loaded during the year (rolling 12-month period) (per vessel type) while connected to control device, liters

F_j = Emission Factor, Mg/liter

P_j = Percent HAP

CE = Removal/destruction efficiency of control device, as calculated in Section 63.565(c) (7)

n = Number of combinations of commodities and vessel types loaded during the year (rolling 12-month period)

- (3) The HAP control efficiency of the source during the year (rolling 12 month period) shall be calculated by dividing the controlled quantity of HAP by the [deleted "estimated quantity of uncontrolled emissions"] HAP emissions during the baseline year as follows:

H_p = Source HAP control efficiency, percent

H_c = Quantity of HAP emissions controlled, [deleted "Mg/quarter"] Mg/year (rolling 12-month period)

H_T = Total HAP emissions, [deleted "Mg/quarter"] Mg/baseline year

For periodic reporting on a quarterly basis, this commenter suggested that EPA retain the language proposed in Section 63.565(d) (1), (2), and (3) but clarify that compliance is determined on an annual basis, not a quarterly basis.

Response: The Agency agrees with the commenters that the compliance determination should be based on an annual basis. However, the change in the format of the final standards (i.e., no control for HAP having vapor pressures less than 1.5 psia, 97 percent control for HAP having vapor pressure of 1.5

1.0 percent resolution generate quite acceptable results. Having to purchase new instruments to meet a tighter specification is an unnecessary and very costly burden. A 1.0 percent resolution should more than meet the requirements of the system.

Response: The Agency agrees with the commenter. The final rule refers to Performance Specification 8 for CEM resolution requirements. This performance specification was finalized on December 15, 1994 (59 FR 64593).

Comment: One commenter (32) questioned why § 63.564(c)(2) references the test methods in § 60.614 to determine the removal efficiency of devices, while the balance of § 63.565 references the test methods in § 63.564 and in Appendix A of Part 60. In addition, the commenter stated that it would be more clear to refer to Section 63.565 for specific test methods and procedures for this subpart, rather than referring to Appendix A, where there are many test methods and procedures. This reference to Section 63.565 for test methods and procedures should be incorporated into Section 63.564(b)(2), (c)(2), (d)(2), and (f)(2). The commenter requested that wording in Section 63.564(c)(2) be changed as follows:

- (2) Using the test methods and procedures in Section 63.565, the owner or operator shall determine the destruction efficiency of the combustion device....

Response: The references in the test methods have been revised in the final rule to incorporate the commenters recommended approach.

Comment: One commenter (80) was concerned that Method 25A will not be able to quantify VOC emissions; it quantifies emissions of TOC. The commenter stated that the distinction is very important when testing thermal oxidation systems because the USCG requires the inlet air to vapor stream ratio to exceed 1.5 times the upper explosive limit (for safety reasons). This ratio is normally accomplished using natural gas injection. The commenter recommended using Method 25 to speciate methane or

using a carbon scrubber with Method 25A to allow the determination of VOC by subtraction.

Response: The Agency agrees with the commenter. The final rule makes this distinction in applying the two methods.

Comment: One commenter (32) recommended the following changes in Section 63.565(c)(5): (**revisions in bold**)

The VOC mass [**deleted "emitted"**] at the [**deleted "inlet and outlet"**] **sampling points** of the combustion or recovery device during each testing interval shall be calculated as follows

In addition, the meaning of C_{VOC} should be changed to:

C_{VOC} = VOC concentration (as measured) at the [**deleted "exhaust vent"**] **sampling points of the combustion or recovery device**, parts per million by volume (ppmv), dry basis.

In Section 63.565(c)(6), commenter (32) requested the wording be changed to:

The VOC mass emission rates at **sampling points** [**deleted "the inlet and outlet"**] of the **combustion or recovery** [**deleted "or destruction"**] device shall be calculated as follows

where:

E_i , E_o = mass flow rate of VOC at the **sampling points** [**deleted "inlet (i) and outlet (o)"**] of the **combustion or recovery** [**deleted "or destruction"**] device, kg/hr

M_{ij} , M_{oj} = mass of VOC at the **sampling points** [**deleted "inlet (i) or outlet (o)"**] during testing interval j , kg.

In Section 63.565(c)(7), commenter (32) requested the wording be changed to:

Where Method 25 or 25A is used to measure the percent reduction in VOC, the percent reduction across the **combustion** [**deleted "destruction"**] or recovery device shall be calculated as follows

where:

E_i = mass emitted or mass flow rate of VOC at the **incoming sampling point** [**deleted "the inlet"**] to the **combustion** [**deleted "destruction"**] or recovery device as calculated under paragraph (c)(6) of this section, kilogram/hour.

psia or more) has made the commenters' suggested approach a moot point.

Comment: Four commenters (4, 31, 32, 71) requested that revisions to the referenced control methods be used for analyzing VOC concentrations and mass flows. One commenter (32) noted an inconsistency between § 63.565(c)(4) and the preamble (page 59-stating that Method 25 is to be used for initial performance tests of combustion devices) and requested that § 63.565(c)(4) be revised as follows: (**revisions in bold**)

The average VOC concentration upstream and downstream of the control device in the vent shall be determined using **Method 25 or** Method 25A of Appendix A of Part 60 of this chapter for **combustion or** recovery devices, **respectively**.

Three commenters (04, 31, 71) stated that Methods 25 and 25B should also be acceptable for determining the average VOC concentration upstream and downstream of the control device. One commenter (31) further noted that Methods 18, 25, 25A, and 25B are available for analyzing VOC's and requested that all of these test methods be acceptable, in particular Method 18 because it can be used for inorganics such as Hcl.

Response: The perceived inconsistency between the preamble and proposed rule has been corrected. The final rule contains provisions to use either Method 25 or 25A to measure the percent reduction in VOC. Additionally, the final rule contains provisions that allow owners or operators who desire to use alternative test methods to apply for approval to use such methods.

Comment: One commenter (20) questioned why the proposed test methods are so different from those required under subparts XX and R of Part 60, and cites the following examples:

1. Emission standards for vapor control systems could be established for specific commodities in units of milligrams of HAP (or VOC) per liter of product transferred.
2. A minimum pressure relief setting determined safe by the Coast Guard could be established, and annual pressure/vacuum

tests could be required for marine tank vessel loading operations.

3. A limit on the back pressure of the vapor control systems could be established based on the minimum pressure relief setting for marine tank vessels.

Response: The Agency lacks the requisite test data to establish a mass rate limit as recommended by the commenter, and the information submitted by commenters is insufficient to allow the Agency to determine such a rate. In regards to the minimum pressure relief setting, the Agency is satisfied that the promulgated rule, developed to reflect current Coast Guard standards, will ensure good capture of displaced vapors.

Comment: One commenter (31) thought EPA should allow alternative test methods with prior approval by the permitting authority, without the burdensome procedures of Method 301. The commenter stated that Method 301 is so excessively complicated and time-consuming that new methods could not be approved expeditiously, if at all. Section 63.565(c)(8) should be revised as follows: (**revisions in bold**)

(8) Use of methods [~~delete "other than Method 25 or 25A"~~] **not specified in this Subpart** shall be validated pursuant to Method 301 of Appendix A or Part 63 of this chapter, **or shall be approved by the Administrator.**

Response: The final regulation is consistent with the final General Provisions to 40 CFR Part 63 regarding the use of alternative test methods. Section 63.565(m) of the final rule refers interested parties to the specific requirements regarding alternative test procedures. These requirements allow the use of alternative test methods after validation with Method 301 or upon approval by the Administrator.

Comment: One commenter (31) stated that the 0.5 percent resolution requirement on instrument spans is excessively restrictive and prohibits the use of existing acceptable instrumentation. The commenter recommended changing this requirement to a more reasonable level of 1.0 percent. This commenter stated that many instruments used today with a

E_o = mass emitted or mass flow rate of VOC at the outgoing sampling point [deleted "outlet"] of the combustion [deleted "destruction"] or recovery device, as calculated under paragraph (c)(6) of this section, kilogram/hour.

Response: The Agency agrees that the use of "emitted" in this case could be confusing and has, therefore, made changes in the final rule similar to those suggested by the commenter. The Agency does not agree that the use of "inlet" and "outlet" is confusing and has not changed the use of these terms in the final rule. The Agency has also referred to both combustion and recovery devices where appropriate.

Comment: One commenter (54) stated that at least one of their members currently uses EPA's Tank 2 program to estimate emissions and would like to continue doing so. Although the regulations state that "[a]n owner or operator may use a procedure different from API 2514A upon approval from the Administrator," obtaining special approvals can be very time-consuming, labor-intensive, and frustrating. One commenter (54) recommended that other generally-accepted alternative means of estimating emissions be included in the regulation itself, obviating the need for Agency approval.

Two commenters (31, 34) stated EPA should use AP-42 instead of API publication 2514A as the reference protocol for estimating emissions under § 63.565(d) for the loading of materials other than crude oil and gasoline. The commenters stated the API publication 2514A document is used solely for estimating emissions from loading of crude oil and gasoline. It may not be suitable for estimating emissions of other HAP. A more appropriate calculation method is the AP-42 procedures for Transportation and Marketing of Petroleum Liquids found in Section 4.4. These procedures are used extensively by the chemical industry and regulatory agencies for estimating emissions for air permitting, air dispersion analysis, and Superfund Amendments and Reauthorization Act (Section 313, Reporting). In addition, the API publication 2514A, Atmospheric

Emissions for Marine Vessel Transfer Operations, is used as a reference in AP-42.

Additionally, it appears to commenter (31) that EPA's reference to the API publication may be an error. In the preamble to the proposed regulation on page 25018, Col. 2, EPA states that:

Regarding the emission estimation procedures to be followed in determining compliance with the proposed standards, the Agency is proposing that facilities use either actual test data or AP-42 emissions factors to identify emissions from various commodities and streams loaded.

Therefore, it appeared to the commenter (31) that EPA intended to make AP-42 the reference method.

On the other hand, three commenters (31, 34, 72) support EPA's proposal to allow other methods with prior approval. In many instances, the AP-42 factors will greatly overestimate emissions. One commenter (31) has sometimes identified other methods that produce more accurate results; for example, State regulators have been willing to accept these alternative methods once their accuracy has been substantiated. One commenter (41) stated AP-42 only lists VOC factors for loading crude and gasoline into marine tank vessels and no HAP. If the EPA wants to use such factors, a larger set of more accurate factors need to be developed.

One commenter (72) stated that the provision would also allow emission control techniques such as "short loading" of a marine tank vessel to prevent expulsion of the highly concentrated vapors that form just above the liquid surface in a vessel's storage area. In that situation, proposed 63.565(d) would allow owners to do source testing to demonstrate the actual emission factor for loading a specific product into a specific vessel type when the vessel's tanks are only filled to a specified, measured, and recorded level. Details concerning the required measurements and documentation would be specified by the

EPA as part of the approval process for the specific emission factor.

For all these reasons, the commenters recommend changing the relevant portion of Section 63.565(d) as follows:

Emission estimates and emission factors shall be based on test data or emission estimation procedures found in Compilation of Air Pollution Emission Factors (Fourth Edition) (AP-42). Section 4.4 Transportation and Marketing of Petroleum Liquids.

Response: In the proposed rule, the Agency selected API Publication 2514A as the reference protocol for estimating emissions of commodities. Provisions were also proposed to allow owners or operators of affected sources to use alternative methods, provided that the use of these alternative methods is approved by the Administrator in advance. The Agency agrees with commenters that other methods of estimating emissions are routinely used, and has changed the emissions estimation requirements in the final rule. Emissions estimates and emission factors used by owners or operators of sources required to calculate an estimate of their HAP emissions must be based on test data or on generally accepted industry practices of measurement or estimating techniques for maximum operating conditions at the source.

The Agency has not been persuaded by the commenter's assertion that "short loading" is an equivalent method of emissions reduction. Although the emissions appear to be reduced the first time the vessel is short-loaded, this determination does not account for the large volume of concentrated VOC (i.e., additional emissions) in the cargo space that are eventually emitted.

Comment: One commenter (34) stated that toluene is given a tanker emission factor of 0.40 lb/1,000 gallons of product loaded; in contrast, xylene is given a factor of 0.000075 lb/1,000 gallons and 0.00024 is given for "xylenes" in the same table. The toluene emission factor is, therefore, 5,300 times as high as the factor for xylene, even though toluene and xylene

have relatively similar vapor pressures (1.0 and 0.3, psia, respectively). The commenter stated that the emission factors in the Technical Support Document and in the proposal merit further review.

Response: The Agency disagrees with the commenter's statement on the emissions factors used in estimating emissions even though the requirements for estimating the emissions have changed in the final rule (see previous comment). Information received from commenter's was insufficient to develop alternative emissions estimates. The format of the final standards (incorporating a limit for HAP having a vapor pressure of less than 1.5 psia) makes the commenter's concern a moot point since the vapor pressure of both toluene and xylene are both below 1.5 psia. The HAP mentioned by the commenter would not be included in emissions reduction calculations.

Comment: One commenter (80) stated that it is inappropriate to assume that the average control efficiency of the abatement device is representative of the reduction that will be achieved for all HAP's. Carbon adsorption will achieve a higher control efficiency for polar molecules with a high molecular weight. Incineration of certain HAP's will give rise to secondary HAP emissions (polycyclics, for example). Refrigeration has different efficiencies for specific compounds. The HAP reduction should be established during the initial compliance test for the individual control unit using Method 25 or an alternate speciating procedure.

Response: The MACT floor control efficiency was calculated based on efficiencies for either VOC or benzene. The compliance test determines the efficiency based on VOC control and is, therefore, consistent with the approach used to calculate the MACT floor. The Agency could have developed performance data for individual HAP, at great expense, and then determined the MACT floors based on these determinations. The commenters provided no data indicating that there is any difference in these approaches

or in the HAP emissions reductions required by the promulgated rules.

2.6.6 Emissions Averaging

Comment: One commenter (72) stated that terminals having more than one loading dock should not be required to install multiple vapor recovery systems and should be able to average emissions between multiple docks to meet the emission reduction requirements.

Response: The Agency agrees with the commenter. The final rule requires an overall emissions reduction that may be achieved by controlling all or partial loading of commodities and all or some loading berths.

Comment: One commenter (81) noted that the proposed MACT level of control for existing sources sets a "floor" at 93 percent and allows sources to over-control some products while "excluding" other products from control, provided the facility meets the overall control level of 93 percent. This approach is, in essence, emissions averaging. The Bay Area has commented extensively on a number of proposals under Section 112 that provide some form of averaging or off-setting of emissions. They have the same concerns about averaging in this proposal. If facilities propose to "exclude" the loading of certain products from control requirements, the exclusion should be restricted according to the toxicity of the components. Carcinogenic compounds that have a high-unit risk value should not be excluded from control in favor of controlling the emissions of compounds with a lower unit risk value. This inclusion is especially critical for marine loading of products from the SOCOMI industry. The rule should specifically allow State or local agencies to exclude the "averaging" portion of the rule without requiring review under Subpart E.

Response: The format change of the standards (i.e., incorporating a limit for HAP having a vapor pressure less than 1.5 psia) has made much of the commenter's concern a moot point. However, the Agency has provided emissions averaging approaches in several areas of this final rule (e.g., VMT standards, marine tank vessel loading operations collocated at petroleum

refineries, etc.) to provide flexibility to sources in achieving the overall emissions reductions that are required by the standards. In keeping with the EPA's stated goal of increasing flexibility in rulemakings, this decision has been made to provide more opportunities to average. This optimizes the opportunities for refiners to find cost-effective emission reductions from overall facility operations on-site. Costs and cost-effectiveness of controlling a particular kind of emission point, such as marine tank vessel loading, will vary depending on many site-specific factors. Emissions averaging allows the owner and operator to find the optimal control strategy for their particular situation.

Allowing emissions from marine tank vessel loading operations, bulk gasoline terminal or pipeline breakout station storage vessels, and bulk gasoline terminal loading racks to be included in emissions averages will result in equivalent or greater overall HAP emission reduction at each refinery. The averaging provisions are structured such that "debits" generated by not controlling an emission point that otherwise would require control must be balanced by achieving extra control at other refinery emission points covered by the NESHAP. The Agency has not incorporated the commenter's request to insert language in the regulation that would have provided State or local agencies the authority to exclude emission averaging from terminals operating in the respective State or locality. States or localities may promulgate more stringent regulations that do not provide for emissions averaging, but they cannot selectively modify Federal regulations without independent promulgation of their own regulations.

Comment: One commenter (104) suggested that EPA provide alternative standards to RACT that utilize the Economic Incentive Program rules. The commenter stated that these alternatives would offer sources flexibility to trade emissions from marine tank vessel loading operations with other VOC emissions reductions programs undertaken by the source.

Response: The Agency agrees with the commenter that sources should have flexibility in meeting the overall RACT emissions reduction standards. However, the Agency believes that the commenter's suggested program should be carried out via a global regulation promulgated under the Agency's Economic Incentive Program.

2.6.7 Exemptions from Performance Testing

Comment: One commenter (34) requested clarification regarding the performance test exemption proposed in 63.563(b)(2)(i) and (ii) for boilers and process heaters with input capacities above and below the 44 MW breakpoint. The EPA should clarify in the final rule to what exactly the exemption is intended to apply.

Response: The Agency believes that the section has sufficient clarification. The commenter may not have noted the phrase "and the vent stream is used as the primary fuel" in Section (i).

Comment: A number of commenters stated that the rule should not require performance testing that would be redundant to testing required by current regulations. Facilities that have recently conducted tests under current regulations should not have to bear the cost of duplicative testing. Three commenters (04, 25, 31) stated that in those instances where a source uses a RCRA incinerator to control marine tank vessel loading emissions, the EPA should exempt the incinerator from the performance testing requirements of § 63.563(b)(2). One commenter (73) noted that, where the proposed rule would apply to operations already covered by the Benzene Transfer Operations NESHAP, there should be a performance test exemption for facilities where no additional controls will be necessary in order to comply with the proposed rule. Two commenters (36, 31) recommended that, if an affected terminal has already conducted a performance test for its marine vapor control equipment to the satisfaction of the State in which it is operating, the EPA should accept that test and not require any additional testing.

Three commenters (31, 71, 78) stated that other units, such as industrial furnaces and vapor balancing systems, should be exempt from performance testing. Therefore, Section 63.563 (b)(2) should be amended as follows:

(2) Performance test exemptions. An initial test is not required in the following cases: **(the proposed additions are noted in BOLD)**

(i) When a boiler or process heater with a design heat input capacity of 44 Megawatts or less is used to comply with 63.562(c), (d), or (g) and the vent stream is used as the primary fuel;

(ii) When a boiler or process heater with a design heat input capacity of 44 Megawatts or greater is used to comply with 63.562(c), (d), or (g);

(iii) When a boiler, incinerator, or industrial furnace is used to comply with §63.562(c), (d), or (g); and

(A) The owner or operator has been issued a final permit under 40 CFR Part 270 and complies with the requirements of 40 CFR Part 266, Subpart H; or

(B) The owner or operator has certified compliance with the interim status requirements of 40 CFR Part 266, Subpart H (note: reference to demonstrating 99.99 percent destruction or recovery efficiency has been deleted); or

(C) The owner or operator has been issued a final permit under 40 CFR Part 270 and complies with the requirements of 40 CFR Part 264, Subpart O; or

(D) The owner or operator has certified compliance with the interim status requirements of 40 CFR Part 265, Subpart O; or

(iv) When a vapor balancing system is used; or

(v) When emissions are recycled to a chemical manufacturing process-unit.

The vapor balancing definition from the HON could be incorporated into this rule as well. See 59 FR 19459 (April 22, 1994).

Response: The Agency agrees that duplicative testing should be avoided. Sources that have completed recent testing where that testing meets or exceeds the testing requirements of the final rule from the performance test requirements and may, subject to approval by the Administrator, use these data in establishing the baseline parameters to be monitored.

2.7 VAPOR TIGHTNESS REQUIREMENTS

Comment: Comments were received from several commenters related to vessel tightness testing. Two commenters (79, 80) supported EPA's proposal to require an annual tightness test for vessels. Eight commenters (23, 31, 32, 33, 59, 60, 69, 78) requested revisions to the requirements for testing vessel tightness, maintaining records, and repairing leaks.

Six commenters (23, 31, 32, 33, 69, 78) stated that, because ships are not defined as affected sources by the EPA, all the burden of compliance and assuring compliance is borne by the marine tank vessel loading terminal owner or operator. The commenters noted that terminal operators have no authority over vessel operators, and it is totally inappropriate for the proposed rule to require the terminal to be responsible for vessel equipment or documentation.

One commenter (138) stated that the leak test method would be the only available alternative for their terminal to use.

One commenter (32) stated that there is no practical way for the terminal operator to be obligated or take responsibility for vessel testing. The commenter requested the wording of Section 63.565(a) be changed as follows: **(revisions in bold)**

(a) When testing a vessel for vapor tightness to comply with the marine tank vessel vapor-tightness requirements of Section 63.563(a), the **marine vessel** owner or operator **(delete "of an affected source")** shall use one of the following methods:

Similarly, changes should be made to Section 63.565(a)(2) and (3) as follows:

- (2) Leak test. Each **marine vessel** owner or operator **loading** at an affected facility complying with....
- (3) Negative pressure loading. Each **marine vessel** owner or operator loading at an affected facility complying with....

This commenter also stated that additional leak test requirements should not be applied to other portions of the vapor control system, including any existing equipment that may be integrated into an overall vapor control system.

Four commenters (23, 33, 69, 78) stated that leak testing ought to be incorporated into the vessel's annual U. S. Coast Guard Inspection and its Mid-Period Inspection, which both require a marine tank vessel to be sent to a shipyard. The 12-month vessel testing interval should be extended to coincide with routine Coast Guard exams, and the procedures in 63.565(a)(2) should not be duplicative of any similar U.S. Coast Guard procedures. Testing at this interval would appropriately put the requirement for maintaining leak-free vessels on the vessel owner. However, if a vessel were pressed into a service for which it had not been tested, the provisions of 63.563(a)(2)(iii) would still be available for emergency use. Further, a simple certification from the vessel owner or operator should be sufficient documentation for the owner or operator of the affected source, who should not have the onus of conducting "vapor-tightness" testing of marine tank vessels. In fact, enforcement of these procedures should lie in the proper domain of the U.S. Coast Guard. Therefore, the provisions of 63.563 should be streamlined to require only a simple certification that the vessel has passed the inspection and certification of the U.S. Coast Guard.

One commenter (33) questioned whether the vessel can be assured of receiving a copy of the documentation of the vapor tightness test that can then, in turn, be presented to other terminals at which the vessel may call in the next 12 months. One commenter (23) stated that it would be more efficient for "vapor tightness" certification to be maintained with the vessel's documentation (i.e., U.S. Coast Guard Certificate of Inspection or U.S. Coast Guard Tank Vessel Examination Letter) rather than each terminal maintaining separate documentation. The inspection and certification of vessels should be conducted in accordance with standards developed by the U.S. Coast Guard. To the extent that the certification and inspection of vessels are inherent parts of the safety of loading tank vessels, the EPA must consult with the Coast Guard to make the certification and

inspection requirements of vessels consistent pursuant to Section 183(f)(2) of the Act. The commenter urged EPA to coordinate more closely with the Coast Guard on developing the specific procedures of inspection and certification of vessels.

Requiring each marine tank vessel loading operation to have emission testing equipment and to enforce emission testing requirement is both inefficient and improper. The specified testing is complicated to perform and requires specialized equipment and specially trained personnel. These requirements would be a significant expense and an enormous burden to the marine tank vessel loading operation owner or operator. This testing would be used rarely because most vessels would have the documentation and not need the testing. Further, the role of testing should belong to government trained personnel such as the Coast Guard.

Two commenters (59, 60) stated that the regulations do not clearly define who shall conduct and certify the test for vapor tightness documentation and certification. The reporting requirements indicate a "witnessing inspector" of some "affiliation" shall be included in the documentation. The commenters believe the tests can be conducted by the vessel's personnel without the need for outside inspectors. Chemical parcel tankers have numerous small tanks. It is not unusual for a vessel to have as many as 58 independent tanks and systems. Outside inspectors would put a considerable financial burden of chemical parcel tankers because the tests would then have to be done in port prior to operations. Although the rule allows for testing during loading, due to the risk of nonvapor tightness and additional record keeping requirements, it is doubtful terminals will allow vessels to berth unless they can certify they are vapor tight (or unless the terminal loads under vacuum). Logistically, it is not unreasonable for it to take over 24 hours to conduct tests as prescribed by 63.565(a)(1) on a vessel with 58 tanks. If these tests must be witnessed by a surveyor, in port prior to loading, there will be a substantial cost to

conduct these tests on chemical parcel tankers. One commenter (59) stated that company representatives routinely conduct tightness tests for vessel lines and hoses. Additionally, for particular cargos (propylene oxide for example), tests are conducted prior to loading and the pressure is monitored throughout the voyage. Class regulations mandate tank tightness tests every 5 years (at time of special survey). The types of tank tightness tests conducted, in addition to the pressure test stated in the regulations (without comparison to the pressure drop formula), are water tests and use of an ultra sound gun to find leaks. Testing has been conducted by company shore staff and vessel officers without the "benefit" of a certifying company. They are conducted as the opportunity presents itself. Their motives for having vapor tight vessels are their own self-interests. Many products they carry are water sensitive, and their indemnity coverage, in the event of product contamination, would be jeopardized if they had knowledge of a leak that was not repaired. Self-certification has been found acceptable by the USCG, the vessels' classification society, and their customers. The commenters, therefore, requested that the proven practice of self certification be permitted.

One commenter (23) viewed leak testing of foreign vessels as a potential problem. Certification of equipment or material condition is usually issued by the vessel's flag state either via the flag state's regulatory agency or a classification society such as Lloyds, ABS, etc. Whatever the means decided upon by the EPA, in consultation with the U.S. Coast Guard, to certify foreign vessels, it is imperative that U.S. flag vessels are not penalized either financially or operationally by standards more stringent than those required for foreign vessels.

Response: The Agency has revised the leak-test requirements to provide additional flexibility to vessel owners or operators. The final rule contains requirements for owners or operators to conduct a pressure test, or leak test. The Agency agrees that U.S. Coast Guard procedures should not be superseded or

duplicated. Self-certification from the vessel owner or operator that the vessel has passed U.S. Coast Guard inspection and certification requirements has been incorporated into the final rule. Vessel owners or operators are responsible for performing the Method 21 tightness test and the vessel pressure test, and the terminal owners or operators are responsible for the shore-side control equipment and assurance of negative pressure system operation (if applicable). The terminal is responsible for maintaining records of vessels that dock and/or load.

In regards to comments that the vessel tightness requirements would require significant expense or time, the Agency notes that the vessel owners or operators have a minimum of 3 years (4 years for vessels loaded at MACT facilities) to initially obtain the proper certification and demonstrate compliance. After the compliance date, this information must be obtained annually. Based on the information received in the comments, the Agency does not believe that this requirement poses an unreasonable burden to vessel owners or operators.

Comment: One commenter (43) noted that many references are made to specific responsibilities for the "owner or operator" in §§ 63.562, 63.563, and 63.564. Industry consultants have requested that each requirement be specifically assigned to either the owner of the facility or vessel, or the operator of the facility or vessel. For example, in 63.562(a), it should be the owner's responsibility to equip the terminal with a vapor collection system, and in 63.563 (a)(4), it should be the operator's responsibility to obtain a copy of the ballasting documentation. Due to the myriad of leasing and joint operating agreements that exist in the maritime industry, enforcement would be enhanced by further defining the party responsible for compliance.

Response: The final rule clarifies the specific responsibilities of owners and operators of facilities and owners and operators of vessels. The Agency's use of the terms "owner

or operator" is consistent with the use of the terms in the Act and the General Provisions to Part 63.

Comment: Two commenters (32, 80) submitted perceived deficiencies with the vapor tightness test procedures. One commenter (80) concluded that the proposed pressure-test procedure may bias the results towards compliance. The procedure permits the use of air to pressurize the vessel during testing. The presence of oxygen can result in vapor growth, and the test results would indicate an absence of leaks when, in fact, leaks are present. The use of inert gas to pressurize the cargo tank would minimize the bias, provided the vessel is equipped with an inert gas system or could be cost-effectively retrofitted with one. If an inert gas system is not feasible, the volumetric flowrate of the leak could be quantified by measuring the flowrate of air that is required to maintain a specified pressure. EPA would need to establish a standard for an allowable leak rate at a given pressure. There should be no cargo in the tank during testing, and the headspace temperature should be monitored and recorded to allow for correction due to thermal expansion. This method also has the benefit of providing a means of calculating fugitive emissions during loading. Fugitive emissions would be equal to the concentration times the flowrate, integrated over the loading event.

One commenter (32) noted that vapor-pressure test methods presented in Sections 63.565(a)(1)(i) through (vi) are impractical to execute for the types of marine tank vessels that call at the VMT. The pressure calculation method is inadequate to indicate a vapor tight vessel. The commenter requested this section of the proposed regulations be reworked to provide guidelines or requirements that are reasonable and achievable for pressure testing. In Section 63.565(a)(1)(i), the proposed regulation requires use of dry air or inert gas for the pressure test. Dry air is not suitable because the marine tank vessels that call at the VMT are required to be inerted (i.e. the crude oil cargo compartments are supplied with inert gas from the ship

boiler exhaust so there is not a combustible vapor atmosphere in the cargo compartments). Therefore, using air for a pressure test is not allowable because it would present serious safety hazards and is contrary to the design and operation of the vessels. Inert gas from the ship boilers would be available and suitable from a safety standpoint, but the gas will not be dry because flue gas from the ship boilers typically passes through an SO₂ scrubber and liquid deck seal before entering the cargo compartments. The inert gas may be close to saturation with water vapor. Any calculation method should allow for an inert gas with varying amounts of moisture. In Sections 63.565(a)(1)(iii) through (vi), the proposed regulation gives the calculation method and pass/fail criteria for the pressure test. However, this calculation and criteria could lead to incorrect conclusions, such as a vapor-tight vessel would be indicated as not vapor tight and in need of repair. Significant weakness in the calculation method exists by not accounting for the potential changes in temperature during the test, variation of temperature within the cargo compartments, and the potential for condensation of moisture from the vapor. This potential for condensation would exist, even if a dry gas was used for pressurization, because the initial vapor in the vessel will likely include water vapor. The following hypothetical, but realistic, scenario demonstrates the weakness of the proposed calculation and criteria. In this scenario, a vapor-tight vessel for the VMT significantly fails the vapor-tightness test when, in fact, it is vapor tight.

$P_j = 434.9$ inches WC, (15.7 psia) - Initial test pressure, inches WC

$P_f = 430.7$ inches WC, (15.55 psia) - Final test pressure, inches WC, due to 5°F temperature change of vapor from 60°F to 55°F

$P = P_j - P_f = 4.2$ inches WC, (0.15 psia) - Change in pressure, inches WC

$P_{ia} = 15.7$ psia - Initial pressure, pounds per square inch absolute

$L = 100,000$ barrels per hour - maximum loading rate; (Actual VMT conditions)

$V = 1.100.000$ barrels - total volume of vessel; (Typical for a 165 MDWT ship at VMT)

$PM = 0.861 (P_j) (LN) = 1.23$ inches WC - Max. allowable pressure change, inches WC

According to the proposed regulations, if $P > PM$, the vessel is not vapor tight and in need of repair. Therefore, a vapor-tight vessel would substantially fail the pressure test as proposed if the temperature changed just a few degrees. It is reasonable to expect changes in vapor temperature during the test. Also, one uniform vapor temperature throughout the vapor of a ship cargo compartment does not exist. During ship-vapor testing at the VMT, temperature variations of greater than 10°F have been measured among different locations within a compartment, at a single point in time. The pressure changes, for example, would be more exaggerated if condensation of vapor were considered. This scenario is by no means a worst-case example, but it is a way of demonstrating the concern and need for attention to this section of the proposed regulation.

Response: The Agency disagrees that temperature changes and/or oxygen presence significantly affect the results of leak testing, are impracticable for particular marine vessels, or involve safety concerns. The commenter did not supply test data documenting that temperature variances or oxygen presence significantly affects pressure-test results. The Agency notes that the pressure-leak test is not required by the rule but rather offered as one of several alternatives for showing that a vessel is vapor tight. Furthermore, alternative methods are provided and others may be submitted to the Administrator for use following the Administrator's approval. Regarding the use of inert gas loading, the Agency notes that the final rule contains provisions for leak testing of inert blanketed vessels.

Comment: One commenter (71) noted that the leak detection requirements of these sections are often redundant with equally or more stringent requirements under Federal and State VOC and HAP rules, and these requirements should be waived in such cases.

Recommendation: Add 63.563(f) as follows:

(f) Closed vent systems and control devices subject to federally enforceable VOC or HAP fugitive emission monitoring programs need not comply with 63.563(c) or (d) or 63.567(i).

Response: The compliance provisions found in Section 63.563(c) of the final rule address leak detection and repair requirements for marine tank vessel loading operations. The commenter did not submit sufficient information for the Agency to determine that these requirements were redundant or unnecessary. If the procedures currently employed at a given terminal meet or exceed the requirements found in Subpart Y, then the owner or operator of the affected source may apply to the Administrator for an exemption from the leak detection and repair compliance provisions.

Comment: Two commenters (34, 85) supported the requirement in Section 63.563(a)(2)(iv) for measuring pressure at the shore-vessel interface. One commenter (34) stated that the second sentence of § 63.563(a)(2)(iv) of the proposed rule should be revised to be consistent with U.S. Coast Guard requirements for the location of pressure sensors as detailed in 33 CFR Part 154, Subpart E, 154.814(h) or (j) that address requirements for vessel vapor over pressure and vacuum protection. Shore side location of pressure sensors must be allowed for documented safety reasons and practical concerns.

Response: The final rule is consistent with the U.S. Coast Guard requirements and has been reviewed by the Coast Guard to address safety concerns.

Comment: Three commenters (32, 34, 38) requested changes to Section 63.563(a)(2)(ii). Two commenters cited additional circumstances under which a vessel that is not vapor-tight should

be allowed to be loaded. One commenter disagreed with any provision for loading such a vessel.

Two commenters (32, 34) pointed out that repairs that do not require dry-docking a vessel and that are made at a marine-tank vessel-loading terminal create greater emissions than if the repairs were postponed. Emissions of purged material from the immediate clearing of a compartment or pipe can be greater than emissions resulting from delay of the repair. In this case, it is more practical to load immediately and delay repair until dry-docking, even though immediate repair may be technically feasible. One commenter (34) stated that this provision is consistent with the NSPS and NESHAP fugitive equipment leak regulations. Another commenter (32) requested the language in Section 63.563(a)(2)(ii) be changed as follows: (**Revisions in bold**)

(ii) ... If the owner or operator of the vessel can document that repair is technically infeasible without **clearing the compartment or piping system** [delete "dry docking the vessel"], the owner or operator of the affected source may load the marine vessel.

Conversely, one commenter (38) stated that § 63.563(a)(2) is unclear with regard to the facility owner's responsibility of whether to load or not load a vessel in need of repairs that are technically infeasible without dry-docking the vessel. While an alternative to loading such a vessel is available (i.e., loading at negative pressure), the vessel needs to be repaired at some point in time. The rule should state that loading a vessel without control of emissions constitutes a violation.

Response: The Agency has revised the regulation to address the commenter's concern about loading of vessels following the detection of leak(s). The Agency strongly agrees with the commenter that requirements for repair of equipment should not generate more emissions than would be saved by the repair operations. Regarding the comment concerning the future loading of vessels failing the leak test, the final rule contains requirements for the owner or operator of the terminal not to

load the vessel again unless the marine tank vessel owner or operator documents that the equipment responsible for the leak has been repaired.

Comment: One commenter (85) supported the definition of a vapor-tight marine tank vessel in Section 63.561 and added that leaks found on vessels meeting the definition of vapor tightness should be corrected in accordance with the standard; however, they should not be considered a violation of the standard.

Response: The Agency agrees with the commenter. Under the final rule, a violation of the standard does not occur if leaks are detected and the cause for those leaks is repaired or if the cause of the detected leaks requires the vessel to be dry-docked.

Comment: Five commenters (35, 60, 69, 70, 78) took issue with the testing requirements for vessel vapor tightness. One commenter (60) stated that the pressure drop formula ($PM = 0.861 P_a L/V$) favors vessels with large tanks. Chemical parcel tankers with numerous small tanks are unfairly penalized because there is very often a difference in pressure on a closed tank over time. This pressure difference may or may not be a reflection of the tank's vapor tightness (i.e., leak free). The sun and atmospheric pressure will affect the test results (sometimes over short periods of time). If P_a is very small (but not zero) and V is small compared to L , it may be difficult to pass this test even if the tank is in fact "vapor tight." The relationship is with respect to the pressure at actual load rate; no relationship exists between vapor tightness and tank size. In addition, two commenters (69, 70) noted that the proposed equation for calculating vapor tightness supports a lower pressure drop tolerance at low loading rates, in effect discouraging a vessel operator from establishing a lower rate. Because low loading rates are safer than high rates, both from an engineering and a human factors perspective, the commenters find the equation perplexing. They recommended that the equation be modified so as

not to penalize operators who elect to establish a lower loading rate.

One commenter (60) noted that the regulations favor negative pressure loading. By definition, a vessel is vapor tight if loaded under negative pressure. Compliance and performance testing is extensive for transfers not done under negative pressure. The safety issues associated with these types of transfers under closed conditions need to be taken into account. Safety is an inherent concern when considering any control technology alternatives.

Response: The equation in the regulation of concern to the commenters was incorporated from the Benzene Transfer Operations NESHAP (40 CFR Part 61 Subpart BB). The commenters taking exception to this equation proposed no alternative equation or specific revisions for the agency to consider; therefore, the equation will be left unchanged.

Regarding safety issue concerns, again no specific deficiencies were submitted that the Agency could consider. The final rule has been developed with the full cooperation and review of the U.S. Coast Guard in consideration of safety concerns. The Agency is confident that the safety concerns expressed during the development of these standards have been addressed in these final standards and the Coast Guard standards found in 33 CFR part 154 et al. and in 46 CFR part 30 et al.

2.8 LEAK DETECTION AND REPAIR

Comment: Four commenters (32, 34, 38, 123) commented on the leak detection and repair procedures in § 63.563(c)(2). Three commenters (32, 38, 123) requested revisions or clarifications to the definition of a leak. Two commenters (32, 34) requested revisions to the scope of monitoring required upon leak detection.

One commenter (32) agreed with the 10,000 ppmv threshold for the definition of a leak and requested a clarification that a reading of less than 10,000 ppmv require no further action. One commenter (38) stated that the requirements of § 63.563(c)(2) should be consistent with 40 CFR Part 63, paragraph 63.148(d) HON requirements recently promulgated by the EPA, which define a leak as greater than 500 ppmv above background levels. Conversely, one commenter (123) stated that the 10,000 ppm standard is not by itself a reliable indication of a leak and recommended adding to the end of the last sentence of § 63.565(a)(2) "unless subsequent flow measurement using a flow testing device capable of measuring minimum gas flows of 1 SCFH (as air) indicates that flow from the indicated leak is below detectable limits."

One commenter (123) stated that, at best, Method 21 provides only an indication of a possible leak and that most OVA indications of 10,000 ppm on ships and barges do not result in detectable flow rates, even when using test rigs capable of detecting 0.5 scfh. Organic vapor analyzer (OVA) detections have exceeded 10,000 ppm for crude oil stains on deck. Defining a 10,000 ppm detection as an actionable leak without allowing the operator to prove otherwise will make using these instruments for preventative maintenance surveying prohibitive. This commenter submitted results of surveys of ships and barges indicating that of 31 occurrences where OVA indicated a leak based on ppm levels of 8,000 or higher, only 4 (3.5 percent) of these indicated leaks were found to have a measurable flow rate of 1.0 SCFH or higher. Results of fugitive emissions testing of 5,035 fittings in refinery service were also submitted. Forty-two showed OVA

readings above 10,000 ppm, and only 5 of these 42 fittings (11.9 percent) were found to have a flow rate of 1.0 scfh or higher. Further, this standard requires an instrument such as the OVA, which is not suited to marine use due to frequent and complicated calibration requirements and lack of marine grade construction and weatherproofing. This commenter's experience has been that any measurable leak (>1 SCFH) will be detected with a standard marine explosive gas detection meter, such as the MSA Gascope, which is found on virtually all vessels for use in tank, pump room, and void entry. A reading of 20 percent LEL on these instruments has been found to be a good criteria for further investigation and measurement for flow.

In general, this commenter's experience, as documented in the analysis of the most recent 8 months of fugitive emissions testing, has shown this emissions source to be virtually insignificant with respect to marine vapor recovery. The highest combined flow rate occurred on February 24, 1994, with a mass flow rate of about 28 lb/d, compared to 8.67 tons of recovered vapor for that lightering. The data also shows that, while 0.8 percent of the over 5,000 fittings surveyed gave an indication of over 10,000 ppm, only one-eighth of these had a measurable flow rate, and even these few averaged a VOC emission rate of only about 0.28 lb/hr when detected.

Almost all measurable leaks seem to be from P/V valves, which, by their design, offer no opportunity for preventive maintenance such as tightening flanges or glands. Thus, P/V valves can never be guaranteed to be gas tight at all times. The commenter pointed out that when this type leak is discovered it is usually the result of foreign matter that has built up on the seating surfaces of the valve. Simply rotating the valve disk almost always removes the foreign matter and allows the valve to reseat.

One commenter (06) stated that the leak-monitoring requirements of 63.563(c) are inadequate to assure continuous compliance with the required control efficiencies of the rule

when vapor balance systems are used. Visual, audible, and olfactory leak detection methods will not identify leaks on a consistent basis. A specific monitoring schedule should be required with leak detection made by portable VOC monitoring equipment.

Response: The Agency does not agree that the requirements to define a leak should be made consistent with the HON. The HON contains a program for reduction of emissions from storage tanks, whereas these standards use Method 21 as a surrogate for a tightness test. The Agency agrees that measurable leaks can be detected through other detection methods, however, the commenter did not supply sufficient test data showing that comparable tightness would be achieved at multiple sources using these alternative methods. The Agency has incorporated provisions in the final rule for the use of alternative methods to be used in the determination of compliance. The Agency believes that these provisions in section 63.565(m) of the final rule provide a sufficient mechanism to owners and operators at terminals that desire to use alternative devices.

Comment: Two commenters (32, 34) took exception to the requirements in §§ 63.563(c) and 63.567(j) for complete reinspection and monitoring of a closed vent system within 5 days if a single leak is observed. The commenters stated that only the leaking components should be reinspected. Complete monitoring of closed vent systems should only be required in the initial performance test and annually thereafter. One commenter (32) requested that Section 63.563(c) be revised as follows:

(Proposed revisions are shown in BOLD)

(c) Leak detection for closed vent systems and control devices.

(1) If evidence of a potential leak is found by visual, audible, olfactory, or any other detection method, the potential leak shall be monitored while in use within 5 days by the method specified in Section 60.485(b) of this chapter. Each detection of a leak shall be recorded, and the leak shall be tagged until repaired. **(This revision substitutes "the potential leak" for "all ductwork and piping connections to covers and control**

devices", thereby limiting monitoring to only the detected leak rather than the complete ductwork and piping system.)

(2) If a leak detected by (c)(1) is due to a design flaw or material failure, then all ductwork and piping and connections to covers and control devices that could be expected to experience similar failure shall be monitored within a time reasonably practical, by the method specified in Section 60.485(b) of this chapter. Each detection of a leak shall be tagged until repaired. The reasonableness of the monitoring period shall consider such circumstances as location, weather, safety, and extent of work to be accomplished. (Could the required monitoring time be 5 days, unless the operator can show, on a case-by-case basis, that this time is not reasonable due to the factors listed above?)

(3) If a leak detected by (c)(1) is due to operator or equipment failure, then all components the operator has serviced or equipment which has failed shall be monitored within 5 days of confirmation of the original leak by the method specified in Section 60.485(b) of this chapter. Each detection of a leak shall be tagged until repaired.

(4) A reading of 10,000 ppmv or greater as methane (as determined using the test methods in Part 60, Appendix A, method 21) shall constitute a leak. A reading of less than 10,000 ppmv shall require no further action.

(5) Piping systems and equipment which normally operate under vacuum are exempt from the requirements of Sections 63.563(c)(1) through (4).

Response: The Agency agrees with the commenter that annual leak detection and repair of the closed vent system is appropriate. In addition to detecting leaks through the annual leak detection and repair program, any potential leaks that are detected by visual, audible, or olfactory methods should be inspected to positively identify the potential leak and the potential leak will be monitored within 5 days. If a leak is detected, a first attempt at repair must be made within 15 days or prior to the next loading, whichever is later.

Comment: Six commenters (29, 44, 46, 69, 70, 71) requested revisions to the leak repair requirements. The Agency should recognize that marine tank vessels are not loaded every day at many affected sources. Monitoring requirements in 63.563(c)(1) and leak repair requirements in both 63.563(a)(5)(ii) and

63.563(d) are reasonably required within days of leak detection if the source is continuing to load marine tank vessels. However, the Agency should allow additional time for the monitoring and repair of leaks in cases where the affected source does not continue to load marine tank vessels.

In each of these paragraphs, the phrases "5 days" or "5 calendar days" should be replaced with "before the next vessel is loaded or 5 days, whichever time is later."

One commenter (71) noted that virtually all fugitive emission programs require leak repair within 15 days, with a first attempt within 5 days. Imposing different requirements for this case will lead to confusion and inefficiencies, with no significant, offsetting environmental benefit. The commenter, therefore, recommended that Section 63.563(d) be made consistent with other fugitive rules.

Response: The Agency agrees with these commenters. Section 63.563(c)(1) of the final rule was revised to require monitoring of the leak before the next vessel is loaded or within 5 days, whichever time is later. Sections 63.563(a)(5)(ii) and 63.563(d) were revised to require a first attempt at leak repair before the next vessel is loaded or within 15 days, whichever time is later.

2.9 REPORTING AND RECORDKEEPING REQUIREMENTS

Comment: Four commenters (25, 29, 32, 73) responded to the initial notification requirements of § 63.567(b). Three commenters (25, 32, 73) stated that § 63.567(b) and § 63.9(b)(2) are inconsistent. As currently proposed, 63.567(b) requires that all existing sources file an initial notification within 13 months of the promulgation date, compared to § 63.9, which requires an initial notification within 120 days after the date of promulgation. These commenters stated that the perceived intent is for the 13 months stipulated in § 63.567(b) to supersede the 120 days in § 63.9; clarification of the intent is requested. These commenters further stated that the 13 month time period is very appropriate because time is needed for potentially affected facilities to gather the data to properly evaluate their applicability to this regulation.

Conversely, one commenter (29) stated that tying the initial notification filing deadline to promulgation erroneously presumes that all existing sources would be subject to these requirements. Therefore, the Agency should utilize the time period specified at 63.9(b)(2) of "120 calendar days" and begin this time period for filing the initial notification on the date that an owner or operator becomes subject to this subpart. This commenter further stated that, because the initial notification will contain information only for a portion of the year (that is, up until such time as the source exceeds the applicability thresholds), then only the information for that portion of the year should be required to be submitted as part of the initial notification. Other reporting requirements that will apply to the source once it has achieved compliance should cover additional information requirements. Accordingly, 63.567(b) should be rewritten as follows: (**Revisions in bold**)

(b) The owner or operator of any affected source shall include the following information in the initial notification report required by 63.9 of Subpart A of this part. This initial notification report shall be submitted **within 120 calendar days after the end of the**

month in which the source exceeds the applicability threshold levels specified in § 63.560(b) [~~deletes "within 13 months (after date of promulgation). After the first year, the owner or operator shall continue to record the information requested and keep the information readily available for inspection."~~]. The information shall include, as a minimum:

- (1) The affected source's name and address;
- (2) For sources subject to § 63.562(c) or (d), MACT standards, the annual HAP emissions from the affected source as calculated according to the procedures in § 63.565(d). Emissions will be reported by commodity and type of vessel (barge or tanker) loaded for the portion of the year up through the end of the month in which the source exceeds the applicability threshold levels specified in § 63.560(b).
- (3) As an alternative to reporting the information in paragraph (2), the affected source may submit documentation showing that all HAP-containing marine tank vessels loading occurred using vapor tight vessels that comply with the procedures of § 63.563(a) and that the emissions were routed to control devices meeting the requirements specified in § 63.563(b).

Response: The Agency has incorporated the initial notification requirements from the General Provisions found in 40 CFR Part 63. These requirements require affected sources having a startup date prior to the date of promulgation to submit an initial notification within 365 days after promulgation. Sources having a startup date after the promulgation date or that become affected sources after the promulgation date must submit an initial notification report within 365 days or 120 days of startup, whichever occurs before notification of the initial performance test (refer to § 63.9 of the General Provisions to 40 CFR Part 63 and § 63.567(b) for additional information on the specific requirements for initial notification).

Comment: Five commenters (27, 32, 34, 41, 75) recommended revisions or requested clarifications to Sections 63.563(a)(5) and 63.566(c) to make them more workable and less burdensome. Section 63.563(a)(5)(i) requires that valves leading from the vent stream to the atmosphere be securely closed using a

car-seal, a lock-and-key type configuration, or be equipped with a flow indicator (except for pressure/vacuum relief valves). One of these commenters (27) interpreted these requirements as not applicable to a vessel's equipment as it refers to "collected vapors." The commenter noted that the specific requirements could not work with respect to many pieces of vessel equipment and requested clarification. Three commenters (32, 34, 41) believed this requirement should be applied only to valves controlling or diverting the major vapor flow streams and then only while the vapor control system is in use. The EPA should exclude all small portions of the vapor stream, such as streams for analyzers, instrumentation devices, purging, venting portions of piping for maintenance, depressurizing isolated equipment or devices, and sampling equipment used for laboratory analysis. One commenter (32) requested the language in Section 63.563(a)(5) be reworded as follows: **(revisions noted in bold)**

(5) **Major vent stream by-pass requirements**

(i) Each valve in the vapor collection system that would lead the **major** vent stream (i.e., collected vapors) to the atmosphere, either directly or indirectly, shall be secured closed **while in use**, using a car-seal, a lock-and-key type configuration, or shall be equipped with a flow indicator, except for pressure/vacuum relief valves. Loading product with an open by-pass line shall constitute noncompliance with the standard.

Additionally, Section 63.567(c) requires that continuous records be kept for 5 years concerning periods when flow bypasses the control device, when maintenance is performed on car-sealed valves, when car-seals are broken, and when valve positions are changed. Two commenters (34, 75) stated that these recordkeeping and reporting requirements should be deleted because the loading frequency and the significant number of valves at facilities with multiple berths loading multiple products make reporting information on locking mechanisms extremely burdensome. Another commenter (32) requested the following changes in Section 63.567(c) to make these recordkeeping requirements more practical and effective:

(1) All periods when **major vapor stream** flow bypassing the control device is indicated if flow indicators are installed under Section 63.564(a)(1), and

(2) At times when maintenance is performed on car-sealed valves, when the car-seal is broken, and when the valve position is changed (i.e., from open to closed for valves in the vent piping to the control device and from closed to open for valves that vent the **major vapor stream** directly or indirectly to the atmosphere bypassing the control device) if valves are monitored under Section 63.564(a)(2).

Response: The final rule was clarified to state that the requirements of § 63.563(a)(5)(i) of the proposed rule apply only to shore-side or terminal piping carrying vapors to an emissions control device. The Agency agrees with the commenters that small portions of the vapor stream should be excluded from the valve closure requirements and has included in the promulgated regulation additional exceptions mentioned by the commenters for valves that would divert collected vapors away from the control device or to the atmosphere; the exemptions in the regulation include valves for pressure/vacuum relief, analyzers, instrumentation devices, sampling, and venting for maintenance. With this clarification, the Agency believes the reporting and recordkeeping requirements in § 63.567 of the final rule are reasonable.

Comment: One commenter (44) stated that the recordkeeping requirements of 63.567(g) should be revised. Section 63.567(g) says that vapor-tightness documentation required under 63.563(a), which includes five subparagraphs, must be on file at the affected source in a permanent form available for inspection. Section 63.567(h), however, defines documentation requirements for Section 63.563(a)(2). Section 63.567(g), therefore, should only address the documentation required under 63.563(a)(1), (3), (4), and (5).

In addition, the language in 63.567(g) is confusing. No record retention time is specified, and the term "in permanent form" does not seem to be defined. This section should be consistent with Section 63.10(b)(1) of the General Provisions of

40 CFR Part 63, which specifies that files shall be retained for 5 years; 2 years must be on site, and the remaining 3 years may be retained offsite. Such files may be maintained on microfilm, computer, computer floppy disks, magnetic tape disks, or microfiche. The commenter also saw no need to keep a historical record of the information required under 63.563(a). Only the most recent information is of use. The commenter recommended that 63.567(g) be revised to read as follows: (**revisions in bold**)

(g) The owner or operator of an affected source subject to the provisions of this subpart shall keep the vapor-tightness documentation required under 63.563(a) **(1), (3), (4), and (5)** on file at the affected source to **reflect current information (deleted "in a permanent form available for inspection")**. Such documentation may be on microfilm, on a computer, on computer floppy disks, on magnetic tape disks, or on microfiche, but **must be available for inspection**.

Response: The Agency agrees that revision of the recordkeeping requirements is warranted. The only historical records that need to be maintained by sources are records of the need for repairs to emission control equipment and data regarding vapor tightness. The requirements for storage medium are consistent with the General Provisions of 40 CFR Part 63. The final rule allows owners or operators to maintain files on microfilm, computer, computer floppy disks, magnetic tape/disks, microfiche, or paper.

Comment: One commenter (44) stated that continuous monitoring, recordkeeping, and reporting of control device parameters should not be required if the design of loading facility prevents loading without a properly functioning control device (e.g., loading pumps interlocked with control device parameter sensors).

Response: The Agency has considered allowing interlock systems in lieu of the monitoring requirements presented. While the EPA wishes to encourage innovative technologies such as interlock systems, the EPA has insufficient information on the variety of designs and applications of interlock systems to

specify alternative monitoring, recordkeeping, and compliance procedures that would be appropriate for all such systems. Sources wishing to use interlock devices may apply to the Administrator as described in the General Provisions § 63.8(f) and in § 63.564(j) of the final rule.

Comment: One commenter (41) stated that the proposed rule [§ 63.566(b)(1)(ii)] requires submission of quarterly reports of the source's HAP control efficiency. The commenter questioned if compliance with an outlet concentration on an adsorbing system automatically indicates 95 percent efficiency since the monitoring standards only require outlet concentration.

Response: The Agency notes that the final rule no longer requires quarterly reporting of HAP control efficiency but requires annual reporting of exceedances. The Agency believes that these monitoring and reporting requirements address multiple commenters' concerns about the suitability of the requirements to the control systems used. The Agency believes that this commenter's specific comment becomes a moot point given the changes in the monitoring and reporting requirements contained in the final rule.

Comment: One commenter (73) noted that Section 63.567(j)(2) requires a source to repair and document information related to any leak detected in the closed vent system or control device. However, this section also contains a conflicting requirement to document "findings" even if a leak is not discovered. The requirement for a negative declaration is unreasonable and conflicts with the applicability criteria of the proposed rule.

Response: The Agency agrees with the commenter and has removed the requirements for recording that no leak was found. The Agency believes that this addresses the commenter's concern regarding the submission of "negative" information by minimizing the amount of information submitted while allowing the Agency to obtain an indication of a source's compliance.

2.10 GENERAL PROVISIONS TO 40 CFR Part 63

Comment: Seven commenters (04, 23, 29, 31, 72, 73, 78) raised the issue of referencing parts of the General Provisions to 40 CFR Part 63 and recommended applicable sections of the General Provisions be referred to within the MACT standard. Three commenters (04, 72, 73) believed this would reduce confusion in determining which requirements of these General Provisions are superseded and which are not. Two commenters (04, 73) believed this would reduce the likelihood of wrong decisions that may result in involuntary noncompliance. Three commenters (23, 73, 78) recommended that the Agency refer to only those applicable sections of the General Provisions. Five commenters (23, 31, 72, 73, 78) encouraged the Agency to incorporate a table or list of applicable/not applicable sections to clarify the applicability of the General Provisions (the same approach used in the HON or Petroleum Refinery MACT regulations). One commenter (23) pointed out that Section 63.560 does not clearly state the applicability of the General Provisions to major sources with emissions less than 1 Mg. One of these commenters (29) also stated the proposed Subpart Y provisions are predominantly self-contained with only several cross-references to needed subparagraphs of Subpart A. The commenter recommended the Agency not rely on Subpart A except where absolutely necessary and make Subpart Y a stand-alone MACT standard.

One commenter (78) suggested EPA create a mechanism for quick resolution (i.e., within 30 days) of questions that facility owners/operators will have regarding the overlap between individual MACT requirements and the requirements of the General Provisions to 40 CFR Part 63.

Response: The General Provisions to 40 CFR Part 63 were finalized on March 16, 1994, less than 1 month prior to proposal of these standards. Sufficient time was unavailable at proposal to incorporate the requirements of these final General Provisions into this regulation and identify specific applicable sections; however, the final regulation contains a table identifying the

applicable and nonapplicable requirements of these General Provisions. Addition of this table eliminates confusion about what requirements are appropriate and eliminates compliance concerns for subject sources. Because Subpart A was developed to avoid reiteration of similar requirements in each of the Part 63 regulations, this regulation references the General Provisions and is not a "stand-alone" regulation. Sources subject to Subpart Y are subject to the General Provisions of 40 CFR Part 63 in its entirety, except for individual instances identified as not applicable in this table.

2.11 WORDING OF REGULATION

2.11.1 General

Comment: Five commenters (06, 10, 71, 72, 79) stated the control standards should be clarified to reflect the fact that not all HAP vapors displaced from marine tank vessel loading will ultimately be captured by controls. Paragraphs 63.562(a), (c), (d), and (g) should clarify the distinction between the capture requirement and the destruction requirements of the control system. Paragraph (a)(1) specifies that vapor collection systems must be "designed to collect all HAP vapors displaced from marine tank vessels during loading ...". However, it is believed that EPA's intent is to allow a facility to be able to meet the standard by collecting and treating only those HAP vapors necessary to meet the standard. Paragraph (c) specifies that captured HAP emissions must be reduced by 93 weight-percent, whereas paragraph (d) states that HAP emissions be reduced by 98 weight-percent. It is unclear in Paragraph (d) if the total capture and reduction combined is to be 98 percent or if the reduction of captured emission alone is to be 98 percent. Additionally, the standard should specify what the minimum capture efficiency of the capture system should be or prohibit leakage of VOC from the vessel and control system during transfer, consistent with other LDAR rules.

Response: The approach to marine tank vessel vapor control employed under these final standards is to ensure satisfactory capture of vapors associated with bulk liquids subject to rule requirements and require technology that satisfies the requirements of both Sections 183(f) and 112 of the Act. Satisfactory capture is not to be equated with 100 percent capture of displaced vapors. The Agency has provided in the rule various approaches to demonstrate an acceptable level of vapor "tightness." Once vapor tightness is demonstrated, and the requirements of §§ 63.562(b)(1), (c)(2), or (d)(1) are satisfied (i.e., owners or operators show that vapors are delivered to shore), then the focus becomes the ability to demonstrate

compliance with the emission reduction requirements of the RACT or MACT standards as determined in § 63.563.

Comment: One commenter (10) stated that the regulation should clearly indicate that State and local agencies may adopt rules more stringent than Federal regulations.

Response: The Agency agrees that State or local agencies may promulgate more stringent regulations than the final standards promulgated for these sources. However, such regulations must comply with the U.S. Coast Guard safety regulations.

Comment: One commenter (20) believed that, as proposed, this regulation seems unduly complex, especially in comparison to the new source performance standard for bulk gasoline terminals (40 CFR 60, Subpart XX) and the recently proposed MACT standard for gasoline distribution facilities (40 CFR 63, Subpart R).

Response: The Agency has revised several sections of the final rule to make it more streamlined and less confusing. The Agency has also included several options for owners or operators to choose means of demonstrating compliance with the standards or monitoring the performance of control equipment.

Comment: One commenter (31) stated that EPA should clarify that the option to load at negative pressure applies to some vessels, not to all vessels as a group. The EPA offers an option of loading at negative pressure as an alternative to the other provisions intended to prevent losses from leaking vessels. This option is appropriate. However, the language of the proposed rule makes it sound like this approach is an all-or-nothing approach, in which we must either load every vessel (even those that are documented not to be leaking) at negative pressure, if we decide to use the negative pressure option at all. Section 63.563(a)(2)(iv) says that, as an alternative to the normal procedures, "the owner or operator of an affected source shall ensure that each marine tank vessel is loaded at negative pressure." The EPA should change this statement to say, "the

owner or operator may ensure that a marine tank vessel is loaded at negative pressure."

Response: The Agency agrees with this commenter and has clarified the final rule to show that negative pressure loading is one alternative to show compliance with the requirements to load vapor tight vessels.

Comment: One commenter (31) believed EPA should clarify what is meant by "gas CEM" and the difference between gas CEM's, VOC CEM's, and GC CEM's as used in the appendices.

Inconsistencies exist in the Appendices' specifications for CEM's. For example, Appendix A (1.4.1) says all CEM's must conform to the performance specifications provided in 40 CFR Part 60 Appendix B. However, later in Appendix A of this proposed rule, performance specifications for VOC and GC CEM's differ significantly from those in 40 CFR Part 60 Appendix B. The commenter provided an explanation; it appears that, in Appendix A (1.4.1), EPA means that "gas CEM's" must conform to the Part 60 Appendix. However, this raises a different problem; the term "gas CEM" is never defined. Thus, it is unclear how owners or operators should proceed in order to comply with the rule. To resolve these problems, the relevant portion of Appendix A (1.4.1) should be amended by adding the following as the first sentence:

1.4.1 Gas CEM's and COMS's. Gas CEM's are defined as those CEM's whose performance specifications are contained in Appendix B of Part 60 of this chapter. All gas CEM's and COMS that are ...

... chapter. Unless a gas CEM's or COMS is subject ...

The relevant portion of Appendix A (3.2) should be amended by the following:

... as stringent as the applicable RA required requirement for a gas CEM's pursuant to ...

The relevant portions of Appendix A Performance Specification 101 should be amended by the following:

- (1.1.1) ... acceptability of the VOC CEM's at the time ...
... evaluate VOC CEIS performance at the time ...
- (1.2) ... conformance of the VOC CEM's with these ...
- (3.1) 3.1 VOC CEM's installation ...
... The VOC CEM's shall be ...
- (3.2) ... locate the VOC CEM's probe at a ...
- (4.) 4. VOC CEM's Performance and ...
- (4.1) ... installing the VOC CEM's.
- (4.3) For a VOC CEM's intended ...
... For a VOC CEM's installed to ...
- (4.6) ... within the VOC CEM's measurement ...
- (4.7) ... time for the VOC CEM's must not ...
- (4.8) The VOC CEM's must allow ...
..., VOC CEM's calibration response ...
- (5.1) Install the VOC CEM's, prepare the ...
... prepare the VOC CEM's for operation and ...
... of the VOC CEM's, the owner ...
- (6.3.2) Calculate the VOC CEM's relative error ...
 $C_m = \text{Average VOC CEIS response, ...}$

The relevant portions of Appendix A Performance Specification 102 should be amended by the following:

- (1.1) ... acceptability of the GC CEM's at the time ...
... evaluate CEM's performance at the time ...
- (1.2) ... conformance of the GC CEM's with these ...
- (4.6) The GC CEM's must allow ...
..., the GC CEM's calibration response ...
- (6.1.2) ... between the GC CEM's responses ...
- (7.1) $x = \text{GC CEM's response}$
- (8) ... calculations, GC CEM's data records, ...

The relevant portion of Appendix C (1.1) should be amended by the following:

... provided in either Appendix B of Part 60 or Appendix A of this part of this chapter as appropriate. ...

The relevant portion of Appendix D (1.1) should be amended by the following:

1.1 Gas CEM's and COMS ...

Response: The Agency has clarified the use of CEM's in the final rule and has provided alternative compliance provisions. Furthermore, the references to performance specifications 101 and 102 have changed to performance specifications 8 and 9 respectively (Docket No. A-90-44, Item No. IV-I-4).

Comment: One commenter (31) suggested Appendix A, PS-101, Section 4.5 be modified to facilitate the use of audit gases from sources other than EPA and to allow the use of any accurate audit gas regardless of source. Appendix A, PS-101, Section 4.5 currently requires an EPA audit gas as a first choice for a CEM calibration. A "Protocol 1" gas is the only other choice listed as acceptable. These restrictions are unnecessary and add to the burden of the rule.

The commenter states that in many instances no EPA audit gas exists for the compound(s) of interest. And, even when they are available, the EPA audit gases are very expensive and may take months to obtain. Thus, even though the commenter has a high degree of confidence that the gas concentration would be accurate, the EPA gases would not be a competitive product in an open market. The commenter hopes that the Agency will not institute a monopoly of its own creation, to further the sale of these gases. Indeed, this section creates the appearance of a conflict of interest. The EPA should simply note that these gases are among the acceptable choices. Additionally, the commenter indicated that although "Protocol 1" gas mixtures are more readily available at more reasonable prices, there is no reason why they should be the only acceptable alternative to EPA's own audit gases. The whole idea of an audit gas is to provide a reference concentration. An audit gas of verified concentration should be acceptable, no matter who prepared it. Even a local laboratory or the company itself may be able to produce an acceptable audit gas and should be allowed to do so.

Thus, EPA should allow any acceptable audit gas regardless of who prepared it. Protocol 1 specifications more than meet the accuracy requirements of the CEM. Allowing the use of a Protocol 1 gas mixture would also minimize the costs and delay times that have been associated with the EPA audit gases, while still achieving acceptable results. This commenter recommended that EPA revise Section 4.5 as follows: "4.5 Performance audit gas. An audit gas approved by the permitting authority shall be used. A Protocol 1 gas mixture within the calibration range, or certified EPA audit gas, if used, shall be deemed approved. For any other gas, the owner or operator shall demonstrate that the concentration has been verified."

One commenter (31) thought EPA should clarify what is meant by "span" and "range" in the appendices and make several revisions to assure that these terms are used consistently.

In a number of places in the Appendices, the words "span" and "range" are used. These terms can be used interchangeably or differently, depending on the industry. One commenter (31) stated that EPA may be using the terms differently at different places in the Appendices (e.g. Appendix A (5) measurement Span versus Appendix A, PS 101 2.1 Instrument Range, and Appendix A, PS 101 2.2 Instrument Span or Span Value), thus causing confusion and making compliance difficult.

The EPA should define these terms. For example, under a different statute, EPA has defined "Instrument Measurement Range" as the difference between the minimum and maximum concentration that can be measured by a specific instrument, 40 CFR Part 266 App. LY 2.1.2.3. Similarly, in other contexts, EPA has defined "Span or Span Value" as the upper end of the Instrument Measurement Range. 40 CFR Part 266 App IX 2.1.2.4, 40 CFR Part 60 Appendix B PS-2 (2.4), and 40 CFR Part 60 Appendix F (2.3). These definitions would be acceptable for the Enhanced Monitoring rule as well. Then, once EPA has defined these terms, the Agency should be consistent in using them. Therefore, the

relevant portions of the appendices should be amended by the following:

- Appendix A (1.1.d) - (d) Instrument range;
 - (1.4.d) - d) Instrument range;
 - (5) - 5. Measurement range is...
 - (5.1) - Measurement range is ...
 - (5.2) - ... consider the measurement range in the ...
... a proposed EMP measurement range which meets any existing measurement range requirement ...
... two types of measurement range specifications:
 - (5.2.1) - 5.2.1 Measurement ranges...
 - (5.2.i) - 5.2.2 Measurement ranges...
- Appendix B (2.1.1) - ... over the measurement range...
- (2.2) - ... over the measurement range....
- Appendix D (2.1.2) - ... at the low and high levels. ...

Response: The Agency notes that the references to performance specification 101 have been changed in the final rule to performance specification 8. Performance specification 8 does not require the use of audit gases. The terms "range" and "span" are also no longer used in the manner stated by the commenter in performance specification 8.

Comment: One commenter (71) stated Section 63.563(a)(5) and (a)(5)(i) virtually duplicate 63.564(a) and that these sections should therefore, be combined for simplicity and clarity. The following recommendations were made:

- 1) Delete 63.563(a)(5) and (5)(i).
- 2) Add the "except for pressure/vacuum relief valves" phrase from 63.563(a)(5)(i) to 63.564(a).
- 3) Move and renumber 63.563(a)(S)(ii) to 63.564(a)(3).

Response: The Agency has streamlined the requirements of the final rule. The specified sections are among those clarified.

2.11.2 Definitions

Comment: One commenter (10) believed that EPA should expand the definitions section to include the definition of "State and local permitting authority" and "delegated State authority," which is not mentioned until the last section of the regulation. The regulation should be revised and made consistent throughout.

Response: The definition for State and local permitting authority and delegated State authority is given in the General Provisions to 40 CFR Part 63. These definitions have not been modified in the final rule; therefore, the Agency has not included these definitions in the text of the final rule.

Comment: One commenter (20) asked what is meant by "an hour block average."

Response: The Agency agrees with the commenter and has described how to determine an hour block average in Section 63.564 of the final rule as 4, 15-minute averages.

Comment: One commenter (24) requested clarification on the definition of "major source." Because the rule states in 63.560(a) that the provisions apply to any existing or new marine tank vessel loading or unloading operations that meet the definition of a major source in Section 112(a)(1) of the Clean Air Act as amended, it is not clear why a source would even need the 1 metric ton exemption. However, it is clear in the preamble that this rule applies to any marine tank vessel loading operation that is associated with a facility that is a major source as defined in 112(a)(1) of the Clean Air Act, as amended. Section 63.560(a) should state that the rule applies to any marine tank vessel loading and unloading operations that are major sources or are associated with a major source as defined in 112(a)(1) of the Clean Air Act.

Response: The Agency agrees that only major sources are affected by the MACT standards. However, the Agency disagrees with the commenter regarding the need for establishing two subcategories based on HAP emissions. A terminal having very small marine tank vessel loading emissions may be classified as a

major source because of source-wide HAP emissions. The Agency believes that a subcategory for such sources is justified (see Section 2.3.1 of this document for additional discussion). The selected MACT (i.e., the MACT floor) for the subcategory of major sources emitting less than 10 Mg/yr of all individual HAP and less than 25 Mg/yr of total HAP is no control.

Comment: One commenter (29) requested that a definition of "affected source" be added to § 63.561 because the term is not defined for purposes of proposed Subpart Y. It appears that EPA intended that marine tank vessel loading operations that are major sources by themselves or located at major sources are to be the affected source. The preamble to the proposed rule specifies that "the source category to be regulated is major source marine tank vessel loading operations," (59 FR 25007), but this discussion is inadequate.

Only the term "affected source," as clearly defined by a definition in 63.561, should be used in the final rule. The use of the term "affected facility" as found in 63.563(a)(2)(iii)(B), "the owner or operator of the affected facility shall require that the vapor-tightness failure be documented," should be eliminated.

The definition of "affected source" should be added to 63.561 as follows:

"Affected source for purposes of MACT is a marine tank vessel loading operation which meets the applicability requirements in § 63.560(a)."

Response: The Agency has added a definition for the term "affected source" to the final rule.

Comment: One commenter (31) stated the definition of "recovery device" should be changed to include all devices that remove vapors, regardless of the ultimate disposition of the recovered material. As currently written, the definition of "recovery device" in Section 63.561 includes only those units that are "used for the purpose of removing vapors and recovering liquids or chemicals." The phrase "recovering liquids or

chemicals" is unclear. Although EPA does not define the term "recovering," this commenter thought enforcement personnel might interpret it to mean "obtaining for recycling or reuse." In this case, adsorbers, condensers, etc. would not be considered "recovery devices" and also would not be "combustion devices." Consequently, these pieces of equipment would not be "control devices" as defined under this rule and would not qualify to use a removal efficiency of 95 percent.

Some of these devices will likely demonstrate a control efficiency of 98 percent or better. Other devices, such as scrubbers, will only be able to achieve the 95 percent control level. It is important that EPA clarify that these devices may be used to comply with the standard. The EPA should also revise the rule to indicate that any device (whether or not it is a combustion device) that achieves a removal efficiency of 98 percent is acceptable, regardless of the disposition of the removed material.

Another commenter (39) requested clarification of combustion vapor control device requirements and recommended that EPA define in the proposed rule each combustion device and all applicable requirements.

Response: The Agency has clarified the definition of "recovery device" in the final rule by using a definition similar to one established in the HON. The Agency has provided test and monitoring protocols for standard control devices available in the marketplace. The Agency has also provided for the use of alternative control technologies and has provided owner/operators provisions to test and monitor these devices.

Comment: One commenter (31) suggested that EPA add two new definitions and change the definition of "source," as follows: (1) Cargo consolidation means transfer of product from a barge or ship to another vessel by way of loading hoses without utilizing shore equipment; (2) Bunkering operation means the fueling of a vessel from a barge or other vessel without utilizing shore equipment; and (3) Source means any location where there exists a

dock or berth capable of bulk loadings on marine tank vessels except offshore drilling platforms, offshore lightering operations, cargo consolidation, and bunkering operations. Another commenter (114) requested that these standards apply to vessel-to-vessel transfers.

Another commenter (34) disagreed with the proposed rule definition of "source," particularly with regard to Section 112 requirements. The EPA proposes "source" in 63.561 as "any location where there exists a dock or berth capable of bulk loadings on marine tank vessels except offshore drilling platforms and offshore lightering operations." The commenter considered the definition too restrictive and in conflict with the proposed Section 112(d) provisions in the proposed rule. The definition should be revised to state "any location where there exists a dock or berths, or multiple docks or berths, capable of bulk loadings on marine tank vessels except offshore drilling platforms and offshore lightering operations."

Another commenter (85) made suggestions regarding the definition of "source." The commenter supported the exclusion of lightering operations and noted the word "offshore" should be dropped as it is defined in the definition of "lightering." This commenter also suggested the addition of "bunkering" to the exclusion list, because bunkering operations are not meant to be covered, i.e., the definition refers to tank vessels only. Also, the phrase "a marine tank vessel" should be "of marine tank vessels."

Response: These standards address bulk loading operations at terminals. Loading operations between vessels including lightering and bunkering operations are not addressed by these standards. The Agency has clarified the determinations and applicability sections accordingly. The Agency did not agree that the definition revisions suggested by commenter 34 were needed in the final rule.

Comment: One commenter (34) also requested that the definition of "terminal," included in 63.561, be modified to

include "any land or sea based permanent structure, or structures located on contiguous property, capable of loading liquids in bulk onto marine tank vessels."

Another commenter (69) recommended that Section 63.561 be amended to clarify that the definition of "terminal" does not include marine fueling facilities. This definition should be modified to read " . . . capable of loading liquid cargoes in bulk onto marine tank vessels." The commenter believes this modification will prevent unnecessary confusion regarding the scope of the proposed regulations.

Response: The proposed regulation covers bulk loading operations and not fueling operations. Additional clarification of the definition is not necessary. The Agency disagrees that the suggested revision to the definition of "terminal" is needed given the Agency's use of "contiguous." The Agency also believes that the permanence of a terminal should not dictate a limitation on the requirements to install controls if that terminal exceeds the applicability levels for the final rule.

Comment: One commenter (34) requested that the final rule include the definition for steam generating units contained in NSPS Subpart D-Dc in place of the proposed definition for boilers. Some affected facilities will likely use combustion devices that heat a process gas or fluid as well as generate steam, and these combustion devices may also be used as a control device, using marine loading vapors as a primary fuel.

Response: The definition of boilers has been revised to reflect the commenters suggestion.

Comment: One commenter (36) requested clarification on the term "percentage of HAP" used in the emission estimation formula. The commenter believed that the percentage of HAP's is the percentage of HAP in the vapors emitted by the facility, not the HAP in the liquid commodity loaded. These percentages are often substantially different and would produce different determinations of HAP emissions from a given facility. For example, HAP may be 2 percent by weight in the liquid product but

only 0.67 percent by weight in the vapor. It appears from both the preamble and the proposed regulations that the Agency is attempting to reduce the emissions, which relates, of course, to the content of the vapor.

Response: The emissions estimation procedures in the final rule no longer specify the calculation of the percentage of HAP.

Comment: One commenter (46) believes the term "dry-docking" is unclear as used in Section 63.563(a)(2)(ii) and (iii)(B). To eliminate potential confusion, the commenter suggested "dry-docking" should be replaced by the phrase "gas freeing for hot work" or be defined in Section 63.561 as "having to gas free a vessel."

Response: The references specified by the commenter now refer to "cleaning and gas freeing or drydocking."

Comment: One commenter (71) stated that "continuous" is used throughout the rule and needs to be defined. Industry comments on the HON pointed out that modern technologies for monitoring process parameters are not continuous, like archaic strip-chart recorders, but are digital. Digital technologies make measurements frequently but not continuously. The commenter recommended adding to this subpart the following definitions from the final 40 CFR Part 63 Subpart G rule: (1) "Continuous record means documentation, either in hard copy or computer readable form, of data values measured at least once every 15 minutes and recorded at the frequency specified in § 63.152(f) of this subpart"; and (2) "Continuous recorder means a data recording device that either records an instantaneous data value at least once every 15 minutes or records 15-minute or more frequent block average values."

Response: Use of the word "continuous" has been made consistent with its use in the General Provisions to 40 CFR Part 63. A definition similar to one used in the HON has been incorporated in the final rule.

Comment: One commenter recommended EPA modify the definition of primary fuel and the wording of the performance

test exemption so that the vent stream need not be the only fuel burned in a combustion device exempt from testing. The proposed definition of primary fuel requires that it be "sustaining operation of the device without the addition of other fuels". However, this limitation is not necessary to assure destruction of any vent material included with the primary fuel and is inconsistent with the definition used in other regulations. Normally a vent stream is too low in volume to support combustion on its own and is mixed with primary fuel or supplemented with other fuel. Destruction adequacy is based on how the vent stream is introduced to the flame zone, not what portion of the fuel it represents. The commenter urged the Agency to adopt the definition in the HON of primary fuel instead of the definition proposed here and to modify the wording of 63.563(b)(2)(i).

Recommendations:

(1) Replace the proposed definition of primary fuel with that from 63.111, specifically:

"Primary fuel means the fuel that provides the principal heat input to the device. To be considered primary, the fuel must be able to sustain operation without the addition of other fuels."

(2) Modify 63.563(b)(2)(i) as follows:

...comply with 63.562(c), (d), or (g) and the vent stream is used as or introduced with the primary fuel;" [add underlined]

Response: The Agency agrees with the commenter and has incorporated similar language.

Comment: One commenter (38) requested that the baseline outlet VOC concentration (under operating parameters for carbon adsorbers) be defined.

Response: The Agency has defined "baseline operating parameter" in the final rule. The Agency does not believe that it is necessary to define each specific baseline parameter (e.g., temperature, pressure, VOC, etc.) used in the final rule

since the generic term is defined. The Agency has clarified the use of the baseline outlet VOC concentration in the final rule.

Comment: One commenter (31) stated the definition of "calibration precision" is incorrect and should be modified. In Performance Specification 102 (2.2), the term "calibration precision" is defined as an "agreement." However, calibration precision is an indication of error resulting from slightly differing readings for the same calibration gas concentration, rather than the "agreement" of the readings. Therefore, the relevant portion of PS 102 (2.2) should be amended by the following: "The error between triplicate injections of each calibration standard."

Response: The term "calibration precision" is no longer used in the final rule. The Agency did not make the suggested change to the promulgated PS-8 and PS-9.

2.11.3 Overlap With Other Standards

Comment: Several commenters (04, 10, 68, 71, 73) were concerned about the overlap of the marine tank vessel standards with other existing standards. One commenter (04) stated EPA should specify whether this proposal overrides other overlapping requirements. The commenter stated that this proposal does not provide adequate information or guidance for a source to determine which provisions of this proposal or other similar standards are the most stringent. The commenter contended that the overlap between this and other regulations will lead to considerable uncertainty in both the regulated and regulatory communities. The EPA should clearly specify which provisions of other related regulations are overridden by the marine tank vessel loading rule and which are not. The commenter suggested that EPA employ the methodology used in the HON in which the Agency clarified which requirements were to be complied with when an emissions point was subject to other standards. Another commenter (10) was concerned that this regulation may be unduly complex, especially in comparison to the New Source Performance Standards for bulk gasoline terminals and the recently proposed MACT standard for gasoline distribution facilities. The EPA has historically established standards for terminals in units of milligrams of HAP (or VOC) per liter of product transferred. The EPA's stated rationale is that control efficiencies are dependent on the inlet concentration to the control device.

Five commenters (25, 29, 68, 71, 73) raised the issue of overlap with the Benzene Transfer NESHAP. One commenter (68) believed the regulation should clearly state in the Standards Section (63.562) that any source currently subject to and compliant with the benzene loading NESHAP (40 CFR 61 Subpart BB) has discharged all of its compliance obligations under this proposal. One commenter (73) recommended that loading operations and equipment subject to the benzene loading NESHAP be considered in compliance with the proposed marine tank vessel rule. Thus, benzene loading operations, which must achieve 98 percent

control, should not be required to modify, retest or otherwise trigger requirements from a different standard. Two commenters (71, 73) recommended modifying 63.560(e) as follows: "(e) A loading operation that is subject to the provisions of this subpart and also to the provisions of 40 CFR Part 61 Subpart BB, is only required to comply with the provisions of 40 CFR Part 61, Subparts A and BB."

One commenter (29) stated that 63.563(b) does not give recognition to situations in which an existing marine tank vessel loading facility is utilizing a combustion device or a recovery device to achieve compliance with the benzene transfer operations NESHAP at 40 CFR Part 61, Subpart BB. From references throughout the preamble to this proposal, it is apparent that the Agency has utilized many of the procedures specified in this [i.e., benzene transfer] NESHAP. Accordingly, an owner or operator should not be required to run performance tests when the control device being used is in conformance with the benzene transfer operations NESHAP.

To reflect this exemption, 63.563(b)(2) should have the following additional exemption added to it:

(iv) When the control device being used for the marine vessel loading is in compliance with the 40 CFR Part 61, Subpart BB requirements.

Response: The Agency agrees that potential confusion exists regarding the overlap of the marine tank vessel loading standards with the benzene loading standard. In the final rule, the Agency has clarified that benzene emissions controlled under the benzene transfer NESHAP are not subject to the final standards for the marine tank vessel loading operations standard. However, the Agency notes that terminals subject to the benzene loading NESHAP may be required to control the emissions from other commodity loading operations (i.e., nonbenzene loading operations) under the final marine tank vessel standards.

Comment: One commenter (34) noted that in 63.562(a)(1), EPA duplicated existing Coast Guard regulations of 33 CFR Part 154,

Subpart E 154.810 concerning interlocking valves on the line(s) from the vessel. The commenter recommended this duplicative requirement be eliminated from the final rule.

Response: The Agency has removed duplicative requirements for interlocking valves where the Agency's requirements were not needed for monitoring or compliance assurance purposes.

Comment: One commenter (36) stated that a concentration of emissions in the exhaust stream of 6,300 ppmv is generally equivalent to 10 milligrams per liter of gasoline -- the very standard proposed in EPA's rulemaking on National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Distribution (Stage 1), Docket No. A-92-38, which is also being promulgated under Section 112 of the Clean Air Act. In addition, a concentration level of 6,300 ppmv is equivalent to approximately a 98 percent by weight reduction of HAP emissions. Also, a concentration of 22,000 ppmv is equivalent to about 35 milligrams per liter of gasoline or a reduction of approximately 95 percent by weight of HAP emissions.

Response: The Agency notes that displaced vapors from marine tank vessels vary from the beginning of loading where concentration can approach zero (in a clean vessel) to saturation at the end of loading. The information cited by the commenter refers to displaced vapors from the loading of tank trucks. The emissions from these tank trucks are typically uniform (i.e., saturated) because of the much smaller volume of the tank trucks. The Agency, therefore, does not agree with the commenter's conclusions regarding the relationship between concentration level and emissions reduction.

Comment: One commenter (59) stated the USCG has written regulations (33 CFR 154, 155, 156 and 46 CFR Parts 30, 32, 35, 39) to address the safety aspects with regard to transfer of crude oil, benzene and gasoline. These regulations do not apply to other products; instead, the Commandant has conveyed a policy for the collection of vapors for other products. This action was done in recognition of the hazards associated with vapor

collection of these other products. Safety aspects concerning control of vapors other than crude oil, benzene and gasoline have yet to be addressed by USCG regulation. Implementation of the regulations should be delayed until USCG can confirm that due consideration has been given to the safety aspects of controlling vapors other than crude oil, benzene, and gasoline.

Response: The Agency agrees with the commenter's concern that some control vapors are not currently addressed by U.S. Coast Guard regulations. The final marine tank vessel loading regulations have been developed in cooperation with the U.S. Coast Guard so that the safety concerns expressed by the commenter could be addressed.

Comment: One commenter (80) was concerned about Federal requirements for sources of HAP because some existing permitting and risk management programs address many of the same toxics concerns. States and districts have numerous Rules and Regulations in place which limit emissions from the significant source categories in the commenter's region. In particular, the commenter's district has Regulation 8, Rule 44 limits emissions from Marine Vessel Loading Terminals and Regulation 8, Rule 46 limits emissions from Marine Tank Vessel to Marine Tank Vessel Loading. The commenter believed it is critical that the rulemaking efforts at EPA recognize the importance of established local programs and provide flexibility to minimize negative impacts on these programs wherever possible.

Response: The Agency agrees with the commenter and has considered known local and district requirements when developing these standards. The final rule contains provisions where owners or operators of affected source may utilize test data and reporting information used to comply with State or local regulations where such data and information meet or exceed the requirements contained in the final rule.

Comment: One commenter (80) raised the issue of "fugitive sources of HAP." The preamble to the proposed rule specifically states that fugitive sources are not considered part of the

marine loading operation (organic HAP storage, piping, pumping, vapor leaks from seals, hatch covers, and pressure relief valves). Some of these sources may be subject to regulation under the HON, the Refinery MACT, or the Stage I Gasoline Distribution MACT; however, it is unclear how applicability is divided. For example, at what point is the storage part of the HON facility versus the marine loading terminal? The same question applies to piping, pumping, etc. The commenter recommended that fugitive emissions from marine loading operations be addressed in the rule in order to provide greater clarity of the total marine loading requirements to the regulatory and regulated community.

Response: The source category addresses only emissions displaced from the loading of marine vessels and does not address shore-side emission points from other sources. Therefore, the final rule regulates only emissions from vessel loading.

Comment: One commenter (38) stated that emissions from the vessels that are under jurisdiction of the USCG must be controlled. In order to load or unload, the vessel must be compatible with the vapor recovery equipment on shore. It seems that both agencies are interested in the common goal, control of emission from vessels. A start can be achieved by requiring the vessel to be vapor tight and prohibiting emissions from ballasting operations; the commenter believed these changes should be reflected in the final rule.

Response: The Agency believes that the basic approach reflected in the promulgated rule satisfies the commenter's recommendation. However, the Agency notes that ballasting requirements have been removed from the final rule.

2.12 ADMINISTRATIVE RECORD/SOURCES OF INFORMATION

Comment: Four commenters (30, 34, 42, 50) stated that the administrative record is inadequate to support the proposed regulations and that EPA should withdraw the Proposed Regulations to correct and supplement the administrative record. The commenters stated that the preamble to the proposed regulation, the TSD, and EPA's administrative record are based on incomplete, flawed, and outdated information. Additionally, the Preamble fails to explain the rationale and provide the necessary information to evaluate the Proposed Regulations. The inadequacies in the administrative record demonstrate that EPA has failed to meet the requirements of the Clean Air Act and the Federal Administrative Procedures Act by proposing these regulations. Two commenters (30, 32) stated that the Technical Support Document refers to an "Appendix F" with data tables showing throughput versus cost information, yet the TSD contains no such Appendix. The commenter stated that this omission makes it impossible for the public to assess the accuracy of EPA's calculations. This commenter stated that the lack of access to the underlying data and comprehensive documentation of the information contained in the data base prevents the public from knowing if other errors exist in the database. The commenter stated that this omission renders the Proposed Regulations insupportable. The fact that the public has uncovered numerous glaring defects that EPA did not discover casts serious doubt on the overall adequacy of the administrative record.

Three commenters (32, 34, 89) stated that EPA's extracted data from the 1988 version of the Waterborne Commerce of the United States (WCUS) data base is outdated and that more recent data is available to the Agency through the 1990 or 1992 U.S. Army Corps of Engineers Marine Loading Database. The commenter noted that the Corps was unwilling to release this updated information to those affected by the Proposed Regulations until mid-June of 1994. The commenter noted that other published preliminary reports indicate total product throughput increased

10 percent between 1988 and 1990. The commenter stated that this statistic could have a significant effect on the number of facilities subject to controls under the Proposed Regulations.

One commenter (32) pointed out problems related to the WCUS data base. The data base lists a facility in Alaska (No. 1666) as the second largest U.S. crude oil terminal. No such terminal exists in the State of Alaska or anywhere else in the United States.

The data base lists a facility located in the "Transshipment Area" as the third largest crude oil terminal. This terminal is reported to have a throughput of 179 million barrels. This "terminal" is apparently the terminals associated with the Panama Canal. Because it is not located in any U.S. State or territory, it should not be included in the database and used in setting MACT or RACT standards.

The database reports HAP emissions by terminal in tons and megagrams. These figures should directly correlate for each terminal, differing by the conversion factor between U.S. and metric tons. However, some of the entries have emissions listed in both columns but the values are different than the proper 1.1 ratio (1.1 ton = 1 Mg).

One commenter (32) stated the WCUS data base underestimates the number of terminals covered by the MACT standard. Based upon specific product throughput, EPA also estimated that 1,231 of the 1,667 terminals analyzed emitted less than 0.5 tons of HAP emissions in 1988. Again, this estimate ignores total product throughput figures reported by the Corps of Engineers for these terminals. Use of total throughput information included in the data base would have led EPA to conclude that at least 128, and possibly as many as 514, of those terminals would have exceeded a 1-ton HAP emission threshold in 1988. Further, the Corps personnel responsible for developing the database indicate that the total throughput figures themselves under-report actual throughput by 10 to 20 percent and that they use 15 percent as the best estimate of under reporting. These facts reinforce the

conclusion that EPA has significantly underestimated the number of terminals that will be subject to controls under the proposed MACT floor.

Three commenters (32, 34, 89) stated that EPA has based its HAP emission estimates on specific product throughputs and that this has a major impact on MACT floor determination. The commenters stated that specific product throughputs are under-reported in the data base. Total throughputs, also reported in the data base, exceed the sum of all individual product throughputs by more than 20 percent.

For the 1,648 terminals EPA considered in developing the MACT standard, the total volume of individual product throughputs reported equals 2,649,129,893 barrels per year, while the total throughput volume equals 3,205,444,509 barrels per year--a difference of more than 20 percent. Looking at the larger set of 1,800 terminals actually reported in the database, the 20 percent difference continues to hold true. The EPA ignored the implications of this discrepancy in calculating HAP emissions.

The effect of EPA's reliance on under-reported throughput figures is to understate the number of terminals impacted by the Proposed Regulations. For example, due to reliance upon the flawed data, EPA identified 444 terminals, collectively accounting for 65 million barrels of throughput, as having zero HAP emissions during 1988. It is more appropriate to assume that between 30 and 71 of these terminals had in excess of 1 ton of HAP emissions during 1988.

One commenter (32) stated that EPA appears to have made no effort to gather real-world information to verify or supplement its 1992 analysis. The record shows a very limited number of phone contacts with terminals as well as few site visits. The group sampled was so small, however, that the only benefit appears to have been a background understanding of control technology for EPA staff and consultants. Absolutely no indication in the Administrative Record implies that the

resulting information was used to either validate or modify the database that supports EPA's analysis in this rulemaking.

Response: The Agency recognizes that there are limitations to the data base generated during the development of these standards but disagrees with the commenters that these limits jeopardize the conclusions reached by the Agency. The Agency believes the most likely effect of the data base limitations are either an overstatement or understatement of the national impacts of the final rule.

With the exception of requirements for VMT (see section 2.3.4 of this document), the Section 112 requirements are set at the MACT floor (i.e., the minimum requirements allowed under the Act). Therefore, cost impact data do not play a role in the establishment of these MACT standards. The data on numbers of affected sources, cost impacts, and control status submitted by commenters (including more recent data from the Waterborne Commerce in the United States data base) were used by the Agency to calculate the MACT floors for the final rule (see Docket Number A-90-44, Docket Entry IV-B-2 for additional information on the determination of the MACT floors).

The Section 183(f) requirements in the final rule were changed to reflect additional data received from commenters (including Commenters 133 and 139). These data resulted in higher cost effectiveness for VOC control. Again, national impacts may be either overestimated or underestimated, but the decision of the applicability of the final standards was based on the best available data.

Comment: Two commenters (32, 34) cited the following example of misstated documents in the record: Table 1 in the Preamble purports to present the cost of the different RACT regulatory alternatives. The EPA cites two documents from the administrative docket as the sources of the information presented in the table. (Item Nos. II-A-23 and 32.) From a review of the docket, it is not possible to determine how EPA constructed the table. The information contained in the documents does not

correspond to the information in Table 1. The TSD does contain information similar to that found in Table 1, but the numbers are different. See TSD Table 4-1 at Page 4-4.

Two commenters (32, 34) cited the following example of misstated documents in the record: In the discussion of the determination of the MACT floor, EPA refers the reader to Docket A-90-44, Item II-A-44 for further information. 59 Fed. Reg. 25014. Yet, this document does not exist in the Docket according to the April 28, 1994, index obtained in May 1994.

Response: A typographical error was made in referencing the docket entry for the MACT floor; the correct reference should be Docket No. A-90-44, Item No. II-A-34. This memorandum was contained in the docket prior to the proposal of these standards. The TSD prepared by the Agency during the development of the proposed standards was published in 1992. In the course of the rulemaking activities leading up to proposal, there were a number of changes and revisions to some of the information contained in the TSD. These changes were included in the docket. The Agency also notes that these changes did not affect the decisionmaking process that led to the proposal of the standards or the legality of the proposed standards.

Comment: One commenter (32) stated that EPA's assumptions regarding controls on existing terminals are unsupported. The Administrative Record does not indicate that EPA has taken any actions to update the information on existing terminals contained in the 1992 TSD. The 1992 TSD's information on terminals that are subject to State regulations appears to have been derived from information provided by Midwest Research Institute (MRI) in 1991, which is contained in the Administrative Record (Documents II-A-22, II-A-25 and II-A-26). The only other substantive reference to State regulations in this portion of the Administrative Record is an August 27, 1993, letter from MRI (Document II-A-032) that summarizes the emissions controls required by the various State regulations. Some comments

received from terminal operators summarizing the regulatory requirements in California are also included.

It is not accurate to assume that simply because a State adopts a control efficiency standard, all sources in that State have installed vapor-control technology that meets the standard. Some sources will shut down rather than comply. Some may be given extensions or will not comply for other reasons. The assumption that all sources will comply is particularly questionable when it is being made before the State standard takes effect, as has occurred in the documents supporting EPA's Proposed Regulations.

The commenter stated that there is a difference between what a State requires and what sources achieve, and EPA has ignored this. The MACT standard for existing terminals must be based on the level of control achieved by the best performing 12 percent of the sources in that category or subcategory. The document supporting EPA's MACT floor determination, Document II-A-034, states, for example: "Facilities in California and Louisiana are required to control all VOC emissions from loading operations. Therefore, the control levels of these regulations ... were used as the actual HAP reductions for all regulated terminals in these two States." Docket No. II-A-034 at p. 2 (emphasis added). The fact is, however, that information in EPA's own Administrative Record demonstrates the difference between what is required and what is actually being achieved.

Docket No. II-A-022, a summary of information on terminals in California, Louisiana and New Jersey, dated July 9, 1991, includes a table of 33 terminals, only 4 of which are shown as having on-line and operating controls. The text indicates that in Louisiana only one terminal had a control system in place, and four others planned to have systems operational before a December 1991 deadline. Apparently none of the terminals discussed handled crude oil, for which Louisiana had a May 1992 deadline. The EPA assumed 22 terminals in Louisiana were meeting that State's standards.

Two site visits in New Jersey, both on September 20, 1991, 3 months after the compliance date for that State's regulations, are reported in Documents II-A-025 and -026. Both facilities were operating under administrative consent orders and hoped to conduct compliance tests in October of 1991.² EPA assumed 24 terminals in New Jersey were meeting that State's standards. This assumption is surprising, in light of the fact that the Administrative Record establishes certain New Jersey terminals had not achieved compliance by the required date, and the record contains no later information on these facilities' compliance statuses.

In fact, no indications exist in the record of any effort by EPA to verify the compliance status of any of the terminals EPA used to calculate the MACT floor. Other than the MRI documents referenced above, there are notes from some phone contacts regarding possible terminal site visits. These contacts are all from 1991, and none of them references regulatory status.

If EPA had tried to validate its assumption that 181 terminals in States with regulations have installed control equipment capable of meeting the State standards, it would have learned that fewer than 60 of these terminals have actually installed or are installing such equipment. This figure was provided by API following a canvas of members.

Looking at the States used to establish the MACT floor, based on contacts with industry sources, regulatory agencies and equipment suppliers, it appears that only 15 terminals in California, 17 terminals in New Jersey and between 10 and 16 terminals in Louisiana have installed control equipment. It is not clear that all of these terminals - particularly the ones in Louisiana - would be subject to the MACT regulation.

²One facility later reported that its operational problems had been corrected and that it was in compliance with New Jersey's regulations.

There are several reasons why terminals subject to State regulations have not installed controls. For example, in California many terminals used emission offsets or purchased emission reduction credits rather than installing controls. Regardless of the reasons, however, it is apparent that EPA's assumption regarding the level of control achieved by sources subject to State regulation is incorrect.

Based upon the analysis done for one commenter (89), the Agency appears to have underestimated the number of terminals with more than 1 ton of HAP emissions per year by at least 50 percent, if not by more than 100 percent. As a result, the number of terminals making up the best-performing 12 percent is between 1-1/2 and 2 times larger than the number used by EPA in its MACT determination. At the same time, the number of terminals with controls in the States that have adopted regulations is much smaller than EPA assumed. As a result, the level of control achieved by the best-performing 12 percent is lower than EPA concluded, whether the number of terminals making up that 12 percent is increased or not. Further, it is impossible for the public to evaluate whether the MACT standard was correctly set based on the Administrative Record.

Two commenters (89, 135) stated that their analysis of the 1992 WCUS data base indicates that there has been change in marine tank vessel loading and unloading activity since 1988. First of all, fewer total terminals were reported in 1992 than in 1988, with the reduction primarily in fewer small terminals. In addition, there is a shift towards more marine tank vessel activity with barges compared to 1988. The Corp of Engineers has indicated that they believe that the 1992 data base has a more complete and accurate, overall reporting for waterborne commerce than the 1988 data base, especially for specific product throughputs. Because the 1992 data base promises to be more complete, and because more specific products are outlined in the data base, we believe that the 1992 data is a more reliable estimate of the potential number of facilities impacted by the

proposed EPA requirements. The commenter was able to estimate the potential number of facilities impacted in the enclosed reporting using fewer assumptions than was necessary in analyzing the 1988 data base.

Response: The MACT floors established in the proposed rule were based on the information available to the Agency at the time of proposal. The WCUS data base was used primarily as a broad tool to establish national impacts and the MACT floors for the standards. The commenter believes that the difference between the 1988 and 1992 data represents some underlying shift in the industry rather than short-term market changes or changes in reporting to the WCUS itself. The commenter did not provide sufficient data to support their comment.

The Agency has used data submitted by commenters in the determination of the MACT floor for the final standards. This determination includes information on the number of controlled terminals (at least 119 controlled terminals) submitted by one Commenter 135. However, the commenters did not submit information to allow the Agency to readily determine the emission reduction of these "controlled" terminals. The Agency, therefore, relied on State regulations and emissions estimates to calculate the emissions reduction of the controlled terminals, and, in turn, determine the MACT floors for the final standards (see Docket No. A-90-44, Item No. IV-B-2).

Comment: One commenter (32) stated that the administrative record does not support EPA's determination of subcategories. This is a key issue because the selection of subcategories in the proposed regulations has effectively dictated the outcome of the MACT floor determination.

Response: The Agency disagrees with the commenter regarding the ability of the administrative record to support EPA's determination of subcategories. The commenter did not supply the necessary data to contradict the Agency's determination of these subcategories. The Agency's reevaluation of the subcategories carried out during the development the final rule to respond to

the public comments has resulted in additional subcategories and redefinitions of some of the proposed subcategories. The Agency believes that the decisions for establishing these subcategories are fully documented in the Administrative record for these standards (Docket Number A-90-44, Docket Entry IV-B-2).

2.13 COST EFFECTIVENESS/IMPACTS

2.13.1 Cost Effectiveness

Comment: Several commenters (04, 28, 30, 32, 34, 37, 41, 45, 46, 89) expressed dissatisfaction with EPA's cost-to-industry estimate of approximately \$99,000 per ton of HAP removed. Most of these comments contend that incorrect or flawed data were used as the basis for the cost-effectiveness calculations. One of the most discussed issues involves EPA's estimate of the number of facilities (terminals) that will be impacted by the MACT standard.

One commenter (89) estimated (based on the 1992 data base analysis and using EPA assumptions) that the number of terminals exceeding the 1-ton HAP threshold, not accounting for current State/regional controls, would increase from 294 predicted by EPA in the proposed rule using 1988 data, to 375 in 1992. If State/regional controls are assumed to be in place, the best estimate of the number of terminals exceeding the 1-ton threshold, and therefore potentially required to install or expand controls (i.e., control of all vapor pressure products loaded) pursuant to the Section 112 proposed rule, is 343 for 1992.

One commenter (34) stated that, based on the 1988 data, EPA established emission estimates on specific product throughput at 1,667 marine tank vessel loading terminals, assuming 444 terminals had zero HAP emissions. However, when combined, those 444 terminals account for over 65 million barrels of total throughput and, therefore, are likely to have emissions greater than zero. Based on their analysis of average emissions from such facilities, commenter 34 estimates that between 30 and 71 of those 444 terminals exceeded 1 metric ton of emissions in 1988.

In addition, EPA estimates that 1,231 out of the 1,667 terminals emitted less than 0.5 metric ton of HAP. This estimate is also based on specific product throughput data, rather than total throughput data. Use of the total throughput data would result in an estimated 128 to 514 terminals exceeding

the 1 metric ton HAP emission threshold in 1988, depending on product assumptions. For the smaller facilities emitting approximately 1 metric ton of HAP per year, the cost-effectiveness is likely to exceed \$500,000 per metric ton removed.

One commenter (45) believed the actual number of facilities that will be required to comply with this regulation will be nearly 900.

One commenter (34) stated that the result of EPA not being able to consider the factors listed in Section 183(f) (because of the listing of marine tank vessel loading and unloading sources under Section 112(d)) is an extremely expensive, cost-ineffective regulation for hundreds of marine loading facilities.

One commenter (90) provided data based on EPA's proposed RACT Alternative II for VOC control that resulted in a cost effectiveness of \$145,000 per Mg of HAP. The commenter stated that such cost effectiveness is extraordinarily poor and recommended that the HAP control portion of the proposal not be promulgated. The commenter suggested that EPA reexamine the selection of Alternative II over Alternative I for VOC reduction based on cost effectiveness. The basis for the commenter's suggestion was the estimate by the Office of Technology Assessment that the value of VOC control in nonattainment areas ranges from \$25 to \$1,600 per Mg.

One commenter (30) presented data estimating the maximum HAP emissions (excluding oxygenates added to gasoline) from an offshore terminal platform to be 22.5 Mg total HAP/yr for conventional gasoline. Applying the minimum 93 percent MACT control, the resulting total HAP emissions would be 1.6 Mg/yr. Combined with the annual control costs of \$3.6 million for this facility (calculated previously), the cost effectiveness would be approximately \$170,000 per Mg. The commenter added that the economics of offshore terminal platforms are quite different from offshore production platforms. Consequently, the imposition of

costly marine vapor recovery controls will have significant and potentially prohibitive economic impacts on these terminals.

One commenter (34), with regards to the cost effectiveness for controlling low vapor pressure products, presented data (and a test report) on the calculated cost per ton of HAP removed for the control of various product types. The commenter stated that these data showed that the control of products below approximately 2.0 psia vapor pressure becomes exceedingly cost-ineffective. The cost for marine vapor control ranges from \$70,000 to over \$400,000 per ton for JP-4 (1.3 psia) and astronomical figures exist for heavy gas oils (up to \$36 billion per ton of HAP removed). The commenter believed only the higher vapor pressure products above 2.0 psia have cost-effectiveness values in the range of reasonableness.

One commenter (34) estimated that, for a typical loading station with a minimum product throughput of 10,000 barrels per hour, a complete cost for the installation of controls is \$3 million at a minimum. When applied to small operations emitting in the range of 1 metric ton per year of HAP, the cost-effectiveness for the proposed requirements would easily exceed half a million dollars per metric ton of HAP removed.

One commenter (28) stated that a preliminary capital estimate for controls at a remote facility would be \$10 million. The annual operating cost and indirect expenses are estimated at \$1 million per year. The facility would recover about 5 tons/yr of HAP at a cost of about \$525,000 per ton. The VOC recovery would cost about \$9,300 per ton. These figures far exceed the guidelines cited in the preamble to the standards and clearly show that vapor recovery in this case is not cost effective.

One commenter (34) estimated costs between \$3 million and \$25 million for "lower-48" systems and installation exceeding \$100 million for marine vapor controls at Alyeska's VMT. This rule would require that the petroleum industry expend well over \$1.5 billion in capital for marine tank vessel loading terminals.

An additional \$100 million for marine tank vessel retrofits would also be required.

One commenter (37) currently has marine vapor control systems at two refineries. At one refinery, a marine vapor recovery system for a single berth facility was completed in 1992 at a cost of \$5 million. At the second refinery, a marine vapor combustion system for a multiple berth facility was completed in 1993 at a cost of \$16 million. The commenter has initiated design work on a second multiple dock, multiple berth combustion system at a third refinery; the estimated cost of this system is in excess of \$16 million. The two existing facilities, which were built to State marine vapor control standards, will not meet the proposed federal RACT or MACT standards; therefore, modifications at additional costs to these facilities will be necessary.

One commenter (133) supplied data that supported an expansion of the RACT limits based on the "reasonability" of the control requirements for the Title I standards.

Response: As a result of the Agency's responding to these and other public comments, the Agency has reduced the number of terminals required to control emissions to approximately 29 terminals (an additional 32 terminals have already installed the required control technologies to meet the final standards)³. The Agency has addressed the commenters' concerns regarding the costs associated with controlling emissions by including cost ranges to represent the nationwide impacts. These ranges represent the Agency's cost estimates (lower range) and commenters' estimates (upper range). The Agency has also raised the limits for the applicability of RACT to terminals loading

³Refer to the Regulatory Impacts Analysis prepared for this final rulemaking for additional information concerning the impacts associated with this rulemaking; the impacts included in this document include information submitted by commenters, including comments concerning the number of controlled terminals and the costs of installing emissions control equipment.

10 million barrels or more of gasoline per year or 200 million barrels or more of crude oil per year. The Agency notes, however, that with exception of the standards for the Alyeska Pipeline Service Company's Valdez Marine Terminal, the final standards represent the MACT floor level of control. In cases where the MACT floor is the selected MACT for a standard, costs are not used as a basis for selecting the control technology to be applied to a group of sources.

The Agency has subcategorized off-shore terminals (see Section 2.3.2) and agrees with the commenter that the cost-effectiveness is too high to warrant controls beyond the MACT floor of no control or for terminals regulated under Title I. Additionally, the MACT floor for sources emitting 10 tons/yr of any one HAP or 25 tons/yr of total HAP was reformatted to provide for a vapor pressure limit of 1.5 psia.

Comment: One commenter (32) stated that the cost of a vapor control system for the VMT would be approximately \$120 million (not including ship modification costs) to comply with the proposed rule. One commenter (125) stated that the projected costs of controlling two berths at VMT would be approximately \$92 million. In another submittal, this commenter (126) provided a cost/benefit analysis for controlling two and three berths at VMT.

Two commenters (07, 32) stated that the vapor control process at the VMT will be the most expensive one ever installed anywhere. According to one commenter (32), the capital expense to install controls at two berths is \$92 million. The additional cost to install controls to a third berth is \$28 million in capital expense alone. Because 90 percent of throughput will be loaded from the two controlled berths when averaged over the remaining life of the terminal, it would cost considerably more on a per megagram basis to install controls on the third berth. In fact, it would cost more than three times as much per megagram to control emissions on the third berth as it would be on the other two.

One commenter's (32) analysis showed that the average cost to remove a megagram of pollutant between compliance and the year 2015 is \$239,225 at the two controlled berths and \$766,060 at the third berth. Given its limited use, it would not be cost-effective to install controls at the third berth. The cost-effectiveness of controlling the third berth versus the other two berths should be a major factor in the regulatory equation.

One commenter (32) calculated the cost-effectiveness of a dollar per megagram (\$/Mg) basis for installing controls on VMT's Berth 3 using the State of Alaska's throughput forecast and the berth usage contemplated by the proposed vapor control strategy. Based on these assumptions, the incremental cost effectiveness for controlling Berth 3 in addition to Berths 4 and 5 equals \$5,995 per Mg of VOC controlled. By comparison, EPA determined that RACT is not cost-effective at an amount greater than \$2,500 per Mg of VOC controlled (see 59 FR 25012). The EPA should reach the same conclusion for the VMT's Berth 3.

Moreover, EPA should weigh the cost effectiveness in areas where VOC emissions do not form ozone (for example, Valdez); there are no benefits from ozone reduction from controlling VOC emissions from Berth 3. The cost-effectiveness analysis for the VMT is, therefore, quite different from the cost-effectiveness analysis for a marine tank vessel loading terminal located in a nonattainment area where a high cost of control may be justified given the potential for ozone reduction.

One commenter (80) stated that the review of costs, outputs, and employment impacts for affected products did not consider companies that offer portable vapor recovery units for use on tankers or barges that are not equipped with vapor recovery systems. Such companies require no capital investment on the part of the terminal and may be feasible for terminals that load sporadically. They also may help delay the capital outlay associated with purchasing equipment.

Response: The Agency has established a subcategory for the VMT (see Section 2.3.4 of this document). The Agency has

incorporated the commenter's information into the cost analysis prepared for this rulemaking. These cost data were used in the Agency's decisionmaking for the final standards for the VMT subcategory (i.e., control of the majority of throughput loaded via at least two of the VMT berths provided that the projected throughput decline continues).

2.13.2 Other Cost-Related Impacts

Comment: Two commenters (23, 30) disagreed with EPA's assertion that many vessel owners will be able to pass forward retrofit costs in the form of higher transport prices. One commenter (23) noted that this assertion completely ignores today's free market economic realities. Today's transport prices are not representative of any kind of cost pass-through. Margins have simply narrowed because the vessel owners have had to absorb the cost impacts in the long term. Therefore, EPA should not expect the cost impacts of the proposed rule to be simply passed through as higher transport prices. One commenter (30) stated that current charter rates often do not cover base operational costs let alone the costs of financing larger newer tankers and certainly not the additional costs imposed by this rulemaking. The EPA should undertake a much more specific and valid examination of the potential economic impact of this rulemaking on vessel owners before adopting a final rule.

Response: An economic impact and regulatory flexibility analysis for this final rule was performed and is included within the regulatory impact analysis that has been submitted to the public docket (Docket Number A-90-44, Item Number IV-A-2). The regulatory flexibility analysis identified two types of businesses that could incur adverse economic impacts from this standard, marine terminal operations and marine vessel operations. With regard to marine vessel operations, the economic impact analysis considered the majority of these operations to be small businesses. However, the number of vessel operations significantly impacted from the proposed standard is not expected to be substantial. Only a relatively small percentage of U.S. marine transported throughput will be impacted by the standard. Excluding crude oil volume shipped by large tankers from the VMT, no more than one-third of the remaining U.S. marine transported throughput is expected be impacted by the standard. It is expected that an even smaller percentage of U.S. vessels will need to be retrofitted to accommodate the volume of

affected products. Only the largest and newest vessels (i.e., those that will cost least to retrofit) will therefore need to be retrofitted. Moreover, it is expected that vessel owners will be able to pass forward most retrofit costs in the form of higher prices. Vessels that cannot retrofit cost effectively and that cannot pass through costs can be dedicated to transporting unregulated products.

Comment: One commenter (28) estimated the additional dock time required for marine loading vapor control range from 90 minutes to 4 hours. The economic value of a vessel can be approximated by the demurrage cost currently incurred when there are unexpected delays. This value can amount to \$6,000 per hour. For a facility that loads 100 ships per year, the economic value of the lost tanker time could be well over \$1 million per year.

Further, for a dock facility currently operating at full capacity, the delays due to vapor control would cause either lost throughput or trigger the need to build additional dock facilities.

Response: The Agency is unable to agree with the commenter. The commenter did not provide any data to support their claim of additional impacts due to emissions control.

Comment: In addition to installation at the marine tank vessel loading terminal, one commenter (34) estimated that approximately 2,000 marine tank vessels will require retrofit so that they can connect to marine vapor controls. This possibility represents a challenge and concern to the industry because, to the commenter's knowledge, there are currently fewer than 60 marine tank vessel loading terminals with working marine vapor control systems in the United States and, furthermore, fewer than 20 contractors that have experience with such installations.

Response: The Agency has extended the compliance schedule for the RACT and MACT standards to afford additional time for the sources subject to the emission reduction requirements in the standards and vessels to install control and/or collection equipment. However, the Agency notes that additional comments

submitted by commenters show that there are at least 119 controlled terminals currently in operation and that these data were used in determining the MACT floors for the final standards.

Comment: Three commenters (36, 41, 54) stated that the proposed requirement relating to MACT are too broad and should not apply to the numerous terminals owned and/or operated by independent marketers. The rule would impose significant costs and operational restrictions on these terminals and yield only very limited HAP reductions. Such costs, in turn, would place these facilities at a serious competitive disadvantage, weakening their financial position and in some instances prohibiting their operation.

One of the commenters (36) also stated that EPA incorrectly assumed that many of the terminals that are placed at risk by the regulations are owned and controlled by major integrated oil companies with substantial financial resources. Independents are small and medium-sized companies that are not affiliated with major integrated oil companies and bring incremental supply to the market at very competitive prices.

The proposed rule would apply to many of these independent terminals. It would impose substantial costs and competitive pressure on them at a time when the reformulated gasoline program already places them at a severe competitive disadvantage. These companies cannot afford to incur millions of dollars of additional costs imposed by this regulation. In many instances, the terminals will become unprofitable and will not be in a position to continue operating, thereby reducing competition and eventually leading to unnecessarily higher petroleum product prices. The commenters also suggested that EPA narrow the scope of the rule to minimize these problems.

Response: The Agency notes that the changes in the subcategories based on HAP emissions (see Section 2.3.1 of this document) have eliminated control requirements for several of the smaller terminals. An economic impact and regulatory flexibility analysis was performed during the development of this final

rulemaking and is included within the regulatory impact analysis that has been submitted to the public docket (Docket Number A-90-44, Item Number IV-A-2). The regulatory impact analysis noted that, with regard to marine terminal operations, only the very largest terminal operations are expected to be affected by this standard. The decision not to require controls at existing smaller operations greatly reduces the potential for adverse economic impacts on small terminal operations. Nevertheless, some of the smaller terminal operations that will be affected by this regulation could be put under increased competitive pressure as a result of this rule. Of these terminals, however, it is expected that few or none are independently owned. The rest are part of large integrated petroleum operations. The number of small business terminal operations affected by this regulation is expected to be minimal.

Comment: One commenter (46) thought the proposed rule would act as a subsidy for foreign gasoline imports which is in direct opposition to the Clean Air Act Amendments of 1990. Without controls on foreign marine loading of product gasoline this proposal clearly acts as a subsidy to foreign gasoline, refiners and exporters. Foreign gasoline producers/exporters will not be making the same expenditures, thereby making their product less costly since the costs associated with installation/operation of control equipment will be factored into the cost of the product.

Response: The Act requires EPA to reduce air emissions from marine vessel loading operations. The Agency is complying with these requirements by setting national standards for reducing air emissions at major sources that engage in these operations. However, the Act does not provide the Agency with the authority to require controls on similar foreign operations. Any domestic environmental regulation may cause disparities between domestic and foreign production costs; however, the commenter did not supply any data showing that foreign competition will be a problem in this specific instance.

Comment: One commenter (46) pointed out that past experience has shown EPA greatly underestimates control costs. For example, preceding the Benzene Waste NESHAP, the EPA estimated capital costs to be \$250 million, while actual costs were approximately \$2 billion! The actual costs were almost 10 times the EPA estimate! The costs estimated for this proposal includes the VMT, which accounts for over half of all the annual HAP emissions from marine tank vessel loading. The EPA acknowledges that it is not compelled to control marine tank vessel loading under Section 112. Since Section 183(f) specifically requires consideration of cost-effectiveness and since the demonstrated benefits are extremely low compared to costs, EPA should regulate solely under the Section 183(f) parameters.

Response: The Agency has addressed comments regarding its decision to regulate under Title III in Section 2.1.3 of this document. The Agency has included commenter-supplied cost data in its determination of the nationwide cost impacts attributable to this final rulemaking.

Comment: One commenter (58) was concerned about the effect that air quality regulations will have on the future economic viability of future oil production from Alaska's North Slope. The North Slope's future is influenced by the continued economic viability of the Trans Alaska Pipeline System (TAPS). The effect of environmental regulations on transportation costs could have chilling effect on new exploration in North Slope fields. The continued economic viability of TAPS is important to the Alaska Natives living in the North Slope Region and to the State of Alaska as a whole. The rural villages of the North Slope Region depend upon State funding for sewer and sanitation facilities, education, and housing. About 85 percent of Alaska's budget derives from North Slope royalties and tax revenues.

One commenter (67) believed that North Slope operations are so profitable--even at current oil prices--that there are no financial barriers to requiring full vapor recovery.

Response: The Agency has not received any information from the Alyeska Pipeline Service Company indicating that vapor control costs threaten the viability of the pipeline.

2.14 MISCELLANEOUS

2.14.1 Private Citizens (Groups)

Comment: Nineteen commenters (01, 09, 11, 12, 13, 14, 15, 16, 17, 18, 19, 61, 62, 63, 64, 65, 66, 67, 81) submitted letters in support of EPA's proposed standards for marine tank vessel loading and unloading operations. All of the commenters live or work near Valdez, Alaska and Alyeska's VMT. The comments ranged from "concerned" to "furious and outraged" regarding Alyeska and its impact on the health of nearby residents, workers (including Alyeska employees), and the environment.

Response: The Agency is grateful for the commenters' input and support of the regulations. Specific suggestions made regarding needed changes in the proposed rule were thoroughly considered. Where appropriate, changes have been made to the final rule.

2.14.2 Publication of Regulation in the Federal Register

Comment: Twelve commenters (04, 10, 23, 29, 34, 50, 68, 71, 73, 75, 78, 79) indicated that the proposed regulation should be published in the Federal Register.

One commenter (04) questioned the legality of proposing regulations without inclusion of the regulatory language in the Federal Register. Two commenters (04, 73) stated that the Clean Air Act as amended on November 15, 1990, clearly requires EPA to publish "...notices of proposed rulemakings... in the Federal Register as provided under section 553(b) of title 5 [of the United States Code]." Two commenters (73, 78) indicated that EPA's use of the TTN to communicate proposed regulations is inconsistent with the spirit, if not the letter, of the Administrative Procedures Act (APA). One commenter (73) cited several court cases regarding the APA; while the APA does not require the notice of proposed rulemaking to contain actual wording, the notice should allow all parties reasonable opportunity to participate in the rulemaking process. The commenter cited additional court cases where questions arose regarding whether or not the final rule was a logical outgrowth of the proposed rule. Without the published regulatory language, it is difficult to differentiate between changes that result from public comment and those that reflect a change in EPA's intent.

Four commenters (34, 50, 68, 75) stated Federal Register publication assures complete public access to the proposed rules and provides a consistent means to reference particular pages of the proposed rule. Another commenter (71) stated that failure to publish proposals interferes with industry's right of review and comment. Two commenters (73, 78) stated that including the entire regulatory language in the Federal Register allows effective public comment.

Three commenters (23, 73, 75) are concerned that EPA's practice of making changes to the electronic version on the bulletin board after proposal does not provide adequate notice. Two of these commenters (73, 75) mentioned that EPA made changes

after proposal to the regulatory text on the bulletin board for the proposed version of Section 112(g). One commenter (73) indicated that changes made after the proposal date result in parties commenting on different versions of the regulatory language.

Five commenters (04, 29, 34, 50, 73) noted that the regulatory language is only available upon request (i.e., from the docket or EPA contact) or through the EPA electronic bulletin board. One commenter (79) stated that requesting a copy of the regulation from EPA through the mail takes time out of the already limited comment period. Two commenters (04, 73) pointed out that since the only docket is located in Washington D.C., not all parties subject to this proposal who have need of materials from the docket have ready access to it.

Five commenters (04, 34, 73, 75, 79) pointed out that all parties do not have the capability (i.e., necessary hardware and software) of accessing the electronic bulletin board. One commenter (75) stated that significant phone charges are incurred from downloading large files associated with major rules. Six commenters (04, 23, 29, 71, 73, 78) stated that formatting problems and difficulties occur with the text and graphics downloaded from the electronic bulletin board. Three commenters (71, 73, 78) indicated that formulas in § 63.565 of the proposed rule (the electronic version) were scrambled or were not received.

Two commenters (23, 71) stated EPA should both publish rulemakings in the Federal Register and post the rulemaking package electronically on the TTN. One commenter (79) stated if something must be omitted from the Federal Register, the actual regulation should be printed and the preamble left out; those who need detailed information on the development of the regulation, as contained in the preamble, can then make efforts to obtain the preamble.

One commenter (75) noted that for air rules appearing in both the Federal Register and the TTN, the TTN version is

typically available in advance of the version published in the Federal Register; early availability is helpful and of significant benefit.

Response: The Agency has reviewed its responsibility to adequately inform the affected public of proposed actions. The decision to reduce the amount of printed material in the Federal Register and to assure that the material, including the proposed regulatory text of the proposed rule, is accessible for public comment and judicial review does not conflict with the statutory requirements of the Administrative Procedures Act (APA), the Federal Register Act (FRA), or the Clean Air Act Amendments of 1990. In the preamble to the proposed rule, the Agency noted that the proposed regulatory text was available and would be sent free of charge by the contact person upon request. Access to material that is used as the basis of the proposed rule (officially located in the Air Docket created by the CAAA) is identified in the preamble to the proposals and promulgations of rules. Specifically, the Agency clearly established and will continue to look for additional connections and will include directions for obtaining the text of information not printed in the Federal Register. Currently, this information may be obtained through one of the following sources: (1) the TTN's "Recently Signed Rule" bulletin board; (2) directly from the Air and Radiation Docket and Information Center; (3) distribution to trade associations; (4) plaintiffs in court-ordered regulatory actions; (5) contact with small business ombudsman system in each State; and (6) if necessary, through the contact person at the Agency. The response to this approach has been positive as the process has aged.

The Agency believes that all information that is developed in the course of the development of a proposed and final rule is important; however, EPA believes they have realistically and responsibly addressed the need to publish information in the Federal Register. The Agency will continue to review the issue of extensive publishing in the Federal Register along with its

responsibility to adequately inform affected parties of our proposed and final actions.

2.14.3 National Security

Comment: One commenter (03) did not believe the regulation would impact Department of Defense (DOD) bulk petroleum terminals; however, the commenter expressed concern about any vapor control technology requirements that would preclude DOD ships (owned, operated, or chartered) from obtaining fuel at refineries and commercial terminals. The DOD access to commercial petroleum facilities is critical to national security. DOD petroleum tankers and military vessels do not incorporate vapor control technologies. Backfitting of these ships is inconsistent with the cargoes carried and, especially for combat support ships, incompatible with ship missions and safety criteria. The commenter is evaluating the impact of this rule on DOD fueling activities. The commenter asked for the opportunity to readdress these issues if an assessment demonstrates that RACT or MACT are applicable to DOD bulk petroleum facilities or that the regulation restricts DOD access to commercial petroleum facilities.

Response: The final rule imposes requirements for vapor control equipment primarily upon loading terminals. Marine tank vessels are only required to demonstrate vapor tightness and compatibility with shore-side control equipment. This requirement should require little backfitting of DOD ships and should enhance shipboard safety.

Comment: One commenter (74) requested that its Nederland Terminal be excluded from the provisions of the NESHAP in the case of loading and unloading and emissions resulting from an emergency drawdown of the Strategic Petroleum Reserve (SPR). Under normal operating conditions, loading, unloading, and emissions thresholds at the terminal would not trigger the provision of this rule. Congress passed the Energy Policy and Conservation Act (Public Law 94-163), which authorizes the development of crude oil and petroleum products storage facilities, to diminish the United States' vulnerability in the event of a severe energy supply interruption and to carry out

obligations of the United States under the International/Energy Program (IEP). To assist in meeting this objective, the act created the SPR administered by the U.S. Department of Energy (DOE). Current SPR capacity is 750 MMBBL. The commenter has contracted with the DOE to deliver crude oil from the SPR to markets on the Texas and Louisiana Gulf Coast if an emergency drawdown is ordered by the President of the United States. During emergency drawdown conditions, the commenter's terminal would be required to load up to 250 million barrels of crude oil across its docks onto marine tank vessels over a 240 day period. Although it is unlikely that a drawdown on the SPR will occur, it is likely that a severe energy supply interruption necessitating a drawdown of the SPR would be a one time occurrence.

Response: The Agency agrees with the commenter that the referenced terminal should not be required to control emissions under the final standards. The Agency believes that this terminal would not be subject to the emission reduction requirements found in the final rule because its HAP emissions are less than 10 tons/yr of all individual HAP and less than 25 tons/yr of total HAP; furthermore, its throughput is less than the throughput thresholds of the RACT standards. If at some future time, the facility would exceed these emissions levels (because of an emergency drawdown of the SPR), the President could provide a waiver based on the national security nature of the drawdown per Section 112(i)(4) of the Act.

2.14.4 Other Miscellaneous Comments

Comment: One commenter (38) stated that many boilers and heaters employ staged combustion burners that may lower the overall temperature and lengthen the flame zone of the combustion section. Therefore, the rule should require that the vented VOHAP stream be introduced into the combustion flame zone as close to the burner fuel inlet as possible and still maintain good mixing.

Response: The commenter did not submit any data that would allow the Agency to determine the validity of the commenter's claim regarding the lowering of the overall temperature and lengthening of the flame zone of the combustion section. The Agency has therefore not included the commenter's suggestion in the final rule.

Comment: One commenter (21) recommended that EPA promulgate the final rule for this source category by November 15, 1994. Promulgation by the scheduled date is important to those who will have the obligation of implementing and enforcing the NESHAP standards and requirements for affected sources. Conversely, one commenter (34) stated that EPA should postpone promulgation of the Section 112 rule until the year 2000 or at least until the Agency has reason to believe that facilities will be able to achieve compliance within 3 years from a new promulgation date.

Response: As a result of a Clean Air Act litigation suit, Sierra Club v. Browner, the proposal and promulgation dates for several standards were agreed upon in a consent decree. The federal rule and NESHAP for marine tank vessel loading operations was included in this consent decree, and the court-ordered deadline for promulgation of this NESHAP is July 28, 1995. The EPA will promulgate this rulemaking on schedule.

Comment: One commenter (59) supported EPA's approach to processing of the vapors; "... it is impractical for marine tank vessels to carry their own vapor processing systems given the limited space on individual vessels."

Response: The Agency agrees with this comment.

Comment: One commenter (06) stated that vapor-tightness requirements similar to § 63.563(a) should be made applicable to storage tanks that operate as part of a vapor balance system to control emissions from marine tank vessel loading. The maximum pressure setting requirements and leak checking requirements will be equally as important for storage tanks in vapor balance systems as for the ships themselves. Alternatively, EPA should consider requiring pressure monitoring devices on remote storage tanks that cannot be easily checked for leaks.

Response: Such storage tanks are covered by other regulations and are not addressed in this regulation. Sources with vapor balancing systems are not subject to the emission reduction requirements found in the final rule, but are required to maintain the closed vent system (i.e., vapor collection system) consistent with Sections 63.562(b)(1), (c)(2), and (d)(1).

Comment: Two commenters (76, 80) stated that the scope of the rule should be expanded to limit potential emissions during transport. One of these commenters (76) stated that weather changes from night to day causes in-breathing and out-breathing, which causes pressure to develop on the barge tanks. With no control of the pressure, one can expect 3 to 10 percent of an empty barge's volume (approximately 56,000 cubic feet) to exchange with the atmosphere. Typical daytime to nighttime temperature changes can cause additional emissions. Improving barge tightness could reduce these emissions significantly. Certification of barge tightness would be best performed by testing for leaks at each opening as opposed to monitoring pressure loss over time.

One commenter (80) did not support the provision to allow loading of nonvapor-tight vessels under the conditions specified in Section 63.563(a)(2)(iii)(B). Vapor tightness should be required for all vessels, independent of the control level at the marine tank vessel loading terminal (even if the terminal is subject to control requirements). Fugitive leaks from non vapor-

tight vessels are not only a problem during loading and unloading, but also result in emissions throughout the transport trip of the vessel. If EPA does not feel it is appropriate to include such a standard under this rulemaking, organic liquid/vapor cargo tanks (marine or otherwise) should be listed as a source category under 112(k), and vapor-tightness standards should be established.

Response: The regulation addresses vapor tightness only for loading operations. The suggested regulation of vessels in transit would be covered under mobile sources.

Comment: One commenter (77) provided a copy of a document that was referenced in a previously submitted comment but not included with that comment submittal.

Response: The Agency appreciated the commenter's submittal of this information. The referenced document was reviewed by the Agency when responding to all of the commenter's submittals.

Comment: One commenter (122) requested that the Agency extend the comment period to allow the commenter to conduct a more extensive comment preparation and data base analysis than is currently allowed.

Response: The Agency did not elect to extend the comment period but has accepted late comments and additional data (including the analysis performed by the commenter) and has considered these submittals during the development of the final rulemaking. In addition, the Agency has reopened the comment period on two occasions to request additional comment on specific issues.

Comment: One commenter (124) encouraged the control of emissions from VMT so that economical electrical energy from vapor burning operations would be possible.

Response: The Agency encourages the recovery of energy as a byproduct from any air pollution control device but does not favor the selection of one control technology over another, given that these standards are based on efficiency and not specific equipment.

Comment: One commenter (128) reviewed the applicability of the New Source Performance requirements to VMT.

Response: The Agency has no response to this comment since the requirements specified in the comment are implemented by a State government.

2.15 COMMENTS ON PROPOSED APPENDICES TO 40 CFR PART 64

Note: The Agency has superseded performance specification 101 (PS-101) and performance specification 102 (PS-102) with performance specifications 8 and 9 respectively. This action was promulgated along with the Magnetic Tape Manufacturing NESHAP on December 15, 1994 (59 FR 64580). A copy of this notice is available in the docket (Docket No. 1-90-44, Item No. IV-I-4).

Comment: One commenter (31) indicated that the requirement in PS-101 stating that at least 90 percent of the organic components must be determined will sometimes be unnecessary and result in noncompliance. In practice (due to the complex compositions in some process vent streams) it may be impossible to identify 90 percent of the organic components in the stream using Method 18. The owner or operator must know all of the components of the effluent stream in order to determine when 90 percent of them have been identified. This requirement is a real problem, for example, in complex hydrocarbon streams that may contain 20, 30 or 40+ individual chemical components. It would be difficult to prove to enforcement personnel that this requirement has been achieved, especially when the majority of the components will only be present in low concentration levels.

Other problems will be associated with emissions of components that have either high molecular weights or low vapor pressures (at either stack or instrument conditions) or compounds that may polymerize before analysis. These materials cannot be measured by Method 18, yet they could be a significant portion of the VOC components in the effluent stream.

Other information may exist (such as general information on the chemistry of the process or previous studies conducted by methods other than Method 18) that will help identify organic components. Therefore, the relevant portion of PS 101 (4.1) should be amended by the following:

Determine all of the organic components in the effluent stream which can be reasonably identified using

Method 18 (40 CFR Part 60, Appendix A), process chemistry, or previous studies.

Response: The Agency agrees with the commenter. The referenced requirements are not contained in PS-9.

Comment: One commenter (31) stated that Method 18 may not be adequate in all situations and that the reference to § 4.1 of PS 101 (40 CFR Part 64, Appendix A) should be amended to allow some flexibility in characterizing the make-up of the process vent stream. The complex compositions in some process vent streams may make it impossible, in practice, to identify 90 percent of the organic components in the stream using Method 18. The owner or operator must know all of the components of the effluent stream in order to confirm when 90 percent of them have been identified. This requirement is a real problem, for example, in complex hydrocarbon streams that may contain 20, 30 or 40+ individual chemical components. It would be difficult to prove to enforcement personnel that this requirement has been achieved, especially when the majority of the components will only be present in low concentration levels. Other problems will be associated with emissions of components that have high molecular weights, low vapor pressures (at either stack or instrument conditions), or compounds that may polymerize before analysis. Such materials cannot be measured by Method 18, yet they could be a significant portion of the VOC components in the effluent stream. Additionally, there may be other information (such as general information on the chemistry of the process, or previous studies conducted by methods other than Method 18) that will help identify organic components. Therefore, the relevant portion of PS 101 (4.1) should be amended by the following:

Determine all of the organic components in the effluent stream which can be reasonably identified using Method 18 (40 CFR Part 60, Appendix A), process chemistry, or previous studies.

Response: The Agency agrees with the commenter. Performance Specification 8 cites the method required in the applicable regulation. Additionally, the language requiring the

determination of all organic components has been removed from PS-8.

Comment: One commenter (71) noted that PS-101 and PS-102 of Part 64 Appendix A for VOC Monitors are technically faulty because these unapproved and unproven methodologies are not applicable to every case and contain technical problems.

Recommendations:

1. Incorporate the specific recommendations from Attachment A (CMA's proposed Implementation of MACT/Incorporation of Section 112(d) MACT into Title V Permits as presented in a letter dated May 26, 1994, from T. Ted Cromwell, CMA, to L. Wegman, USEPA/OAQPS) into PS-101 and PS-102;

2. Revise 63.563(b)(3) as follows: **(revisions in bold)**

...In cases where VOC concentration **at the outlet of a combustion control system** is the monitored operating parameter during the performance test, the source shall follow PS-101 and PS-102, of Appendix A of Part 64,

3. Revise last sentence of 63.564(b) as follows:

...The CEM's must be in operation whenever the carbon absorber is in operation. **(delete "and shall meet PS-101 and PS-102, as appropriate, of Appendix A of Part 64 of this chapter").**

Response: The Agency disagrees with the commenter that PS-8 and PS-9 are faulty. These performance specifications were developed based on technology currently being used and following criteria achievable with currently available instrumentation.

Comment: One commenter (31) proposed sampling at two concentrations (high and low) for the daily tests to determine the 7-day calibration error (CE), rather than the three concentrations daily tests required by PS-101 and PS-102. The commenter stated that the requirement for three concentrations increases the cost of the test procedure without adding proportionate value. Conducting the test at high and low concentrations would provide an estimate of calibration error at the portions of the calibration curve that are most likely to deviate from the actual value. Thus, it is highly unlikely that

the true CE (even if sampled at an infinite number of concentrations) would ever exceed the value determined by sampling high and low concentrations during the 7 days of the test. Three level tests are more appropriate for the quarterly or annual tests like those specified for gas CEM's in 40 CFR Part 60, Appendix B and Appendix F.

The EPA should use the procedure described in Appendix C Part 4.1, which is referred to in these sections. That procedure requires only two (high and low) concentration points to be tested. Therefore, the relevant portion of PS-101 (4.8) should be amended by the following:

... at the low- and high-calibration levels....

The relevant portion of PS-101 (6.1.1) should be amended by the following:

... following section 4.1 of Appendix C of this part,
The relevant portion of performance specification 102 (4.6)
should be amended by the following:

... at the low- and high-calibration levels....

The relevant portion of performance specification 102 (6.1.1)
should be amended by the following:

... following section 4.1 of Appendix C of this part

Response: The Agency disagrees that two concentration measurements are sufficient for calibration purposes. For VOC instrumental techniques, three point comparisons are necessary to demonstrate instrument linearity over the applicable range. This practice is common QA/QC criteria. Furthermore, the commenter did not submit any data to allow the Agency to validate the adequacy of using only two measurements.

Comment: One commenter (31) stated the specified level of calibration error (5 percent) in performance specification 102 is too stringent considering the best available technology today. The ability to measure low concentrations of organics in process vents will depend upon the analyte, its concentration, interferences (matrix effects), and the capability of the best

available on-line analytical instruments. In many cases 5 percent will be unachievable with present technology.

For example, the best technology available may not be able to completely resolve two components in the emission stream. Poor resolution can easily degrade the performance of the monitor to a level well above the 5 percent level. Also, although a component may be a major portion of the volatile organics in the effluent stream, it will most likely only be a very minor component of the total stream, therefore, the component would be close to the detection limit of even the best available technology.

The acceptable calibration error should be determined on a case-by-case basis. Therefore, the relevant portion of PS 102 (4.6) should be amended by the following:

For the initial 7-day CE test, the CEM's calibration response must not differ by more than the relevant performance specification agreed to by the owner/operator and the permitting authority from the calibration gas value at each level after each 24-hour period.

Response: The calibration determination procedure listed in PS-9 produces a value that indicates reasonable performance for instruments currently in use for monitoring purposes.

Comment: One commenter (31) stated that the reporting requirements specified in the last sentence of PS 102, add too much paperwork to the permitting process. The specification would require the commenter to send the permitting authority box after box of calculations, data records, etc., regardless of whether the permitting authority wanted them. A summary of the test results of the test should be sufficient for the permitting process. Supporting data should be available upon request. Therefore, the relevant portion of PS 102 should be amended by the following:

All data sheets, calculations, CEM's data records, and cylinder gas or reference material certifications shall be made available to the permitting authority upon request.

Response: Performance Specification 9 defers to the reporting requirements of the applicable subpart regarding the submission of calculations, datasheets, CEM's data records, and cylinder gas or reference material certifications. The reporting requirements of § 63.567 do not require the submission of this material unless requested by the Administrator or permitting authority.

Comment: One commenter (31) stated that requiring a linear regression $r^2 > 0.995$ in PS-102 section 4.7 eliminates the possibility of other types of acceptable calibration techniques; therefore, this section should be modified to allow other techniques.

In some cases, linear regression analysis is not adequate for the calibration. Other calibration techniques would be preferred [e.g., if using the three levels, an $r^2 > 0.995$ cannot be achieved; using more standard levels will allow the use of multi-variate calibration techniques such as partial least squares (PLS)] to fit the data adequately. Some of these nontraditional calibration techniques (e.g., PLS) do not generate an r^2 value. Performance requirements should not limit the technique used to obtain acceptable performance. Other techniques do produce various "goodness of fit" indicators (e.g., P15 uses a Standard Error of Prediction), which can be used in the same way that the r^2 is used. Therefore, the relevant portion of Appendix A, PS 102, Section 4.7 should be modified as follows:

... The calibration model for each organic compound shall have a "goodness of fit" parameter value equivalent to an $r^2 > 0.995$.

Response: The Agency believes that the analysis requirements found in PS-9 are reasonable and assure data quality as these data relate to instrument linearity.

Comment: One commenter (31) stated the last sentence in Appendix B (3) is unclear and should be clarified. It says:

These specifications are guidelines, except for those cases where reference method (RM) tests are not required.

To the commenter, this statement means that if RM tests are required, the specifications in Appendix B(3) are "guidelines," rather than legally binding requirements. The question is, what are these specifications in cases where RM tests are not required? One commenter (31) recommended the following change to clarify the meaning:

These specifications are guidelines in those cases where a reference method (RM) test is required. In cases where no RM test is required these specifications do not apply.

Response: The requirements of PS-8 and PS-9 clarify that the methods are to be used consistent with the requirements of a specific subpart (in this case, Subpart Y). Provisions in Subpart Y and in the incorporated Subpart A exist for owners or operators of affected sources to use alternative methods following application and approval by the Administrator.

Comment: One commenter (31) stated that the EPA should not specify temperature programmable gas chromatographs for gas chromatographic continuous emission monitoring systems.

In proposed PS-102, EPA specifies that the gas chromatograph (GC) must be "temperature programmable." "Temperature programmable" is a term used to denote the ability of the GC oven to accurately raise the oven temperature during an analysis to achieve adequate separation of otherwise unresolved components in the sample. The resolution of components in a sample is highly dependent on the nature of the components and the sample matrix and, therefore, is dependent on the particular emission unit. In many cases, complete separation can be achieved simply by holding the oven temperature at a constant value. This is called "isothermal operation" as opposed to "temperature programmed."

A significant cost increase exists for a temperature programmable GC over an isothermal GC. If the analytical method can achieve the enhanced monitoring protocol requirements of representative, reliable, frequent, and timely results with isothermal operation, then there is no need for a more expensive

"temperature programmable" GC. Therefore, the relevant portion of Appendix A performance specification 102, Section 2.1 (58 FR 54694, col. 2) should be amended as follows:

... the gas concentration. **(deletes the last sentence: "The GC must be temperature programmable.")**

The relevant portion of Appendix A performance specification 102, Section 4.1 (58 FR 54694, col. 2) should be amended by the following:

... separation column, oven, and detector. **(deletes "temperature programmable" requirement for the oven)**

Response: The Agency agrees with the commenter. Performance Specification 9 requires that the gas chromatograph (GC) must be "temperature controlled" which means possessing the ability to maintain a given temperature. A temperature-programmable GC is not required for this performance specification as long as all other requirements for precision, linearity, and accuracy listed in PS-9 are met. The Agency notes in Section 2.1 of PS-9 that a temperature programming GC will typically speed up peak elution, thus allowing increased sampling frequency.

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