■ 2. Amend § 50.4 by revising paragraphs (m)(2) introductory text, (m)(2)(i) and (m)(3) to read as follows:

§ 50.4 Definitions.

* * * * *

(m) * * *

(2) For calendar years beginning with 2020 and any calendar year thereafter as may be necessary, such amount is the lesser of the aggregate amount, for all insurers, of insured losses once there has been a Program Trigger Event during the calendar year and the annual average of the sum of insurer deductibles for all insurers for the prior 3 years, to be calculated by taking:

(i) The total amount of direct earned premium reported by insurers to Treasury pursuant to § 50.51 in the three calendar years prior to the calendar year in question, and then dividing that figure by three; and

* * * * *

(3) For calendar year 2020 and each subsequent calendar year, Treasury shall publish in the **Federal Register** the insurance marketplace aggregate retention amount no later than December 31 of the prior calendar year.

* * * * *

Dated: August 21, 2019.

Bimal Patel,

Assistant Secretary for Financial Institutions.

[FR Doc. 2019–18728 Filed 9–5–19; 8:45 am]

BILLING CODE 4810–25–P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 80 and 1042

[EPA–HQ–OAR–2018–0638; FRL–9999–22–OAR]

RIN 2060–AU30

Marine Diesel Engine Emission Standards

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: The Environmental Protection Agency (EPA) is proposing to amend the national marine diesel engine program to provide relief provisions to address concerns associated with finding and installing certified Tier 4 marine diesel engines in certain high-speed commercial vessels. The proposed relief is in the form of additional lead time for qualifying engines and vessels. EPA is also making a technical correction to the diesel fuel regulations to allow fuel manufacturers and distributors to make distillate diesel fuel that complies with the global sulfur standard that applies internationally instead of the fuel standards that otherwise apply to distillate diesel fuel in the United States.

DATES:

Comments: Written comments must be received by October 21, 2019. Under the Paperwork Reduction Act (PRA), comments on the information collection provisions are best assured of consideration if the Office of Management and Budget (OMB) receives a copy of your comments on or before October 7, 2019.

Public Hearing: There will be a public hearing September 20, 2019, in Bath, Maine. Inquire about arrangements for a public hearing using the contact information in **FOR FURTHER INFORMATION CONTACT.**

ADDRESSES:

Public hearing. We will hold a public hearing September 20, 2019 at the Maine Maritime Museum, 243 Washington Street, Bath, Maine 04530, (207) 443–1316. The hearing will start at 9:30 a.m. local time and continue until everyone has had a chance to speak.

Public Participation: Public hearing: Hearing participants are invited to notify EPA of interest in presenting testimony at the public hearing; see **FOR FURTHER INFORMATION CONTACT**. We encourage commenters to provide a copy of oral testimony by email or in hard copy. EPA may ask clarifying questions during the oral presentations but will generally not respond to the presentations at the hearing. Written statements and supporting information submitted during the comment period will be considered with the same weight as oral comments and supporting information presented at the public hearing.

Comments. Submit your comments, identified by Docket ID No. EPA–HQ–OAR–2018–0638, at *https://www.regulations.gov.* Follow the online instructions for submitting comments. Once submitted, comments cannot be edited or removed from *Regulations.gov.* The EPA may publish any comment received to its public docket. Do not submit electronically any information you consider to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Multimedia submissions (audio, video, etc.) must be accompanied by a written comment. The written comment is considered the official comment and should include discussion of all points you wish to make. EPA will generally not consider comments or comment contents located outside of the primary submission (*i.e.,* on the web, cloud, or other file sharing system). For additional submission methods, the full EPA public comment policy, information about CBI or multimedia submissions, and general guidance on making effective comments, please visit *https://www.epa.gov/dockets/commenting-epa-dockets.*

Docket. EPA has established a docket for this action under Docket ID No. EPA–HQ–OAR–2018–0638. All documents in the docket are listed on the *www.regulations.gov* website. Although listed in the index, some information is not publicly available, *e.g.,* CBI or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the internet and will be publicly available only in hard copy form. Publicly available docket materials are available either electronically in *www.regulations.gov* or in hard copy at Air and Radiation Docket and Information Center, EPA Docket Center, EPA/DC, EPA WJC West Building, 1301 Constitution Ave. NW, Room 3334, Washington, DC. The Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566–1744, and the telephone number for the Air Docket is (202) 566–1742.

FOR FURTHER INFORMATION CONTACT:

Alan Stout, Office of Transportation and Air Quality, Assessment and Standards Division (ASD), Environmental Protection Agency, 2000 Traverwood Drive, Ann Arbor, MI 48105; telephone number: (734) 214–4805; email address: *stout.alan@epa.gov.*

SUPPLEMENTARY INFORMATION:

Does this action apply to me?

This action relates to marine diesel engines with rated power between 600 and 1,400 kW intended for installation on vessels flagged or registered in the United States, vessels that use those engines, and companies that manufacture, repair, or rebuild those engines and vessels. This action also relates to companies that produce and distribute distillate diesel fuel.

Proposed categories and entities that might be affected include the following:

Category	NAICS code [a]	Examples of potentially affected entities
Industry	333618	Marine engine manufacturing.
	336611	Shipbuilding and repairing.
	324110	Petroleum refineries (including importers).
	424710	Petroleum bulk stations and terminals.
	493190	Other warehousing and storage-bulk petroleum storage.

[a] North American Industry Classification System (NAICS).

This table is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely covered by these rules. This table lists the types of entities that we are aware may be regulated by this action. Other types of entities not listed in the table could also be regulated. To determine whether your activities are regulated by this action, you should carefully examine the applicability criteria in the referenced regulations. You may direct questions regarding the applicability of this action to the persons listed in the preceding **FOR FURTHER INFORMATION CONTACT** section.

I. Summary

EPA's Final Rule for Control of Emissions of Air Pollution from Locomotive Engines and Marine Compression-Ignition Engines Less than 30 Liters per Cylinder adopted Tier 4 emission standards for commercial marine diesel engines at or above 600 kW (73 FR 37096, June 30, 2008). These standards, which were expected to require the use of aftertreatment technology, phased in from 2014 to 2017, depending on engine power.[1] Some boat builders have informed EPA that there are no certified Tier 4 engines with suitable performance characteristics for the vessels they need to build, specifically for high-speed commercial vessels that rely on engines with rated power between 600 and 1,400 kW that have high power density. To address these concerns, EPA is proposing to provide additional lead time for implementing the Tier 4 standards for engines used in certain high-speed vessels. We are also proposing to streamline certification requirements to facilitate or accelerate certification of Tier 4 marine engines with high power density. Each of these elements is discussed in more detail in this proposal.

EPA is also amending the diesel fuel regulations to allow fuel manufacturers and distributors to make distillate diesel fuel that complies with the global sulfur standard that applies internationally instead of the fuel standards that otherwise apply to distillate diesel fuel in the United States.

EPA adopted emission standards for marine diesel engines and sulfur standards for marine fuels under Clean Air Act authority (42 U.S.C. 7401–7671q). The amendments under consideration in this rule are covered by that same authority.

II. Regulatory Amendments To Allow for Distribution of Global Marine Fuel

In this action, we are proposing changes to the regulations at 40 CFR part 80, subpart I, to allow for distribution of distillate diesel fuel that complies with the 0.50 percent (5,000 ppm) global sulfur standard contained in Annex VI to the International Convention for the Prevention of Pollution from Ships (MARPOL Annex VI). The United States ratified MARPOL Annex VI and became a Party to this Protocol on October 8, 2009. MARPOL Annex VI requires marine vessels operating globally to use fuel that meets the 0.50 percent sulfur standard starting January 1, 2020, rather than the current standard of 3.50 percent sulfur (''global marine fuel''). For comparison, the MARPOL Annex VI standard is 0.10 percent sulfur for fuel used in vessels operating in designated Emission Control Areas (ECAs).[2] As with ECA marine fuel, we need to amend 40 CFR part 80 to allow distribution of global marine fuel in the United States.

Until the 0.50 percent sulfur standard takes effect, global marine fuel has consistently been residual fuel, not distillate fuel. Other than ECA marine fuel, residual fuel is not subject to fuel sulfur standards under 40 CFR part 80. As a result, it has been unnecessary to adopt a provision allowing global marine fuel to exceed the ultra low-sulfur diesel (ULSD) fuel sulfur standards. However, due to the high sulfur content of residual fuel, it will be common for global marine fuel to be a distillate fuel starting in 2020.[3] U.S. refiners intend to supply product to meet the demand for global marine fuel.

We are proposing several regulatory changes to accommodate the supply and distribution of distillate diesel fuel as global marine fuel. We are proposing to exempt such fuel from the prohibition against distributing distillate diesel fuel that exceeds the ULSD and ECA marine fuel sulfur standards. This exemption includes several conditions. (1) The fuel must not exceed 0.50 weight percent sulfur; (2) fuel manufacturers must designate the fuel as global marine fuel; (3) product transfer documents accompanying the fuel must identify it as global marine fuel; (4) global marine fuel must be segregated from other fuels that are subject to the diesel fuel standards in 40 CFR part 80, subpart I; (5) the fuel may not be used in any vehicles, engines, or equipment operating in the United States (including vessels operating in an ECA or ECA-associated area); and (6) manufacturers and distributors must meet conventional recordkeeping requirements. These proposed changes incorporate the global sulfur standard under MARPOL Annex VI and include compliance provisions that largely mirror what we currently require for the manufacturers and distributors of home heating oil, which is another class of distillate fuel not subject to diesel fuel standards under 40 CFR part 80. These proposed provisions create documentation oversight requirements that will help prevent global marine fuel

[1] For engines up to 1,000 kW, compliance could be delayed for up to nine months, but no later than October 1, 2017.

[2] Designated Emission Control Areas for the United States include the North American ECA and the U.S. Caribbean Sea ECA. More specific descriptions may be found in EPA fact sheets: ''Designation of North American Emission Control Area to Reduce Emissions from Ships,'' EPA–420–F–10–015, March 2010, *https://www.epa.gov/regulations-emissions-vehicles-and-engines/designation-north-american-emission-control-area-marine;* and ''Designation of Emission Control Area to Reduce Emissions from Ships in the U.S. Caribbean,'' EPA–420–F–11–024, July 2011, *https://www.epa.gov/regulations-emissions-vehicles-and-engines/designation-us-caribbean-emission-control-area-marine.*

[3] Distillate fuels are subject to fuel sulfur standards for ULSD (15 ppm) and ECA marine fuel (1,000 ppm). In-use distillate fuels sold in the United States generally have sulfur content that is somewhat lower than these standards to accommodate regulatory compliance margins. According to the most recent data reported by the IMO Secretariat (MEPC 74/5/3, February 8, 2019), the average sulfur content of marine distillate marine fuel in 2018 was about 700 ppm, with only 3.7% of samples exceeding 1,000 ppm. The average sulfur content of marine residual fuel was about 26,000 ppm, with about 82.5% of samples falling in the range of 20,000 ppm to 35,000 ppm. Only about 0.5% of residual fuel samples exceeded 35,000 ppm and the rest of the samples, 17%, reported sulfur content less than 20,000 ppm.

from being diverted into markets that are subject to ULSD or ECA marine standards.

As noted above, the narrow set of amendments proposed in this rule are intended to remove a potential regulatory obstacle to the sale in the United States of marine fuel that meets MARPOL Annex VI global sulfur cap of 5,000 ppm. Separate from this rule, we will be considering broader questions about how best to implement the 2020 global marine fuel standard.

III. Background for Amendments Related to Emission Standards for Marine Diesel Engines

In 2008, EPA adopted Tier 3 and Tier 4 emission standards for new marine diesel engines with per-cylinder displacement less than 30 liters (73 FR 37096, June 30, 2008). The Tier 3 standards were based on engine manufacturers' capabilities to reduce particulate matter (PM) and oxides of nitrogen (NO_X) emissions with recalibration and other engine-based technologies. The Tier 4 standards were based on the application of catalytic aftertreatment technology, including selective catalytic reduction (SCR). These Tier 4 standards currently apply to commercial marine diesel engines with rated power at or above 600 kW. The Tier 3 standards phased in for different engine sizes and power ratings from 2009 to 2014. The Tier 4 phase-in schedule applied these stringent standards starting in 2014 to engines at or above 2,000 kW, which are most prevalent on large workboats that are less sensitive to engine size and weight concerns. The standards started to apply at the start of model year 2017 for engines from 1,000 to 1,400 kW, and on October 1, 2017 for engines from 600 kW to 999 kW. The schedule for applying the Tier 4 standards was intended to give engine manufacturers time to redesign and certify compliant engines, and to give boat builders time to redesign their vessels to accommodate the Tier 4 engines, especially with respect to engine size and weight.

The 600 kW threshold for applying the Tier 4 standards was intended to avoid aftertreatment-based standards for small vessels used for certain applications that were most likely to be designed for high-speed operation with very compact engine installations. Most engines above 600 kW provide power for various types of workboats and larger passenger vessels whose performance is less dependent on the size and weight of the engine. We were aware that there would be some high-speed vessels with engines above 600 kW, but expected that engine manufacturers would be able to certify 600–1,400 kW engines and vessel manufacturers would be able to make the necessary vessel design changes during the nine-year period between the final rule and the implementation of the Tier 4 standards.

In response to the proposal preceding the 2008 final rule, some commenters recommended that the Tier 4 standards apply to engines as small as 37 kW, since small land-based nonroad diesel engines were subject to similar aftertreatment-based standards. Other commenters advocated a vessel-based approach, for example exempting engines installed on patrol boats and ferries from the Tier 4 standards. However, engine manufacturers commented that a vessel-based approach would be unworkable because they would then need to certify engines for a range of vessel types. Several commenters affirmed the 600 kW threshold as appropriate, and no commenters suggested a higher threshold. As a result, EPA finalized the 600 kW threshold without further limiting the Tier 4 standards to particular vessel types.

One manufacturer has certified Tier 4 engines below 1,400 kW, and there are no certified Tier 4 engines below 1,400 kW with a power density greater than 35 kW per liter (total engine displacement).[4] This contrasts with engines available under EPA's Tier 3 commercial standards, which included several engine models with power densities exceeding 35 kW/liter displacement.

Over the course of the last year, EPA staff have had several teleconferences and site visits to gather information and explore options for addressing concerns related to engine availability and meeting Tier 4 requirements.[5] This has helped us to understand constraints, capabilities, processes, and concerns for engine manufacturers, vessel manufacturers, and others affected by the Tier 4 standards.

EPA has learned that manufacturers of vessels for certain high-speed commercial applications continue to face important challenges associated with the Tier 4 engine standards. These vessels have performance needs for achieving substantial propulsion power from a light-weight engine. In short, manufacturers have been looking for engines with higher power density than those certified to Tier 4 standards. As engine manufacturers certify additional Tier 4 engines, vessel manufacturers will need time to evaluate those engine options and make changes to vessel designs to account for the changing engine parameters and specifications.

EPA is proposing to allow additional lead time to address these concerns for high-speed vessels. This would allow engines installed on these vessels to continue to meet the Tier 3 standards, which would allow time for engine manufacturers to certify additional engine models, and for vessel manufacturers to make the necessary adjustments to their vessels.

Note that the proposed provisions allowing additional lead time for EPA's Tier 4 marine diesel engine standards are distinct from the international engine emission standards that apply under Annex VI to the International Convention for the Prevention of Pollution from Ships (MARPOL Annex VI). The U.S. Coast Guard recently published a Work Instruction explaining its intention to defer enforcement of MARPOL Annex VI NO_X standards for certain engines certified to EPA Tier 3 standards as long as MARPOL-compliant engines continue to be unavailable.[6] That relief from emission standards is targeted at engines not subject to EPA's Tier 4 standards, especially engines with rated power between 130 and 600 kW. Because the domestic and international emission standards are adopted under different statutory authorities, and because the U.S. Coast Guard policy applies for engines not subject to EPA's Tier 4 standards, this proposed rule should have no bearing on the international standards. It is also the case that U.S. vessels operating only domestically are not subject to the standards adopted under MARPOL Annex VI (see 40 CFR 1043.10(a)(2)). As a result, the high-speed commercial vessels that are the subject of this proposed rule will not be subject to emission standards under MARPOL Annex VI as long as they do not navigate in foreign waters.

[4] The discussion in this proposed rule is based on certification information as of June 2019. The discussion does not reflect new certifications in July 2019 or later. We encourage individual engine manufacturers to submit comments describing engine specifications for engine models that have certified or expect to certify, and how these Tier 4 engine models may be suitable for powering high-speed vessels.

[5] ''Stakeholder Interactions in Anticipation of Proposing Additional Lead Time for Tier 4 Compliance for High-Speed Marine Vessels,'' EPA memorandum from Alan Stout to Docket EPA–HQ–OAR–2018–0638, July 31, 2019.

[6] ''Exercise of Enforcement Discretion with regard to MARPOL Annex VI Regulation 13.5.1.2,'' USCG Office of Commercial Vessel Compliance (CG–CVC) Mission Management System (MMS) Work Instruction, CVC–WI–014(2), October 17, 2018.

IV. Technical Discussion for Amendments Related to Emission Standards for Marine Diesel Engines

As described above, EPA's Tier 4 marine diesel engine standards apply to commercial engines at or above 600 kW. With one exception, engine manufacturers have discontinued production of engine models instead of certifying those engines to the Tier 4 standards. This has prevented vessel manufacturers from being able to produce certain types of high-speed vessels. Complying with current standards poses technical and economic challenges for engine and vessel manufacturers. This also has economic consequences for end users who are not able to purchase vessels until they become available.

1. Boat Builder Challenges

Manufacturers of certain high-speed vessels have described their challenges with finding certified Tier 4 engines and with modifying their vessel designs to accommodate Tier 4 engines once they become available.[7] This applies for lobster boats, pilot boats, and various additional types of high-speed vessels.

Lobster Boats. When we adopted the Tier 4 standards in 2008, most if not all lobster boats used engines below 600 kW. Targeted lobster beds were typically located relatively close to shore. Lobster boats navigating in these areas have size and performance requirements that do not call for engines above 600 kW. Since 2008, however, it has become common to navigate to lobster beds 40 miles or farther from shore. The greater traveling distance necessitates more cargo space for a greater catch, and more speed to complete a day's work in a reasonable time. These factors caused a demand for larger vessels and more engine power, which led boat builders to install engines above 600 kW in lobster boats. Prior to the Tier 4 standards taking effect in 2017, engines for these lobster boats were subject to Tier 3 standards and thus required no aftertreatment technology. As a result, the lobster-boat engines needed for high speed and ocean navigation could fit into fiberglass hulls with minimal changes to fiberglass molds, or vessel design generally.

Lobster boat builders looking to continue to install engines above 600 kW that are now subject to Tier 4 standards need to prepare for more fundamental changes to vessel design to account for the room needed for additional emission control hardware, which raises other design issues. For example, onboard lobster tanks need to remain isolated from the reconfigured engine room and exhaust system to maintain low water temperature. However, lobster boat builders are not able to make substantial progress in redesigning their vessels until they have certified or prototype Tier 4 engines available. Once those engines are available, boat builders can undertake the anticipated effort to work out specific design needs for installing the Tier 4 engines in each vessel, including any necessary sea trials. A memo to the docket describes some of the challenges related to designing lobster boats and other high-speed vessels with SCR-equipped engines.[8]

Pilot Boats. Commercial ports depend on pilot boats to transport pilots to incoming ships (and from outgoing ships) several miles away from the port to safely navigate the ships through the shipping channels and within the port area. Vessel specifications are carefully tailored to the specific needs of a given port, accounting for a wide range of factors to ensure safe and effective operation under demanding conditions. As described above for lobster boats, building a vessel with a Tier 4 engine and its accompanying catalyst system requires design changes to handle the engine's greater size and weight. Use of a new Tier 4 engine and accompanying catalyst system requires a thorough reassessment of vessel design to accomplish a proper balance between vessel length and total propulsion power. For example, the vessel would need engines with higher maximum power output if the vessel's length, width, or depth increases to accommodate the new engine and the accompanying catalyst system. One parameter that helps solve the design challenge is the engine's power density. Increasing power density allows for more power without increasing total engine weight, which allows for increasing (or regaining) vessel speed. Tier 4 engines with the appropriate power ratings for pilot boats are available, but there are no ratings currently available with power density above 35 kW/liter displacement. As a result, the available Tier 4 engines are too large and heavy to allow vessels to meet performance specifications. As Tier 4 engines between 600 and 1,400 kW become available, manufacturers of pilot boats can start to resolve these vessel design issues, but an acceptable solution may depend on the availability of Tier 4 engines that meet the need for higher power density.

A complicating factor for pilot boats is other federal, state, or local programs that impose speed restrictions on vessels for certain vessel lengths. Specifically, pilot boats that operate in certain coastal areas are subject to whale-strike avoidance rules that are designed to protect migrating and calving right whales. In designated areas off the coast of Georgia, for example, vessels 65 feet and longer may not exceed an operating speed of 10 knots from November 1 to April 30 each year.[9] The whale-strike avoidance rules increase the demand for pilot boats that are less than 65 feet long. This additional constraint further complicates the challenge to design vessels with Tier 4 engines as the SCR emission control system takes up a significant amount of already limited space. Here again, the use of Tier 4 engines will require significant boat changes and more time is needed to resolve these challenges.

Other high-speed vessels. Other types of high-speed vessels may need relief. For example, one boat builder wants to build a high-speed research vessel for which there are no suitable Tier 4 engines available. The intended vessel would have a fiberglass hull and is otherwise similar to lobster boats, as described above. In addition, we are aware that there are any number of additional applications of high-speed vessels that may need Tier 4 propulsion engines above 600 kW with high power density, such as law enforcement, fire-fighting, and charter fishing. Section V describes provisions to allow for additional lead time for engines and vessels meeting certain criteria focusing on high-speed operation and the need for engines with high power density, rather than naming certain types of vessels. We request comment on the appropriateness of these proposed engine and vessel criteria to properly target temporary relief from the Tier 4 standards for the different types of high-speed vessels that are affected by the lack of certified engines that are suitable for those vessels. We also request comment on the annual numbers of each type of each vessel we should expect to be covered by this rule.

Hovercraft, while not conventional high-speed vessels, may also be a more

[7] ''Stakeholder Interactions in Anticipation of Proposing Additional Lead Time for Tier 4 Compliance for High-Speed Marine Vessels,'' EPA memorandum from Alan Stout to Docket EPA–HQ–OAR–2018–0638, July 31, 2019.

[8] ''Technical Analysis for Amendments Related to Marine Diesel Engine Emission Standards,'' EPA memorandum from Cheryl Caffrey to Docket EPA–HQ–OAR–2018–0638, August 1, 2019.

[9] The whale-strike avoidance rule was originally adopted by the National Marine Fisheries Service on October 10, 2008 (73 FR 60173). See 50 CFR part 224.105.

challenging case for installing Tier 4 engines. Hovercraft devote substantial engine power to create lift in addition to powering fan blades for propulsion. These vessels are accordingly especially sensitive to engine weight. Installing engines with high power density is important to preserving hovercraft functionality. We request comment and any supporting information and data related to the use of Tier 4 engines in hovercraft and on the potential need for relief from Tier 4 standards for engines in hovercraft.

2. Engine Manufacturer Challenges

Tier 4 marine diesel engine standards can be met through application of selective catalytic reduction (SCR) technology. SCR has been in widespread use for many years with a very wide range of engines and equipment applications. Adapting SCR systems to work with marine engines requires some additional design and development effort to produce catalyst systems that work properly and safely in a marine environment. Hundreds of marine vessels currently operate with SCR systems, most of which involved retrofitting engines with the aftertreatment technology. This includes more than 50 newbuild installations on U.S. vessels with certified Tier 4 engines that include SCR. Engine manufacturers have also designed and certified some engine models to Tier 4 standards using SCR technology. Some manufacturers of other marine engine models are also in the process of carrying out development programs for their engines using SCR technology, in part because of EPA's Tier 4 standards, but also because of the international Tier III NO_X standard adopted by the International Maritime Organization (IMO) under MARPOL Annex VI. This ''IMO Tier III NO_X standard'' applies for vessels built in 2016 and later that operate in the North American and U.S. Caribbean Sea Emission Control Areas.

The IMO Tier III NO_X standard was originally adopted in 2008 to apply starting in 2016 for any future ECAs, including ECAs adopted for other countries. This would likely have led to widespread development of SCR-equipped marine engines certified to the IMO Tier III NO_X standard. However, due to subsequent amendments, the IMO Tier III NO_X standard applies in 2016 only for the North American and U.S. Caribbean Sea Emission Control Areas. The IMO Tier III NO_X standard does not apply for engines on vessels built before 2021 when operating in the Baltic Sea and North Sea Emission Control Areas. If other countries designate additional Emission Control Areas, each one would have its own implementation date for the IMO Tier III NO_X standard. This amendment to the international standard has delayed the schedule for developing SCR for marine engines and certifying engines to meet those standards.

The combination of EPA standards and international NO_X standards in the 2020–2021 time frame is expected to lead engine manufacturers to continue to develop, certify, and build marine engines with SCR. There are also European emission standards for inland waterways that will require manufacturers to design engines with aftertreatment technologies—SCR for meeting NO_X standards and diesel particulate filters for meeting particulate number standards.[10]

Certifying to EPA standards requires some development and demonstration that goes beyond what is required to meet the IMO Tier III NO_X standard. For example, manufacturers certifying marine diesel engines to EPA standards must (1) meet PM, HC, and CO standards and (2) demonstrate that engines will continue to meet standards over the engine's defined regulatory useful life. As with NO_X control, these additional EPA requirements do not pose insurmountable technical challenges, but they contribute to increasing the cost of certifying engines.

V. Proposed Relief Related to Emission Standards for Marine Diesel Engines

To address the challenges described above, EPA is proposing revisions to our marine diesel engine emission control program for certain high-speed vessels and associated engines with rated power between 600 and 1,400 kW. These changes are intended to allow more time for engine manufacturers to certify additional engine models and for vessel manufacturers to design and build products that comply with Tier 4 standards. We are also proposing to better align certification requirements with the characteristics of these engines, especially as it relates to demonstrating the durability of emission controls.

1. Adjusted Implementation Dates

We are proposing to provide additional lead time for implementing the Tier 4 standards for qualifying engines and vessels as described in this section and summarized in Table 1. This additional time will allow engine manufacturers to design and certify engines to the Tier 4 standards that are suitable for use in high-speed vessels. The additional time will also allow vessel manufacturers to redesign their vessels as needed to accommodate the Tier 4 technology.

We are proposing that implementation of the Tier 4 standards for qualifying engines and vessels would occur in two phases. The first phase would set model year 2022 as the implementation deadline for engines installed in a wide range of high-speed vessels. The second phase would set model year 2024 as the implementation deadline for engines installed in a narrower set of high-speed vessels that we believe will require additional lead time.

We are proposing to limit these revisions to qualifying high-speed vessels and high power density engines for products that need additional lead time. Applying relief more broadly would remove demand for engines certified to Tier 4 standards, even if they would be suitable for powering those vessels. We would then forego achievable environmental benefits and could cause those engine and vessel manufacturers that have already developed Tier 4 compliant engines and vessels to be left at a competitive disadvantage.

High-speed vessels may be characterized as planing vessels based on a hull design that causes the vessel to rise up and experience lower hydrodynamic drag (with a corresponding decrease in required propulsion power) when operating at high speed. This contrasts with displacement hulls, for which propulsion power continues to increase with increasing vessel speed, and which do not experience the same design and installation challenges. While this distinction is straightforward, there is no generally accepted way to draw a clear line between the two types of vessels. This is illustrated by ''semi-planing'' vessels, which have operating characteristics that fall between planing and displacement vessels. The proposed vessel speed criterion is based on definitions used for ''high-speed craft'' by classification societies.[11] Each classification society uses its own definition, but all follow the same

[10] Regulation (EU) 2016/1628 of the European Parliament and of the Council of 14 September 2016 on requirements relating to gaseous and particulate pollutant emission limits and type-approval for internal combustion engines for non-road mobile machinery, amending Regulations (EU) No. 1024/2012 and (EU) No 167/2013, and amending and repealing Directive 97/68/EC.

[11] Classification societies generally act on behalf of national governments to oversee implementation of domestic and international maritime standards for construction and operation of ships. This typically includes inspections, surveys, and certification. The International Association of Classification Societies has twelve members (*www.iacs.org.uk*).

principles. We are proposing to limit relief to high-speed vessels that have a maximum operating speed (in knots) at or above $3.0 \cdot L^{1/2}$, where L is the vessel's waterline length, in feet. This includes an upward adjustment of about 40 percent compared to published definitions to draw a clearer line to identify high-speed vessels. As an example, 45-foot vessels would need to have a maximum speed of at least 23 knots to qualify for relief using the proposed threshold. The vessels that have been the subject of requests for Tier 4 relief would qualify based on this proposed criterion for high-speed vessels. Based on our engagement with marine stakeholders in the past year, we believe vessels whose maximum speed is below the specified threshold do not have the same sensitivity to engine size and weight that should qualify them for relief from using Tier 4 engines. The proposed vessel speed criterion applies equally to both proposed phases of adjusted implementation dates for the Tier 4 standards.

There are other definitions of ''high-speed craft'' that are based on a vessel's displaced volume rather than the length. A displacement-based criterion would have the advantage of accounting for a vessel's draft and beam in addition to the length for a more robust characterization. On the other hand, since vessel length is much easier to verify, there is a clear advantage to defining the criterion based only on the length. We request comment on replacing the proposed vessel speed criterion with an alternative that is $10 \cdot d^{1/6}$, where d is the vessel's displaced volume corresponding to the design waterline, in m^3 or tonnes. The alternative criterion would be largely equivalent to the proposed criterion, but would involve a higher qualifying speed for wider vessels.

Additionally, for both phases of the relief, we are proposing that the relief apply only to vessels classified as uninspected vessels by the U.S. Coast Guard.[12] Coast Guard designates all vessels as either inspected or uninspected. Inspected vessels carry freight-for-hire or any hazardous or dangerous cargo. Towing and most passenger vessels are also inspected. These ships are typically displacement vessels that operate low in the water and use very large propulsion engines that do not operate at high speeds. They are also typically custom-designed and built, meaning vessel manufacturers can and have been able to accommodate new-tier propulsion and auxiliary engines in new vessels in a timely manner. As a result, these vessels do not require the proposed adjusted implementation dates as they are currently being designed and built with compliant engines.

In contrast, uninspected vessels include recreational vessels not engaged in trade, non-industrial fishing vessels, very small cargo vessels (less than 15 gross tons), and miscellaneous vessels such as pilot boats, patrol and other law-enforcement vessels, fire boats, and research vessels, among others. Uninspected vessels are likely to be considerably smaller than inspected vessels and operate at higher speeds. Also, these vessels are often built on a common design platform and may use fiberglass hulls that are seldom re-designed. This means these boats are more likely to be designed to use only certain engines with a very similar, small footprint, and there can be less flexibility to rapidly incorporate new engine designs. Not all uninspected vessels require the adjusted implementation dates proposed in this rule to address their design constraints, but the contrast between different vessel types makes clear that the adjusted implementation schedule for the Tier 4 standards is appropriately focused on uninspected vessels.

We are proposing to limit relief to propulsion engines of a certain size on qualifying vessels. Specifically, we propose to limit the first phase to propulsion engines with maximum power output up to 1,400 kW, and power density of at least 35.0 kW per liter displacement. Category 1 engines have per-cylinder displacement below 7.0 liters. We are proposing to additionally limit relief to vessels up to 65 feet in length with total nameplate propulsion power at or below 2,800 kW (to accommodate vessels with multiple propulsion engines). The combination of the limit on maximum power for each engine with the limit on the total nameplate propulsion power has the practical effect of limiting relief to vessels with one or two propulsion engines. These criteria are intended to ensure that relief from the Tier 4 standards is provided to those engines and vessels that require additional lead time. We believe vessels not meeting these criteria do not have the same design challenges described in Section II in this preamble. For example, vessels longer than 65 feet that are subject to whale-strike avoidance rules need to operate at reduced speed and are therefore less sensitive to size and weight constraints that apply for smaller vessels. Some of these criteria may be redundant; however, we believe it is best to include multiple parameters as a precaution to ensure that the relief applies only to those engines and vessels that need additional lead time.

We propose to limit the second phase to vessels with a single propulsion engine with maximum power output up to 1,000 kW and power density of at least 40.0 kW per liter displacement, where the vessel is made with a nonmetal hull and has a maximum length of 50 feet.

We believe vessel manufacturers benefitting only from the first phase can comply in model year 2022 using engines that we expect to be certified to Tier 4 standards in 2019 or 2020. We therefore propose to apply the model year 2022 implementation date for vessels with steel or aluminum hulls, with vessel length between 50 and 65 feet, with twin-engine configurations, and needing propulsion engines with power ratings between 1,000 and 1,400 kW.

In contrast, vessel manufacturers need additional time to redesign fiberglass and other nonmetal vessels up to 50 feet long using 600–1,000 kW engines certified to Tier 4 standards. Based on engine manufacturers' current projections and project plans, certified engines with the appropriate power and power density will be not be available until the latter part of 2020 or 2021. Once suitable Tier 4 engines are certified, vessel manufacturers will then need time to redesign their vessels accordingly. We expect this to be a greater challenge for fiberglass and other nonmetal vessels due to material-related structural limitations, reliance on molds for construction, and reduced flexibility in modifying vessel architecture. Nonmetal hulls may be made with carbon fiber or wood instead of fiberglass.

In summary, we are proposing to set revised Tier 4 implementation dates for high power density propulsion engines in two phases based on engine and vessel characteristics as noted in the following table:

[12] Title 46, Chapter I, of the Code of Federal Regulations.

TABLE 1—SUMMARY OF QUALIFYING CRITERIA FOR ADJUSTED TIER 4 IMPLEMENTATION DATES

Criteria	Phase 1	Phase 2
Vessel speed (knots)	>3.0 · (feet)½	>3.0 · (feet)½.
USCG vessel classification	uninspected	uninspected.
Engine power density	>35.0 kW/liter	>40.0 kW/liter.
Engine power rating	≤1,400 kW	≤1,000 kW.
Total vessel propulsion power	≤2,800 kW	≤1,000 kW.
Vessel length	≤65 feet	≤50 feet.
Vessel hull construction	any	nonmetal.
Model years for continued use of Tier 3 Engines	through 2021	2022 and 2023.

Engine manufacturers are in the process of developing and certifying Tier 4 engines with higher power density that would be suitable for lobster boats, pilot boats, and other high-speed vessels. We expect engine manufacturers and their distributors and dealers will continue to provide support for vessel manufacturers as they modify vessel designs to accommodate the Tier 4 engines. The additional lead time associated with this proposed rule will allow vessel manufacturers to reconfigure vessels, create new tooling, perform sea trials, and start producing compliant vessels.

For vessel manufacturers to benefit from the proposed relief, engine manufacturers will need to certify engines to Tier 3 commercial standards for installation in newly constructed vessels. Vessel manufacturers may need these engines very soon after we finalize the proposed provisions. This would generally involve restarting production of engine configurations that were already certified to the Tier 3 commercial standards before 2017. Engine manufacturers may still be producing these or substantially equivalent engine configurations as certified Tier 3 recreational engines or as exempt replacement engines. In most cases, engine manufacturers can resubmit information from their earlier Tier 3 application for certification to cover the new production. As with all EPA standards, we cannot compel engine manufacturers to certify their engines as contemplated in this proposed rule, but we expect that engine manufacturers will be responsive to vessel manufacturer demand and that they will be ready and able to provide certified engines. We therefore expect vessel manufacturers to be able to buy the engines they need to continue production during the transition period.

The specified criteria clarify which engines and vessels qualify for continuing to be subject to Tier 3 standards for the extended transition before meeting the Tier 4 standards. If any engines or vessels utilize these provisions to comply with Tier 3 standards without meeting the specified criteria, we would expect to apply the prohibitions of 40 CFR 1068.101(a)(1) for new engines and vessels introduced into U.S. commerce based on those engines not being certified to the Tier 4 standards.

Hovercraft present a special case. While sales volumes of hovercraft are very small, they may face the same constraints related to availability of certified high power density engines and challenges of redesigning vessels to accommodate Tier 4 engine technology. Because they do not have a conventional waterline during operation, and maximum speed is not governed by conventional hydrodynamic principles, the criteria described above are not effective for qualifying hovercraft for the proposed adjustment to Tier 4 implementation. As with the other types of vessels, we expect engine development and certification to move forward, including engines with more compact aftertreatment systems. We accordingly request comment on the best approach for applying Tier 4 standards for hovercraft in a time frame that allows vessel manufacturers to address technical concerns associated with designing the vessels with SCR-equipped engines. This might involve treating hovercraft as a separate sub-category of vessels that qualify for one or both phases of relief described above for conventional vessels.

2. Relief Through Waivers for Qualifying Engines and Vessels

The proposed two-phase approach to adjust Tier 4 implementation for qualifying engines and vessels would apply without any separate EPA approval process. For qualifying engines and vessels, the Tier 3 engine certification requirements would continue to apply for the specified period.

We are additionally proposing a waiver process starting in 2024 for vessels meeting the Phase 2 specifications described in Table 1. We believe this provision may be needed if engine certification does not proceed as expected to provide available engines certified to Tier 4 standards with performance characteristics that are appropriate for the subject high-speed vessels.

Starting with model year 2024, manufacturers of vessels meeting the Phase 2 qualifications described in Table 1 would have the option to request in writing that EPA approve an exemption from the Tier 4 standards for vessels meeting the Phase 2 qualifications described in Table 1. EPA would evaluate these requests based on the availability of suitable certified Tier 4 engines at the time of the request for the intended vessel design. EPA could approve requests covering multiple vessels, but any approval would apply for a limited duration. As proposed, the waiver authority does not expire, so it allows manufacturers of qualifying vessels to avoid installing Tier 4 engines until suitable certified Tier 4 engine models become available.

Enforcement would apply as described in Section IV.1 in this preamble for new engines or vessels introduced into U.S. commerce under these waiver provisions without meeting the specified criteria.

We are aware that implementing standards in the context of waiver provisions raises concerns about inconsistencies within the industry and unintended consequences. Waiver provisions introduce a measure of uncertainty for planning and include a risk that some manufacturers will use the waiver provisions to gain a competitive advantage over other manufacturers who do not qualify for a waiver (or who choose not to request a waiver). Waiver provisions also create an administrative burden for both vessel manufacturers and EPA.

Considering these challenges related to waivers, we request comment on an alternative approach of simply adjusting the Tier 4 compliance deadlines further for the second phase of proposed relief (as summarized in Table 1). That alternative approach might involve setting the new start for Tier 4 at model

year 2028. This would allow additional time for engine manufacturers to certify engines between 600 and 1,000 kW to Tier 4 standards, and for vessel manufacturers to address installation challenges for the Tier 4 engines and technologies. A disadvantage of such a long-term adjustment to the Tier 4 implementation schedule is that engine manufacturers would have less incentive to certify the targeted engines because vessel manufacturers would not be required to buy and install them in qualifying vessels for many years.

We therefore request comment on the need for including waiver provisions for Tier 4 relief beyond model year 2024. We further request comment on the alternative of simply allowing more time, and what the advantages and disadvantages may be for such an approach. Finally, we request comment on the possibility of relying only on the hardship exemption provisions in 40 CFR 1068.255 to address concerns for Tier 4 relief beyond 2024.

3. Adjusted Requirements for Certifying Engines

As described above, there are no high power density engines currently certified to Tier 4 standards. We have heard that several engine manufacturers have plans to certify Tier 4 engines within the next few years. The biggest factor driving these engine product development and certification decisions is the expected sales volumes that would allow for recovering the investment in upgrading the engines. The coming standards for inland waterways in Europe and for European Emission Control Areas under MARPOL Annex VI are expected to contribute to demand for increasing sales volumes in a way that would support decisions to certify Tier 4 engines.

Based on conversations with engine manufacturers, we expect these market forces to be sufficient to supply the needed engines to support building compliant vessels with Tier 4 engines according to the revised schedule described above. Even so, we are proposing to revise engine certification requirements to reduce the costs and time needed for engine manufacturers to certify engines with high power density to Tier 4 standards. These proposed provisions are intended to help accelerate the market entry of Tier 4 marine engines with high power density.

a. Temporary Provision for Assigned Deterioration Factors

We are proposing a temporary provision allowing engine manufacturers to certify specific engines to Tier 4 standards based on assigned deterioration factors. Engine manufacturers rely on deterioration factors so they can test a new engine and adjust the test results mathematically to represent emission levels at full useful life. The regulations currently allow assigned deterioration factors only for small-volume engine manufacturers and post-manufacture marinizers. Assigned deterioration factors would reduce the cost and time to certify to Tier 4 standards, which would accelerate the schedule for certifying, and may lead manufacturers to make a decision to pursue Tier 4 certification in light of the expected low sales volumes for recovering the associated development costs.

To target the engines needed for high-speed vessels, we are proposing to allow assigned deterioration factors for 600–1,000 kW engines with power density above 35.0 kW/liter displacement through model year 2025, and for 1,000–1,400 kW engines with power density above 40.0 kW/liter displacement through model year 2023. These dates are set to apply for the first two years after the Tier 4 standards start to apply on the adjusted schedule, with the expectation that engine manufacturers could accumulate information on the durability characteristics of engines for those two model years before needing to develop family-specific deterioration factors.

There are currently no certified Tier 4 engines between 600 and 1,000 kW that are approaching 35.0 kW/liter displacement, so we believe it is appropriate for this power range to rely on the 35.0 kW/liter threshold that was used to set standards for Tier 3 commercial engines. In contrast, in the 1,000–1,400 kW range, there is already one certified Tier 4 engine that is close to 35.0 kW/liter displacement. We want to avoid creating relief for new certifications that would provide a competitive advantage over engines that are already certified using established procedures for durability testing. The higher power density threshold of 40.0 kW/liter displacement for 1,000–1,400 kW engines provides that buffer relative to engines already certified to Tier 4 standards.

We have reviewed available data to support proposing default values for assigned deterioration factors. The proposed deterioration factors are multiplicative values of 1.1 for NO_X and 1.4 for HC and CO, and an additive value of 0.003 g/kW-hr for PM.[13] Where an individual engine manufacturer has existing data available, for example, from certified land-based versions of their marine engines, EPA would consider that information, consistent with 40 CFR 1042.245(b), and may adjust the value of one or more default assigned deterioration factors accordingly.

Engine manufacturers would need to certify using family-specific deterioration factors in the first model year after the assigned deterioration factors are no longer available. This could be based on a conventional durability demonstration based on emission measurements before and after an extended period of service accumulation in the laboratory. It could alternatively be based on laboratory measurements after engines accumulate service hours when installed in vessels. Either of these approaches is permissible under current regulations (see 40 CFR 1042.245(c)). This approach would provide engine manufacturers with significant flexibility to determine deterioration factors. Test plans should be submitted to EPA in advance for review and approval. We would be ready to work through any testing or measurement issues as manufacturers work toward the goal of collecting robust information for determining appropriate deterioration factors.

We request comment on expanding the provisions for durability demonstrations to include both service accumulation and emission measurements with engines installed in vessels. We have procedures in place in 40 CFR part 1065, subpart J, to describe how to perform in-field measurements, but we would need to work out how to control engine operation to mimic the certification duty cycles, among other things. Concerns about removing engines for laboratory measurement are especially pronounced for larger engines. For many engines, it may be preferable to rely on laboratory measurements after service accumulation in a vessel, but waiving the requirement to measure emissions halfway through the service accumulation period.

b. Reduced Regulatory Useful Life for Light Commercial Engines

There are currently no engines certified to Tier 4 standards with power density above 35 kW per liter displacement. Engine manufacturers have expressed concerns about meeting the Tier 4 standards for a regulatory useful life of 10,000 hours. We

[13] ''Technical Analysis for Amendments Related to Marine Diesel Engine Emission Standards,'' EPA memorandum from Cheryl Caffrey to Docket EPA–HQ–OAR–2018–0638, August 1, 2019.

acknowledge that higher engine power ratings generally come from higher intake air pressures and greater fuel flow into the engine, which can cause some engine and aftertreatment components to wear out sooner. Engines with lower power density are designed for continuous operation for very long periods with minimal downtime. Engines with high power density are inherently lighter weight and have a shorter time before scheduled rebuilding. Under our current regulations, commercial marine engines are generally subject to the same regulatory useful life regardless of the power density. However, the performance demands associated with high power density make it more difficult to demonstrate that engines with aftertreatment technology will meet Tier 4 standards over the full regulatory useful life.

We are proposing to address this concern with an interim provision to establish a shorter regulatory useful life for commercial engines with very high power densities. The current regulatory useful life for these engines is 10,000 hours. We are specifically proposing to apply a new ''light commercial'' useful life of 5,000 hours for engines certified to the Tier 4 standards with power density above 50.0 kW/liter displacement. The 50.0 kW/liter threshold corresponds to power densities for engines certified to recreational engine standards. Commercial engine ratings can achieve power density consistent with engines used in recreational vessels. However, in contrast to recreational vessels, these light commercial vessels do not have operational characteristics that limit engine hours to very low levels. The proposed shorter useful life of 5,000 hours reflects the effects of high power density on engine durability in the context of vessels that have operational characteristics based on their commercial applications. We request comment and supporting information and data on the threshold for creating a sub-category of light commercial engines, and on the value of the useful life that should apply for certifying those engines. Any comments on the value of the useful life should include consideration of the recommended rebuild intervals for specific power densities.

These engines would also qualify for EPA-assigned deterioration factors as described above. Since the useful life decreases from 10,000 hours to 5,000 hours for qualifying engines, we would expect to adjust the values of assigned deterioration factors correspondingly. For example, the value of the deterioration factor for NO_X would decrease from 1.1 to 1.05; the value of the deterioration factor for HC and CO would decrease from 1.4 to 1.2; and the value of the deterioration factor for PM would decrease from 0.003 to 0.0015 g/kW-hr.

We are not proposing a sunset date for this interim provision for a shorter useful life, but we expect in the future to consider whether we should discontinue it after a satisfactory transition to Tier 4 standards for these engines, or whether we should continue to apply it indefinitely.

c. Engine Duty Cycle for Certification Testing

EPA's emission standards for marine diesel engines have always relied on the ''E3'' duty cycle specified by the International Organization for Standardization (ISO) for engines installed in commercial vessels with fixed-pitch propellers. This duty cycle includes four steady-state operating modes ranging from 25 to 100 percent of rated power, with the highest weighting for emissions at the higher-power modes. This weighting allows for calculating a composite emission test result to represent typical in-use operation. In contrast, the ISO E5 duty cycle, which applies for engines installed in recreational vessels, adds an idle mode and shifts the weighting for the other modes to place greater emphasis on low- and mid-power operation. The ISO E5 duty cycle was designed to apply for all vessels under 24 meters (78.7 feet) in length. The ISO duty cycles were perhaps developed with the simplifying assumption that vessels under 24 meters were high-speed planing vessels, and vessels longer than 24 meters were displacement vessels with corresponding extended operation at high engine loads. In previous rulemakings we chose instead to differentiate cycles only based on recreational vs. commercial installations to simplify certification for engine manufacturers. Engines may be installed in many different sizes and types of vessels, so we decided to apply the ISO E3 duty cycle for all commercial installations. Table 2 illustrates the speed and power settings for the ISO E3 and E5 duty cycles.

TABLE 2—SPEED AND POWER SETTINGS FOR THE ISO E3 AND E5 DUTY CYCLES

Mode No.	Engine speed	Percent of maximum test power	E3 weighting factors	E5 weighting factors
1	Maximum test speed	100	0.20	0.08
2	91%	75	0.50	0.13
3	80%	50	0.15	0.17
4	63%	25	0.15	0.32
5	Warm idle	0		0.30

Focusing on engines with high power density brings us back to the question of duty cycles. Based on our knowledge and discussions with marine industry stakeholders, we expect that anyone operating a commercial engine with high power density will not be operating the vessel predominantly at or near full power. Operating engines with high power density for prolonged periods at or near full power would lead to a much shorter engine life. Engine manufacturers often describe engines with low power density at ''continuous ratings'' and engines with high power density as ''intermittent ratings.'' We would expect operators of vessels with high power density engines to spend the most time at idle and low-power or mid-power operation, with occasional use at full power.[14] In short, it appears that engines with high power density would be best represented by operation over the ISO E5 duty cycle.

This observation applies most directly to engines with power density above

[14] ''Technical Analysis for Amendments Related to Marine Diesel Engine Emission Standards,'' EPA memorandum from Cheryl Caffrey to Docket EPA–HQ–OAR–2018–0638, August 1, 2019.

50.0 kW/liter displacement, where the engine's maximum power output leads to an expectation for shorter operating life (as described above). It applies, though to a lesser degree for engines with power density between 35.0 and 50.0 kW/liter displacement.

Measuring emission levels over a different duty cycle would yield different results, though it is not clear for a given engine calibration whether one cycle or the other would have higher emission levels. Perhaps more importantly, manufacturers would be able to adjust calibrations to fine-tune emission controls to work most effectively over the cycle that is most appropriate for a certain application.

We are considering amendments to adjust duty-cycle testing requirements for marine diesel engines. We would generally want to avoid changing the stringency of standards for engines that are already certified using existing test procedures. On the other hand, as noted above, there are no certified Tier 4 engines with power density above 35 kW/liter displacement. This same dynamic applies for engines below 600 kW, so we are also considering whether and how to adjust specified duty cycles for commercial engines with high power density that continue to be subject to Tier 3 standards.

In particular, we request comment on specifying the ISO E5 duty cycle for all commercial engines with power density above 35.0 kW/liter displacement. This could be instead of the ISO E3 duty cycle, or we could give manufacturers the option to select one cycle, or we could specify that manufacturers must meet standards using both cycles. Comments should address whether any recommended approach should apply differently for engines above or below 600 kW. Comments should also address whether any recommended approach should apply differently for engines at different levels of power density. We could, for example, make testing with the ISO E5 duty cycle optional for engines between 35.0 and 45.0 kW/liter displacement, and mandatory for engines above 45.0 kW/liter displacement.

VI. Economic and Environmental Impacts

1. Marine Diesel Engine Standards

We prepared an analysis of the economic, inventory, and human health and welfare impacts of this proposal using the inventory and cost estimation methods used to support our 2008 Final Rule and a simplified health benefits estimation method.[15] The results of that analysis are set out in Table 3 and summarized below.

With respect to costs, this proposal imposes no additional economic costs above those included in our 2008 rulemaking. Instead, we estimate that this proposal would result in cost reduction of about $5.4 million, using a behavioral modeling approach, or $5.8 million, using a full-cost pass-through approach (2018$). These are the estimated cost reductions from installing less expensive Tier 3 engines in new vessels during the relief period (2019 through 2023) and the associated operating cost reductions during the 13-year lifetime of those engines (2019 through 2035).

With respect to emission inventory impacts, the proposed amendment rule would change the implementation date of the Tier 4 standards for qualifying engines and vessels from 2017 to 2024, which would delay the emission and air quality benefits of those standards. The estimated annual increase in NO_X and PM_{10} [16] emissions associated with the proposed relief is about 108 and 2.3 short tons, respectively, in 2019, when both sets of engines are affected, decreasing to 37 and 1 ton, respectively, in 2022 and 2023, when only those engines 600 kW to 1,000 kW are affected. The lifetime inventory increase is estimated to be about 5,098 tons of NO_X and 107 tons of PM_{10}, assuming a 13-year lifetime. This represents less than one-tenth of one percent of the national annual emissions for these pollutants from commercial Category 1 marine diesel engines (*i.e.,* engines below 7.0 liters per cylinder displacement).

TABLE 3—ESTIMATED IMPACTS ON EMISSIONS AND COSTS

Year	Affected engines per year	NO_X increase per year (short tons)	PM_{10} increase per year (short tons)	Compliance cost reduction (2005$) *	Operating cost reduction (2005$)
2019	25	108.1	2.3	$456,000 to $531,000	$36,000
2020	25	216.3	4.6	$456,000 to $531,000	72,000
2021	25	324.4	6.8	$353,000 to $417,000	108,000
2022	21	361.0	7.6	$302,000 to $359,000	138,240
2023	21	397.6	8.4	$302,000 to $359,000	168,480
2024	0	397.6	8.4	0	168,480
Lifetime Impacts (sum of 2019–2035)	117	5,098	107	$4.1 to $4.4 million. ($5.4 to $5.8 million 2018$)	

* Costs were modeled in 2005$; lifetime impacts were converted in the final step of the analysis. Lower value of costs impacts estimated with a behavioral modeling approach, upper value estimated with a full-cost pass-through modeling approach. See ''Assessment Analysis: Proposed Marine CI Tier 4 Rule,'' EPA memorandum from Jean Marie Revelt, to Docket EPA–HQ–OAR–2018–0638 for details.

Finally, with respect to human health and welfare benefits, the forgone emissions reductions described above would also be associated with forgone improvements in human health. Using reduced form health benefit per ton values,[17] we estimate that the annual $PM_{2.5}$-related forgone benefits do not exceed a high-end estimate of $4.0 million in any given year (2015$). The total present value of the stream of forgone benefits over the years 2019 through 2035 range from $13 million to $41 million.

[15] See ''Assessment Analysis: Proposed Marine CI Tier 4 Rule,'' EPA memorandum from Jean Marie Revelt, to Docket EPA–HQ–OAR–2018–0638, August 1, 2019.

[16] Consistent with the 2008 Rule, this inventory analysis is for PM_{10}. In the 2008 rule, $PM_{2.5}$ was estimated at 97% of PM_{10}.

[17] $PM_{2.5}$-related health benefits are estimated by applying sector-specific (C1/C2 marine vessel engine) benefit per ton values for NO_X and directly-emitted $PM_{2.5}$ using a source apportionment approach that has been used past EPA analyses. See: Wolfe, P., Davidson, K. Fulcher, C., Fann, N., Zawacki, M., Baker, K.R. (2018). Monetized health benefits attributable to mobile source emission reductions across the United States in 2025. STOTEN, 650 (2019) 2490–2498, September.

Reduced form tools, by their nature, are subject to uncertainty.[18] In addition to the uncertainties present across the entire emissions-to-impact pathway, it is important to note that the monetized benefit per ton estimates used here reflect the geographic patterns of the underlying emissions and air quality modeling assumptions. They do not necessarily reflect the conditions of the policy scenario in which they are applied, which can lead to an over- or underestimate of benefits. For this analysis, as mentioned in discussion above, the forgone benefits may be overstated in a location like Maine, since there will be some transport of emissions offshore or to areas external to the United States with different population and geographic characteristics. However, for this analysis, this uncertainty is acceptable for characterizing a range of potential impacts.

2. Global Marine Fuel

A new global marine fuel standard of 0.50 percent (5,000 ppm) sulfur adopted into MARPOL Annex VI by the International Maritime Organization will go into effect on January 1, 2020 (''global marine fuel''). The U.S. refining industry has shared that they are well positioned to supply fuel meeting this new IMO standard.[19] However, they have also informed us that existing provisions in our diesel fuel regulations may lead to confusion as to their ability to distribute fuel in the United States that meets the 2020 standard for global marine fuel. We are therefore proposing changes to our regulatory text to clarify that U.S. refiners can confidently distribute global marine fuel up to the 5,000 ppm sulfur limit, which will facilitate smooth implementation of the 2020 global marine fuel standard.

To be clear, EPA is not proposing to adopt new marine fuel sulfur limits in this rule. The purpose of the proposed fuel program changes, as explained in Section II, is to modify a historical regulatory provision that may now have the unintended consequence of limiting flexibility for the distribution and sale in the United States of marine fuel that meets the sulfur limits for global marine fuel. Because there is no change to the fuel sulfur limits on fuels used in the United States, the proposed change is not expected to have an impact on U.S. air quality. However, by providing additional flexibility, the proposed change may reduce the costs of U.S. fuel suppliers providing global marine fuel that meets the MARPOL Annex VI global sulfur cap of 5,000 ppm, as explained below.

Under the regulations at 40 CFR part 80, marine distillate fuel with a T90 value below 700 °F is either Nonroad, Locomotive or Marine (NRLM) diesel fuel, limited to 15 ppm sulfur, or ECA marine fuel, limited to 1,000 ppm sulfur and can be used or made available for use only in engines on Category 3 vessels.[20] To comply with the 5,000 ppm global marine fuel standard, ship owners and operators can purchase residual fuels, distillate fuels, or mixtures of the two that fall below the 5,000 ppm cap.[21] EPA's existing regulations did not contemplate the potential for a distillate fuel being produced and distributed in the United States above 1,000 ppm, and therefore, to enhance the enforcement of our domestic fuel requirements, EPA's existing regulations preclude the distribution of higher sulfur distillate fuel in the United States. This limitation now hinders the ability of U.S. refiners to supply global marine fuel to the world market, as 1,000 ppm or lower distillate fuel may not be cost competitive with other 5,000 ppm sulfur options available. Ship owners and operators would likely choose to buy 5,000 ppm residual fuel or purchase their fuel in other countries rather than incur the additional cost of buying distillate marine fuel with less than 1,000 ppm sulfur in the United States. Rather than lose market share or absorb the price differential, we expect U.S. fuel providers to find ways within our regulations to supply the global marine fuel market, such as exporting higher sulfur distillate fuels and blending or using those fuels outside the United States; however, the inefficiency caused by our current limitation on distributing distillate fuel above 1,000 ppm will make it harder for U.S. fuel providers to competitively supply global marine fuel.

EPA does not have foreknowledge of the extent to which ship owners and operators would choose to use 5,000 ppm distillate fuel instead of residual fuel or distillate-residual fuel blends and cannot predict the extent to which ship owners and operators will be bunkering their vessels in the United States under the new global marine fuel standard. However, we can say with confidence that removing the restriction on the distribution of distillate fuel between 1,000 ppm and 5,000 ppm in the United States will provide greater flexibility for supplying the global marine fuel market and could therefore nominally reduce fuel costs. U.S. refiners have also requested that EPA make this regulatory change to provide clearly defined regulations that will provide a level playing field for all potential U.S. suppliers. Such clarity will aid them in finalizing their fuel supply and distribution plans.

We request comment on the extent to which this regulatory change might adjust U.S. fuel suppliers' decisions and actions to supply the global marine fuel market, the extent to which this action might help with overall global marine fuel supply, and what the associated costs, cost savings and other effects might be. We are interested in information that will shed light on measuring how behaviors may change relative to the U.S. baseline production plans (with no regulatory change), and what that baseline may be. For instance, would the relevant baseline be: (1) Distribution of distillate fuel with 1000 ppm sulfur limits in the U.S. for sale as a global marine fuel; (2) distribution of residual fuel with 5000 ppm sulfur limits in the U.S. for sale as a global marine fuel; (3) some combination of both approaches; or (4) some other approach? Such information would be used to assess the potential additional flexibility for U.S. fuel suppliers and the ships that use this fuel and the associated cost savings. Specifically, we request comment on the amount of 5,000 ppm distillate fuel that would be sold in the United States for use into the global marine fuel market with the proposed amendment, including price projections and other market specific information. While we recognize that the effects of the global 2020 IMO Standards are not attributable to this rule, we would be interested in further information related to this transition where such information is relevant for assessing the impacts of this proposed action on U.S. fuel suppliers.

VII. Statutory and Executive Order Reviews

A. Executive Order 12866: Regulatory Planning and Review and Executive Order 13563: Improving Regulation and Regulatory Review

This action was submitted to the Office of Management and Budget (OMB) for review.

[18] See EPA (2018). Technical Support Document: Estimating the Benefit per Ton of Reducing $PM_{2.5}$ Precursors from 17 Sectors. Office of Air and Radiation, Office of Air Quality Planning and Standards, Research Triangle Park, February.

[19] See, for example, the website for the Coalition for American Energy Security at *https://americanenergysecurity.com.*

[20] T90 refers to the point in a distillation process at which 90 percent of the fuel has evaporated.

[21] Under 40 CFR, residual fuel is a petroleum fuel that can only be used in diesel engines if it is preheated before injection.

B. Executive Order 13771: Reducing Regulations and Controlling Regulatory Costs

This action is expected to be an Executive Order 13771 deregulatory action. Details on the estimated cost savings of this rule can be found in EPA's analysis of the potential costs and benefits associated with this action.

C. Paperwork Reduction Act (PRA)

The information collection activities in this proposed rule have been submitted for approval to the Office of Management and Budget (OMB) under the PRA. The Information Collection Request (ICR) document that the EPA prepared has been assigned EPA ICR number 2602.01. You can find a copy of the ICR in the docket for this rule, and it is briefly summarized here. OMB has previously approved the information collection activities related to marine diesel engine emission standards in 40 CFR part 1042 under OMB control number 2060–0287.

Information collection is limited to manufacturers of qualifying high-speed vessels requesting a waiver from the Tier 4 standards after the standards restart in model year 2024. We are adopting this as a precaution, in case engine certification and further technology development for installing Tier 4 engines does not allow for complying with standards in 2024. We will protect confidential business information as described in 40 CFR part 2.

Respondents/affected entities: Manufacturers of high-speed vessels.

Respondent's obligation to respond: Response is required to get EPA's approval for a waiver from Tier 4 standards.

Estimated number of respondents: 0.

Frequency of response: There are no recurring responses.

Total estimated burden: 0 hours (per year). Burden is defined at 5 CFR 1320.3(b).

Total estimated cost: $0 per year, including $0 per year in annualized capital or operation & maintenance costs.

An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for the EPA's regulations in 40 CFR are listed in 40 CFR part 9.

Submit your comments on the Agency's need for this information, the accuracy of the provided burden estimates and any suggested methods for minimizing respondent burden to the EPA using the docket identified at the beginning of this rule. You may also send your ICR-related comments to OMB's Office of Information and Regulatory Affairs via email to *OIRA_submission@omb.eop.gov,* Attention: Desk Officer for the EPA. Since OMB is required to make a decision concerning the ICR between 30 and 60 days after receipt, OMB must receive comments no later than October 7, 2019. The EPA will respond to any ICR-related comments in the final rule.

D. Regulatory Flexibility Act (RFA)

I certify that this action will not have a significant economic impact on a substantial number of small entities under the RFA. In making this determination, the impact of concern is any significant adverse economic impact on small entities. An agency may certify that a rule will not have a significant economic impact on a substantial number of small entities if the rule relieves regulatory burden, has no net burden, or otherwise has a positive economic effect on the small entities subject to the rule. This proposed rule is expected to provide regulatory flexibility to small owners and operators of U.S. vessels. We have therefore concluded that this action will have no adverse regulatory impact for any directly regulated small entities.

E. Unfunded Mandates Reform Act (UMRA)

This action does not contain any unfunded mandate as described in UMRA, 2 U.S.C. 1531–1538, and does not significantly or uniquely affect small governments. The action imposes no enforceable duty on any state, local, or tribal governments.

F. Executive Order 13132: Federalism

This action does not have federalism implications. It will not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government.

G. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments

This action does not have tribal implications as specified in Executive Order 13175. This proposed rule will be implemented at the Federal level and affects owners and operators of U.S. vessels. Thus, Executive Order 13175 does not apply to this action.

H. Executive Order 13045: Protection of Children From Environmental Health Risks and Safety Risks

This action is not subject to Executive Order 13045 because it is not economically significant as defined in Executive Order 12866. This action's assessment of the environmental impact of the rule contained in Section V shows that the rule will have a very small impact, which will not have a disproportionate effect on children's health.

I. Executive Order 13211: Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use

This action is not a ''significant energy action'' because it is not likely to have a significant adverse effect on the supply, distribution, or use of energy. Section V describes how we expect this rule to have a small overall environmental impact.

J. National Technology Transfer and Advancement Act (NTTAA)

This rulemaking does not involve technical standards.

K. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations, and Low-Income Populations

EPA believes this action does not have disproportionately high and adverse human health or environmental effects on minority populations, low-income populations or indigenous peoples, as specified in Executive Order 12898 (59 FR 7629, February 16, 1994). Due to the small environmental impact, this proposed regulatory flexibility will not have a disproportionate adverse effect on minority populations, low-income populations, or indigenous peoples.

List of Subjects

40 CFR Part 80

Environmental protection, Fuel additives, Gasoline, Greenhouse gases, Imports, Labeling, Motor vehicle pollution, Penalties, Reporting and recordkeeping requirements.

40 CFR Part 1042

Environmental protection, Administrative practice and procedure, Air pollution control, Confidential business information, Imports, Labeling, Penalties, Reporting and recordkeeping requirements, Vessels, Warranties.

Dated: August 26, 2019.

Andrew R. Wheeler,

Administrator.

For the reasons set forth above, EPA proposes to amend 40 CFR parts 80 and 1042 as follows:

PART 80—REGULATION OF FUELS AND FUEL ADDITIVES

■ 1. The authority citation for part 80 continues to read as follows:

Authority: 42 U.S.C. 7414, 7521, 7542, 7545, and 7601(a).

■ 2. Section 80.2 is amended by adding paragraph (aa) to read as follows:

§ 80.2 Definitions.

* * * * *

(aa) *Global marine fuel* means diesel fuel, distillate fuel, or residual fuel used, intended for use, or made available for use in steamships or Category 3 marine vessels while the vessels are operating in international waters or in any waters outside the boundaries of an ECA. Global marine fuel is subject to the provisions of MARPOL Annex VI.

* * * * *

■ 3. Section 80.501 is amended by redesignating paragraphs (a)(6) and (7) as paragraphs (a)(7) and (8), and adding a new paragraph (a)(6) to read as follows:

§ 80.501 What fuel is subject to the provisions of this subpart?

(a) * * *

(6) Distillate global marine fuel.

* * * * *

■ 4. Section 80.590 is amended by revising the section heading and paragraph (a) introductory text and adding paragraph (a)(7)(viii) to read as follows:

§ 80.590 What are the product transfer document requirements for motor vehicle diesel fuel, NRLM diesel fuel, heating oil, global marine fuel, ECA marine fuel, and other distillates?

(a) This paragraph (a) applies on each occasion that any person transfers custody or title to MVNRLM diesel fuel, heating oil, global marine fuel, or ECA marine fuel (including distillates used or intended to be used as MVNRLM diesel fuel, heating oil, global marine fuel, or ECA marine fuel) except when such fuel is dispensed into motor vehicles or nonroad equipment, locomotives, marine diesel engines or steamships or Category 3 vessels. Note that 40 CFR part 1043 specifies requirements for documenting fuel transfers to certain marine vessels. For all fuel transfers subject to this paragraph (a), the transferor must provide to the transferee documents which include the following information:

* * * * *

(7) * * *

(viii) *Global marine fuel.* ''For use only in steamships or Category 3 marine vessels outside of an Emission Control Area (ECA), consistent with MARPOL Annex VI.''

* * * * *

■ 5. Section 80.598 is amended by revising paragraphs (a)(2)(i)(G) and (b)(8)(iii) to read as follows:

§ 80.598 What are the designation requirements for refiners, importers, and distributors?

(a) * * *

(2) * * *

(i) * * *

(G) Exempt distillate fuels such as global marine fuels under § 80.605, fuels that are covered by a national security exemption under § 80.606, fuels that are used for purposes of research and development pursuant to § 80.607, and fuels used in the U.S. Territories pursuant to § 80.608 (including additional identifying information).

* * * * *

(b) * * *

(8) * * *

(iii) Exempt distillate fuels such as global marine fuels under § 80.605, fuels that are covered by a national security exemption under § 80.606, fuels that are used for purposes of research and development pursuant to § 80.607, and fuels used in the U.S. Territories pursuant to § 80.608 (including additional identifying information).

* * * * *

■ 6. Amend § 80.602 by revising the section heading and paragraphs (a) and (b)(4)(i) to read as follows:

§ 80.602 What records must be kept by entities in the NRLM diesel fuel, ECA marine fuel, global marine fuel, and diesel fuel additive production, importation, and distribution systems?

(a) *Records that must be kept by parties in the NRLM diesel fuel, ECA marine fuel, global marine fuel and diesel fuel additive production, importation, and distribution systems.* Beginning June 1, 2007, or June 1, 2006, if that is the first period credits are generated under § 80.535, any person who produces, imports, sells, offers for sale, dispenses, distributes, supplies, offers for supply, stores, or transports nonroad, locomotive or marine diesel fuel, or ECA marine fuel (beginning June 1, 2014) subject to the provisions of this subpart, must keep all the records specified in this paragraph (a). These recordkeeping requirements for global marine fuel start January 1, 2020.

(1) The applicable product transfer documents required under §§ 80.590 and 80.591.

(2) For any sampling and testing for sulfur content for a batch of NRLM diesel fuel produced or imported and subject to the 15 ppm sulfur standard or any sampling and testing for sulfur content of any fuel subject to the provisions of this subpart as part of a quality assurance testing program, and any sampling and testing for cetane index, aromatics content, marker solvent yellow 124 content or dye solvent red 164 content of NRLM diesel fuel, ECA marine fuel, NRLM diesel fuel additives or heating oil:

(i) The location, date, time and storage tank or truck identification for each sample collected;

(ii) The name and title of the person who collected the sample and the person who performed the testing; and

(iii) The results of the tests for sulfur content (including, where applicable, the test results with and without application of the adjustment factor under § 80.580(d)), for cetane index or aromatics content, dye solvent red 164, marker solvent yellow 124 (as applicable), and the volume of product in the storage tank or container from which the sample was taken.

(3) The actions the party has taken, if any, to stop the sale or distribution of any NRLM diesel fuel, global marine fuel, or ECA marine fuel found not to be in compliance with the sulfur standards specified in this subpart, and the actions the party has taken, if any, to identify the cause of any noncompliance and prevent future instances of noncompliance.

(b) * * *

(4) * * *

(i) NRLM diesel fuel, NR diesel fuel, LM diesel fuel, global marine fuel, ECA marine fuel, or heating oil, as applicable.

* * * * *

■ 7. Section 80.605 is added to read as follows:

§ 80.605 Global marine fuel exemption.

(a) The standards of this subpart I do not apply to global marine fuel that is produced, imported, sold, offered for sale, supplied, offered for supply, stored, dispensed, or transported for use in steamships or Category 3 marine vessels when operating outside of ECA boundaries.

(b) The exempt fuel must meet all the following conditions:

(1) It must not exceed 0.50 weight percent sulfur ($5.0 \cdot 10^3$ ppm).

(2) It must be accompanied by product transfer documents as required under § 80.590.

(3) It must be designated as specified under § 80.598.

(4) It must be segregated from non-exempt fuel at all points in the distribution system.

(5) It may not be used in any vehicles, engines, or equipment other than those referred to in paragraph (a) of this section.

(c) Fuel not meeting the conditions specified in paragraph (b) of this section is subject to the standards, requirements, and prohibitions that apply for MVNRLM diesel fuel. Similarly, any person who produces, imports, sells, offers for sale, supplies, offers for supply, stores, dispenses, or transports global marine fuel without meeting the recordkeeping requirements under § 80.602 may not claim the fuel is exempt from the standards, requirements, and prohibitions that apply for MVNRLM diesel fuel.

PART 1042—CONTROL OF EMISSIONS FROM NEW AND IN-USE MARINE COMPRESSION-IGNITION ENGINES AND VESSELS

■ 8. The authority citation for part 1042 continues to read as follows:

Authority: 42 U.S.C. 7401–7671q.

■ 9. Section 1042.145 is amended by adding paragraphs (k) through (o) to read as follows:

§ 1042.145 Interim provisions.

* * * * *

(k) *Adjusted implementation dates for Tier 4 standards.* Engines and vessels may qualify for delaying the Tier 4 standards specified in § 1042.101 as follows:

(1) The delay is limited to model year 2021 and earlier engines and vessels that meet all the following characteristics:

(i) Category 1 propulsion engines with specific power density above 35.0 kW/liter, up to maximum engine power of 1,400 kW.

(ii) Vessels have total propulsion power at or below 2,800 kW.

(iii) Vessel length is at or below 65 feet.

(iv) Vessels qualify as uninspected vessels under 46 CFR 2.01–7.

(v) Vessels have a maximum speed (in knots) at or above $3.0 \bullet L^{1/2}$, where L is the vessel's waterline length, in feet.

(2) The delay also applies for model years 2022 and 2023 for engines and vessels that meet all the following characteristics:

(i) Category 1 propulsion engines with specific power density above 40.0 kW/liter, up to maximum engine power of 1,000 kW.

(ii) Vessels have total propulsion power at or below 1,000 kW.

(iii) Vessel length is at or below 50 feet.

(iv) Vessels qualify as uninspected vessels under 46 CFR 2.01–7.

(v) Vessels have a maximum speed (in knots) at or above $3.0 \bullet L^{1/2}$, where L is the vessel's waterline length, in feet.

(vi) Vessels have fiberglass or other nonmetal hulls.

(3) Affected engines must instead be certified to the appropriate Tier 3 emission standards specified in § 1042.101. Engine manufacturers may include engine configurations with maximum engine power below 600 kW in the same engine family even if the power density is below the value specified in paragraph (k)(1) or (2) of this section.

(4) If you introduce an engine into U.S. commerce under this section, you must meet the labeling requirements in § 1042.135, but add the following statement instead of the compliance statement in § 1042.135(c)(10):

THIS MARINE ENGINE COMPLIES WITH U.S. EPA TIER 3 EMISSION STANDARDS UNDER 40 CFR 1042.145(k). ANY OTHER INSTALLATION OR USE OF THIS ENGINE MAY BE A VIOLATION OF FEDERAL LAW SUBJECT TO CIVIL PENALTY.

(l) [Reserved]

(m) *Tier 4 waiver.* Starting in model year 2024, vessel manufacturers may request an exemption from the Tier 4 standards as follows:

(1) The subject vessels and engines must meet the qualifications of paragraph (k)(2) of this section.

(2) Vessel manufacturers must send a written request for the exemption to the Designated Compliance Officer. The request must describe efforts taken to identify available engines certified to the Tier 4 standards and design efforts for installing engines in the subject vessels. The request must also identify the number of vessels needing exempt engines. We will approve exemption requests demonstrating that there is no suitable engine certified to the Tier 4 standards and that engine and vessel manufacturers will meet all the terms and conditions that apply.

(3) Engine manufacturers may ship exempt engines under this paragraph (m) only after receiving a written request from a vessel manufacturer who has received our approval to build a specific number of vessels. The prohibitions in § 1068.101(a)(1) do not apply to a new engine that is subject to Tier 4 standards, subject to the following conditions:

(i) The engine meets the appropriate Tier 3 emission standards in § 1042.101 consistent with the provisions specified in § 1068.265 of this chapter.

(ii) The engine is installed on a vessel consistent with the conditions of this paragraph (m).

(iii) The engine meets the labeling requirements in § 1042.135, with the following statement instead of the compliance statement in § 1042.135(c)(10):

THIS MARINE ENGINE DOES NOT COMPLY WITH CURRENT U.S. EPA EMISSION STANDARDS UNDER 40 CFR 1042.145(m). ANY OTHER INSTALLATION OR USE OF THIS ENGINE MAY BE A VIOLATION OF FEDERAL LAW SUBJECT TO CIVIL PENALTY.

(n) *Assigned deterioration factors.* Engine manufacturers may use assigned deterioration factors for certifying Tier 4 engines with maximum power up to 1,400 kW, as follows:

(1) For engine families that have at least one configuration with maximum engine power at or below 1,400 kW and power density above 40.0 kW/liter, you may use assigned deterioration factors through model year 2023.

(2) For engine families that have at least one configuration with maximum engine power at or below 1,000 kW and power density above 35.0 kW/liter, you may use assigned deterioration factors through model year 2025.

(3) The assigned deterioration factors are multiplicative values of 1.1 for NO_X and 1.4 for HC and CO, and an additive value of 0.003 g/kW-hr for PM, unless we approve your request to use different values. We will approve your proposed values if you demonstrate that they better represent your engines based on data from similar engines you have certified.

(o) *Useful life for light-commercial engines.* Commercial Category 1 engines at or above 600 kW with power density above 50.0 kW/liter are subject to the exhaust emission standards of this part over a full useful life of 10 years or 5,000 hours of operation instead of the useful-life values specified in § 1042.101(e).

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