6560-50-P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 60

[EPA-HQ-OAR-2023-0358; FRL-10655-01-OAR]

RIN 2060-AV93

New Source Performance Standards Review for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels)

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: The Environmental Protection Agency (EPA) is proposing amendments to the Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) as the preliminary results of the review of the New Source Performance Standards (NSPS) required by the Clean Air Act. The EPA is proposing revisions to the NSPS that are applicable to volatile organic liquid (VOL) storage vessels that commence construction, reconstruction, or modification after [**INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]** under a new NSPS subpart. In the new NSPS subpart, the EPA is proposing to reduce the vapor pressure applicability thresholds In addition, the EPA is proposing to revise the volatile organic compound (VOC) standards to reflect the best system of emissions reductions (BSER) for affected storage vessels. We are also proposing additional monitoring and operating requirements to ensure continuous compliance with the standard. In addition, the EPA is proposing degassing emission controls; clarification of startup, shutdown, and malfunction requirements; requirements for electronic reporting; and other technical improvements. The EPA is also proposing to amend NSPS subpart Kb to apply to VOL storage vessels that commence construction, reconstruction or modification after July 23, 1984 and on or before [**INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]** and to add electronic reporting requirements.

DATES: *Comments*. Comments must be received on or before **[INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**. Comments on the information collection provisions submitted to the Office of Management and Budget (OMB) under the Paperwork Reduction Act (PRA) are best assured of consideration by OMB if OMB receives a copy of your comments on or before **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

Public Hearing. If anyone contacts us requesting a public hearing on or before **[INSERT DATE 5 CALENDAR DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**, we will hold a virtual hearing. Please refer to the **SUPPLEMENTARY INFORMATION** for information on requesting and registering for a public hearing.

ADDRESSES: You may send comments, identified by Docket ID No. EPA-HQ-OAR-2023-0358, by any of the following methods:

- Federal eRulemaking Portal: *https://www.regulations.gov* (our preferred method). Follow the online instructions for submitting comments.
- Email: *a-and-r-docket@epa.gov*. Include Docket ID No. EPA-HQ-OAR-2023-0358 in the subject line of the message.
- Fax: (202) 566-9744. Attention Docket ID No. EPA-HQ-OAR-2023-0358.
- Mail: U.S. Environmental Protection Agency, EPA Docket Center, Docket ID No. EPA-HQ-OAR-2023-0358, Mail Code 28221T, 1200 Pennsylvania Avenue, NW, Washington, DC 20460.
- Hand/Courier Delivery*:* EPA Docket Center, WJC West Building, Room 3334, 1301 Constitution Avenue, NW, Washington, DC 20004. The Docket Center's hours of operation are 8:30 a.m.–4:30 p.m., Monday–Friday (except Federal Holidays).

Instructions: All submissions received must include the Docket ID No. for this rulemaking. Comments received may be posted without change to *https://www.regulations.gov*, including any personal information provided. For detailed instructions on sending comments and

additional information on the rulemaking process, see the **SUPPLEMENTARY INFORMATION** section of this document.

FOR FURTHER INFORMATION CONTACT: For questions about this proposed action, contact U.S. EPA, Attn: Michael Cantoni, Mail Drop: E143-01, 109 T.W. Alexander Drive, P.O. Box 12055, RTP, NC 27711; telephone number: (919) 541-5593; and email address: *Cantoni.Michael@epa.gov*.

SUPPLEMENTARY INFORMATION:

Participation in virtual public hearing. To request a virtual public hearing, contact the public hearing team at (888) 372-8699 or by email at *SPPDpublichearing@epa.gov*. If requested, the virtual hearing will be held on **[INSERT DATE 15 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**. The hearing will convene at 11:00 a.m. Eastern Time (ET) and will conclude at 3:00 p.m. ET. The EPA may close a session 15 minutes after the last pre-registered speaker has testified if there are no additional speakers. The EPA will announce further details at *https://www.epa.gov/stationary-sources-air-pollution/volatile-organic-liquid-storage-vessels-including-petroleum*.

If a public hearing is requested, the EPA will begin pre-registering speakers for the hearing no later than 1 business day after the publication of this document in the *Federal Register*. To register to speak at the virtual hearing, please use the online registration form available at *https://www.epa.gov/stationary-sources-air-pollution/volatile-organic-liquid-storage-vessels-including-petroleum* or contact the public hearing team at (888) 372-8699 or by email at *SPPDpublichearing@epa.gov*. The last day to pre-register to speak at the hearing will be **[INSERT DATE 12 CALENDAR DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**. Prior to the hearing, the EPA will post a general agenda that will list pre-registered speakers at: *https://www.epa.gov/stationary-sources-air-pollution/volatile-organic-liquid-storage-vessels-including-petroleum*.

The EPA will make every effort to follow the schedule as closely as possible on the day of the hearing; however, please plan for the hearings to run either ahead of schedule or behind schedule.

Each commenter will have 4 minutes to provide oral testimony. The EPA encourages commenters to submit a copy of their oral testimony as written comments to the rulemaking docket.

The EPA may ask clarifying questions during the oral presentations but will not respond to the presentations at that time. Written statements and supporting information submitted during the comment period will be considered with the same weight as oral testimony and supporting information presented at the public hearing.

Please note that any updates made to any aspect of the hearing will be posted online at *https://www.epa.gov/stationary-sources-air-pollution/volatile-organic-liquid-storage-vessels-including-petroleum*. While the EPA expects the hearing to go forward as described in this section, please monitor our website or contact the public hearing team at (888) 372-8699 or by email at *SPPDpublichearing@epa.gov* to determine if there are any updates. The EPA does not intend to publish a document in the *Federal Registe*r announcing updates.

If you require the services of a translator or a special accommodation such as audio description, please pre-register for the hearing with the public hearing team and describe your needs by **[INSERT DATE 7 CALENDAR DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**. The EPA may not be able to arrange accommodations without advanced notice.

Docket. The EPA has established a docket for this rulemaking under Docket ID No. EPA-HQ-OAR-2023-0358. All documents in the docket are listed in the Regulations.gov index. Although listed in the index, some information is not publicly available, *e.g.*, Confidential Business Information (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.

Written Comments. Submit your comments, identified by Docket ID No. EPA-HQ-OAR-2023-0358, at *https://www.regulations.gov* (our preferred method), or the other methods identified in the ADDRESSES section. Once submitted, comments cannot be edited or removed from the docket. The EPA may publish any comment received to its public docket. Do not submit to EPA's docket at *https://www.regulations.gov* any information you consider to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. This type of information should be submitted as discussed in the *Submitting CBI* section of this document.

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. The 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). Please visit *https://www.epa.gov/dockets/commenting-epa-dockets* for additional submission methods; the full EPA public comment policy; information about CBI or multimedia submissions; and general guidance on making effective comments.

The *https://www.regulations.gov* website allows you to submit your comment anonymously, which means the EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send an email comment directly to the EPA without going through *https://www.regulations.gov*, your email address will be automatically captured and included as part of the comment that is placed in the public docket and made available on the Internet. If you submit an electronic comment, the EPA recommends that you include your name and other contact information in the body of your comment and with any digital storage media you submit. If the EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, the EPA may not be able to consider your

comment. Electronic files should not include special characters or any form of encryption and be free of any defects or viruses.

Submitting CBI. Do not submit information containing CBI to the EPA through *https://www.regulations.gov*. Clearly mark the part or all of the information that you claim to be CBI. For CBI information on any digital storage media that you mail to the EPA, note the docket ID, mark the outside of the digital storage media as CBI, and identify electronically within the digital storage media the specific information that is claimed as CBI. In addition to one complete version of the comments that includes information claimed as CBI, you must submit a copy of the comments that does not contain the information claimed as CBI directly to the public docket through the procedures outlined in the *Written Comments* section of this document. If you submit any digital storage media that does not contain CBI, mark the outside of the digital storage media clearly that it does not contain CBI and note the docket ID. Information not marked as CBI will be included in the public docket and the EPA's electronic public docket without prior notice. Information marked as CBI will not be disclosed except in accordance with procedures set forth in 40 Code of Federal Regulations (CFR) part 2.

Our preferred method to receive CBI is for it to be transmitted electronically using email attachments, File Transfer Protocol (FTP), or other online file sharing services (*e.g.*, Dropbox, OneDrive, Google Drive). Electronic submissions must be transmitted directly to the OAQPS CBI Office at the email address *oaqpscbi@epa.gov*, and as described above, should include clear CBI markings and note the docket ID. If assistance is needed with submitting large electronic files that exceed the file size limit for email attachments, and if you do not have your own file sharing service, please email *oaqpscbi@epa.gov* to request a file transfer link. If sending CBI information through the postal service, please send it to the following address: U.S. EPA, Attn: OAQPS Document Control Officer, Mail Drop: C404-02, 109 T.W. Alexander Drive, P.O. Box 12055, RTP, NC 27711, Attention Docket ID No. EPA-HQ-OAR-2023-0358. The mailed CBI

material should be double wrapped and clearly marked. Any CBI markings should not show through the outer envelope.

Preamble acronyms and abbreviations. Throughout this document the use of "we," "us," or "our" is intended to refer to the EPA. We use multiple acronyms and terms in this preamble. While this list may not be exhaustive, to ease the reading of this preamble and for reference purposes, the EPA defines the following terms and acronyms here:

API	American Petroleum Institute
ASTM	American Society for Testing and Materials
BSER	best system of emission reduction
CAA	Clean Air Act
CBI	Confidential Business Information
CDX	Central Data Exchange
CE	cost effectiveness
CEDRI	Compliance and Emissions Data Reporting Interface
CFR	Code of Federal Regulations
EFR	external floating roof
EIA	economic impact analysis
EJ	environmental justice
EPA	Environmental Protection Agency
ET	Eastern Time
FR	*Federal Register*
HAP	hazardous air pollutant(s)
ICE	incremental cost effectiveness
ICR	information collection request
IFR	internal floating roof
kPa	kilopascals
LEL	lower explosive limit
m^3	cubic meters
NAICS	North American Industry Classification System
NESHAP	national emission standards for hazardous air pollutants
NSPS	new source performance standards
NTTAA	National Technology Transfer and Advancement
OAQPS	Office of Air Quality Planning and Standards
OMB	Office of Management and Budget
PRA	Paperwork Reduction Act
psia	pounds per square inch absolute
psig	pounds per square inch gauge
RFA	Regulatory Flexibility Act
RIN	Regulatory Information Number
SCAQMD	South Coast Air Quality Management District
SSM	startup, shutdown, and malfunctions
TAC	total annualized cost
TCI	total capital investment
tpy	tons per year
UMRA	Unfunded Mandates Reform Act
U.S.C.	United States Code

VOC	volatile organic compound(s)
VOL	volatile organic liquid(s)

Organization of this document. The information in this preamble is organized as follows:

I. General Information

A. Does this action apply to me?

The source category that is the subject of this proposal is composed of VOL storage vessels regulated under Clean Air Act (CAA) section 111, New Source Performance Standards. The 2022 North American Industry Classification System (NAICS) codes for this source category are 325, 324, and 422710. The NAICS codes serve as a guide for readers outlining the entities that this proposed action is likely to affect. The proposed standards, once promulgated, will be directly applicable to affected facilities that begin construction, reconstruction, or modification after the date of publication of the proposed standards in the *Federal Register*. Federal, State, local and Tribal government entities that own and/or operate storage vessels would be affected by this action.

B. Where can I get a copy of this document and other related information?

In addition to being available in the docket, an electronic copy of this action is available on the Internet at *https://www.epa.gov/stationary-sources-air-pollution/volatile-organic-liquid-storage-vessels-including-petroleum*. Following publication in the *Federal Register*, the EPA will post the *Federal Register* version of the proposal and key technical documents at this same website.

A memorandum showing the edits that would be necessary to incorporate the changes to 40 CFR part 60, subparts Kb and Kc proposed in this action is available in the docket (Docket ID No. EPA-HQ-OAR-2023-0358). Following signature by the EPA Administrator, the EPA also will post a copy of this document to *https://www.epa.gov/stationary-sources-air-pollution/volatile-organic-liquid-storage-vessels-including-petroleum*.

II. Background

A. What is the statutory authority for this action?

The EPA's authority for this proposed rule is CAA section 111, which governs the establishment of standards of performance for stationary sources. Section 111(b)(1)(A) of the CAA requires the EPA Administrator to list categories of stationary sources that in the Administrator's judgment cause or contribute significantly to air pollution that may reasonably be anticipated to endanger public health or welfare. The EPA must then issue performance standards for new (and modified or reconstructed) sources in each source category pursuant to CAA section 111(b)(1)(B). These standards are referred to as new source performance standards, or NSPS. The EPA has the authority to define the scope of the source categories, determine the pollutants for which standards should be developed, set the emission level of the standards, and distinguish among classes, types, and sizes within categories in establishing the standards.

CAA section 111(b)(1)(B) requires the EPA to "at least every 8 years review and, if appropriate, revise" new source performance standards. However, the Administrator need not review any such standard if the "Administrator determines that such review is not appropriate in light of readily available information on the efficacy" of the standard. When conducting a review of an existing performance standard, the EPA has the discretion and authority to add emission limits for pollutants or emission sources not currently regulated for that source category.

In setting or revising a performance standard, CAA section 111(a)(1) provides that performance standards are to reflect "the degree of emission limitation achievable through the application of the best system of emission reduction which (taking into account the cost of achieving such reduction and any non-air quality health and environmental impact and energy requirements) the Administrator determines has been adequately demonstrated." The term "standard of performance" in CAA section 111(a)(1) makes clear that the EPA is to determine both the best system of emission reduction (BSER) for the regulated sources in the source category and the degree of emission limitation achievable through application of the BSER. The

EPA must then, under CAA section 111(b)(1)(B), promulgate standards of performance for new sources that reflect that level of stringency. CAA section 111(b)(5) generally precludes the EPA from prescribing a particular technological system that must be used to comply with a standard of performance. Rather, sources can select any measure or combination of measures that will achieve the standard. CAA section 111(h)(1) authorizes the Administrator to promulgate "a design, equipment, work practice, or operational standard, or combination thereof" if in his or her judgment, "it is not feasible to prescribe or enforce a standard of performance." CAA section 111(h)(2) provides the circumstances under which prescribing or enforcing a standard of performance is "not feasible," such as, when the pollutant cannot be emitted through a conveyance designed to emit or capture the pollutant, or when there is no practicable measurement methodology for the particular class of sources.

Pursuant to the definition of new source in CAA section 111(a)(2), standards of performance apply to facilities that begin construction, reconstruction, or modification after the date of publication of the proposed standards in the *Federal Register*. Under CAA section 111(a)(4), "modification" means any physical change in, or change in the method of operation of, a stationary source which increases the amount of any air pollutant emitted by such source or which results in the emission of any air pollutant not previously emitted. Changes to an existing facility that do not result in an increase in emissions are not considered modifications. Under the provisions in 40 CFR 60.15, reconstruction means the replacement of components of an existing facility such that: (1) The fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable entirely new facility; and (2) it is technologically and economically feasible to meet the applicable standards. Pursuant to CAA section 111(b)(1)(B), the standards of performance or revisions thereof shall become effective upon promulgation.

B. What is this source category and what are the current NSPS requirements?

The EPA promulgated NSPS subpart K, specific to storage vessels for petroleum liquids,

in 1974 (39 FR 9317, March 8, 1974). These standards were amended several times before 1980, when EPA proposed to establish revised NSPS for storage vessels for petroleum liquids as NSPS subpart Ka (45 FR 23379, April 4, 1980). In 1982, the EPA published a list of priority sources for which additional NSPS should be established (47 FR 951, January 8, 1982), and VOL storage vessels at synthetic organic chemical manufacturers were included in the priority list. Pursuant to the EPA's authority under CAA section 111, the Agency proposed (49 FR 29698, July 23, 1984) and promulgated (52 FR 11420, April 8, 1987) NSPS for volatile organic liquid storage vessels (including petroleum liquid storage vessels) for which construction, reconstruction, or modification commenced after July 23, 1984, as NSPS subpart Kb.[1] NSPS subpart Kb regulates storage vessels with a capacity of 75 cubic meters (m^3) (~20,000 gallons) or more that store VOLs with a true vapor pressure over 15.0 kilopascals (kPa) (~2.18 psia), and from storage vessels with a capacity of 151 m^3 (~40,000 gallons) or more that store organic liquids with a true vapor pressure over 3.5 kPa (~0.51 psia). VOC emissions controls are required on storage vessels with a capacity of 75 cubic meters (m^3) (~20,000 gallons) or more that store VOLs with a true vapor pressure over 27.6 KPa (~4.0 psia), and from storage vessels with a capacity of 151 m^3 (~40,000 gallons) or more that store organic liquids with a true vapor pressure over 5.2 kPa (~0.75 psia). NSPS subpart Kb emission controls include the use of either an external floating roof (EFR), an internal floating roof (IFR), or a closed vent system and a control device (see 40 CFR 60.110b(a) and 40 CFR 60.112b(a) and (b))[2]. NSPS subpart Kb also specifies testing, monitoring, recordkeeping, reporting, and other requirements in 40 CFR 60.113b through 40 CFR 60.116b to ensure compliance with the standards. Storage vessels with an EFR consist of an

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[1] On October 15, 2003 (68 FR 59329), the EPA finalized amendments to NSPS subpart Kb to exempt certain storage vessels by capacity and vapor pressure, exempt process tanks, and add a process tank definition. At the same time, the EPA also amended the rule to exempt storage vessels that are subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Solvent Extraction of Vegetable Oil Production.

[2] All affected storage vessels storing organic liquids with a true vapor pressure of 76.6 kPa or more must use a closed vent system and a control device. See 40 CFR 60.112b(b).

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open-top cylindrical steel shell equipped with a deck that floats on the surface (commonly referred to as a floating "roof") of the stored liquid. Storage vessels with an IFR are fixed roof vessels[3] that also have a deck internal to the vessel that floats on the liquid surface (commonly referred to as an internal floating "roof") within the fixed roof vessel.

The standards set in NSPS subpart Kb for storage vessels with an EFR or IFR are a combination of design, equipment, work practice, and operational standards set pursuant to CAA section 111(h). These standards require, among other things, that a rim seal be installed continuously around the circumference of the vessel (between the inner wall of the vessel and the floating roof) to prevent VOC emissions from escaping to the atmosphere through gaps between the floating roof and the inner wall of the storage vessel. For IFRs, NSPS subpart Kb allows a single liquid-mounted or mechanical shoe primary seal (to be used with or without a secondary seal), or a vapor-mounted primary seal in combination with a secondary seal. For EFRs, NSPS subpart Kb allows either a liquid-mounted or mechanical shoe primary seal, both of which must be used with a secondary seal; vapor-mounted primary seals are not allowed for EFR.

NSPS subpart Kb also requires numerous deck fittings[4] on the floating roof to be equipped with a gasketed cover or lid that is kept in the closed position at all times (*i.e.,* no visible gap), except when the device (deck fitting) is in actual use, to prevent VOC emissions from escaping through the deck fittings. In addition, NSPS subpart Kb requires owners and operators to conduct visual inspections to check for defects in the floating roof, rim seals, and deck fittings (*e.g.,* holes, tears, or other openings in the rim seal, or covers and lids on deck fittings that no longer close properly) that could expose the liquid surface to the atmosphere and

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[3] A fixed roof storage vessel consists of a cylindrical steel shell with a permanently affixed roof, which may vary in design from cone or dome-shaped to flat.

[4] Numerous fittings pass through or are attached to floating decks to accommodate structure support components or to allow for operational functions. Typical deck fittings include, but are not limited to access hatches, gauge floats, gauge-hatch/sample ports, rim vents, deck drains, deck legs, vacuum breakers, and guidepoles. IFR storage vessels may also have deck seams, fixed-roof support columns, ladders, and/or stub drains.

potentially result in VOC emission losses through rim seals and deck fittings.[5]

NSPS subpart Kb includes two primary alternative means of compliance. Owners or operators may either comply with the consolidated air rule provisions for storage vessels in 40 CFR part 65, subpart C, or comply with the national emission standards for hazardous air pollutants (NESHAP) for storage vessels in 40 CFR part 63, subpart WW. The substantive control requirements in these rules are the same as in NSPS subpart Kb although they may have slight differences in the details of the fitting and inspection requirements.

We estimate that there were approximately 9,100 storage vessels subject to NSPS subpart Kb in 2022, with an estimated 240 storage vessels becoming new affected facilities under the rule each year. Under the current NSPS subpart Kb requirements, it is generally difficult to become a modified storage vessel.

C. How does the EPA perform the NSPS review?

As noted in section II.A of this preamble, CAA section 111 requires the EPA to, at least every 8 years, review and, if appropriate, revise the standards of performance applicable to new, modified, and reconstructed sources. If the EPA revises the standards of performance, those standards must reflect the degree of emission limitation achievable through the application of the BSER considering the cost of achieving such reduction and any non-air quality health and environmental impact and energy requirements. CAA section 111(a)(1).

In reviewing an NSPS to determine whether it is "appropriate" to revise the standards of performance, the EPA evaluates the statutory factors, which may include consideration of the following information:

- Expected growth for the source category, including how many new facilities, reconstructions, and modifications may trigger NSPS in the future.

[5] For details about storage vessel emissions, refer to the Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources, AP-42, Fifth Edition, Chapter 7: Liquid Storage Tanks, dated June 2020 which is available at: *https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emissions-factors*.

- Pollution control measures, including advances in control technologies, process operations, design or efficiency improvements, or other systems of emission reduction, that are "adequately demonstrated" in the regulated industry.
- Available information from the implementation and enforcement of current requirements indicating that emission limitations and percent reductions beyond those required by the current standards are achieved in practice.
- Costs (including capital and annual costs) associated with implementation of the available pollution control measures.
- The amount of emission reductions achievable through application of such pollution control measures.
- Any non-air quality health and environmental impact and energy requirements associated with those control measures.

In evaluating whether the cost of a particular system of emission reduction is reasonable, the EPA considers various costs associated with the particular air pollution control measure or a level of control, including capital costs and operating costs, and the emission reductions that the control measure or particular level of control can achieve. The Agency considers these costs in the context of the industry's overall capital expenditures and revenues. The Agency also considers cost effectiveness analysis as a useful metric and a means of evaluating whether a given control achieves emission reduction at a reasonable cost. A cost effectiveness analysis allows comparisons of relative costs and outcomes (effects) of two or more options. In general, cost effectiveness is a measure of the outcomes produced by resources spent. In the context of air pollution control options, cost effectiveness typically refers to the annualized cost of implementing an air pollution control option divided by the amount of pollutant reductions realized annually.

After the EPA evaluates the statutory factors, the EPA compares the various systems of emission reductions and determines which system is "best," and therefore represents the BSER.

The EPA then establishes a standard of performance that reflects the degree of emission limitation achievable through the implementation of the BSER. In performing this analysis, the EPA can determine whether subcategorization is appropriate based on classes, types, and sizes of sources, and may identify a different BSER and establish different performance standards for each subcategory. The result of the analysis and BSER determination leads to standards of performance that apply to facilities that begin construction, reconstruction, or modification after the date of publication of the proposed standards in the *Federal Register.* Because the new source performance standards reflect the best system of emission reduction under conditions of proper operation and maintenance, in doing its review, the EPA also evaluates and determines the proper testing, monitoring, recordkeeping, and reporting requirements needed to ensure compliance with the emission standards.

See section II.D of this preamble for information on the specific data sources that were reviewed as part of this action.

D. What data and information were used to support this action?

We reviewed recent federal, State, and local rulemakings associated with VOL storage vessels. We also reviewed vendor websites and contacted selected floating roof suppliers to collect information to support our review of the existing requirements for organic liquid storage vessels and our BSER assessments. We met with industry representatives that own and operate VOL storage vessels to discuss their experience with various control equipment.

We used the equations in Chapter 7 of AP-42*: Compilation of Air Emission Factors* to estimate emissions from different VOL storage vessels based on size, contents, and control configuration (*e.g.*, type of floating roof with different seal and fitting controls). We estimated emission reductions by comparing the controlled emissions with emissions from an uncontrolled fixed roof storage vessel.

Our cost estimates were based largely on vendor costs developed from previous rulemakings. For some control methods, we had limited recent data from vendors or State and

local rulemakings. All costs were escalated to 2022 dollars using the Chemical Engineering Plant Cost Index for capital expenditures and Bureau of Labor Statistics data for labor rates.

III. What actions are we proposing?

The EPA is proposing revisions to the NSPS for VOL storage vessels pursuant to the EPA's review of NSPS subpart Kb. The EPA is proposing to codify the NSPS revisions proposed in this action in a new subpart NSPS subpart Kc. The proposed NSPS subpart Kc would be applicable to sources that commence construction, reconstruction, or modification after **[INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

This section outlines the proposed actions for NSPS subpart Kc. The EPA is proposing new vapor pressure applicability thresholds for controls under NSPS subpart Kc. The EPA is also proposing new standards for VOL storage vessels subject to control requirements. Under NSPS subpart Kc we are proposing that the standard of performance reflecting the application of BSER for VOL storage vessels subject to control requirements and used to store liquids with maximum true vapor pressures below 11.1 psia (76.6 kPa) is an IFR. The updated standards are projected to increase the average control efficiency of IFR storage vessels to 98 percent. As an alternative compliance to the proposed IFR design standard, we are proposing to permit either the use of an EFR or the use of a closed vent system and a control device that meet an equivalent standard of control. For controlled storage vessels that store liquids with a maximum true vapor pressure equal to or greater than 11.1 psia (76.6 kPa), we are proposing to find that the BSER is a closed vent system and a control device. We are proposing that the standard of performance reflecting the emission limitation achievable is a 98 percent reduction in VOC emissions (increased from 95 percent in the NSPS subpart Kb). EPA is also including modification requirements under NSPS subpart Kc and discusses the relevant criteria for meeting modifications in this section. This section also details the proposed testing, monitoring and inspection requirements, degassing provisions, provisions for SSM, and electronic reporting requirements. As described in this section, the revisions proposed in this action were determined

to be cost-effective and to reflect the application of the best system of emission reduction (BSER) for VOL storage vessels.

A. What vapor pressure applicability thresholds are we proposing and why?

NSPS subpart Kb established control requirements, at 40 CFR 60.112b(a), for storage vessels based on vessel capacity and VOL vapor pressures. In our review of NSPS subpart Kb, we assessed the vapor applicability thresholds for affected facilities and for controls on affected storage vessels to determine whether these thresholds needed to be revised for purposes of NSPS subpart Kc. In NSPS subpart Kb there are two different sets of vapor pressure applicability thresholds: one for determining affected facilities and one for determining controls.

In NSPS subpart Kb, the vapor pressure applicability thresholds for defining affected facilities were slightly lower than those used for affected facilities for which controls were required. The EPA included the two separate applicability requirements sets in NSPS subpart Kb, one to identify storage vessels near the control applicability thresholds and another to establish limited monitoring procedures for vessels with variable components and vapor pressures. We are proposing to not include specific vapor pressure applicability thresholds in defining an affected facility under NSPS subpart Kc. As such, the proposed affected facility under NSPS subpart Kc is any storage vessel with a capacity of 20,000 gallons or more used to store a volatile organic liquid without exclusion for storage vessels under a set vapor pressure. This proposed change simplifies the applicability under NSPS subpart Kc and establishes a baseline for monitoring and recordkeeping in accordance with good air pollution control practices for storage vessels that do not meet the vapor pressure emission control threshold.

In our review of NSPS subpart Kb, in assessing the vapor applicability thresholds that require emission controls, we estimated the cost of including an IFR as part of a new fixed roof storage vessel installation for a variety of surrogate organic liquids covering a wide range of vapor pressures for both 20,000 gallon and 40,000 gallon capacity storage vessels. We used the AP-42 equations for liquid storage tanks to estimate emissions for fixed roof storage vessels and

IFR storage vessels. Costs were estimated based on various vendor quotes, escalated to 2022$. For more detail regarding the analyses conducted, see memorandum *Control Options for Storage Vessels* included in Docket ID No. EPA-HQ-OAR-2023-0358.

For storage vessels of 20,000 gallon capacity or more but less than 40,000 gallon capacity, we evaluated the cost and cost effectiveness of different vapor pressure applicability thresholds, including:

- 4.0 psia based on NSPS subpart Kb value (27.6 kPa)
- 1.9 psia based on thresholds used in several NESHAP including 40 CFR part 63, subparts G and CC.
- 1.5 psia based on thresholds in South Coast Air Quality Management District (SCAQMD) Rule 463.
- 1.0 psia to evaluate an option beyond 1.5 psia.

We conducted this analysis using a model storage vessel of 20,000 gallon capacity. We assessed costs for two different levels of IFR: one meeting the basic requirements of NSPS subpart Kb and one with upgraded seal requirements (requiring a mechanical shoe seal or liquid-mounted primary seal with a rim-mounted secondary seal). Table 1 summarizes the results of our analysis for these small storage vessels.

TABLE 1. SUMMARY OF THRESHOLD ANALYSIS FOR STORAGE VESSELS WITH A CAPACITY BETWEEN 20,000- AND 40,000-GALLONS

Threshold	VOC Emissions Reduction (tpy)	TCI[1] ($)	TAC[2] without Product Recovery ($/yr)	TAC[2] with Product Recovery ($/yr)	CE[3] ($/ton VOC)
Costs for Meeting NSPS Subpart Kb Requirements for IFR					
4.0 psia	2.04	$48,877	$6,035	$4,257	$2,100
1.9 psia	0.97	$48,877	$6,035	$5,190	$5,300
1.5 psia	0.77	$48,877	$6,035	$5,368	$7,000
1.0 psia	0.51	$48,877	$6,035	$5,590	$10,900
Costs for IFR with Upgraded Seal Requirements (‘Option 1’)					
4.0 psia	2.29	$55,008	$6,793	$4,802	$2,100
1.9 psia	1.09	$55,008	$6,793	$5,847	$5,000
1.5 psia	0.86	$55,008	$6,793	$6,046	$7,000
1.0 psia	0.57	$55,008	$6,793	$6,295	$11,000

[1] Total Capital Investment (TCI)
[2] Total annualized costs (TAC) considering annualized cost of capital
[3] Cost effectiveness

A similar analysis was conducted for storage vessels with a design capacity of 40,000 gallons or more. For this analysis, we used a model storage vessel with a 60,000 gallon capacity, which we consider representative of storage vessels at the smaller end of the range of storage vessels with a capacity of 40,000 gallons or more. We evaluated the cost and cost effectiveness of different vapor pressure applicability thresholds, including:

- 0.75 psia based on NSPS subpart Kb value (5.2 kPa)
- 0.50 based on thresholds in SCAQMD Rule 463.
- 0.35 psia to evaluate an option beyond 0.5 psia.

Table 2 summarizes the results of our analysis for storage vessels with a capacity of 40,000 gallons or more.

TABLE 2. SUMMARY OF THRESHOLD ANALYSIS FOR STORAGE VESSELS WITH A CAPACITY OF 40,000-GALLONS OR MORE

Threshold	VOC Emissions Reduction (tpy)	TCI[1] ($)	TAC[2] without Product Recovery ($/yr)	TAC[2] with Product Recovery ($/yr)	CE[3] ($/ton VOC)
Costs for Meeting NSPS Subpart Kb Requirements for IFR					
0.75 psia	1.36	$54,979	$6,789	$5,609	$4,100
0.50 psia	0.90	$54,979	$6,789	$6,002	$6,600
0.35 psia	0.63	$54,979	$6,789	$6,238	$9,900
Costs for IFR with Upgraded Seal Requirements (‘Option 1’)					
0.75 psia	1.42	$62,914	$7,769	$6,532	$4,600
0.50 psia	0.95	$62,914	$7,769	$6,944	$7,300
0.35 psia	0.66	$62,914	$7,769	$7,192	$10,800

[1] Total Capital Investment (TCI)
[2] Total annualized costs (TAC) considering annualized cost of capital
[3] Cost effectiveness

Based on this analysis, we are proposing for NSPS subpart Kc to revise the vapor applicability thresholds that require emission controls. We are proposing to revise the maximum true vapor pressure threshold for small storage vessels (those with capacity of at least 20,000 gallons but less than 40,000 gallons) to 1.5 psia and for larger storage vessels (those with capacity of 40,000 gallons or more) to 0.5 psia. These thresholds yield emission reductions at a cost of approximately $6,000 and $7,000 per ton of VOC reduced respectively, which is within

the range of what the EPA has considered cost-effective for the control of VOC emissions in other recent NSPS rulemakings. See, *e.g.*, 88 FR 29982 (May 9, 2023) (finding a value of $6,800/ton of VOC emissions reductions cost-effective for automobile and light duty truck surface coating operations (NSPS subpart MMa)). The cost effectiveness for VOLs with vapor pressures less than the proposed maximum true vapor pressure cutoffs are approximately $10,000 and $11,000 per ton of VOC reduced. This is not cost-effective because it is significantly higher than what the EPA has historically found to be cost-effective for VOC regulations. The EPA solicits comment on the proposed vapor pressure applicability described in this section.

B. What other changes to applicability are we proposing and why?

NSPS subpart Kb includes several provisions that exempt specific groups of VOL storage vessels from applicability under the standard. These exemptions are outlined in 40 CFR 60.110b (d) and include specific exemptions for storage vessels that operate at coke oven by-product plants, bulk gasoline plants, and gasoline service stations. The exemptions include pressure vessels operating in excess of 204.9 kPA, vessels attached to mobile vehicles, and vessels that store beverage alcohol. These exemptions are being carried over into the proposal for NSPS Kc as the justifications for their exemption remains unchanged from the original NSPS subpart Kb promulgation.

The EPA is also proposing to carry over the exemption requirements in 40 CFR 60.110b(d)(4), which covers storage vessels with capacities less than or equal to 1,589.874 m^3 (~420,000 gallons) used for petroleum or condensate stored, processed, or treated prior to custody transfer. The EPA previously explained the applicability of this exemption in the preamble to NSPS subpart Ka (45 FR 23377) stating, “this exemption applies to storage between the time that the petroleum liquid is removed from the ground and the time the custody of the petroleum liquid is transferred from the well or producing operations to the transportation operations. If it is determined in the future that VOC emissions from new production field

vessels smaller than 1,589,873 liters (420,000 gallons) are significant, separate standards of performance will be developed." Since promulgation of NSPS subpart Ka, the EPA promulgated subparts OOOO and OOOOa for the oil and natural gas sector, which include standards of performance for these types of storage vessels. The EPA has also proposed revised standards for these sources in its latest review, as part of the proposed NSPS subpart OOOOb and the emission guideline for existing sources at proposed subpart OOOOc. See 87 FR 74702. As such, the EPA proposes to carry the language of this exemption into NSPS subpart Kc.

NSPS subpart Kb also includes an exemption for vessels subject to the NESHAP for solvent extraction for vegetable oil production outlined in 40 CFR 63 subpart GGGG. The EPA determined as part of its review, that the standards proposed in NSPS subpart Kc improve upon the existing NESHAP subpart GGGG standards. As such, the EPA proposes that vessels subject to NESHAP subpart GGGG, would not be exempted from NSPS subpart Kc applicability.

The EPA solicits comment on these proposed exemptions and changes to the applicability provisions.

C. What are the proposed BSER and compliance alternatives for newly constructed, modified, and reconstructed storage vessels?

The EPA is proposing standards of performance that reflect the BSER as well as alternative compliance standards for controlled storage vessels under NSPS subpart Kc. The proposed BSER analyses and proposed standards for NSPS subpart Kc are dependent on the maximum true vapor pressure of a stored VOL and follow the precedent established in NSPS subpart Kb. For storage vessels storing VOL with maximum true vapor pressures less than 11.1 psia, the EPA discusses the BSER analysis and proposes standards of performance for newly constructed and reconstructed IFRs in section III.D. The EPA also is proposing two alternative compliance options for storage vessels with maximum true vapor pressures less than 11.1 psia. These alternative compliance options are EFRs and closed vent system and control. Details

regarding alternative compliance standards for newly constructed and reconstructed storage vessels are discussed in section III.E.

For storage vessels with maximum true vapor pressures greater than or equal to 11.1 psia, the EPA is proposing to determine that the BSER is closed vent system and control, and the standard of performance reflecting the BSER is a 98 percent reduction in VOC emissions. The BSER analysis and standard of performance for storage vessels with VOL maximum true vapor pressures greater than or equal to 11.1 psia are discussed in section III.F. Additionally, we are proposing requirements that are applicable to storage vessels that are controlled using a closed vent system and a control device to meet either proposed standard, and those proposed requirements are also discussed in section III.F.

In section III.G the EPA proposes what constitutes a modification for purposes of NSPS subpart Kc. Discussion regarding the BSER analysis, standards of performance for modified storage vessels and compliance alternatives are discussed in sections III.F and III.H.

D. What is the BSER and standard of performance for new and reconstructed storage vessels with maximum true vapor pressures less than 11.1 psia?

In our review of NSPS subpart Kb for storage vessels storing VOL with maximum true vapor pressures less than 11.1 psia, we focused on control options for IFR storage vessels because IFR storage vessels are more effective at controlling emissions and are technologically achievable. Therefore, IFR storage vessel control options were evaluated to determine BSER for VOL vapor pressures less than 11.1 psia. Because floating roof tanks are unsuitable for controlling VOL with vapor pressures greater than or equal 11.1 psia, the EPA conducted a separate analysis to determine the BSER and standard of performance for those storage vessels.

The control options we evaluated for IFR storage vessels included:

- Baseline. NSPS subpart Kb control requirements (with NSPS subpart Kc proposed lower vapor pressure thresholds detailed in section III.A)

- Option IFR-1. NSPS subpart Kb but primary seal must either be liquid-mounted or mechanical shoe seal and must have a rim-mounted secondary seal.
- Option IFR-2. Option 1 requirements + require fixed roof legs or cable suspended roof (cannot have adjustable roof legs that penetrate through the floating roof).
- Option IFR-3. Option 2 requirements + require welded seems and best guidepole fittings.

All three of the listed options above also include provisions for requiring gauge-hatches / sample ports to be gasketed. We determined that all of these IFR control options are in use in the industry and thus adequately demonstrated.

The cost effectiveness of these control options is dependent on the size and contents of the storage vessel. We estimated that approximately 240 new storage vessels become subject to the NSPS subpart Kb every year, such that 1,200 new storage vessels could become subject to NSPS subpart Kc over the next five years if no change in thresholds is adopted. We projected that with lower vapor pressure thresholds, approximately 20 percent more storage vessels could become subject to the NSPS subpart Kc standards each year. We assigned the estimated 1,440 new storage vessels across a range of storage vessel sizes and vapor pressures for the stored liquids to develop national impact estimates for each IFR control option. For more information on the nationwide cost analysis of IFR control options for new storage vessels, see memorandum *Control Options for Storage Vessels* in Docket ID No. EPA-HQ-OAR-2023-0358.

The national impacts projected for each IFR control option are presented in Table 3 of this preamble.

TABLE 3. SUMMARY OF NATIONAL IMPACTS FOR CONTROL OPTIONS FOR NEW AND RECONSTRUCTED IFR STORAGE VESSELS

Control Option	VOC Emissions Reduction[1] (tpy)	TCI[2] (million $)	TAC[3] without Product Recovery (million $/yr)	TAC[3] with Product Recovery (million $/yr)	Overall CE[1,4] ($/ton VOC)	CE[4] to Kb Baseline ($/ton VOC)	ICE[5] ($/ton VOC)
Baseline - Kb	41,886	$127	$15.7	($20.8)	($496)	-	-
Option IFR-1	42,420	$145	$17.9	($19.1)	($449)	$3,180	$3,180

Option IFR-2	42,684	$173	$21.3	($15.8)	($370)	$6,250	$12,272
Option IFR-3	42,961	$199	$24.6	($12.8)	($297)	$7,470	$10,966

[1] Relative to uncontrolled fixed roof storage vessel.
[2] Total Capital Investment (TCI)
[3] Total annualized costs (TAC) considering annualized cost of capital
[4] Cost effectiveness
[5] Incremental cost effectiveness (compared to previous option)

Based on this analysis, we are proposing to determine that for new and reconstructed storage vessels with vapor pressures less than 11.1 psia, BSER is Option IFR-1. Specifically, we are proposing to require that the primary seal must either be liquid-mounted or a mechanical shoe seal and must have a rim-mounted secondary seal. While Table 3 displays numerous options that have favorable cost effectiveness values, incremental cost effectiveness was the determining factor in selecting the appropriate IFR control option. The EPA estimated that the incremental cost effectiveness of Option IFR-1 is projected to yield emission reductions at a cost of approximately $3,200 per ton of VOC reduced on average, which we determined is cost-effective and is well within the range of what the EPA has considered cost-effective for the control of VOC emissions. The other control options we evaluated for IFR storage vessels had incremental cost effectiveness of $11,000 or more per ton of VOC reduced, which is well above what we have determined to be cost-effective for the control of VOC emissions. IFRs are the most common emission control method for VOL storage vessels and thus are adequately demonstrated. Further, IFRs do not require power or addition of add-on controls; therefore, there are minimal non-air quality health and environmental impacts and energy requirements.

IFRs with a liquid-mounted or mechanical shoe primary seal and rim-mounted secondary seal (Option IFR-1) were selected as the most appropriate option for new and reconstructed storage vessels under the BSER determination. The EPA therefore proposes an equipment standard pursuant to CAA section 111(h)(5) that would require that new storage vessels be constructed as IFR, that the primary seal must either be liquid-mounted or mechanical shoe seal and must have a rim-mounted secondary seal, that gauge-hatches / sample ports to be gasketed, and that the guidepole configurations incorporate the provisions outlined in the 2000 EPA Storage Tank Emissions Reduction Partnership Program (STERPP).

The EPA solicits comment on the proposal to determine that the BSER for storage vessels storing VOL with maximum true vapor pressures less than 11.1 psia is Option IFR-1, or whether one of the alternative options would be justified. The EPA also solicits comment on the proposed equipment standard.

E. What compliance alternatives are available for new and reconstructed storage vessels with maximum true vapor pressures less than 11.1 psia?

As discussed in section III.D of this preamble, we are proposing to determine that, for new and reconstructed storage vessels with a maximum true vapor pressure less than 11.1 psia, the BSER and equipment standard is IFR with enhanced rim seal requirements: specifically, the primary seal must either be liquid-mounted or mechanical shoe seal and must have a rim-mounted secondary seal. We are also proposing to revise the NSPS requirements for EFR storage vessels as an alternative compliance option to equipment standard for newly constructed and reconstructed storage vessels. The average control efficiency for the proposed Option IFR-1 was determined to be 98 percent. In reviewing the NSPS, we found that certain EFR storage vessels could achieve the same level of control as the proposed control option for IFR storage vessels (Option IFR-1). As such, we are proposing to permit the use of EFR storage vessels that we determined achieve equivalent performance as an IFR storage vessel across a range of different capacities. Based on AP-42 emission calculation methods, we found that an EFR storage vessel that has primary and secondary seals as specified in Option IFR-1, welded seams (typical construction for EFR), and that use an unslotted guidepole with gasketed sliding cover and pole wiper have emissions comparable to an IFR storage vessel under Option IFR-1. If a slotted guidepole is used, a liquid mounted primary seal must be used and the slotted guidepole must have a gasketed sliding cover, pole sleeve and pole wiper (with or without float). We recognize that other control combinations for the EFR storage vessel may achieve comparable emissions to an Option IFR-1 storage vessel depending on the size and content of the storage vessel, and the typical meteorological conditions. Although we are not attempting to identify every such

combination in proposing to codify this compliance alternative, CAA section 111(h)(5) permits facilities to request an alternative means of emission limitation to assess equivalency of EFR controls to IFR controls under site-specific conditions.

We are also proposing to permit storage vessels with a maximum true vapor pressure less than 11.1 psia to use closed vent system and control devices as an alternative compliance to the equipment standard, so long as the storage vessel achieves a 98 percent reduction in VOC emissions to be equivalent to the proposed IFR standard. Such storage vessels would be required to meet the proposed requirements for closed vent systems and control devices described in section III.F.

The EPA solicits comment on these proposed compliance alternatives for storage vessels with a maximum true vapor pressure less than 11.1 psia.

F. What is the BSER and standard of performance for new, modified, and reconstructed storage vessels with maximum true vapor pressures equal to or greater than 11.1 psia?

As noted previously, the EPA is proposing that for newly constructed and reconstructed VOL storage vessels with a maximum true vapor pressure less than 11.1 psia, the BSER is IFR with enhanced rim seal requirements. Because floating roof tanks are unsuitable for controlling VOL with vapor pressures greater than or equal 11.1 psia, the EPA conducted a separate analysis to determine the BSER and standard of performance for those storage vessels that are new, modified, or reconstructed. In NSPS subpart Kb, closed vent systems and control devices are the BSER for storage vessels for organic liquids with maximum true vapor pressures of 11.1 psia or greater and have served as an alternative compliance option for storage vessels with lower vapor pressures. Therefore, in reviewing NSPS subpart Kb, the EPA also reviewed the control requirements associated with storage vessels that use closed vent systems and control devices. We assessed the cost and cost effectiveness of a closed vent system and control device for a range of storage vessels used to store liquids with high vapor pressures. We are proposing to continue to find the BSER to be closed vent systems and control devices for new, modified, or

reconstructed storage vessels for organic liquids with maximum true vapor pressures of 11.1 psia or greater, and to set the standard of performance to require that these storage vessels must achieve a 98 percent reduction in VOC emissions.

For storage vessels used to store organic liquids with maximum true vapor pressures of 11.1 psia or greater, we estimated the cost of a flare dedicated to a single storage vessel. We estimated the costs separately for flares meeting the requirements in 40 CFR 60.18 (95 percent reduction) or using the flare requirements in 40 CFR 63.670 (98 percent reduction). We used two times the maximum filling rate to size the flares, we determined the time period needed at the maximum filling rate to achieve the modeled working losses, and we determined the average flow rate needed for the remaining time period to correspond to the modeled standing losses. Because of the high vapor pressure of the liquid contents, flares meeting the requirements in 40 CFR 63.670 are expected to be able to use the methods in 40 CFR 63.670(j)(6) to determine minimum net heating value of the gas stream. Depending on the assist-type of the flare, supplemental gas may be needed during periods of low flow, which is the vast majority of the time. We expect facilities would use a pressure valve in the closed vent system to prevent low flows and prevent back flow from the flare to the storage vessel when emptying the storage vessel. These pressure valves could be set to ensure gas flow to the flare is always sufficient to prevent over-assisting, but we assumed flares with low flows would use supplemental natural gas. For smaller storage vessels (20,000 to 60,000 gallons capacity), there were added costs associated with meeting the combustion zone operating limits in 40 CFR 63.670. For the larger storage vessels, routine flows from the storage vessels were sufficient to meet the combustion zone operating limits in 40 CFR 63.670. We estimate there would be 25 new storage vessels used for storing high vapor pressure liquids for which closed vent system and control device would be required, primarily in the 40,000 to 60,000 gallon capacity range. For more details regarding the nationwide of costs for closed vent systems and control devices, see memorandum *Control Options for Storage Vessels* in Docket ID No. EPA-HQ-OAR-2023-0358. The nationwide

impacts projected for these two control options evaluated for purposes of NSPS subpart Kc (95 percent and 98 percent control) are provided in Table 4 of this preamble.

TABLE 4. SUMMARY OF NATIONAL IMPACTS FOR CONTROL OPTIONS FOR CLOSED VENT SYSTEMS AND CONTROL DEVICE FOR HIGH VAPOR PRESSURE LIQUIDS

Control Option	VOC Emissions Reduction[1] (tpy)	TCI[2] (million $)	TAC[3] without Product Recovery (million $/yr)	CE[4] ($/ton VOC)	ICE[5] ($/ton VOC)
95 percent control	928	$2.69	$2.61	$2,820	$2,820
98 percent control	957	$2.69	$2.71	$2,830	$3,360

[1] Relative to uncontrolled fixed roof storage vessel.
[2] Total Capital Investment (TCI)
[3] Total annualized costs (TAC) considering annualized cost of capital
[4] Cost effectiveness
[5] Incremental cost effectiveness

Based on our analysis, we are proposing that the BSER for storage vessels operating with maximum true vapor pressures equal to or greater than 11.1 psia is the use of a closed vent system and control device meeting a 98 percent control efficiency. The EPA considers the cost-effectiveness of both control options to be within the range of what the EPA has considered cost-effective for the control of VOC emissions. While the incremental cost-effectiveness of 98 percent control is slightly higher than for 95 percent control, it is also well within the range of what the EPA has considered cost-effective. Although these control devices use power and result in additional combustion emissions, there is no significant difference between 95 and 98 percent control levels in as regards to the non-air quality health and environmental impacts, or energy requirements. Accordingly, the EPA proposes to find the use of a closed vent system and control device meeting a 98 percent control efficiency is the BSER and proposes to set a standard of performance for new, reconstructed, and modified storage vessels operating with vapor pressures equal to or greater than 11.1 psia as 98 percent control of VOC emissions.

The EPA is also proposing to establish requirements for closed vent systems and control devices to ensure that storage vessels using them to comply with the proposed standards actually achieve 98 percent control efficiency. In order for the closed vent system and control device to

meet 98 percent control efficiency, the storage vessel must not vent to the atmosphere. Conservation vents and pressure relief devices are often used to vent emissions from storage vessels when the pressure within the storage vessel approaches the maximum design pressure of the storage vessel. Many atmospheric storage vessels have pressure ratings of 1 or 2 psig and would therefore vent often if the vapor pressure of the stored liquid is above 2 psi. Consequently, to ensure direct venting from the storage vessel does not occur, we are proposing to require storage vessels have a design operating gauge pressure no less than 1 psi greater than the maximum vapor pressure of the liquid being stored and any back pressure anticipated when the storage vessel is filled at its maximum rate. While vapor pressures are commonly reported in terms of absolute pressure, a storage vessel containing a liquid with a vapor pressure of 4 psia would generally have a headspace pressure of 4 psi above atmospheric pressure, or 4 psig. Storage vessel owners or operators would also have to evaluate the back pressure of the control system used and ensure that the closed vent system can handle the maximum filling rate of the storage vessel without increasing pressure in the storage vessel above this 5 psig value or else establish a higher design and operating pressure for the storage vessels. For example, if the back pressure of the closed vent system (or the pressure drop from the storage vessel to the control device) is 3 psi at the maximum filling rate, and the liquid stored has a maximum true vapor pressure of 4 psia, the minimum opening pressure of any pressure relief device on the storage vessel would have to be 8 psig (3+4+additional 1). We are also proposing to require that any vacuum breaking device have a close pressure no less than 0.1 psig vacuum to prevent losses from the vacuum breaker vent.

The EPA solicits comment on our proposed BSER determination and standard of performance for new, reconstructed, and modified storage vessels operating with vapor pressures equal to or greater than 11.1 psia, as well as the proposed requirements for closed vent systems and control devices.

G. What actions constitute a modification for storage vessels and why?

For purposes of CAA section 111, modifications are defined as "any physical change in, or change in the method of operation of", an existing facility which increases the amount of any air pollutant (to which a standard applies) emitted into the atmosphere by that facility or which results in the emission of any air pollutant (to which a standard applies) into the atmosphere not previously emitted[6]. 40 CFR 60.2. NSPS Subpart A further provides provisions explaining how a modification is identified as well as defining certain exemptions to those general rules. In particular, 40 CFR 60.14(e)(4) states that the "[u]se of an alternative fuel or raw material" is not considered a modification if the existing facility was designed to accommodate that alternative use. In prior EPA actions making applicability determinations for purposes of NSPS Kb, the EPA has previously cited to this provision to assert that a change in the type of material stored in a storage vessel is not, by itself, a modification if the storage vessel is capable of accommodating the storage of the new materials.[7] However, the EPA has revisited the previous interpretation as discussed in the following paragraphs and now proposes, for purposes of NSPS Kc, that a change in the liquid stored in the storage vessel to an organic liquid with a higher maximum true vapor pressure does not constitute a "use of an alternative fuel or raw material", and would be considered a change in the method of operation of the storage vessel. Thus, the EPA proposes that a change in the liquid stored which results in increased VOC emissions would be a modification under NSPS Kc. The EPA recognizes that the proposed approach to modifications for purposes of NSPS subpart Kc represents a change of the EPA's previous interpretation of the provision in 40 CFR 60.14(e)(4) that asserted that change in liquid alone did not trigger a modification. However, the EPA proposes to find that this change in interpretation for purposes of defining a modification for NSPS subpart Kc is appropriate, in particular, because as discussed below the changes in the organic liquid stored in a storage vessel do not constitute

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[6] *See* 42 U.S.C. 7411(a)(4).

[7] *See, e.g.*, U.S. EPA Applicability Determination Index, Control Number: 0400015, (referencing 40 CFR 60.14(e)(4)-(5)).

changes in "fuel or raw material," as the primary function of this affected facility is the storage of materials, and the materials stored are neither raw material nor fuel inputs to a process at the facility itself. *FCC* v. *Fox Television Stations, Inc.,* 556 U.S. 502, 515–16 (2009) (when the Agency acknowledges change in position, "it suffices that the new policy is permissible under the statute, that there are good reasons for it, and that the Agency believes it to be better, which the conscious change of course adequately indicates").

As noted earlier in this preamble, as the EPA has defined modification for purposes of CAA section 111, using a different fuel or raw material in the process that the facility was specifically designed for does not itself constitute a modification under the exemption identified in 40 CFR 60.14(e)(4). However, for storage vessels, the primary function of this affected facility is the storage of materials, and the materials stored are neither raw material nor fuel inputs to a process at the facility itself. Therefore, for purposes of NSPS Kc, the EPA now proposes to determine that the exemption outlined in 40 CFR 60.14(e)(4) does not apply, because the organic liquid stored in the vessels subject to this part does not constitute fuels or raw materials. Accordingly, the EPA proposes to consider the change in materials stored in a storage vessel to be an operational change under CAA section 111(a)(4). Thus, where an owner or operator changes the operation of the tank to store materials with higher vapor pressures, this change results in an increased emission potential. The EPA proposes to find that this change is an operation meeting the definition of "modification" under CAA section 111(a)(4) and 40 CFR 60.14(a). If the modified storage vessel meets the applicability criteria of NSPS subpart Kc, then it would be subject to the standards of performance and other requirements established in the final rule.

The EPA has identified no other exemption in 40 CFR 60.14(e) which applies to a change in the organic liquid stored in a storage vessel. The EPA further proposes to determine that a change in the organic liquid stored at a storage vessel constitutes a modification under the statutory definition because it is reasonable to consider a change in the organic liquid stored to a

new liquid with a higher true vapor pressure to be a change in operation, especially because such a change is expected to increase VOC emissions. Thus, the EPA proposes that a change in the liquid stored which results in increased VOC emissions would be a modification under NSPS subpart Kc. If the previous content of the storage vessel was below the vapor pressure threshold, a change in the liquid stored in the vessel to one that is above the vapor pressure threshold would increase the amount of VOC emitted from the storage vessel and should be considered a modification of the storage vessel and trigger the NSPS subpart Kc control requirements.

The EPA solicits comment on the proposed change in interpretation of 40 CFR 60.14(e) as it applies to modifying storage vessels subject to NSPS subpart Kc.

H. What are the BSER and standards of performance for modified storage vessels with maximum true vapor pressures less than 11.1 psia?

The EPA evaluated BSER for modified storage vessels for NSPS subpart Kc with maximum true vapor pressures less than 11.1 psia. In most cases, the EPA expects that modified storage vessels will have existing fixed roofs, because IFRs were not previously required by NSPS subpart Kb. The costs of retrofitting a fixed roof storage vessel with an IFR are the same as the costs of adding an IFR to a new storage vessel. Some modified storage vessels that newly trigger into the NSPS, however, may already have IFRs, and upgrading only certain elements of the IFR can have significantly different costs than when installing a new IFR. Therefore, to assess BSER for modified storage vessels, we developed national cost estimates separately for modified storage vessels depending on whether or not the storage vessels had existing IFRs prior to modification.

We estimate a total of 30 storage vessels would become newly affected facilities due to modifications over the first 5 years after promulgation of NSPS subpart Kc. We estimate 10 percent of these storage vessels would have an existing IFR and that the existing IFR was compliant with the IFR requirements in NSPS subpart Kb. For more information on the

nationwide cost analysis of IFR control options for modified storage vessels, see memorandum *Control Options for Storage Vessels* in Docket ID No. EPA-HQ-OAR-2023-0358.

Table 5 of this preamble summarizes the costs and cost effectiveness of the impacts of modified storage vessels without an IFR prior to the modification, under the baseline of the existing Kb requirements and all three IFR options. The incremental costs are somewhat higher than for new and reconstructed storage vessels because we projected that the vapor pressures of the organic liquids stored in the modified storage vessels would be near the vapor pressure applicability threshold. Thus, we projected that storage vessels that triggered into the NSPS subpart Kc because of a change in the liquid stored would generally have lower vapor pressure organic liquids, on average, than compared to new storage vessels. Based on this analysis, we are proposing for NSPS subpart Kc to find that Option IFR-1 (enhanced rim seal requirements) is cost-effective and represents BSER for modified fixed roof storage vessels. Like for new and reconstructed sources, the cost-effectiveness of all options is well within the range of what the EPA has considered to be cost-effective in past rulemakings. However, while the incremental cost effectiveness of Option IFR-1 is also reasonable, the incremental cost-effectiveness of Option IFR-2 and Option IFR-3 are significantly higher than what the EPA has previously found reasonable. Accordingly, while the cost-effectiveness of all options is quite reasonable, the high incremental cost-effectiveness is the determining factor in the EPA's consideration of costs. The EPA's consideration of non-air quality health and environmental impacts, as well as energy requirements, is also the same as for new and reconstructed storage vessels. Therefore, the EPA is proposing to determine that Option IFR-1 is the BSER for existing storage vessels with maximum true vapor pressures less than 11.1 psia that modify and do not have an existing floating roof. These proposed requirements are also applicable to new sources (sources constructed after the proposal date) that modify after the proposal date.

TABLE 5. SUMMARY OF NATIONAL IMPACTS FOR CONTROL OPTIONS FOR MODIFIED FIXED ROOF STORAGE VESSELS WITH MAXIMUM TRUE VAPOR PRESSURES LESS THAN 11.1 PSIA

Control Option	VOC Emissions Reduction[1] (tpy)	TCI[2] (million $)	TAC[3] without Product Recovery ($/yr)	TAC[3] with Product Recovery ($/yr)	CE[4] ($/ton VOC)	ICE[5] ($/ton VOC)
Existing Kb	501	$2.32	$286,000	($150,000)	($299)	($299)
Option IFR-1	507	$2.65	$327,000	($114,000)	($224)	$5,900
Option IFR-2	510	$3.18	$392,000	($51,200)	($100)	$21,100
Option IFR-3	513	$3.67	$453,000	$7,300	$14	$19,100

[1] Relative to uncontrolled fixed roof storage vessel.
[2] Total Capital Investment (TCI)
[3] Total annualized costs (TAC) considering annualized cost of capital
[4] Cost effectiveness
[5] Incremental cost effectiveness

Table 6 of this preamble summarizes the costs and cost effectiveness of the impacts of modified storage vessels with maximum true vapor pressures less than 11.1 psia that already have an existing IFR prior to the modification. The costs per ton of VOC reduced when modifying controls on an existing IFR are much higher than when installing a new IFR on an existing fixed roof storage vessel. The cost effectiveness and incremental cost effectiveness of all three IFR options are well above what the EPA has found to be reasonable for the control of VOC emissions. Consequently, we are proposing for NSPS subpart Kc that, for modified storage vessels with maximum true vapor pressures less than 11.1 psia with an existing IFR, the NSPS subpart Kb control requirements without upgrading the rim seal requirements represent the application of BSER, and we propose to retain those standards for these sources in NSPS subpart Kc.

TABLE 6. SUMMARY OF NATIONAL IMPACTS FOR CONTROL OPTIONS FOR MODIFIED IFR STORAGE VESSELS

Control Option	VOC Emissions Reduction (tpy)	TCI[1] ($)	TAC[2] without Product Recovery ($/yr)	TAC[2] with Product Recovery ($/yr)	CE[3] ($/ton VOC)	ICE[4] ($/ton VOC)
Existing Kb	0	$0	$0	$0	$0	$0
Option IFR-1	0.48	$64,000	$7,900	$7,480	$15,700	$15,700
Option IFR-2	0.73	$169,100	$20,900	$20,300	$27,800	$50,700
Option IFR-3	0.87	$254,600	$31,400	$30,700	$35,300	$74,600

[1] Total Capital Investment (TCI)
[2] Total annualized costs (TAC) considering annualized cost of capital
[3] Cost effectiveness
[4] Incremental cost effectiveness

For existing EFR storage vessels, like existing IFR storage vessels, improvements to the floating roof and guidepole design would not result in significant additional emission reductions beyond those achieved by the use of the EFR itself. As a result, as for the IFR analysis just discussed, cost-effectiveness would be expected to be quite high such that the costs associated with the limited additional emission reductions would not be considered reasonable. Accordingly, we propose for NSPS subpart Kc, that if the modified tank has an existing EFR, the BSER and standard of performance is consistent with the EFR requirements as specified in NSPS subpart Kb.

In very rare cases, a fixed roof storage vessel may already be vented through a closed vent system to a control device at the time that it undergoes a modification. In NSPS subpart Kb, the control requirement for these control devices is 95 percent. As discussed in section III.F. of this preamble, we are proposing to require storage vessels with maximum true vapor pressures equal to or greater than 11.1 psia that are subject to NSPS subpart Kc to meet a 98 percent control efficiency based on a BSER identified as a closed vent system and control device. The primary difference between a flare, thermal oxidizer, or carbon adsorption system achieving 98 percent control efficiency rather than 95 percent control efficiency is largely in the operation of the control system rather than the design. Thus, we conclude that storage vessels that already vent through a closed vent system to a control device can technically achieve 98 percent control efficiency. As discussed in section III.F. of this preamble, we evaluated the incremental cost of operating a control system to achieve 98 percent control efficiency compared to 95 percent control efficiency and determined that it is cost-effective to meet a 98 percent control requirement. We consider that the analysis in section III.F. of this preamble to also be applicable to modified storage vessels because there are no meaningful differences in the costs of achieving 98 percent control efficiency as compared to new or reconstructed storage vessels. Therefore, for NSPS subpart Kc, we conclude that if a storage vessel with an existing closed vent system routed to a control device meets the qualifications for modification discussed in section III.G, the BSER

is a closed vent system to a control device and standard of performance is 98 percent control of VOC emissions, the same as new or reconstructed storage vessels.

The EPA solicits comment on the proposed standards for modified storage vessels, including whether the EPA should finalize any of the alternative options.

I. What control requirements are we proposing for IFR and EFR storage vessels emptying and degassing and why?

Occasionally, floating roof storage vessels need to be taken out of service to clean, inspect, or repair the storage vessel or floating roof. For example, some floating roof seal components may wear out more quickly over time than the main structure of the floating roof. Depending on the seal type, this repair may require that the storage vessel be taken out of service. When the storage vessel is emptied, the floating roof will land on support legs or, if suspended by cables, reach a fixed height position. Commonly, the support legs or cable suspension will have two different fixed settings. One setting would be at a low height (for example, one foot) to maximize the working volume of the storage vessel when it is in service. The other setting would be a high "maintenance" height that allows maintenance crews to enter the storage vessel and walk under the roof once the floating roof is landed and the storage vessel is emptied. The vapor space can have significant volatile content due to volatilization of the organic liquid as the storage vessel is emptied or from liquid film that may cling to the wall and floor after the tank is emptied. The VOC emissions from the emptying and degassing process is dependent on the vapor pressure of the liquid stored, the dimensions of the storage vessel, and the height of the floating roof when landed (for maintenance), which impacts the size of the vapor space below the floating roof. The EPA evaluated different scenarios in which a control device could be utilized to achieve a 98 percent destruction efficiency until the vapor space concentration is within 10 percent of the lower explosive limit (LEL).

We evaluated the cost and VOC emissions for a wide variety of storage vessel sizes and VOL contents. We found that degassing controls were generally only cost-effective for larger

storage vessels with vapor pressures greater than 1.5 psia. We evaluated the following options to determine the applicability threshold for control during degassing events:

- Baseline: Uncontrolled degassing.
- Degassing Option 1: Control degassing for storage vessels with a capacity of 1-million gallon or more storing organic liquids with a maximum true vapor pressure of 1.5 psia or more.
- Degassing Option 2a: Control degassing for storage vessels with a capacity of 300,000 gallon or more storing organic liquids with a maximum true vapor pressure of 1.5 psia or more.
- Degassing Option 2b: Control degassing for storage vessels with a capacity of 1-million gallon or more storing organic liquids with a maximum true vapor pressure of 0.5 psia or more.

Degassing Options 2a and 2b were both evaluated against Degassing Option 1 to evaluate whether lowering the size threshold or lowering the vapor pressure threshold could be cost-effective. Nationwide impacts were estimated based on our projected distribution of storage vessels. Furthermore, we estimated that storage vessels would be emptied and degassed once every 10 years. For more details regarding the nationwide estimated of degassing emissions and costs and emission reductions for degassing controls, see memorandum *Control Options for Storage Vessels* in Docket ID No. EPA-HQ-OAR-2023-0358. The nationwide impacts projected for the degassing control options are summarized in Table 7 of this preamble. We evaluated the cost effectiveness and incremental cost effectiveness of the three different options. While all three options were cost-effective, degassing option 1 was selected because the incremental cost effectiveness of the remaining options exceeded reasonable values established for the control of VOC emissions in prior rulemaking. Based on our analysis, we are proposing that, for degassing emissions, a control device utilized to achieve a 98 percent destruction efficiency is the BSER for storage vessels with a capacity of 1-million gallon or more storing organic liquids with a

maximum true vapor pressure of 1.5 psia or more. The EPA's consideration of non-air quality health and environmental impacts as well as energy requirements is the same as considered for control devices in section III.F. Accordingly, the EPA proposes to establish a standard of performance of 98 percent control until the vapor space concentration is within 10 percent of the LEL for these storage vessels that applies during degassing events.

The EPA solicits comment on the proposed BSER and standard of performance for degassing events, including the applicability threshold for application of those standards.

TABLE 7. SUMMARY OF NATIONAL IMPACTS FOR DEGASSING CONTROLS

Control Option	VOC Emissions (tpy)	VOC Emissions Reduction (tpy)	TAC[1] without Product Recovery (million $/yr)	CE[2] ($/ton VOC)	ICE[3] ($/ton VOC)
Baseline	33.30				
Degassing Option 1	18.92	14.38	$69,860	$4,859	
Degassing Option 2a	14.89	18.41	$119,000	$6,465	$12,196
Degassing Option 2b	13.38	19.92	$129,740	$6,514	$10,809

[1] Total annualized costs (TAC) considering annualized cost of capital
[2] Cost effectiveness (CE)
[3] Incremental cost effectiveness (ICE). The ICE of Degassing Options 2a and 2b are calculated against Degassing Option 1.

J. What requirements are we proposing for storage vessel testing, monitoring, and inspections and why?

Because the NSPS reflects BSER under conditions of proper operation and maintenance, in doing our review, we also evaluate and determine the proper testing, monitoring, recordkeeping and reporting requirements needed to ensure compliance with the requirements of NSPS subpart Kc. This section includes our discussion on current testing and monitoring requirements of the NSPS subpart Kb and any revisions or additions we are proposing to include for NSPS subpart Kc.

We reviewed and compared monitoring and inspection requirements across several rules, including NSPS subpart Kb and the storage vessel requirements in 40 CFR part 63, subpart WW and 40 CFR part 65, subpart C. Generally, these requirements are similar to each other, and we strove to develop monitoring and inspection requirements consistent with these federal standards

and that provide the best clarity for the specific requirements. However, we note that the current NSPS subpart Kb includes provision for inspections every 5 years for IFRs that have a dual seal system. We are proposing to require dual seal IFRs for storage vessels with a maximum vapor pressure less than 11.1 psia, but as discussed later in this section, we are also proposing the use of lower explosive limit (LEL) monitoring within the headspace of the IFR as a means to enhance inspections and more readily identify malfunctioning internal floating roofs. Because a top-side inspection can be easily conducted in conjunction with the annual LEL monitoring, we are proposing to require annual LEL monitoring and floating roof inspections for all floating roofs, including IFRs with a dual seal system.

We are proposing to add annual monitoring of IFR storage vessels using a LEL monitor to identify floating roofs with poorly functioning seals or fitting controls. We identified at least two States or localities (New Jersey rule 7:27-16 and SCAQMD Rule 1178) that have LEL monitoring for IFR storage vessels. Our emission estimates from various storage vessel requirements assume that proper seals and other equipment are in-place and operating as required. If these controls are not operating as intended, the emissions from these storage vessels can be much higher. We found that the visual inspections are subjective and may, at times, not be performed well. For example, although a hired contractor for BP's Carson Refinery had reported no problems with the facility's 26 floating roof storage vessels from 1994 to 2002, a SCAQMD inspection "revealed that more than 80 percent of the storage vessels had numerous leaks, gaps, torn seals, and other defects that caused excess emissions."[8] Therefore, for purposes of NSPS subpart Kc, we sought a less subjective means to monitor and verify performance of the floating roofs. We concluded that periodic LEL monitoring could be used to ensure the floating roofs are performing as intended.

The New Jersey and SCAQMD rules set a maximum LEL that triggers an obligation for corrective action at the storage vessel, and we modeled our proposed NSPS subpart Kc provision

[8] Mokhiber, Russell. Multinational Monitor; Washington Vol. 24, Iss. 4, (April 2003): 30.

following these State rules. For storage vessels installed after June 1, 1984, these rules set a maximum LEL of 30 percent. However, the National Fire Protection Association (NFPA) standard sets a maximum LEL of 25 percent for explosion prevention for IFR storage vessels. Per our review, we conclude that establishing a maximum LEL level for IFR storage vessels in NSPS subpart Kc that will trigger an obligation for the owner and operator to repair the IFR, discussed further in the next paragraph, which will ensure the emission reductions expected by the application of BSER are achieved. From the data we collected, there were very few measurements that exceeded 25 percent LEL that did not also exceed 50 percent LEL. Thus, when failures occurred, the LEL was often very high. Based on these observations and considering the more stringent NFPA standard, we propose for NSPS subpart Kc, for new, modified, and reconstructed storage vessels, the use of LEL monitor to identify floating roofs with poorly functioning seals or fitting controls and we propose that the appropriate LEL levels for IFR storage vessels is 25 percent.

We acknowledge that it is difficult to estimate the emission impacts of these LEL monitoring requirements because we do not have data on the number of poorly functioning floating roofs. NSPS subpart Kb already requires repair of floating roofs that fail inspection and failure of the proposed NSPS subpart Kc LEL monitoring would trigger the same repairs. As such, we consider that these repairs are already required in NSPS subpart Kb and the LEL requirement predominately makes the required inspections less subjective. In the worst-case scenario, a poorly operated IFR storage vessel can have emissions similar to those of a fixed roof storage vessel. In establishing the floating roof requirements, we already determined that installing a floating roof was cost-effective and that the costs of replacing a poorly functioning floating roof is not significantly different from the costs of retrofitting a fixed roof storage vessel. In our cost analysis, we projected floating roofs have a 15-year life, so our annualized costs account for IFR replacement every 15 years. We expect that most poorly performing floating roofs can be repaired, rather than replaced, but we expect that replacement will be necessary in

some cases. We propose to require in NSPS subpart Kc that for new, modified, and reconstructed storage vessels whose IFRs have failed to the point that 25 percent LEL is exceeded, the owner or operator must repair the IFR and, if necessary, to replace the IFR when repairs are ineffective.

We are proposing in NSPS subpart Kc specific testing requirements when monitoring LEL for storage vessels with IFRs. We are proposing that LEL standard be assessed on a 5-minute rolling average basis and that LEL monitoring be conducted for a minimum of 20 minutes unless an exceedance is measured prior to completing 20 minutes of LEL monitoring. We are proposing that LEL be measured within the storage vessel no more than 3 feet above the IFR. We are proposing that LEL monitoring be conducted when the wind speed at the top of the tank is 5 miles per hour or less where practicable, but the testing will be invalid and must be reconducted at a later date (no later than 30 days from the previous attempted measurement) if the wind speed at the top of the tank is greater than the annual average wind speed at the site's location or 15 miles per hour, whichever is less.

The EPA solicits comment on the proposed testing, monitoring, and inspection requirements, including whether our selection of maximum 25 percent LEL is appropriate, or whether this number should be higher or lower.

There are a number of other monitoring and inspection requirements included as part of this proposal. The EPA is proposing equipping floating roof storage vessels with a visual or audible alarm system to monitor when the floating roof approaches specified landing heights. For closed vent systems, the EPA is proposing quarterly visual, audible, and olfactory inspections, annual EPA Method 21 instrument monitoring, and monitoring of bypasses. The EPA also proposes that storage vessels using closed vent systems and control devices must equip pressure relief devices with appropriate monitoring to identify releases.

The EPA is proposing specific requirements for flare and non-flare control devices to ensure they achieve the required control efficiency on an ongoing basis. Specifically, we are proposing initial testing of non-flare control devices and periodic testing every five years. During

the performance test, the owner or operator would set an operating limit on the control device; continuous compliance with the operating limit would be demonstrated on a 3-hour rolling average basis. We propose that flares would be monitored consistent with the flare requirements in 40 CFR part 63 subpart CC.

Lastly the EPA is proposing applying the requirements in 40 CFR 60.116b(f) for waste mixtures to all mixtures with indeterminate or variable compositions.

K. Proposal of NSPS subpart Kc without startup, shutdown, and malfunction exemptions

In its 2008 decision in *Sierra Club* v. *EPA*, 551 F.3d 1019 (D.C. Cir. 2008), the United States Court of Appeals for the District of Columbia Circuit (D.C. Circuit) vacated portions of two provisions in the EPA's CAA section 112 regulations governing the emissions of HAP during periods of SSM. Specifically, the Court vacated the SSM exemption contained in 40 CFR 63.6(f)(1) and (h)(1), holding that under section 302(k) of the CAA, emissions standards or limitations must be continuous in nature and that the SSM exemption violates the CAA's requirement that some section 112 standard apply continuously. The EPA has determined the reasoning in the Court's decision in *Sierra Club* applies equally to CAA section 111 because the definition of emission or standard in CAA section 302(k), and the embedded requirement for continuous standards, also applies to the NSPS.

Consistent with *Sierra Club* v. *EPA*, we are proposing standards in this rule that apply at all times. The NSPS general provisions in 40 CFR 60.11(c) currently exclude opacity requirements during periods of SSM and the provision in 40 CFR 60.8(c) contains an exemption from non-opacity standards. We are proposing in NSPS subpart Kc specific requirements at 40 CFR 60.112c(a)(1) that override the general provisions for SSM provisions. We are proposing a combination of design, equipment, work practice, and operational standards in NSPS subpart Kc that apply at all times.

The EPA has attempted to ensure that the general provisions we are proposing to override are inappropriate, unnecessary, or redundant in the absence of the SSM exemption. We are specifically seeking comment on whether we have successfully done so.

Periods of startup, normal operations, and shutdown are all predictable and routine aspects of a source's operations. Malfunctions, in contrast, are neither predictable nor routine. Instead, they are, by definition, sudden, infrequent, and not reasonably preventable failures of emissions control, process, or monitoring equipment (40 CFR 60.2). The EPA interprets CAA section 111 as not requiring emissions that occur during periods of malfunction to be factored into development of CAA section 111 standards. Nothing in CAA section 111 or in case law requires that the EPA consider malfunctions when determining what standards of performance reflect the degree of emission limitation achievable through "the application of the best system of emission reduction" that the EPA determines is adequately demonstrated. While the EPA accounts for variability in setting emissions standards, nothing in CAA section 111 requires the Agency to consider malfunctions as part of that analysis. The EPA is not required to treat a malfunction in the same manner as the type of variation in performance that occurs during routine operations of a source. A malfunction is a failure of the source to perform in a "normal or usual manner" and no statutory language compels EPA to consider such events in setting CAA section 111 standards of performance. The EPA's approach to malfunctions in the analogous circumstances (setting "achievable" standards under CAA section 112) has been upheld as reasonable by the D.C. Circuit in *U.S. Sugar Corp.* v. *EPA*, 830 F.3d 579, 606–610 (2016).]

In the event that a source fails to comply with the applicable CAA section 111 standards as a result of a malfunction event, the EPA would determine an appropriate response based on, among other things, the good faith efforts of the source to minimize emissions during malfunction periods, including preventative and corrective actions, as well as root cause analyses to ascertain and rectify excess emissions. The EPA would also consider whether the source's failure to comply with the CAA section 111 standard was, in fact, sudden, infrequent, not

reasonably preventable, and was not instead caused, in part, by poor maintenance or careless operation. 40 CFR 60.2 (definition of "Malfunction").

If the EPA determines in a particular case that an enforcement action against a source for violation of an emission standard is warranted, the source can raise any and all defenses in that enforcement action and the Federal District Court will determine what, if any, relief is appropriate. The same is true for citizen enforcement actions. Similarly, the presiding officer in an administrative proceeding can consider any defense raised and determine whether administrative penalties are appropriate.

In summary, the EPA proposes that its interpretation of the CAA and, in particular, CAA section 111 is reasonable and encourages practices that will avoid malfunctions. Administrative and judicial procedures for addressing exceedances of the standards fully recognize that violations may occur despite good faith efforts to comply and can accommodate those situations. *U.S. Sugar Corp.* v. *EPA*, 830 F.3d 579, 606-610 (2016).

L. Electronic reporting

The EPA is proposing that owners and operators of volatile organic liquid storage vessels (including petroleum liquid storage vessels) subject to NSPS subpart Kb and NSPS subpart Kc, submit electronic copies of certain required notifications and reports through the EPA's Central Data Exchange (CDX) using the Compliance and Emissions Data Reporting Interface (CEDRI). A description of the electronic data submission process is provided in the memorandum *Electronic Reporting Requirements for New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP) Rules*, available in the docket for this action. Specifically, the proposed rule requires that for NSPS subpart Kb the reports specified in 40 CFR 60.115b(a)(1), 60.115b(a)(3), 60.115b(a)(4), 60.115b(b)(1), 60.115b(b)(2), 60.115b(b)(4), 60.115b(d)(1), 60.115b(d)(3), and 60.116b(d) be submitted as a portable document format upload in CEDRI, and for NSPS subpart Kc the rule requires that owners and operators use the appropriate spreadsheet templates to submit the initial notification

specified in 40 CFR 60.116c(a) and semiannual reports specified in 40 CFR 60.116c(b) to CEDRI. Draft versions of the proposed templates for the NSPS subpart Kc initial notification and semiannual report are included in the docket for this action.[9] The EPA specifically requests comment on the content, layout, and overall design of the templates. We note that for NSPS subpart Kb, we are only proposing to change the format of the reporting requirements to require electronic reporting *(i.e.,* we are not proposing any new data elements).

Additionally, the EPA has identified two broad circumstances in which electronic reporting extensions may be provided. These circumstances are (1) outages of the EPA's CDX or CEDRI which preclude an owner or operator from accessing the system and submitting required reports and (2) *force majeure* events, which are defined as events that will be or have been caused by circumstances beyond the control of the affected facility, its contractors, or any entity controlled by the affected facility that prevent an owner or operator from complying with the requirement to submit a report electronically. Examples of *force majeure* events are acts of nature, acts of war or terrorism, or equipment failure or safety hazards beyond the control of the facility. The EPA is providing these potential extensions to protect owners and operators from noncompliance in cases where they cannot successfully submit a report by the reporting deadline for reasons outside of their control. In both circumstances, the decision to accept the claim of needing additional time to report is within the discretion of the Administrator, and reporting should occur as soon as possible.

The electronic submittal of the reports addressed in this proposed rulemaking will increase the usefulness of the data contained in those reports, is in keeping with current trends in data availability and transparency, will further assist in the protection of public health and the environment, will improve compliance by facilitating the ability of regulated facilities to demonstrate compliance with requirements and by facilitating the ability of delegated State,

[9] See 40 CFR part_60_Subpart_Kc_60.116c(a)_Initial_Notification.xlsx and 40 CFR part_60_subpart_Kc_60.116c(b)_Semiannual_Report.xlsx, available in the docket for this action.

local, Tribal, and territorial air agencies and the EPA to assess and determine compliance, and will ultimately reduce burden on regulated facilities, delegated air agencies, and the EPA. Electronic reporting also eliminates paper-based, manual processes, thereby saving time and resources, simplifying data entry, eliminating redundancies, minimizing data reporting errors, and providing data quickly and accurately to the affected facilities, air agencies, the EPA, and the public. Moreover, electronic reporting is consistent with the EPA's plan[10] to implement Executive Order 13563 and is in keeping with the EPA's agency-wide policy[11] developed in response to the White House's Digital Government Strategy.[12] For more information on the benefits of electronic reporting, see the memorandum *Electronic Reporting Requirements for New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP) Rules*, referenced earlier in this section.

M. Other Proposed Actions

NSPS subpart Kb includes a number of technical methods which have been updated or replaced in the NSPS subpart Kc proposal. Two of these methods, American Society for Testing and Materials (ASTM) D2879 and American Petroleum Institute (API) Bulletin 2517, are used in determining vapor pressures including the maximum true vapor pressure.

We propose to replace ASTM D2879, "Standard Test Method for Vapor Pressure-Temperature Relationship and Initial Decomposition Temperature of Liquids by Isoteniscope," with both ASTM D6378-22, "Standard Test Method for Determination of Vapor Pressure (VPX) of Petroleum Products, Hydrocarbons, and Hydrocarbon-Oxygenate Mixtures (Triple Expansion Method)," and ASTM D6377-20 "Standard Test Method for Determination of Vapor Pressure of

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[10] EPA's Final Plan for Periodic Retrospective Reviews, August 2011. Available at: *https://www.regulations.gov/document?D=EPA-HQ-OA-2011-0156-0154*.

[11] E-Reporting Policy Statement for EPA Regulations, September 2013. Available at: *https://www.epa.gov/sites/default/files/2016-03/documents/epa-ereporting-policy-statement-2013-09-30.pdf.*

[12] Digital Government: Building a 21st Century Platform to Better Serve the American People, May 2012. Available at: *https://obamawhitehouse.archives.gov/sites/default/files/omb/egov/digital-government/digital-government.html*.

Crude Oil: $VPCR_x$ (Expansion Method)." This change is consistent with the actions finalized in the 2020 amendments to the Organic Liquids Distribution (OLD) NESHAP (85 FR 40740). ASTM D2879 involves both an isoteniscope and heating the sample to a boil. The proposed replacement is an automated device method that produces more accurate vapor pressure measurements. ASTM D6378-22 is used for measuring vapor pressures between 7 kPa and 150 kPa. ASTM D6377-20 is used for measuring vapor pressures between 29 kPa and 180 kPa. For each analysis, you must use a 4:1 vapor to liquid ratio.

Additionally, we propose replacing the API Bulletin 2517, *Evaporative Loss from External Floating-Roof Tanks,* with information available in AP-42, Chapter 7. While API Bulletin 2517 does not prescribe methods for measuring liquid vapor pressure, it acts as a reference and includes a table of vapor pressures for pure substances at temperatures between 40 and 100 degrees Fahrenheit. API Bulletin 2517 also includes information for calculating Reid vapor pressures crude oil and refined petroleum stocks. AP-42, Chapter 7 includes comparable information and is publicly available. EPA is also proposing not to incorporate ASTM D323 into the proposed subpart. ASTM D323, "Standard Test Method for Vapor Pressure of Petroleum Products (Reid Method)" is used for the determination of the Reid vapor pressure which can be used in conjunction with ASTM D2879 for determining vapor pressures. The inclusion of ASTM D6378 and ASTM D6377, makes the need for ASTM D323 unnecessary in the proposed standard.

N. Compliance dates

Pursuant to CAA section 111(b)(1)(B), the effective date of the final rule requirements in NSPS subpart Kc will be the promulgation date. Affected sources that commence construction, reconstruction, or modification after **[INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]** must comply with all requirements of NSPS subpart Kc, no later than the effective date of the final rule or upon startup, whichever is later. The EPA is proposing amendments to NSPS subpart Kb to include electronic submission requirements. Affected NSPS

subpart Kb sources that commence construction, reconstruction or modification after July 23, 1984, and before **[INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]** must comply with the updated requirements to submit reports electronically no later than the effective date of the final rule.

IV. Summary of Cost, Environmental, and Economic Impacts

A. What are the air quality impacts?

The proposed revisions in NSPS subpart Kc reduce emissions of VOCs, some of which may also be hazardous air pollutants (HAPs). The EPA estimates that the updated standards would reduce VOC emissions by 1,085 tons per year, which includes the impacts from new, modified, and reconstructed storage vessels. More information regarding the air quality impacts and emission reductions are included in the memorandum *Control Options for Storage Vessels*.

B. What are the cost impacts?

This final action will cost (in 2022 dollars) approximately $20.6 million in total capital cost and result in total annualized cost savings of $4.48 million per year (including product recovery) based on our analysis of the proposed actions in NSPS subpart Kc. More information about the estimated cost of the proposed actions can be found in the memorandum *Control Options for Storage Vessels*.

C. What are the economic impacts?

For economic impact analyses of rules that directly affect a single or a few industries, the EPA often prepares a partial equilibrium analysis. In this type of economic analysis, the focus of the effort is on estimating impacts on a single affected industry or several affected industries, and all impacts of this rule on industries outside of those affected are assumed to be zero or so inconsequential to not be considered in the analysis. If the compliance costs, which are key inputs to an economic impact analysis, are quite insignificant, then the impact analysis could consist of a calculation of annual (or annualized) costs as a percentage of sales for affected companies. This latter type of analysis is called a screening analysis and is applied when a partial

equilibrium or more complex economic impact analysis approach is deemed not necessary given the expected size of the impacts.

The net present value of the estimated cost impacts of the proposed NSPS subpart Kc is $18.9 million, discounted at a 3 percent rate over a 5-year analytic time frame from 2024 to 2028 in 2022 dollars. Using a 7 percent discount rate, the net present value of the estimated cost impacts is $16.9 million. The equivalent annualized value in 2022 dollars is a cost of approximately $4.1 million using a discount rate of three and seven percent.

Storage vessels in NSPS subpart Kb are most closely associated with the petroleum and coal products industry (NAICS 324000), chemical products industry (NAICS 325000), and the petroleum bulk stations terminals industry (NAICS 424710). While we do not know the precise distribution of new and modified storage vessels across the affected sectors, we know that there are affected storage vessels in the sectors mentioned earlier in this preamble. These sectors contribute gross value added, ranging from $129 to $440 billion per sector, to the national economy. In comparison, the proposed requirements in NSPS subpart Kc have estimated total costs of $20.6 million. The total cost is the total incurred collectively amongst numerous sectors, and each of the sectors examined have sales of at least $129 billion. Thus, the compliance costs of this action are insignificant relative to the scale for the sectors affected, and it is appropriate to evaluate the economic impacts by conducting a screening analysis comparing the costs to entity-level sales.

Given the results of the analysis, these economic impacts are relatively low for affected industries and entities impacted by this proposed rule, and there will not be substantial impacts on the markets for affected products. The costs of the proposed rule are not expected to result in a significant market impact, regardless of whether they are passed on to the purchaser or absorbed by the firms. We also expect minimal impacts on employment.

D. What are the benefits?

These proposed revisions in NSPS subpart Kc would reduce emissions of VOCs, some of which may also be HAPs. Because VOCs react in the atmosphere to produce ozone, these standards would help to reduce atmospheric ozone concentrations and reduce health effects associated with high levels of ozone. Furthermore, the proposed requirements to submit reports and test results electronically would improve monitoring, compliance, and implementation of the rule.

E. What analysis of environmental justice did we conduct?

Executive Order 12898 directs the EPA to identify the populations of concern who are most likely to experience unequal burdens from environmental harms, which are specifically minority populations (people of color), low-income populations, and Indigenous peoples (59 FR 7629, February 16, 1994). Additionally, Executive Order 13985 is intended to advance racial equity and support underserved communities through Federal government actions (86 FR 7009, January 20, 2021). The EPA defines environmental justice (EJ) as "the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies."[13] The EPA further defines fair treatment to mean that "no group of people should bear a disproportionate burden of environmental harms and risks, including those resulting from the negative environmental consequences of industrial, governmental, and commercial operations or programs and policies." In recognizing that people of color and low-income populations often bear an unequal burden of environmental harms and risks, the EPA continues to consider ways of protecting them from adverse public health and environmental effects of air pollution. For purposes of analyzing regulatory impacts, the EPA relies upon its June 2016 "Technical Guidance for Assessing Environmental Justice in Regulatory Analysis,"[14]

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[13] *https://www.epa.gov/environmentaljustice*

[14] See *https://www.epa.gov/environmentaljustice/technical-guidance-assessing-environmental-justice-regulatory-analysis.*

which provides recommendations that encourage analysts to conduct the highest quality analysis feasible, recognizing that data limitations, time, resource constraints, and analytical challenges will vary by media and circumstance. The Technical Guidance states that a regulatory action may involve potential EJ concerns if it could: (1) Create new disproportionate impacts on minority populations, low-income populations, and/or Indigenous peoples; (2) exacerbate existing disproportionate impacts on minority populations, low-income populations, and/or Indigenous peoples; or (3) present opportunities to address existing disproportionate impacts on minority populations, low-income populations, and/or Indigenous peoples through this action under development.

We are unable to quantitatively estimate the potential EJ impact of NSPS subparts Kb and Kc for the following reasons. Over the next 5 years, the EPA estimates that 1,440 new tanks and 27 modified tanks would be subject to NSPS subpart Kc. However, the locations of any new VOL storage vessels that would be subject to NSPS subpart Kc are unknown. Furthermore, there is insufficient data available regarding the locations of existing VOL storage vessels. We estimate that there are approximately more than 10,000 existing Volatile Organic Liquid Storage Vessels, but do not have a list of specific units and their locations. Therefore, we cannot perform a proximity demographic analysis of populations near existing units as a proxy for units that may be modified or reconstructed and become subject to NSPS subpart Kc. Finally, because we based the analysis of the impacts and emission reductions on model plants, we are not able to ascertain specifically how the potential benefits of this rule would be distributed across the population. Thus, we are limited in our ability to estimate the potential EJ impacts of this rule.

However, we anticipate the proposed requirements in NSPS subpart Kc would generally minimize future emissions in surrounding communities of new, modified, or reconstructed VOL storage vessels. The three most relevant industry NAICS industry segments affected under NSPS Kc include Petroleum and Coal Products Manufacturing (NAICS code 324000), Chemical Manufacturing (NAICS code 325000), and Petroleum and Bulk Stations and Terminals (NAICS

code 422710). Specifically, the EPA determined that the standards should be revised to amend the vapor pressure applicability thresholds, require stricter seal requirements on IFR tanks, establish equivalent control requirements for external floating roofs, and strengthen the closed vent system standard to account for 98 percent destruction efficiency. The changes would have beneficial effects on air quality and public health for populations exposed to emissions from new, modified or reconstructed VOL storage vessels and would provide additional health protection for affected populations, including communities already overburdened by pollution, which are often people of color, low-income, and indigenous communities.

V. Statutory and Executive Order Reviews

Additional information about these statutes and Executive orders can be found at *https://www.epa.gov/laws-regulations/laws-and-executive-orders*.

A. Executive Order 12866: Regulatory Planning and Review and Executive Order 14094 Modernizing Regulatory Review

This action is not a significant regulatory action and was therefore not submitted to the Office of Management and Budget (OMB) for review.

B. 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 2791.01. You can find a copy of the ICR in the docket for this rule, and it is briefly summarized here.

The EPA is proposing requirements for storage vessels including periodic inspections based on the type of storage vessel. This information will be collected to assure compliance with NSPS subpart Kc.

Respondents/affected entities: Owners or operators of VOL storage vessels.

Respondent's obligation to respond: Mandatory (40 CFR part 60, subpart Kc**)**

Estimated number of respondents: 588

Frequency of response: Initially and Semiannually

Total estimated burden: 16,394 hours (per year). Burden is defined at 5 CFR 1320.3(b).

Total estimated cost: $2,009,357 (per year)**,** includes $528,240 in annualized capital and no operation or 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 **[INSERT DATE 30 DAYS AFTER PUBLICATION IN THE FEDERAL REGISTER]**. The EPA will respond to any ICR-related comments in the final rule.

C. 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. The small entities subject to the requirements of this action are small businesses and small governmental jurisdictions. The Agency has determined that small entities may experience an impact of likely below 1 percent relative to sales for any affected small entity, and an even larger margin before it would approach a 1 percent impact for a substantial number of small entities. Details of this analysis are presented in the memorandum *Economic Impact Analysis for the Proposed New Source Performance Standards (NSPS) for the Volatile Organic Liquid Storage Vessels (Tanks)* included in the docket.

D. Unfunded Mandates Reform Act (UMRA)

This action does not contain an unfunded mandate of $100 million or more 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 or the private sector.

E. Executive Order 13132: Federalism

This action does not have federalism implications. It would 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.

F. Executive Order 13175: Consultation and Coordination with Indian Tribal Governments

This proposed action does have Tribal implications as specified in Executive Order 13175. NSPS subpart Kb includes provisions for storage vessels that already have impacts on Tribal Governments that have tanks in excess of 20,000 gallons that meet the vapor pressure cutoffs for general rule applicability or control applicability. The NSPS subpart Kc proposal includes some updates to the VOC standards and monitoring requirements for storage vessels that meet the revised vapor pressure cutoffs for control. Additionally, basic requirements for recordkeeping and good air pollution control practices are being proposed for all storage vessels greater than 20,000. These changes would only impact storage vessels that are constructed, modified, or reconstructed after the proposal date. Consistent with the *EPA Policy on Consultation and Coordination with Indian Tribes*, the EPA will offer government-to-government consultation with tribes and will conduct additional outreach to inform them of the content of the proposed rule.

G. Executive Order 13045: Protection of Children from Environmental Health Risks and Safety Risks

Executive Order 13045 (62 FR 19885, April 23, 1997) directs Federal agencies to include an evaluation of the health and safety effects of the planned regulation on children in Federal

health and safety standards and explain why the regulation is preferable to potentially effective and reasonably feasible alternatives. This action is not subject to Executive Order 13045 because it is not economically significant as defined in Executive Order 12866, and because the EPA does not believe the environmental health or safety risks addressed by this action present a disproportionate risk to children. These proposed revisions would reduce emissions of VOCs, some of which may also be hazardous air pollutants (HAPs). These standards would help to reduce atmospheric ozone concentrations and reduce health effects associated with high levels of ozone.

However, EPA's *Policy on Children's Health* applies to this action. Information on how the Policy was applied is available under "Children's Environmental Health" in the Supplementary Information section of this preamble.

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

This action is not subject to Executive Order 13211, because it is not a significant regulatory action under Executive Order 12866.

I. National Technology Transfer and Advancement Act (NTTAA) and 1 CFR part 51

This action for Kb and Kc involves technical standards. Therefore, the EPA conducted a search to identify potentially applicable voluntary consensus standards. However, the Agency identified no such standards. Searches were conducted for EPA Methods 1, 1A, 2, 2A, 2C, 2D, 3A, 3B, 3C, 4, 6, 10, 15, 16, 16A, 18, 21, 22, and 25A of 40 CFR part 60, appendix A. The EPA has decided to use EPA Methods 21, 22, and 25A. Additional information for the voluntary consensus standard search and determinations can be found in the memorandum titled, *Voluntary Consensus Standard Results for Review of Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels)*. All potential standards were reviewed to determine the practicality of the voluntary consensus standards (VCS) for this rule. Although there were no applicable voluntary consensus standards identified, we are amending 40

CFR 60.17 to incorporate by reference two ASTM methods as discussed in section III.M. These include the following:

- ASTM D6377-20, "Standard Test Method for Determination of Vapor Pressure of Crude Oil: $VPCR_X$ (Expansion Method). The method is an automated device method for measuring vapor pressures for crude oils samples between 29 kPa and 180 kPa at 37.8 °C. The method is suitable for testing with a 4:1 vapor-liquid ratio.
- ASTM D6378-22, "Standard Test Method for Determination of Vapor Pressure (VPX) of Petroleum Products, Hydrocarbons, and Hydrocarbon-Oxygenate Mixtures (Triple Expansion Method). The method is an automated device method for measuring vapor pressures between 7 kPa and 150 kPa at 37.8 °C for tested samples with boiling points at 0 °C. The method is suitable for volatile organic liquids, hydrocarbons and liquid petroleum products sampled at a 4:1 vapor-liquid ratio.

The ASTM standards are available from the American Society for Testing and Materials (ASTM), 100 Barr Harbor Drive, Post Office Box C700, West Conshohocken, PA 19428–2959. See *https://www.astm.org*.

J. Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations and Executive Order 14096: Revitalizing our Nation's Commitment to Environmental Justice for All

The EPA believes that it is not practicable to assess whether the human health or environmental conditions that exist prior to this action result in disproportionate and adverse effects on communities with EJ concerns. Over the next 5 years, the EPA estimates that 1,440 new tanks and 27 modified tanks will be subject to NSPS subpart Kc. However, the locations of any new VOL storage vessels that would be subject to NSPS subpart Kc are not known. Furthermore, there is insufficient data available regarding the locations of existing VOL storage

vessels is also not known. The EPA estimates that there are approximately more than 10,000 existing vessels subject to NSPS subpart Kb, but do not have a list of specific units and their locations. Therefore, we cannot perform a proximity demographic analysis of populations near existing units as a proxy for units that may be modified or reconstructed and become subject to NSPS subpart Kc. Finally, because we based the analysis of the impacts and emission reductions on model plants, we are not able to ascertain specifically how the potential benefits of this rule would be distributed across the population. Thus, we are limited in our ability to estimate the potential EJ impacts of this rule.

The information supporting this Executive Order review is contained in in section IV.E. All pertinent supporting documents such as the technical memo, "Control Options for Storage Vessels" which discusses the costs and environmental impacts of the regulatory options considered have been placed in the docket.

Michael S. Regan,

Administrator.

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