6560-50-P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 63

[EPA-HQ-OAR-2025-1348; FRL-5732-02-OAR]

RIN 2060-AS13

National Emission Standards for Hazardous Air Pollutants: Crude Oil and Natural Gas Production Facilities and Natural Gas Transmission and Storage Facilities; Technology Review and Reconsideration

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: The U.S. Environmental Protection Agency (EPA) is proposing an action related to the National Emission Standards for Hazardous Air Pollutants (NESHAP) from Crude Oil and Natural Gas Production Facilities and from Natural Gas Transmission and Storage Facilities (Oil and Gas NESHAP) in connection with a technology review pursuant to Clean Air Act (CAA) section 112. Based on the EPA's review the Agency is not proposing any revision to the current standards in the NESHAP. With respect to unregulated pollutants, the EPA is proposing standards for methanol from regulated emission points at crude oil and natural gas production facilities that will result in no additional control requirements. The EPA is further proposing two alternative approaches to emission points not currently regulated in these NESHAP. Under the first approach, we are proposing that the Agency does not have an obligation to regulate previously unregulated emission points when conducting a CAA section 112(d)(6) review and to defer action on that basis. Under the second approach, we are proposing new control standards for previously unregulated emission points, which include: acid gas removal units, transport vessel loading operations, and storage vessels without flash emissions at crude oil and natural gas production facilities, as well as storage vessels, transport vessel loading and natural gas-driven process controllers and pumps at natural gas transmission and storage facilities. The EPA

is also concurrently proposing changes to the definition of "associated equipment" with respect to a major source to align with the CAA that, if finalized, would reduce burdens on industry. Finally, the EPA is proposing minor technical corrections to the existing regulations.

DATES: Comments must be received on or before **[INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**. Under the Paperwork Reduction Act (PRA), comments on the information collection provisions are best assured of consideration if the Office of Management and Budget (OMB) receives a copy of your comments on or before **[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 April 27, 2026, we will hold a virtual public hearing. See **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-2025-1348, 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-2025-1348 in the subject line of the message.
- Fax: (202) 566-9744. Attention Docket ID No. EPA-HQ-OAR-2025-1348.
- Mail: U.S. Environmental Protection Agency, EPA Docket Center, Docket ID No. EPA-HQ-OAR-2025-1348, 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. to 4:30 p.m., Monday through 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 information about this proposed rulemaking, contact U.S. EPA, Attn: Matthew Witosky, Mail Drop: E143-05, 109 T.W. Alexander Drive, P.O. Box 12055, RTP, North Carolina 27711; telephone number: (919) 541-2865 and email address: *witosky.matthew@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 *NRDpublichearing@epa.gov*. If requested, the hearing will be held via virtual platform on May 12, 2026. The EPA will announce further details, at *https://www.epa.gov/controlling-air-pollution-oil-and-natural-gas-operations/actions-and-notices-about-oil-and-0.* The EPA will begin pre-registering speakers for the hearing no later than one business day after a request has been received. To register to speak at the virtual hearing, please use the online registration form available at *https://www.epa.gov/controlling-air-pollution-oil-and-natural-gas-operations/actions-and-notices-about-oil-and-0* or contact the public hearing team at (888) 372-8699 or by email at *NRDpublichearing@epa.gov*. The last day to pre-register to speak at the hearing will be May 4, 2026. Prior to the hearing, the EPA will post a general agenda that will list pre-registered speakers at: *https://www.epa.gov/controlling-air-pollution-oil-and-natural-gas-operations/actions-and-notices-about-oil-and-0.*

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. The EPA may close a session 15 minutes after the last pre-registered speaker has testified if there are no additional speakers.

Each commenter will have four minutes to provide oral testimony. The EPA encourages commenters to submit a copy of their oral testimony as written comments electronically 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/controlling-air-pollution-oil-and-natural-gas-operations/actions-and-notices-about-oil-and-0.* While the EPA expects the hearing to go forward as set forth above, please monitor our website or contact the public hearing team at (888) 372-8699 or by email at *NRDpublichearing@epa.gov* to determine if there are any updates. The EPA does not intend to publish a document in the *Federal Register* announcing updates.

If you require special accommodations such as audio description, please pre-register for the hearing with the public hearing team and describe your needs by April 29, 2026. The EPA may not be able to arrange accommodations without advanced notice.

Docket. The EPA has established a docket for this action under Docket ID No. EPA-HQ-OAR-2025-1348. All documents in the docket are listed in *https://www.regulations.gov/*. Although listed, 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 as Portable Document Format (PDF) versions that can only be accessed on the EPA computers in the docket office reading room. Certain databases and physical items cannot be downloaded from the docket but may be requested by contacting the docket office at 202-566-1744. The docket office has up to 10 business days to respond to these requests. With the

exception of such material, publicly available docket materials are available electronically at *https://www.regulations.gov*.

Instructions. Direct your comments to Docket ID No. EPA-HQ-OAR-2025-1348. The EPA's policy is that all comments received will be included in the public docket without change and may be made available online at *https://www.regulations.gov/*, including any personal information provided, unless the comment includes information claimed to be CBI or other information whose disclosure is restricted by statute. Do not submit electronically to *https://www.regulations.gov/* any information that you consider to be CBI or other information whose disclosure is restricted by statute. This type of information should be submitted as discussed below.

The EPA may publish any comment received to its public docket. 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). For additional submission methods, the full EPA public comment policy, information about CBI or multimedia submissions, and general guidance on making effective comments, please visit *https://www.epa.gov/dockets/commenting-epa-dockets*.

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. For additional information about the EPA's public docket, visit the EPA Docket Center homepage at *https://www.epa.gov/dockets*.

The EPA is soliciting comments on numerous aspects of this proposed rulemaking. The EPA has indexed each comment solicitation with an identifier (*e.g.*, Question 1, Question 2.) to provide a consistent framework for effective and efficient provision of comments. Accordingly, we ask that commenters include the corresponding identifier when providing comments relevant to that comment solicitation. We ask that commenters include the identifier in either a heading, or within the text of each comment (*e.g.*, In response to Question 1, . . .) to make clear which comment solicitation is being addressed. We emphasize that we are not limiting comments to these identified areas and encourage provision of any other comments relevant to this proposal.

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 *Instructions* section above. 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 OCAP CBI Office at the email address *oaqps_cbi@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 *oaqps_cbi@epa.gov* to request a file transfer link. If sending CBI information through the postal service, please send it to the following address: OCAP Document Control Officer (C404-02), OCAP, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711, Attention Docket ID No. EPA-HQ-OAR-2025-1348. 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 preamble 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:

AGRUs	acid gas removal units
AWP	alternative work practice
BACT	Best Available Control Technology
BID	Background Information Document
BTEX	benzene, toluene, ethylbenzene, and xylenes
º C	degrees Centigrade
CAA	Clean Air Act
CBI	Confidential Business Information
CFR	Code of Federal Regulations
COS	carbonyl sulfide
CS_2	carbon disulfide
CO_2	carbon dioxide
DEG	diethylene glycol
EPA	Environmental Protection Agency
ERT	Electronic Reporting Tool
EAV	equivalent annualized value

º F	degrees Fahrenheit
FR	*Federal Register*
FTP	File Transfer Protocol
GACT	generally available control technology
Gr	grain
HAP	hazardous air pollutant(s)
H_2S	hydrogen sulfide
ICR	Information Collection Request
IR	infrared
LAER	Lowest Achievable Emission Rate
LDAR	leak detection and repair
LEAN	Louisiana Environmental Action Network
MACT	maximum achievable control technology
Mg/yr	megagrams per year
MMscf	million standard cubic feet
MMscf	million standard cubic feet per day
NAICS	North American Industry Classification System
NEI	National Emissions Inventory
NESHAP	national emission standards for hazardous air pollutants
NGL	natural gas liquids
NOx	nitrogen oxide
NSPS	New Source Performance Standards
OCAP	Office of Clean Air Programs
OGI	optical gas imaging
OMB	Office of Management and Budget
PFE	potential for flash emissions
PM	particulate matter
ppm	parts per million
ppmv	parts per million by volume
psig	pounds per square inch gauge
PV	present value
RACT	Reasonably Available Control Technology
RBLC	RACT/BACT/LAER Clearinghouse
RTR	Risk and Technology Review
SBA	Small Business Administration
scf	standard cubic feet
scfh	standard cubic feet per hour
SO_2	sulfur dioxide
TEG	triethylene glycol
TOC	total organic compound
tpy	tons per year
UPL	Upper Prediction Limit
U.S.C	United States Code

VCS	voluntary consensus standards
VOC	volatile organic compounds
VRU	vapor recovery unit

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I. General Information

A. Executive Summary

In 1999, the EPA promulgated the Oil and Gas NESHAP to regulate HAP emissions from crude oil and natural gas production facilities and from natural gas transmission and storage facilities under 40 CFR part 63, subparts HH and HHH, respectively (1999 Final Rule).[1] Section 112 of the CAA required the EPA to review the standards within eight years to identify and address any residual risk to human health and the environment and, separately, to revise the standards as "necessary" in light of developments in practices, processes, and control technologies every eight years. The EPA finalized the residual risk and initial technology review for the two major source oil and natural gas categories in 2012 (2012 Final Rule).[2]

Environmental and industry representatives petitioned the EPA to reconsider and amend the residual risk review, the technology review, and certain provisions of the 2012 Final Rule. In 2017, the Agency agreed to reconsider two issues raised in industry and environmental groups' administrative petition: the small dehydrator standards and the establishment of standards that accounted for variability using an upper prediction limit (UPL) of 99 percent. The Agency subsequently entered into a consent decree to respond to the remaining issues in the petition that are under reconsideration and to complete the second technology review required by CAA section 112(d)(6).[3]

In this proposed rulemaking, the EPA is proposing amendments to certain aspects of the Oil and Gas NESHAP in response to the petition for reconsideration and the technology review under CAA section 112(d)(6). The proposal also includes corrections to technical errors in the current NESHAP subparts HH and HHH. The treatment of standards within this proposal can be divided into the following categories: (1) already regulated emission points of currently regulated HAP; (2) unregulated emission points; and (3) regulated emission points of HAP not currently regulated. Additionally, the EPA is specifically soliciting comment on several aspects of this

[1] 64 FR 32610 (June 17, 1999).
[2] 77 FR 49490 (August 16, 2012).
[3] *Cal. Cmtys. Against Toxics, et al. v. Regan*, No. 1:22-cv-10120-CRC (D.D.C).

proposed rule. See table 3 in section IV of the preamble for a complete list of the solicitation of comments in this proposed rulemaking.

1. Already Regulated Emission Points of Currently Regulated HAP

The EPA proposes no revisions to the current standards in NESHAP subparts HH and HHH are necessary pursuant to the CAA section 112(d)(6) technology review. The current NESHAP subpart HH contains major source standards for HAP emissions from glycol dehydration process vents, storage vessels with potential for flash emissions, and natural gas processing plant equipment leaks and area source standards for glycol dehydrators, while subpart HHH contains major source standards for glycol dehydration process vents. As explained below, we have not identified cost-effective developments that, considering all relevant factors, render it "necessary" to propose revisions to the existing standards within these categories.

2. Unregulated Emission Points

With respect to emission points unregulated under these NESHAP, the EPA proposes that we are not obligated to promulgate standards for additional emission points at this time as part of the CAA section 112(d)(6) technology review. Under this approach, we would defer action on expanding these NESHAP to include currently unregulated emission points to better conform this action to the obligation conferred under CAA section 112(d)(6) and consider at a later time whether and how such HAP emissions from such emission points should be addressed.

In the alternative, the EPA is performing the analyses for a MACT floor under CAA section 112(d)(3) and combining the beyond-the-floor analysis of CAA section 112(d)(2) with the technology review analysis of CAA section 112(d)(6). These analyses and the resulting proposed standards from this alternative approach are presented in section III.B.4 of this preamble. These proposed alternatives in NESHAP subpart HH include standards for the following previously unregulated emission points: acid gas removal units (AGRU), storage vessels without the potential for flash emissions (PFE), and transport vessel loading operations. The proposed alternatives in NESHAP subpart HHH include standards for the

following previously unregulated emission points: storage vessels, transport vessel loading operations, controllers, and pumps.

3. Regulated Emission Points of Previously Unregulated HAP.

The EPA also proposes in this document new standards for a previously unregulated HAP, methanol, from already regulated emission points at crude oil and natural gas production facilities (NESHAP subpart HH).. Our proposal to regulate methanol does not include sources at transmission and storage facilities (NESHAP subpart HHH); while industry reported HAP emissions, including methanol, in response to the 2023 ICR questionnaire, there were no reported methanol emissions from transportation and storage facilities. Lastly, we propose revising the major source definition for production facilities along with several technical corrections.

4. Impacts of Proposal

Under the proposed approach, which limits the scope of this rulemaking to only those regulatory activities required by Congress in CAA section 112(d)(6), the EPA anticipates that this proposed rulemaking will not result in additional compliance costs or emissions reductions for the proposed option. For the alternative proposed option in which the EPA proposes new standards for previously unregulated emission points, the Agency anticipates minimal costs (due to increased recordkeeping and reporting requirements) and no emissions impacts since the relevant facilities would already be able to achieve the alternative proposed standards.

The EPA proposes to amend the definition of "associated equipment" by removing "except glycol dehydrators and storage vessels." The EPA is proposing this change because glycol dehydrators and storage vessels are clearly equipment associated with production wells, and we do not see any language in CAA section 112(n)(4) allowing aggregation of emissions from any associated equipment in determining whether any such equipment is a major source. The EPA expects that this proposed amendment will have deregulatory impacts (cost savings), though the Agency lacks the information needed to make a quantitative assessment at this time.

B. Does this action apply to me?

Table 1 of this preamble lists the NESHAP and associated regulated industrial source categories that are the subject of this proposal. Table 1 is not intended to be exhaustive but rather provides a guide for readers regarding the entities that this proposed rulemaking is likely to affect. The proposed standards, once promulgated, will be directly applicable to the affected sources. Federal, State, local, and Tribal government entities would not be affected by this proposed rulemaking. As defined in the *Initial List of Categories of Sources Under Clean Air Act Amendments of 1990 Section 112(c)(1)* (see 57 FR 31576, July 16, 1992) and *Documentation for Developing the Initial Source Category List, Final Report* (*see* EPA-450/3-91-030, July 1992), the crude oil and natural gas production category source category is any facility engaged in crude oil and natural gas production. The natural gas transmission and storage category is any facility engaged in natural gas transmission and storage. This source category includes, but is not limited to, glycol dehydration units, storage vessel emissions, and equipment leaks from compressors and ancillary equipment at natural gas processing plants. Subsequently, in the Final Area Source Rule on January 3, 2007,[4] we added this category to the list of area source categories for regulation under a *Federal Register* publication for the Integrated Urban Air Toxics Strategy.[5] Oil and natural gas production is identified in the Urban Air Toxics Strategy as an area source category for regulation under CAA section 112(c)(3) because of benzene emissions from triethylene glycol (TEG) dehydration units located at such facilities. The Oil and Gas Production area source category covers glycol dehydration units.

The source categories that are the subject of this proposal are Crude Oil and Natural Gas Production and Natural Gas Transmission and Storage regulated under 40 CFR part 63, subparts HH and HHH, respectively. The EPA set maximum achievable control technology (MACT) standards for the Crude Oil and Natural Gas Production major source category in 1999 and

[4] 72 FR 26 (January 3, 2007).
[5] 64 FR 38706 (July 19, 1999).

conducted the residual risk and technology review in 2012 (NESHAP subpart HH). The EPA set MACT standards for the Natural Gas Transmission and Storage major source category in 1999 and conducted the residual risk and technology review in 2012 (NESHAP subpart HHH). The sources affected by the major source NESHAP for the Crude Oil and Natural Gas Production source category (NESHAP subpart HH) are oil and natural gas production and processing facilities. The EPA set generally available control technology (GACT) standards for the Crude Oil and Natural Gas area source category in the 2007 Final Area Source Rule (NESHAP subpart HH). The sources affected by the area source NESHAP for the Crude Oil and Natural Gas Production source category are glycol dehydrators at oil and gas production and processing facilities that are not major sources.

Table 1. NESHAP and Industrial Source Categories Affected by this Proposed Action

Source category	NESHAP	NAICS code[1]
Crude Oil and Natural Gas Production	40 CFR part 63, subpart HH	211111 211112
Natural Gas Transmission and Storage	40 CFR part 63, subpart HHH	221210 486110 486210

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

C. 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 rulemaking is available on the Internet. In accordance with 5 U.S.C. 553(b)(4), a brief summary of this rulemaking may be found at *www.regulations.gov*, Docket ID No. EPA-HQ-OAR-2025-1348. Following signature by the EPA Administrator, the Agency will post a copy of this proposed rulemaking at *https://www.epa.gov/stationary-sources-air-pollution/oil-and-natural-gas-production-facilities-national-emission*. 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 rulemaking edits that would be necessary to incorporate the changes to NESHAP subparts HH and HHH proposed in this action is available in the docket (Docket ID No. EPA-HQ-OAR-2025-1348). 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/oil-and-natural-gas-production-facilities-national-emission*.

II. Background

A. What is the statutory authority for this action?

The statutory authority for this action is provided by CAA section 112, as amended (42 U.S.C. 7412). Section 112 of the CAA establishes a two-stage regulatory process to develop standards for emissions of HAP from stationary sources. Generally, the first stage involves establishing technology-based standards that reflect MACT or an appropriate alternative.[6] The second stage involves evaluating those standards within eight years to determine whether additional standards are needed to address any remaining risk associated with HAP emissions.[7] This second stage is commonly referred to as the "residual risk review." In addition to the residual risk review, CAA section 112 also requires the EPA to review the standards every eight years and "revise as necessary" taking into account "developments in practices, processes, or control technologies."[8] This review is commonly referred to as the "technology review," and is the subject of this proposal unless otherwise indicated. The discussion that follows identifies the most relevant statutory sections and briefly explains the contours of the methodology used to implement these statutory requirements.

In the first stage of CAA section 112 standard-setting process, the EPA promulgates technology-based standards under CAA section 112(d) for categories of sources identified as emitting one or more of the HAP listed in CAA section 112(b). Sources of HAP emissions are either major sources or area sources, and CAA section 112 establishes different requirements for

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[6] 42 U.S.C. 7412(d)(1)-(4).
[7] *Id.* 7412(f)(2).
[8] *Id.* 7412(d)(6).

major source standards and area source standards. “Major sources” are those that emit or have the potential to emit 10 tpy or more of a single HAP or 25 tpy or more of any combination of HAP.[9] All other sources are “area sources.”[10] For major sources, CAA section 112(d)(2) provides that the technology-based NESHAP must reflect the maximum degree of emission reductions of HAP achievable (after considering cost, energy requirements, and non-air quality health and environmental impacts). These standards are commonly referred to as MACT standards. CAA section 112(d)(3) also establishes a minimum control level for MACT standards, known as the MACT “floor,” based on emission controls achieved in practice by the best performing sources. In certain instances, as provided in CAA section 112(h), the EPA may set work practice standards in lieu of numerical emission standards. The EPA also considers control options that are more stringent than the floor.[11] Standards more stringent than the floor are commonly referred to as “beyond-the-floor" standards. For area sources, CAA section 112(d)(5) allows the EPA to set standards based on generally available control technologies or management practices (GACT standards) in lieu of MACT standards. For categories of major sources and any area source categories subject to MACT standards, the second stage focuses on identifying and addressing any remaining (*i.e.,* “residual”) risk within eight years pursuant to CAA section 112(f) and concurrently conducting a technology review pursuant to CAA section 112(d)(6). For categories of area sources subject to GACT standards, there is no requirement to address residual risk, but, similar to the major source categories, the technology review is required every eight years.[12]

Section 112(d)(6) of the CAA requires the EPA to review standards promulgated under CAA section 112 and revise them “as necessary (taking into account developments in practices, processes, and control technologies)” no less often than every eight years. In conducting this

[9] *Id.* 7412(a)(1).
[10] *Id.* 7412(a)(2).
[11] *Id.* 7412(d)(2).
[12] *Id.* 7412(d)(6).

review, which we call the "technology review," the EPA is not required to recalculate the MACT floors that were established in earlier rulemakings.[13] The EPA may consider cost in deciding whether to revise the standards pursuant to CAA section 112(d)(6).[14]

B. What are the source categories and how does the current NESHAP regulate its HAP emissions?

This section of the preamble generally describes: the structure of the oil and natural gas industry, the source categories regulated under CAA section 112, how the current NESHAP regulates its HAP emissions, and the type of HAP emissions from these source categories.

The EPA characterizes the oil and natural gas industry's operations as being generally composed of four segments: (1) extraction and production of crude oil and natural gas ("oil and natural gas production"), (2) natural gas processing, (3) natural gas transmission and storage, and (4) natural gas distribution.[15]

The oil and natural gas production segment includes the wells and all related processes used in the extraction, production, recovery, lifting, stabilization, and separation or treatment of oil and/or natural gas (including condensate). Although many wells produce a combination of oil and natural gas, wells can generally be grouped into two categories: oil wells and natural gas wells. There are two types of oil wells, oil wells that produce crude oil only and oil wells that produce both crude oil and natural gas (commonly referred to as "associated" gas). Production equipment and components located on the well pad may include, but are not limited to: wells and related casing heads; tubing heads; "Christmas tree" piping, pumps, and compressors; heater treaters; separators; storage vessels; process controllers; pumps; and dehydrators. Production operations include well drilling, completion, and recompletion processes, including all the portable non-self-propelled apparatuses associated with those operations.

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[13] *Ass'n of Battery Recyclers, Inc. v. EPA*, 716 F.3d 667 (D.C. Cir. 2013); *Nat. Res. Def. Council (NRDC) v. EPA*, 529 F.3d 1077, 1084 (D.C. Cir. 2008).
[14] 42 U.S.C. 7412(d)(2), (d)(6); *Ass'n of Battery Recyclers*, 716 F.3d at 673-74.
[15] The EPA regulates oil refineries as a separate source category.

Other sites that are part of the production segment include "centralized tank batteries," stand-alone sites where oil, condensate, produced water, and natural gas from several wells may be separated, stored, or treated. The production segment also includes gathering pipelines, gathering and boosting compressor stations, and related components that collect and transport the oil, natural gas, and other materials and wastes from the wells to the refineries or natural gas processing plants.

Crude oil and natural gas undergo successive, separate processing. The process separates crude oil from water and other impurities and transported to a refinery via truck, railcar, or pipeline. The EPA treats oil refineries as a separate source category; accordingly, for present purposes, the oil component of the production segment ends at the point of custody transfer at the refinery.[16]

Industry commonly refers to separated, unprocessed natural gas as field gas. Field gas contains methane, natural gas liquids (NGL), and other impurities such as water vapor, hydrogen sulfide (H_2S), carbon dioxide (CO_2), helium, and nitrogen. Ethane, propane, butane, isobutane, and pentane are all considered NGL and often are sold separately for a variety of different uses. Natural gas with high methane content is referred to as "dry gas," while natural gas with significant amounts of ethane, propane, or butane is referred to as "wet gas." Natural gas is typically sent to gas processing plants to separate NGLs for use as feedstock for petrochemical plants, fuel for space heating and cooking, or a component for blending into vehicle fuel.

The natural gas processing segment consists of separating certain hydrocarbons (HC) and fluids from the natural gas to produce "pipeline quality" dry natural gas. The degree and location of processing is dependent on factors such as the type of natural gas (*e.g.,* wet or dry gas), market conditions, and company contract specifications. Typically, processing of natural gas begins in the field and continues as the gas is moved from the field through gathering and boosting compressor stations to natural gas processing plants, where the complete processing of natural

[16] *See* 40 CFR part 60, subparts J and Ja, and 40 CFR part 63, subparts CC and UUU.

gas takes place. Natural gas processing operations separate and recover NGL or other non-methane gases and liquids from field gas through one or more of the following processes: oil and condensate separation, water removal, separation of NGL, sulfur and CO_2 removal, fractionation of NGL, and other processes, such as the capture of CO_2 separated from natural gas streams for delivery outside the facility.

After processing, natural gas exits the natural gas processing plant and enters the transmission and storage segment. From there, the system transports the gas for storage and/or distribution to the end user. Pipelines in the natural gas transmission and storage segment can be interstate pipelines, which carry natural gas across State boundaries, or intrastate pipelines, which transport the gas within a single state. Basic components of the two types of pipelines are the same, though interstate pipelines may be of a larger diameter and operated at a higher pressure. To ensure that the natural gas continues to flow through the pipeline, the natural gas must periodically be compressed, thereby increasing its pressure. Compressor stations perform this function and are usually placed at 40- to 100-mile intervals along the pipeline. At a compressor station, reciprocating or centrifugal compressors compress the natural gas entering the station as it moves through the pipelines.

Another part of the transmission and storage segments are aboveground and underground natural gas storage facilities. Storage facilities hold natural gas for use during peak seasons. Unlike underground sites, aboveground storage utilizes manufactured vessels rather than earthen containment. Underground storage of natural gas typically occurs in depleted natural gas or oil reservoirs and salt dome caverns. One purpose of this storage site is for load balancing (equalizing the receipt and delivery of natural gas). At an underground storage site, typically other processes occur, including compression, dehydration, and flow measurement.

The distribution segment provides the final step in delivering natural gas to customers.[17] The natural gas enters the distribution segment from delivery points located along interstate and intrastate transmission pipelines to business and household customers. The delivery point where the natural gas leaves the transmission and storage segment and enters the distribution segment is a local distribution company's custody transfer station, commonly referred to as the "city-gate." Natural gas distribution systems consist of over two million miles of piping, including mains and service pipelines to the customers. Large distribution networks require compressor stations to maintain flow. However, these stations are typically smaller than transmission compressor stations. Distribution systems include metering stations and regulating stations that allow distribution companies to monitor natural gas flow.

The Crude Oil and Natural Gas Production Source Category NESHAP (NESHAP subpart HH) covers the production and processing segments of the industry and applies to facilities that meet the specified applicability criteria. For the purposes of NESHAP subpart HH, natural gas enters the natural gas transmission and storage source category after the natural gas processing plant, when present. If no natural gas processing plant is present, natural gas enters the transmission and storage source category after the point of custody transfer. Examples of facilities in the oil and natural gas production source category include, but are not limited to: well sites; satellite tank batteries; central tank batteries; a compressor station that transports natural gas to a natural gas processing plant; and natural gas processing plants. The Crude Oil and Natural Gas Production Source Category NESHAP (NESHAP subpart HH) contain standards for HAP emissions from glycol dehydration process vents, storage vessels and natural gas processing plant equipment leaks. In addition to this NESHAP for major sources, the NESHAP for the Crude Oil and Natural Gas Production, NESHAP subpart HH also contains area source standards for glycol dehydrators, which are based on GACT.

[17] The distribution segment is not included in the Crude Oil and Natural Gas Production or Natural Gas Transmission and Storage Source Categories in NESHAP subparts HH or HHH.

The Natural Gas Transmission and Storage Category NESHAP (NESHAP subpart HHH) covers the transmission and storage segment of the industry and applies to facilities that meet the specified applicability criteria and transport or store natural gas prior to entering the pipeline to a local distribution company or to a final end user (if there is no local distribution company). A compressor station does not belong to the transmission and storage segment if it transports natural gas before the custody transfer point or to a processing plant. Facilities in this source category include an underground natural gas storage operation; or a natural gas compressor station that receives natural gas via pipeline, from an underground natural gas storage operation, or from a natural gas processing plant. Additionally, NESHAP subpart HHH contains major source standards for HAP from glycol dehydration process vents.

Emissions can occur from a variety of processes and points throughout the oil and natural gas industry sector. Emissions from the oil and natural gas industry sector include organic HAP, volatile organic compounds (VOCs), sulfur dioxide (SO_2), nitrogen oxide (NO_X), H_2S, carbon disulfide (CS_2), and carbonyl sulfide (COS) are emitted in varying concentrations and amounts.[18] The most common organic HAP are n-hexane and BTEX (benzene, toluene, ethylbenzene and xylenes) compounds. Broadly, HAP emissions cause or are suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental effects. Exposure to HAP emissions at sufficient concentrations and durations may increase the risk of developing cancer or experiencing other serious health effects. These health effects can include damage to the immune system, as well as neurological, reproductive (*e.g.*, reduced fertility), developmental, respiratory and other health problems. In addition to exposure from breathing air toxics, some toxic air pollutants can deposit onto soils or surface waters, where they are absorbed by plants and ingested by animals and are eventually magnified up through the food

[18] In addition, there are emissions associated with the reciprocating internal combustion engines and combustion turbines that power compressors throughout the oil and natural gas industry sector. However, emissions from internal combustion engines and combustion turbines are covered by regulations specific to engines and turbines and, thus, are not addressed in this proposed rulemaking.

chain. Like humans, animals may experience health problems if exposed to sufficient quantities of HAP emissions over time.

The Crude Oil and Natural Gas Production Category NESHAP (NESHAP subpart HH) contain standards for HAP emissions from glycol dehydration process vents, storage vessels, and natural gas processing plant equipment leaks. The Natural Gas Transmission and Storage Category NESHAP (NESHAP subpart HHH) contain standards for glycol dehydration process vents.

In addition to these NESHAP for major sources, the NESHAP for the Crude Oil and Natural Gas Production, NESHAP subpart HH also contains area source standards for glycol dehydrators, which are based on GACT.

C. What data collection activities were conducted to support this action?

The EPA used several data sources to support this rulemaking. In February 2023, the EPA issued an Information Collection Request (ICR) pursuant to CAA section 114 to gather information to inform the technology review and other considerations related to NESHAP subparts HH and HHH (2023 ICR). The EPA sent ICRs to 18 entities/respondents (nine production and processing companies and nine transmission and storage companies). The EPA asked respondents to complete a separate survey for each company-operated facility, choosing up to 25 per owner that represented various geographical regions, operation types, and sizes.

The EPA received responses from 231 production and processing facilities and 57 transmission and storage facilities. The information collected from respondents in Phase I included facility descriptions, HAP emissions per unit type, control technologies and emissions reduction work practices utilized at subject facilities. The EPA asked respondents to identify whether the facility is a major or area source, as defined by 40 CFR part 63. The 231 production and processing facilities included eight major source facilities, 221 area source facilities and two that did not self-identify. The 57 transmission and storage facilities included 39 major source facilities and 18 area source facilities.

Following the 2023 ICR effort, in July 2024, the EPA issued a follow up ICR (2024 Phase II ICR) to the same nine production and processing companies and nine transmission and storage companies. The EPA requested glycol dehydrators and acid gas removal units testing, and additional process controllers and pumps information. The EPA requested an analysis to quantify the presence of metals that could be transferred from the raw natural gas to the rich glycol during dehydration or the rich amine solution from acid gas removal units during acid gas removal. The EPA requested an inventory and description of process controllers and pumps at transmission and storage facilities. All the responses received on both the 2023 ICR and the 2024 Phase II ICR, with the exception of information claimed confidential, are in the docket for this rulemaking (Docket ID No. EPA–HQ–OAR–2025–1348).

The EPA collected data on units that emit HAP to help inform the Agency in its review of the Oil and Gas NESHAP pursuant to CAA section 112(d)(6), as well as its evaluation of the issues raised in administrative petitions for reconsideration of the prior 2012 Final Rule amendments to these NESHAP.

The EPA used several data sources to determine the facilities that are subject to the Oil and Gas Production and Natural Gas Transmission and Storage NESHAP. We identified facilities in the 2017 National Emissions Inventory (NEI) and the Toxics Release Inventory system having a primary facility NAICS code beginning with 4247, Petroleum and Petroleum Products Merchant Wholesalers. [19] We also used information from the original oil and gas NESHAP, the Office of Enforcement and Compliance Assurance's Enforcement and Compliance History Online tool, and the Energy Information Administration. [20,21] To inform our reviews for these emission points, we reviewed the EPA's Reasonably Available Control Technology (RACT)/Best Available Control Technology (BACT)/Lowest Achievable Emission Rate

[19] At the time the technology review was initiated, the 2017 NEI was the most recent complete inventory available.
[20] *https://echo.epa.gov*.
[21] *https://www.eia.gov*.

(LAER) Clearinghouse (RBLC) and regulatory development efforts for similar sources.[22,23] The EPA also reviewed air permits to determine facilities subject to the NESHAP subpart HH (Production) and NESHAP subpart HHH (Transmission and Storage).

We met with industry representatives from the American Petroleum Institute, Gas Processors Association, and held a series of virtual meetings with producers.[24]

D. What other relevant background information and data are available?

In addition, we relied on certain technical reports and memoranda that the EPA developed for glycol dehydrators and their control devices in the 2012 Crude Oil and Natural Gas Production and the Natural Gas Transmission and Storage residual risk and technology review.[25] The Risk and Technology Review (RTR) docket is at Docket ID No. EPA–HQ–OAR–2010–0505. For completeness of this rulemaking and for ease of reference in finding these items in the publicly available rulemaking docket, we are including the most relevant technical support documents in the docket for this proposed rulemaking (Docket ID No. EPA–HQ–OAR–2025–1348).

E. How does the EPA perform the technology review?

Our technology review primarily focuses on the identification and evaluation of developments in practices, processes, and control technologies that have occurred since the MACT standards were promulgated. Where we identify such developments, we analyze their technical feasibility, estimated costs, energy implications, and non-air environmental impacts.[26] We also consider the emission reductions associated with the potential application of each development. This analysis informs our decision whether it is "necessary" to revise the emissions

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[22] *https://www.epa.gov/catc/ractbactlaer-clearinghouse-rblc-basic-information*.
[23] The EPA reviewed standards for Gasoline Distribution regulated under 40 CFR part 63, subparts R and BBBBBB, and Bulk Gasoline Terminals regulated under 40 CFR part 60, subparts XX and XXa.
[24] *See* memorandum documenting meeting in the Public Docket at *https://www.regulations.gov/* Docket ID No. EPA-HQ-OAR-2025-1348.
[25] *See* memorandum documenting meeting in the Public Docket at *https://www.regulations.gov/* Docket ID No. EPA-HQ-OAR-2025-1348.
[26] 42 U.S.C. 7412(d)(2).

standards.[27] In addition, we consider the appropriateness of applying controls to new sources versus retrofitting existing sources. For this exercise, we consider any of the following to be a "development":[28]

- Any add-on control technology or other equipment that was not identified and considered during development of the original MACT standards;
- Any improvements in add-on control technology or other equipment (that were identified and considered during development of the original MACT standards) that could result in additional emissions reduction;
- Any work practice or operational procedure that was not identified or considered during development of the original MACT standards;
- Any process change or pollution prevention alternative that could be broadly applied to the industry and that was not identified or considered during development of the original MACT standards; and
- Any significant changes in the cost (including cost effectiveness) of applying controls (including controls the EPA considered during the development of the original MACT standards).

In addition to reviewing the practices, processes, and control technologies that were considered at the time we last updated the NESHAP, we reviewed a variety of data sources in our investigation of potential practices, processes, or controls to consider. Pursuant to the D.C. Circuit's decision in *Louisiana Environmental Action Network (LEAN) v. EPA*, 955 F.3d 1088 (D.C. Cir. 2020), we also reviewed available data to determine if there are unregulated HAP within the source category and evaluate these data for use in developing new emission standards.

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[27] *Id.* 7412(d)(6).

[28] 76 FR 29032, 29047and 29048 (May 19, 2011); *see also Nat'l Ass'n for Surface Finishing v. EPA*, 795 F.3d 1, 11 (D.C. Cir. 2015) (upholding the EPA's interpretation of what is considered "developments" under CAA section 112(d)(6) and affording persuasive weight to the EPA's methodology and balancing decisions for a technology review).

III. Analytical Results and Proposed Decisions

In this rulemaking, the EPA is proposing decisions and regulatory amendments in response to statutory requirements, court decisions, petitioner issues, and technical corrections. Table 2 summaries these decisions and actions. The description column in table 2 notes that the proposal items include the technology review of existing standards, the addition of methanol as a regulated HAP, the surrogacy analysis for small dehydrators, the technical correction to the equation in the small dehydrator standards, and the addition of additional software for compliance analyses.

In addition, the EPA is proposing that when conducting a CAA section 112(d)(6) technology review, the Agency is not obligated to expand the NESHAP to previously unregulated emission points. In the past, the Agency has previously suggested that the D.C. Circuit's decision in *LEAN* mandates that the EPA expand the NESHAP to include additional emission points as part of the technology review under CAA section 112(d)(6). However, the Agency now proposes that *LEAN* does not mandate such action pursuant to CAA section 112(d)(6), which instructs the EPA to revise existing standards for regulated emission points "as necessary," considering developments since the last rulemaking. On this basis, the EPA proposes to defer action on such a potential expansion of the NESHAP to future action that looks at the problem holistically, including consideration whether such emission points belong within one or both of these NESHAP and what controls may or may not be appropriate and consistent with the statute.

Although we maintain that CAA section 112(d)(6) review does not require the EPA to expand the NESHAP to previously unregulated emission points, we are including a tentative proposal about what standards could be if we were not to finalize the proposed understanding as described above. We include both approaches to ensure that the public has an adequate opportunity to comment. The alternative proposed standards are for the following unregulated emission points: acid gas removal units, storage vessels without potential for flash emissions,

and transport vessel loading operations in the production and processing source category under NESHAP subpart HH, and storage vessels, transport vessel loading operations, process controllers, and pumps in the transmission and storage source category under NEHAP subpart HHH.

Table 2 of this preamble presents a summary of the EPA's proposed decisions and actions. Specifically, the table shows the proposed change to each emission point, corrections being proposed in this rulemaking, and the reasoning for the corrections.

Table 2. Summary of Proposed Decision and Actions

Emission point	Reason	Description of Decision/Action	Applicable NESHAP subpart
Technology Review of Already Regulated Emission Points of Currently Regulated HAP			
Dehydrators (major and area sources)	CAA section 112(d)(6) Technology Review	Control technique identified but revision not necessary – No revision proposed	HH, HHH
Storage Vessels with the PFE	CAA section 112(d)(6) Technology Review	No developments in practices, processes and control techniques identified – No action proposed	HH
Leak Detection and Repair at Natural Gas Processing Plants	CAA section 112(d)(6) Technology Review	Use of OGI to detect leaks identified as development. However, not cost effective for HAP – No action proposed	HH
Definition of Associated Equipment			
Large and small dehydrators and storage vessels with PFE	CAA section 112(n)(4) (Prohibits aggregating emissions from wells and associated equipment when determining major source status)	Propose revising the "associated equipment" definition to remove the exclusion of dehydrators and storage vessels thereby clarify that they are associated equipment	HH
Standards for Unregulated HAP (Methanol)			
Regulated emission points – small and large dehydrators and storage vessels with PFE	*LEAN* Court Decision	Proposing standards for methanol from small dehydrators	HH
Unregulated emission points – AGRU, transport vessel	*LEAN* Court Decision	Proposing not required to address under section 112(d)(6)	HH

loading operations, storage vessels without PFE		Alternative proposal to adopt standards for unregulated emission points	
Unregulated Emission Points of Already Regulated HAP (Proposing not required to address under section 112(d)(6)			
Storage Vessels without the PFE	*LEAN* Court Decision	Alternative proposal to adopt standards for unregulated emission points	HH
All Storage Vessels	*LEAN* Court Decision	Alternative proposal to adopt standards for unregulated emission points	HHH
Transport Vessel Loading Operations	*LEAN* Court Decision	Alternative proposal to adopt standards for unregulated emission points at processing plants and natural gas transmission and storage facilities	HH, HHH
Natural Gas-Driven Process Controllers	*LEAN* Court Decision	Alternative proposal to adopt standards for unregulated emission points at natural gas transmission and storage facilities	HHH
Natural Gas-Driven Pumps	*LEAN* Court Decision	Alternative proposal to adopt standards for unregulated emission points at natural gas transmission and storage facilities	HHH
Regulated Emission Points of Unregulated HAP (Methanol and other HAP except BTEX)			
Small Dehydrators	*LEAN* Court Decision	Determined that BTEX is adequate surrogate for all HAP except methanol; proposing methanol standard	HH, HHH
Technical Corrections			
Small Dehydrator Equations	Petitioner Issue/Technical Correction	Equations in rule are not reasonable for small dehydrators with very low BTEX inlet concentrations – Proposing alternative equations for these situations	HH, HHH
Dehydrators	Technical Correction	Add ProMax™ as allowed methodology to calculate dehydrator emissions	HH, HHH

A. What are the results and proposed decisions based on our technology review for emission points and HAP currently regulated in NESHAP Subpart HH and NESHAP Subpart HHH, and what is the rationale for those decisions?

In technology reviews under CAA section 112(d)(6), the EPA reviews the standards that are already established to determine whether revisions are "necessary," considering developments in technology, processes, and practices. In this rulemaking, the EPA reviewed the existing NESHAP standards, set under NESHAP subpart HH, which are major source requirements for storage vessels with potential flash emissions, large and small glycol dehydration units, and equipment leaks from ancillary equipment and compressors at natural gas processing plants. For subpart HH area sources, the EPA reviewed standards for glycol dehydrators. For NESHAP subpart HHH, we examined standards for large and small glycol dehydration units at major sources.

As discussed in section II.E of this preamble, the technology review process involves identification of development of practices, processes, and control technologies since the MACT standards were promulgated, and the following situations represent a "development."

- Any add-on control technology or other equipment that was not identified and considered during development of the original MACT standards;
- Any improvements in add-on control technology or other equipment (that were identified and considered during development of the original MACT standards) that could result in additional emissions reduction;
- Any work practice or operational procedure that was not identified or considered during development of the original MACT standards;
- Any process change or pollution prevention alternative that could be broadly applied to the industry and that was not identified or considered during development of the original MACT standards; and

- Any significant changes in the cost (including cost effectiveness) of applying controls (including controls the EPA considered during the development of the original MACT standards).

Below is a summary of the technology review for dehydrators, storage vessels with the PFE, and equipment leaks at natural gas processing plants. For the complete technology review please see Volume II of the Technical Support Document (TSD) prepared for this proposal.[29] The TSD can be found in the Oil and Natural Gas NESHAP Docket for this action, Docket ID No. EPA-HQ-OAR-2025-1348.

As noted above, the EPA evaluates developments in practices, processes, and control technologies for sources and HAP currently regulated under NESHAP subparts HH and HHH. Section III.B of this preamble discusses proposed actions to amend NESHAP subparts HH and NESHAP HHH. These include a proposed modification to the major source definition in NESHAP subpart HH for operations located prior to the point of custody transfer to the natural gas processing plant (section III.B.1 of this preamble), the proposed addition of methanol to the list of regulated HAP for both NESHAP (section III.B.2 of this preamble), the proposed decision regarding the surrogacy of BTEX for all HAP (except methanol) emitted from small dehydrators (section III.B.2 of this preamble), proposed standards for several unregulated emission points (section III.B.3 preamble), and proposed alternatives to the equations that establish unit-specific BTEX limits for small dehydrators (section III.B.4 of this preamble).

1. Glycol Dehydrators

Glycol dehydration units remove water and other condensates in natural gas from an individual well or several wells. These units also operate as part of various processing units at condensate tank batteries, natural gas processing plants, and offshore production platforms.

[29] U.S. Environmental Protection Agency. (Last updated February 2026). DRAFT Background Technical Support Document for the National Emission Standards for Hazardous Air Pollutants: Crude Oil and Natural Gas Production Facilities and Natural Gas Transmission and Storage Facilities–Technology Review and Reconsideration. NESHAP subparts HH and HHH. Proposed Rules.

Dehydration prevents water vapor from forming hydrates, which corrode and plug equipment lines. Of the dehydration units subject to NESHAP subparts HH and HHH, TEG units comprise the majority, while diethylene glycol (DEG), and solid desiccant units make up the remainder.

Large dehydrators at major sources subject to NESHAP subparts HH and HHH, and at areas sources located in urban areas subject to NESHAP subpart HH are currently required to route emissions through a closed vent system to a control device(s) designed and operated in accordance with the requirements of 40 CFR 63.771(d) (NESHAP subpart HH) or 40 CFR 63.1281(d) (NESHAP subpart HHH).[30] These control device provisions include the option of using an enclosed combustion device that either reduces the mass content of either total organic compound (TOC) or total HAP by 95 percent or greater, reduces the concentration of either TOC or total HAP in the exhaust gases at the outlet to the device to a 20 ppmv or less, or operates at a minimum temperature of 760 degrees Centigrade (º C). If a boiler or process heater is used as the control device, then the requirement is that the vent stream be introduced into the flame zone of the boiler or process heater. Another option is to use a vapor recovery device designed and operated to reduce the mass content of either TOC or total HAP by 95 percent or greater. The final option is to use a flare that meets the requirements in 40 CFR 63.11(b). The EPA also notes that large dehydrators may also comply by reducing benzene emissions to 0.9 megagrams per year (Mg/yr) or less.

Small dehydrators at major sources subject to NESHAP subparts HH and HHH are currently required to reduce BTEX emissions to a unit-specific BTEX emission limit determined in accordance with the applicable equation in the rule. Compliance with these limits can be achieved by utilizing a control device (discussed above) or via a process modification. [31]

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[30] Large units under HH have annual average benzene emissions equal to or greater than 0.90 Mg/yr and gas throughput equal to or greater than 85,000 cubic meters per day. Large units under HHH have annual average benzene emissions equal to or greater than 0.90 Mg/yr and equal to or great than 283,000 cubic meters per day. See 40 CFR 63.761 and 63.1271 for the complete definitions.

[31] In NESHAP HH (40 CFR 63.761), a small dehydrator is defined as a glycol dehydration unit, located at a major source, with an actual annual average natural gas flowrate less than 85 thousand standard cubic meters per day or

During the development of the original 1999 NESHAP and the 2012 technology review for NESHAP subparts HH and HHH, the EPA evaluated various practices, processes, and control technologies for dehydrators. This evaluation included add-on controls—such as condensers, vapor recovery units, carbon bed adsorbers, and combustion devices such as flares and incinerators—as well as pollution prevention and process modifications. Ultimately, the EPA found no improvements in these add-on techniques that could result in additional emission reductions or significant changes in the cost of applying them.

Pollution prevention practices and process modifications to reduce emissions from dehydrators are highly specific to many conditions unique to a site, such as the composition of the gas and oil extracted, the climate of the site, and the other operations at the site. One universally applicable pollution prevention measure that was evaluated previously and is required in NESHAP HH for large dehydrators at area sources not located in urban areas, is optimizing glycol circulation rates. The EPA identified no other widely applicable practices or processes that would result in additional emission reductions.

The EPA identified two technologies not evaluated in either of the original 1999 NESHAP development or the previous technology review and thus, represent "developments." These include replacing glycol dehydration units with methanol injections and desiccant dehydrators. The following sections detail our decision on each technology.

In the field, operators sometimes inject methanol to inhibit hydrate formation in high-pressure gas gathering systems. This is especially useful when solid desiccant or glycol dehydration cannot achieve the desired dew point to inhibit hydrate formation. Under frigid conditions operators may use methanol over glycol because it lowers the freezing point at which hydrates form. However, the high volume of methanol required for hydrate inhibition may make

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actual annual average benzene emissions less than 0.90 Mg/yr. In NESHAP HHH (40 CFR 63.1271), a small dehydrator is defined as a glycol dehydration unit, located at a major source, with an actual annual average natural gas flowrate less than 283.0 thousand standard cubic meters per day or actual annual average benzene emissions less than 0.90 Mg/yr.

replacing large glycol dehydration units impracticable in many situations. Specifically, with increasing gas flow rates, the volume of methanol required to be injected to treat larger gas volumes for the required temperature suppression to prevent hydrate formation can make this option impracticable for those applications. Since this is not practicable in all cases, the EPA did not perform a cost analysis for this option. On this basis, the EPA is not proposing to adopt a standard for methanol injection under the CAA section 112(d)(6) technology review for glycol dehydration units.

Under certain operating conditions, desiccant dehydration units are used to reduce HAP emissions and can achieve a reduction of 99 percent. Ideal operating conditions to utilize desiccant dehydrators are when the wellhead gas temperature is low (less than 70 degrees Fahrenheit (° F) and the pressure is high (greater than 100 pounds per square inch gauge [psig]) and the volume of gas to be dried is 5 million standard cubic feet (MMscf)/day or less. Additionally, the desiccant is batch loaded. Our information indicates that batch loading is frequently performed at a higher gas flow rate. Since many of these sources are in remote areas and may not be visited by personnel for weeks at a time, the EPA proposes to conclude that desiccant dehydrators are infeasible for these sources.

Based on the above reasons, the EPA proposes to conclude that, although applicable in certain situations, the desiccant dehydrator technology is technically infeasible for broad implementation for the glycol dehydration units that are subject to NESHAP subparts HH and HHH. Due to this infeasibility, a cost analysis was not performed. Therefore, the EPA proposes it is not necessary to revise the standards for glycol dehydration units to require the use of this technology under the CAA section 112(d)(6).

2. Storage Vessels with the Potential for Flash Emissions (PFE)

In both NESHAP subpart HH and NESHAP subpart HHH, a storage vessel is defined as "a tank or other vessel that is designed to contain an accumulation of crude oil, condensate,

intermediate hydrocarbon liquids, or produced water, and that is constructed primarily of non-earthen materials (*e.g.*, wood, concrete, steel, plastic) that provide structural support."[32]

Flash emissions from storage vessels occur when a hydrocarbon liquid with high vapor pressure flows from a pressurized vessel into a vessel with a lower pressure. This typically happens when operators transfer hydrocarbon liquids, such as condensate, from a production separator to a storage vessel. The reduced pressure from the separator to the storage vessel with PFE allows dissolved vapors in the liquid to move to vapor phase in the headspace above the liquid and then move out of the storage vessel through the cover into the closed vent system.

The current standards in NESHAP subpart HH for storage vessels with the PFE require sources to route emissions through a closed vent system to a control device(s).[33] Enclosed combustion devices are required to achieve a reduction in the mass content of either total organic compound (TOC) or total HAP by 95 percent or greater, reduce the concentration of either TOC or total HAP in the exhaust gases at the outlet to the device to a 20 ppmv or less, or operate at a minimum temperature of 760 degrees º C. If a boiler or process heater is used as the control device, then the requirement is that the vent stream be introduced into the flame zone of the boiler or process heater. Another option is to use a vapor recovery device designed and operated to reduce the mass content of either TOC or total HAP by 95 percent or greater. The final option is to use a flare that meets the requirements in 40 CFR 63.11(b). Subpart HHH does not include standards for storage vessels with the PFE.

This section presents the technology review for storage vessels with PFE for the production (NESHAP subpart HH) category.[34] The EPA analyzed and made regulatory decisions for unregulated storage vessels, which are storage vessels without PFE at production sites

[32] NESHAP subpart HH, 40 CFR 63.761; NESHAP subpart HHH, 40 CFR 63.1274.
[33] NESHAP subpart HH, 40 CFR 63.771(d).
[34] Storage vessels without PFE have only working and breathing emissions. Neither NESHAP subparts HH and HHH includes standards for these storage vessels and are not subject to this technology review.

(NESHAP subpart HH), and all storage vessels at natural gas transmission and storage sites (NESHAP subpart HHH), (see section III.B.4 of this preamble).[35]

The practices, processes, and control technologies considered and evaluated for storage vessels with the PFE as part of the development of the original 1999 NESHAP or the 2012 technology review and amendments for NESHAP subpart HH included add-on controls (condensers/vapor recovery units; combustion devices, including catalytic incinerators, thermal incinerators, and flares; and carbon bed adsorbers). In the development of the original 1999 NESHAP or the 2012 technology review and amendments for NESHAP subpart HH, the EPA did not find improvements in any of these add-on techniques that could result in additional emission reductions or significant changes in the cost of applying them.

Operators sometimes use internal floating roof tanks to reduce emissions from storage vessels. In the previous evaluations, internal floating roof tanks were not considered effective for storage vessels with the PFE because internal friction between the floating roof and the interior sides of tanks typical for the source category would prevent proper operation of the floating roof. In addition, the small quantities of liquid stored in these types of tanks typically do not provide sufficient buoyancy to support floating roofs. While a floating roof effectively limits vaporization, the EPA considered them a technically infeasible control method for storage tanks in the Oil and Natural Gas Production source category. This conclusion has not changed since we did not receive any new data that indicated otherwise.

The EPA proposes that no new practices, processes, or control technologies under CAA section 112(d)(6) were discovered in the review of available data, nor were significant changes in the cost or performance of previously evaluated technologies identified to further reduce emissions from the Oil and Natural Gas Production source category for storage vessels with the PFE.

3. Leak Detection and Repair (LDAR) at Processing Plants

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[35] *See* sections III.B.4.b and III.B.4.c of this preamble.

Equipment leak emissions can occur through different types of connection points (*e.g.*, flanges, pressure relief valves, open-ended lines or threaded fittings) or through moving parts of valves, pumps, and other types of process equipment. These emissions are unintentional and occur due to changes in pressure, temperature, and mechanical stress on equipment which may eventually cause them to leak. Equipment leak emissions can also occur due to normal operation of equipment, which over time can cause seals and gaskets to wear. The type and number of equipment components, along with the HAP concentration in the stream, determine the total volume of emissions from equipment leaks.

The practices, processes, and control technologies that were considered and evaluated for reducing emissions from equipment leaks from ancillary equipment and compressors at natural gas processing plants as part of the original 1999 NESHAP development and/or the 2012 technology review and amendments for NESHAP subpart HH included "traditional" LDAR programs based on EPA Method 21, optical gas imaging (OGI) to identify equipment leaks, equipment standards/modifications (including low emissions design equipment), ultrasound leak detection, directed inspection and maintenance, compressor rod packing systems, and centrifugal compressor seals. As a result of the 2012 technology review, the EPA determined that as part of the traditional NESHAP subpart HH Method 21-based LDAR program, it was warranted to lower the leak definition for valves to an instrument reading of at least 500 ppm and add connectors to the list of monitored components.

Regarding the 2012 technology review for NESHAP subpart HH related to the use of OGI, we concluded that the additional costs of OGI programs were not justified. Therefore, NESHAP subpart HH was not updated in 2012 to include OGI as a requirement or option for the equipment leak requirements at natural gas processing plants.

The EPA identified no developments in practices, processes, or control technologies from its review of the RBLC or the 2023 ICR results.

Historically, the method typically used for detecting leaking components from oil and natural gas facilities is EPA Method 21 (40 CFR part 60, appendix A). The EPA Method 21 procedure detects leaks from components using a toxic vapor analyzer or an organic vapor analyzer. For several NSPS, NESHAP, State and local regulations, EPA Method 21 has been the primary method for leak detection.

Another monitoring method for detecting leaking components from oil and natural gas production, transmission and storage facilities is OGI using an infrared (IR) camera. The IR camera may be passive or active. The operators use passive IR cameras to scan an area to produce images of equipment leaks from a number of sources. Active IR cameras point or aim an IR beam at a potential source to indicate the presence of gaseous emissions (equipment leaks). An equipment leak is any emissions that are visualized by an OGI instrument. The optical imaging camera can be very efficient in monitoring multiple pieces of equipment in a short amount of time, but the traditional optical imaging camera cannot quantify the amount or concentration of the equipment leak. Note that while the current NESHAP subpart HH equipment leak standards require EPA Method 21 monitoring, the use of OGI is allowed if owners and operators follow the alternative work practice (AWP) titled "Alternative Work Practice to Detect Leaks from Equipment" in 40 CFR part 63's General Provisions at 40 CFR 63.11(c). If a facility chooses to monitor components following the AWP, annual EPA Method 21 monitoring must be performed in addition to periodic OGI monitoring.

The use of OGI was evaluated in the 2012 technology review but the EPA did not elect to update NESHAP subpart HH primarily based on the costs. As noted above, the General Provisions for NESHAP at 40 CFR 63.11(c) allows as an alternative to a traditional LDAR monitoring program (*e.g.*, EPA Method 21) the use of the AWP under 40 CFR 63.11(c), which allows the use of OGI along with an annual EPA Method 21 survey of all of the equipment. However, because the OGI protocol had not yet been issued at the time of the 2012 technology review, standardized operating procedures and compliance determination protocols were not

available. Without these procedures and protocols in place, replacing the existing LDAR requirements with OGI could not have been considered a development under CAA section 112(d)(6) at that time.

Since that time, OGI technology and its regulatory processes have advanced significantly. Many State regulations now include OGI, but the EPA primarily relies on CAA 40 CFR part 60, subpart OOOOb (and Emission Guidelines for 40 CFR part 60, subpart OOOOc). Over the last few years, OGI has matured into a prevalent technology that operators frequently use in the field to identify emissions from leaking components and equipment. Many oil and natural gas facilities currently use OGI to find leaks efficiently and repair leaking equipment quickly.

Under the final rule published 89 FR 16820, March 8, 2024 for NSPS for oil and natural gas operations (40 CFR part 60, subpart OOOOb), the EPA finalized the protocol for using OGI for leak detection specifically at a natural gas processing plant. The protocol is referred to as "Appendix K" to 40 CFR part 60. OGI uses an infrared camera to identify the presence and location of VOC and methane leaks that may otherwise be invisible. Requirements in appendix K includes performance specifications of infrared cameras, requisite operator training and auditing, the development of operating envelopes that define the boundary conditions for using an OGI camera, monitoring plans for conducting OGI surveys, recordkeeping, and development of response factors.

Based on the discussion above regarding maturity, procedures, and protocols specifying proper OGI use now available (*i.e.*, appendix K to part 60), the EPA determined that the use of OGI for detecting equipment leaks at natural gas processing facilities is considered a development under CAA section 112(d)(6). As specified in 40 CFR part 60 appendix K section 1.2, the use of the protocol is applicable to facilities only when incorporated through rulemaking into a specific subpart.

The EPA is not proposing to replace the existing EPA Method 21-based monitoring requirements with appendix K/OGI. As a method of leak detection, EPA Method 21 is not

effective on a cost-basis when seeking to limit HAP. The EPA estimates the annual cost of bi-monthly OGI monitoring under appendix K, as required by 40 CFR part 60, subpart OOOOb, at approximately $62,000 for a small gas processing plant and $122,000 for a large processing plant. The emissions reductions achieved compared to the baseline level of no monitoring, was estimated at 0.47 tpy of HAP removed for a small processing plant and 0.98 tpy of HAP removed for a large processing plant. Therefore, the cost effectiveness is $132,000 and $125,000 per ton of HAP emissions reduced, for a small and large processing plant, respectively.

The EPA is seeking comment on whether to adopt OGI and appendix K as an alternative to EPA Method 21 for leak detection at processing plants, in part because OGI is an approved option in other oil and gas regulations for leak detection.[36] Should the EPA adopt OGI and 40 CFR part 60 appendix K as an alternative to EPA Method 21 leak detection and repair at processing plants? (Question #1)

B. What other actions are we proposing, and what is the rationale for those actions?

In this proposal, we are proposing actions to address unregulated HAP pursuant to the D.C. Circuit's decision in *LEAN,* various technical matters, and outstanding petition issues. Based on a review of available information pursuant to the *LEAN* decision, we are proposing the following: we are proposing to add methanol as a regulated HAP for the production and processing category (NESHAP subpart HH), and we are proposing to change how we apply CAA section 112(n)(4) with respect to major sources of HAP emissions in production (NESHAP subpart HH). While the EPA is proposing that CAA section 112(d)(6) does not require the Agency to expand the NESHAP to previously unregulated emission points, we are proposing in the alternative emission limits for AGRUs at major source natural gas processing plants subject to NESHAP subpart HH and at major source natural gas transmission and storage facilities subject to NESHAP subpart HHH; emission limits for storage vessels at major source natural gas transmission and storage facilities subject to NESHAP subpart HHH, and for storage vessels

[36] 40 CFR part 60, subparts OOOOa and OOOOb.

without the PFE at major sources subject to NESHAP subpart HH; emission limits for transport vessel loading operations at major source natural gas processing plants subject to NESHAP subpart HH and at major source natural gas transmission and storage facilities subject to NESHAP subpart HHH; and emission limits for process controllers and pumps powered by natural gas that are at major natural gas transmission and storage facilities subject to NESHAP subpart HHH.

We are proposing the existing BTEX limits for both new and existing small glycol dehydrators as a surrogate standard for all HAP from small glycol dehydrators, except for methanol and ethylene glycol at sources subject to NESHAP subparts HH and HHH[37,38]. The results and proposed decisions, as well as the rationale for those decisions, are presented below.

1. Major Source Definition

CAA section 112(a)(1) defines a "major source" as "any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit considering controls, in the aggregate, 10 tpy or more of any hazardous air pollutant or 25 tpy or more of any combination of hazardous air pollutants."[39] However, specifically for oil and gas sources, CAA section 112(n)(4)(A) states that "[n]otwithstanding [CAA section 112(a)], emissions from any oil or gas exploration or production well (with its associated equipment) and emissions from any pipeline compressor or pump station shall not be aggregated with emissions from other similar units, whether or not such units are in a contiguous area or under common control, to determine whether such units or stations are major sources, and in the case of any oil or gas exploration or production well (with its associated equipment), such emissions shall not be aggregated for any purpose under this section."[40]

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[37] *See* 40 CFR part 63, subpart HH, appendix table 1 for the list of HAP emitted in this category, to which methanol is proposed to be added.

[38] Ethylene glycol was the liquid desiccant historically used in dehydrators, resulting in the potential for emissions of ethylene glycol. However, triethylene glycol is now the liquid desiccant used. The EPA does not have evidence that ethylene glycol emission occur from oil and gas operations at this time.

[39] 42 U.S.C. 7412(a)(1) (emphasis added).

[40] *Id.* 7412(n)(4)(A) (emphasis added).

In 1999, the EPA promulgated the major source NESHAP for the Oil and Gas Production Facilities (NESHAP subpart HH) and for Natural Gas Transmission and Storage Facilities (NESHAP subpart HHH). The NESHAP subpart HH covers production field facilities (where wells and associated equipment are located) and processing plants. In that rulemaking, the EPA interpreted CAA section 112(n)(4)(A) to mean "HAP [hazardous air pollutant] emissions from each well and each piece of equipment considered to be associated with the well must be evaluated separately in a major source determination. That is, any well or piece of associated equipment would only be determined to be a major source if HAP emissions from that well or piece of associated equipment were major."[41] To implement this provision, the EPA included in the rule a definition for "associated equipment." In the 1999 Final Rule, the EPA defined "associated equipment" to exclude glycol dehydrators and storage vessels with PFE. Specifically, "Associated equipment, as used in this subpart and as referred to in section 112(n)(4) of the Act, means equipment associated with an oil or natural gas exploration or production well, and includes all equipment from the wellbore to the point of custody transfer to the natural gas processing plant, except glycol dehydration units and storage vessels with PFE."[42] The EPA explained that Congress did not define "associated equipment," and the Agency wanted to "arrive at a reasonable interpretation that would . . . prevent aggregation of small, scattered HAP emission points in major source determinations . . . [but] not preclude the aggregation of significant HAP emission points in the source category."[43]

As a result, glycol dehydrators and storage vessels with PFE at a production field are major sources if their aggregate emissions at the facility meet the "major source" definition. In 2012, the EPA amended the definition of "associated equipment" to remove "with potential flash

[41] 64 FR 32610, 32619 (June 17, 1999).
[42] *Id.* at 32629.
[43] *Id.* at 32619.

emissions," thereby allowing emissions from all storage vessels and gylcol dehydrators at a production field facility to be aggregated to determine major source status.[44]

We are proposing to revise the definition of "associated equipment" to remove "except glycol dehydrators and storage vessels." The EPA is proposing this change because glycol dehydrators and storage vessels are clearly equipment associated with production wells, and we do not see any language in CAA section 112(n)(4) allowing aggregation of emissions from any associated equipment in determining whether any such equipment is a major source; on the contrary, CAA section 112(n)(4) not only prohibits aggregating emissions of associated equipment for major source determination, it prohibits aggregating emissions from "any oil or gas production or exploration well (with their associated equipment) . . . for any purpose under [section 112]." It is clear from CAA section 112(n)(4) that Congress intended to regulate any associated equipment as a major source only if such equipment individually emits (or has the potential to emit) at a major source level of HAP (*i.e.,* at least 10 tpy of one HAP or 25 tpy of any combination of HAP).[45] We therefore propose this change to closely align with the text of the CAA.

The proposed revision to the definition of "associated equipment," prevents the aggregation of emissions from storage vessels and glycol dehydrators when determining whether they are major sources. Under CAA section 112(n)(4), the EPA will evaluate emissions from glycol dehydration and storage vessels individually to determine if any of those units qualify as "stand-alone" major sources. We are soliciting comment on several subjects related to this proposal: Approximately how many current major sources will be affected, such that the facility or unit would convert from a major source to an area source? (Question #2a) What cost savings will your facility achieve due to it being converted from a major source to an area source under this change? (Question #2b) Will facilities that would no longer be considered major sources

[44] 77 FR 49490, 49501 (August 16, 2012).
[45] *See* CAA section 112(a)(1), 42 U.S.C. 7412(a)(1).

remove or modify their current control systems such that the unit or facility would increase HAP emissions from current emissions? (Question #2c)

As a result of this proposed change to the major source definition, the universe of storage vessel and dehydrator affected sources will likely change, making it necessary to re-examine the determination of the level of the standards under CAA section 112(d)(2) and (3) based on this universe. Sections III.B.1.a and b of this preamble discuss the evaluation and proposed determination.

a. Glycol Dehydrators

To evaluate the MACT floor for the revised universe of major source dehydrators, the EPA revisited the original MACT floor determination for the original rule promulgated in 1999.[46] Information collected via several mechanisms was considered for this previous analysis, including responses to a CAA section 112 ICR questionnaire distributed in 1993, site visits, meetings with industry, and industry studies. The 1993 ICR responses formed the primary basis for the MACT floor recommendation. The EPA based the 1999 Final Rule evaluation on the 1997 MACT memo because 30-year-old raw data are unavailable for detailed analysis.

Information was submitted on an individual dehydrator basis, and it was determined that 200 dehydrators for which information was submitted were major sources of HAP. The 1997 MACT floor recommendation was based on the controls identified for these 200 dehydrators. The description of these dehydrators is clear that they were "stand-alone major" sources (that is, the HAP emissions from each dehydrator is above 10 tons or more per year of an individual HAP or 25 tons or more of all HAP). Therefore, the data set used to determine the MACT floor recommendation in 1997 is directly appropriate for use in this reassessment based on the proposed changes to the definition of major source.

[46] Fitzsimons & Vicononic. (1997). Memorandum: "Recommendation of MACT Floor Levels for HAP Emission Points at Major Sources in the Oil and Natural Gas Production Source Category." (September 23, 1997).

Of these 200 stand-alone major source dehydrators, 34 percent were controlled for air emissions. These controls included condensers, condensers operating with a flash tank, venting the non-condensable stream to a combustion device, and incineration systems. Based on this information, the EPA determined that a 95 percent reduction in HAP emissions set the MACT floor for both new and existing dehydrators. Considering the proposed change in the major source definition for production field facilities, the EPA still views this previous conclusion as valid.

The dehydrator standards in the 1999 final NESHAP subpart HH rule only applied to dehydrators with an actual annual average natural gas flowrate equal to or greater than 85 thousand standard cubic meters per day and actual annual average benzene emissions equal to or greater than 0.90 Mg/yr. Although the 1999 Final Rule did not specifically define them, these criteria represent the “Large Dehydration Unit” definition promulgated in the 2012 Final Rule amendments to NESHAP subpart HH. Dehydrators with a natural gas flowrate less than 85 thousand standard cubic meters per day or actual annual average benzene emissions less than 0.90 Mg/yr were exempt from any requirements in the 1999 Final Rule. The EPA later defined this subcategory as "Small Dehydration Units" and finalized standards for them in the 2012 Final NESHAP subpart HH amendments.

As noted earlier in this section, the raw data from the 1993 ICR responses are not available at this time. Therefore, we are unable to determine which of the 200 stand-alone major source dehydrators were large dehydrators or small dehydrators. However, we have concluded this is immaterial to the revisitation of the MACT floor for the proposed revision of the major source definition for production field facilities in NESHAP subpart HH. The MACT floor, based on the stand-alone dehydrators in the data set, is 95 percent control. The EPA has concluded this as an appropriate standard for all stand-alone major dehydrators at production field facilities, without regard to the actual annual average natural gas flowrate or the actual annual average benzene emissions. Therefore, we are proposing to delete the subcategorization of dehydrators at

production field facilities in NESHAP subpart HH and require that all stand-alone major dehydrators at production field facilities comply with the closed vent system requirements in 40 CFR 63.771(c) and the control device requirements in 40 CFR 63.771(d), which include either: (1) route emissions to an enclosed combustion device that reduces the mass content of either TOC or total HAP in the gases vented to the device by 95.0 percent by weight or greater; (2) reduces the concentration of either TOC or total HAP in the exhaust gases at the outlet to the device to a level equal to or less than 20 parts per million by volume; (3) operates at a minimum temperature of 760 ° C or, (4) if a boiler or process heater is used as the control device, introduce the vent stream into the flame zone of the boiler or process heater. Other options include routing to a compliant flare or by routing to a vapor recovery device or other non-destructive control device that is designed and operated to reduce the mass content of either TOC or total HAP in the gases vented to the device by 95.0 percent by weight or greater.

These changes do not impact the NESHAP subpart HH area source standards, the standards applicable to dehydrators at natural gas processing plants, or the NESHAP subpart HHH standards applicable to dehydrators at transmission and storage facilities. There are additional proposed decisions and actions related to the small dehydrator standards at natural gas processing plants and transmission and storage facilities in sections III.B.3 and III.B.5 of this preamble.

b. Storage Vessels

As with dehydrators, the EPA began the evaluation by reviewing the 1997 MACT floor determination. Unlike dehydrators, the EPA did not base the storage vessels universe on individual stand-alone units. Instead, the Agency identified 68 storage vessels associated with major source facilities. Therefore, the EPA cannot determine which of these 68 storage vessels were stand-alone major sources.

Of these 68 storage vessels, operators reported that they suppressed emissions with a cover and then routed by closed vent system to a control device for 32 percent of units.

Therefore, the EPA determined the MACT floor as using a cover and routing emissions through a closed vent system to a control achieving 95 percent.

While the EPA cannot separate the 68 storage vessels into stand-alone major sources, we expect that the frequency of control for stand-alone major source storage vessels is at least as prevalent as for the entire data set. In fact, since these stand-alone major source storage vessels are higher emitting sources, we would expect that they were controlled at a higher frequency than the lower-emitting storage vessels. Therefore, the EPA concluded the previous 1997 MACT floor determination can be applied for the purpose of determining the MACT floor for the universe of stand-alone major sources. Consequently, the proposed amendments require that stand-alone major source storage vessels at production field facilities comply with the cover, closed vent system, and control device requirements in 40 CFR 63.771.

This does not impact the NESHAP subpart HH requirements for storage vessels with the PFE located natural gas processing plants. In addition, note that amendments are being proposed to NESHAP subpart HH to regulate storage vessels without the PFE at natural gas processing plants (see section III.B.4.b of this preamble) and storage vessels at transmission and storage facilities under NESHAP subpart HHH (see section III.B.4.c of this preamble).

2. Regulation of Methanol Emitted from Regulated Emission Points (Except Small Dehydrators)

As required by the D.C. Circuit's decision in *LEAN*, we are proposing to address unregulated HAP emissions. We recognize that the D.C. Circuit determined that the Agency has a "clear statutory obligation to set emission standards for each listed HAP" and must address previously unregulated HAP known to be emitted by a source category during a technology review.[47]

NESHAP subpart HH includes the following definition: "*Hazardous air pollutants* or *HAP* means the chemical compounds listed in section 112(b) of the Clean Air Act. All chemical compounds listed in section 112(b) of the Act need to be considered when making a major

[47] *Nat'l Lime Ass'n v. EPA*, 233 F.3d 625, 634 (D.C. Cir. 2000); *see* also *LEAN*, 955 F.3d at 1092.

source determination. Only the HAP compounds listed in table 1 of NESHAP subpart HH need to be considered when determining compliance."[48] NESHAP subpart HHH includes a similar definition.

In the original development of NESHAP subparts HH and HHH, the EPA determined that the primary HAP associated with the oil and natural gas production and natural gas transmission and storage source categories included BTEX and n-hexane. The EPA also determined that 2,2,4-trimethylpentane (iso-octane), formaldehyde, acetaldehyde, naphthalene, ethylene glycol, carbon disulfide, and carbonyl sulfide were emitted. In response, the EPA included these HAP in table 1 to NESHAP subparts HH and HHH.

a. Proposed Changes to Table 1 of NESHAP subparts HH and HHH

In responses to the 2023 ICR questionnaire, industry reported emissions of the HAP listed in table 1 of NESHAP subparts HH and HHH (excluding ethylene glycol, which is no longer used in dehydrators), as well as emissions of methanol. While methanol is not a naturally occurring component of oil and gas, it is sometimes added as a hydrate-preventor to keep water from being absorbed into the natural gas stream. Respondents reported methanol emissions from approximately 20 percent of dehydrators across 22 facilities in Pennsylvania, West Virginia, and Colorado, as well as from storage vessels at 10 sites. The EPA concluded that methanol emissions must be addressed in NESHAP subpart HH, and therefore we are proposing to add methanol to table 1 in NESHAP subpart HH.

The responses to the 2023 ICR questionnaire for natural gas transmission and storage facilities did not report any methanol emissions. We are specifically soliciting comment and request information on whether methanol is emitted at natural gas transmission and storage facilities (Question #3a). If we receive comments that indicate there are no methanol emissions, we request information and rationale for this claim (Question #3b). In the absence of clear information to verify that methanol is emitted from natural gas transmission and storage

[48] NESHAP subpart HH, 40 CFR 63.761.

facilities, we are not proposing to amend table 1 in NESHAP subpart HHH to add methanol. If we receive information during the comment period, we will evaluate whether it is appropriate to include methanol in a future rulemaking.

b. Regulation of Methanol from Sources Other than Small Dehydrators

The EPA proposes methanol emissions standards for emission points covered by NESHAP subpart HH. For storage vessels with the PFE and large dehydrators, the current standards require 95 percent reduction of all HAP emissions. The work practice standards for equipment leaks also work to reduce leaks of methanol.

Currently, NESHAP subpart HH requires a combination of equipment and work practice standards for equipment leaks at natural gas processing plants. The EPA proposal includes similar requirements for storage vessel requirements for storage vessels without PFE, cargo vessel loading operations, and natural gas-driven process controllers and pumps. These measures reduce total gas emissions, ensuring that the system cuts methanol at the same rate as all other HAPs. Thus, compliance with these standards guarantees methanol reduction alongside other organic HAPs. Therefore, there would be no impact in adding methanol to table 1 of NESHAP subpart HH for these situations.

We are proposing a 95 percent reduction performance standard for AGRUs in the alternative. We expect all commonly used control devices to achieve the reduction of methanol at the same levels, or higher, as other HAP. Further, the compliance determination for these percent reduction performance standards is based on EPA Method 25A. The EPA Method 25A includes method procedures for the determination of total gaseous organic concentrations. Thus, compliance with the percent reduction performance standard would ensure that methanol emissions are reduced along with all other organic HAP. Therefore, there would be no impact in adding methanol to table 1 of NESHAP subparts HH for these situations.

c. Regulation of Methanol from Small Dehydrators

The one instance identified where there may be an impact of adding methanol to table 1 in NESHAP subpart HH is for small dehydrators. The standards for small dehydrators are in the form of equations from which dehydrator-specific BTEX emission limitations are calculated. We conclude that BTEX is an appropriate surrogate for all current table 1 of NESHAP subpart HH HAP that are emitted (see section III.B.3 of this preamble). However, we question whether it is an appropriate surrogate for methanol. Therefore, we are proposing separate methanol-specific limits for methanol for small dehydrators. This is discussed in detail in section III.B.3 of this preamble. We are soliciting comment on using BTEX limits as a surrogate for all HAP except methanol (Question #4a). We are also soliciting data and comment as to whether BTEX is an appropriate surrogate for methanol emitted from small dehydrators and storage vessels (Question #4b).

3. Regulation of all HAP from Small Dehydrators

In the 2012 Final Rule, in addition to risk and technology review, the EPA also established BTEX standards for small dehydrators but not for other HAP; however, the EPA noted that control of BTEX reduces emissions of VOC and HAP. The current NESHAP subparts HH and HHH rules continue to require compliance for small dehydrators to be demonstrated based on a BTEX emissions limit.[49]

Petitioners on the August 2012 NESHAP Final Rules raised concerns that small glycol dehydration units emit other HAP besides BTEX.[50] Petitioners asserted that the EPA could not ignore other HAP emitted by these sources, and that the EPA must also set limits on all other emitted HAP.

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[49] U.S. Environmental Protection Agency. (2013). Oil and Natural Gas Sector: Reconsideration of Certain Provisions of New Source Performance Standards. Response to Public Comments on Proposed Rule (78 FR 22126; April 12, 2013). July 2013. EPA Document ID No. EPA-HQ-OAR-2010-0505-4639 at 247.

[50] Earthjustice, et al. (2012). Re: Petition for Reconsideration of Oil and Natural Gas Sector: National Emission Standards for Hazardous Air Pollutants Reviews; Final Rule, 77 FR 49490 (August 16, 2012), 40 CFR part 63, Subparts HH and HHH. Docket ID No. EPA-HQ-OAR-2010-0505 at 42-44 (October 15, 2012).

Petitioners also argued that CAA section 112(d)(1) and (2) and case law require the EPA to set a limit on all emitted HAP.[51] Petitioners claimed the EPA acted unlawfully by setting a BTEX-only MACT for small glycol dehydrators. The petitioners noted that the EPA's own response to comments stated it was not using BTEX as a surrogate, which prevents the Agency from using that principle as an "excuse" for failing to limit all HAPs. They added that the EPA further stated it set a limit only for BTEX because the data available from the 1999 rulemaking only contained BTEX emissions for all units and the Agency intended to further investigate the non-BTEX emissions from small glycol dehydrators. Once we obtained sufficient data we would propose a MACT standard for those other HAP. The petitioners argue that a lack of data does not legally excuse the EPA from failing to control HAP under CAA section 112(d) when the data show HAP emissions.

In response to petitioner concerns, the EPA requested data in 2015 on HAP emissions from regulated small glycol dehydrators.[52] With regards to the small glycol dehydrators, the EPA specifically requested data regarding any emissions of HAP other than BTEX, as well as information on available control options for any such HAP and information regarding a potential compliance demonstration issue with respect to the 2012 standards for small glycol dehydration units, as they apply to units with very low emissions.[53]

Several industry representatives provided information on small dehydrator information requests.[54] One industry response to the 2015 ICR provided that benzene, ethyl benzene, n-hexane, naphthalene, toluene, 2,2,4-trimethylpentane, xylenes, o-xylene, m-xylene, and p-xylene appear to be a complete list of known HAP in natural gas or condensate/crude oil. Of these HAP, according to respondents, BTEX (aromatics) are the HAP most preferentially absorbed in glycol (*i.e.*, the only ones where greater than 10 percent of component in inlet gas is absorbed into

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[51] *Nat'l Lime Ass'n*, 233 F.3d at 634.
[52] 80 FR 74068 (November 27, 2015).
[53] *Id.*
[54] Document ID. Nos. EPA-HQ-OAR-2015-0747-0022, -0023, -0025, and -0027.

glycol). They contended that other HAP are absorbed about one percent or less into glycol. For instance, they noted that natural gas might contain n-hexane, but emissions from a glycol still vent are predominately BTEX since such a small proportion of the n-hexane is absorbed by the glycol. In addition, if other non-BTEX HAP were present, respondents point out that controls required in NESHAP subpart HH to reduce benzene or BTEX will result in the reduction of all HAP to similar levels. Therefore, they contended that benzene is still a good surrogate for all HAP emissions from glycol dehydrators. Other industry responses similarly supported the use of BTEX as a surrogacy for HAP for small dehydrators.

The EPA considered the petitioner's concerns and researched the situation more thoroughly. In response to the 2023 ICR questionnaire, industry reported information for 261 dehydrators at oil and natural gas production facilities and natural gas processing plants. For these dehydrators, BTEX made up over 79 percent of the total HAP emissions reported. The two other major HAP emitted n-hexane (13.5 percent) and methanol (seven percent) also contributed to the total, while 2,2,4-trimethylpentane accounted for less than 0.1 percent. For dehydrators at natural gas transmission and storage facilities, BTEX comprised 91 percent of the reported HAP emissions, with n-hexane as the only other reported pollutant.

We consider BTEX to be an excellent surrogate for organic HAP from glycol dehydrators at oil and natural gas production facilities and natural gas transmission and storage facilities for multiple reasons. First, BTEX is ubiquitous at petroleum and natural gas facilities, and is present in all natural gas inlet streams to small glycol dehydrators that have measurable HAP content. Second, BTEX compounds have a higher affinity for water than aliphatic compounds, such as n-hexane or 2,2,4-trimethylpentane. Consequently, a much larger portion of the BTEX compounds inlet to the dehydrator are absorbed with the water in the glycol solution and potentially emitted during the regeneration of the rich glycol solution. That is, BTEX and compounds like BTEX are much more likely to be emitted from glycol dehydrator vents than most other organic HAP. Modeling of n-hexane emissions from the glycol dehydrators was used to establish the MACT

floor in 1999. We found that the units that achieved 95 percent control efficiency of BTEX emissions achieved over 99 percent control efficiency for hexane.[55]

Therefore, we continue to conclude that BTEX is a reliable and appropriate surrogate for HAP emissions from small glycol dehydrators, with the possible exception of methanol. Methanol is not a naturally occurring element that is typically present in the extracted oil and natural gas. Rather, it is sometimes added as a hydrate-preventor to keep water from being absorbed into the natural gas stream. As noted above, methanol made up seven percent of the reported HAP emissions from dehydrators in oil and natural gas production and natural gas processing. Specifically, methanol emissions were reported from 58 dehydrators at 22 facilities. The uncontrolled methanol emissions ranged from less than 0.1 tpy to 29 tpy per dehydrator, with an average of 9.8 tpy per dehydrator. The EPA received no data indicating methanol was emitted from dehydrators at transmission and storage facilities.

Like n-hexane, the EPA finds that methanol is controlled by combustion to a greater extent than BTEX. Therefore, if compliance with one of the small dehydrator equations is achieved by using a combustion device, the EPA is convinced that BTEX represents a reasonable surrogate for methanol. However, the possibility exists that if a measure or control other than combustion is used, BTEX may not be an appropriate surrogate for methanol. This is largely based on the fact that, unlike the other non-BTEX HAP emitted from dehydrators, methanol has a higher affinity for water than BTEX. Thus, if methanol is in the inlet stream to the dehydrator, it is more likely to be emitted from glycol dehydrator vents than BTEX in the absence of combustion. The EPA is specifically requesting comment on whether BTEX is a surrogate for methanol emissions from small dehydrators that comply using a method other than combustion (Question #5a). The EPA also requests information, analyses, and data that may support such surrogacy (Question #5b).

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[55] Becker & Coburn, RTI International. (2018). Memorandum to Witosky, M., EPA. "Evaluation of current standards for small glycol dehydrators for limiting HAP emissions." (September 5, 2018). *See* Docket ID No. EPA-HQ-OAR-2025-1348.

However, in the absence of clear information to support BTEX as a surrogate for methanol, the EPA is proposing a separate CAA section 112(d)(3) standard for methanol from small dehydrators in NESHAP subpart HH. The 2023 ICR questionnaire responses for oil and natural gas production sites and natural gas processing plants did not include methanol emissions from dehydrators at facilities identified as major sources. Therefore, the MACT floor determination was based on the data from dehydrators at area sources, as they represent similar sources.

Of the 58 dehydrators that reported methanol emissions, 38 dehydrators (66 percent) reported that emissions were controlled using a combustion device. Therefore, the EPA finds that the use of combustion represents the MACT floor level of control. The EPA has long recognized the use of properly operating flares and combustion devices can routinely achieve 95 percent reduction, and higher efficiencies can potentially be achieved but will require more rigorous monitoring. Given the remote nature of many oil and natural gas production sites, such rigorous monitoring is challenging. The EPA recognized this fact, and even though flares are a common control device in the oil and natural production segment, Federal air regulations for this industry have consistently established standards that require the use of a flare or 95 percent reduction. This is the case for numerous emission points (including storage vessels) subject to New Source Standards of Performance for Crude Oil and Natural Gas Facilities (40 CFR part 60, subparts OOOO, OOOOa, and OOOOb), and for dehydrators and storage vessels with the PFE subject to NESHAP subpart HH. Therefore, the EPA determined that the MACT floor for methanol from small dehydrators is 95 percent reduction or the use of a flare.

As noted above, the annual average reported methanol emissions were 9.8 tons per dehydrator. The estimated capital cost of a flare is $135,489 and the annual costs are $37,716 per year. For a 95 percent reduction, this results in a cost-effectiveness of $4,058 per ton of methanol reduced per year. The EPA also considered a beyond the floor option of 98 percent control. With a capital cost of $564,769, and an annual cost of $101,833 per year, the incremental cost

effectiveness of this additional three percent of emission reduction is $218,438 per ton of additional annual methanol reduction. The EPA does not consider this cost, in relation to additional emission reduction, to be reasonable. Therefore, for NESHAP subpart HH, the EPA is proposing that small glycol dehydrators reduce methanol emissions by 95 percent or route the emissions to a flare.

a. Proposed Actions Related to the Regulation of All HAP from Small Dehydrators in NESHAP Subpart HH

For small dehydrators at oil and natural gas production sites prior to the point of custody transfer to a natural gas processing plant where dehydrator emissions are greater than 10 tpy of a single HAP or 25 tpy of all HAP, and for major source natural gas processing plants, the EPA is proposing that the BTEX emission limit, as determined by the applicable equation, is a surrogate for all emitted HAP with the exception of methanol. For small dehydrators that emit methanol, the EPA is proposing that those emissions be reduced by 95 percent or by routing to a flare. The EPA is requesting comment on whether this additional standard is necessary for methanol emissions, or if the BTEX equation can also be proven to be an appropriate surrogate for methanol (Question #5c).

b. Proposed Actions Related to the Regulation of All HAP from Small Dehydrators in NESHAP Subpart HHH

For small dehydrators at major source natural gas transmission and storage facilities, the EPA is proposing to use the BTEX emission limit, as determined by the applicable equation as a surrogate for all emitted HAP.

Unlike dehydrators at oil and natural gas production facilities and natural gas processing plants, there were no methanol emissions reported in the ICR questionnaire responses for any dehydrator at a natural gas transmission and storage facility. Since the EPA lacks data confirming methanol emissions, the Agency is not proposing to regulate methanol from those facilities. The EPA is requesting comment and information on whether methanol is emitted from

dehydrators at natural gas transmission and storage facilities (Question #6a). If the comments indicate there are no methanol emissions, the EPA is requesting information and rationale for this claim (Question #6b).

4. Regulation of Previously Unregulated Emission Points

a. Introduction to Proposal and Alternative Proposal

The EPA is seeking comment on whether the CAA requires the EPA to revise a major source NESHAP to set standards for unregulated emission points or processes when conducting a CAA section 112(d)(6) review. To ensure the public has an adequate opportunity to comment, the EPA proposes not to regulate these sources, while simultaneously offering an alternative proposal that would regulate these sources.

The EPA is proposing that when conducting a CAA section 112(d)(6) technology review, the Agency is not obligated to expand the NESHAP to include previously unregulated emission points because the review focuses instead on whether revisions to the existing standards for the NESHAP and source category, presently understood, are "necessary." In the past, the EPA has suggested that the D.C. Circuit's decision in *LEAN* mandates that the EPA expand the NESHAP to include additional emission points as part of the technology review under CAA section 112(d)(6). However, the Agency now proposes that *LEAN* does not mandate such action pursuant to CAA section 112(d)(6) for two reasons and, on that basis, proposes not to address potential additional emission points and associated standards in this action.

First, while CAA section 112(d)(1) requires the EPA to "establish standards for each category or subcategory,"[56] it does not speak to whether those standards must include emission limits for each emission point within the category and leaves to the Agency's reasoned discretion whether particular emission points belong in one or another source category or subcategory. CAA section 112(d)(6) then instructs the EPA to periodically revise these standards "as

[56] 42 U.S.C. 7412(d)(1).

necessary,"[57] considering developments since the last rulemaking, but does not mandate that the EPA expand the standards or reconsider the scope of the source category or subcategory to include additional emission points at that time. This silence makes practical sense, as the EPA has considerable discretion to determine what emission points are included within a particular source category. Indeed, some sources (like certain chemical production facilities), contain emission points from multiple source categories, so it may not be entirely clear whether an unregulated emission point is best regulated as part of one source category or another.

Second, *LEAN* did not involve previously unregulated emission points, and the D.C. Circuit did not address this distinct issue or indicate that it must be resolved as part of the periodic and mandatory CAA section 112(d)(6) technology review. Instead, Petitioners in *LEAN* challenged the EPA's failure to promulgate emission limits for previously unregulated HAP emitted from *already regulated* emission points in the Pulp and Paper Production source category when the Agency was reviewing the existing standards pursuant to CAA section 112(d)(6). The D.C. Circuit remanded the standards to the EPA to "set limits on the remaining [HAP] emitted" by these already regulated emission points.[58]

Therefore, the EPA proposes to defer action on a potential expansion of the NESHAP to include previously unregulated emission points. The EPA is requesting comment on the interpretation of CAA section 112(d)(6) adopted by the D.C. Circuit in *LEAN* and the scope of the Agency's obligation and statutory authority to impose additional standards under the CAA section 112(d)(6) process for particular emission points not previously regulated (Question #7).

Although we maintain that CAA section 112(d)(6) review is not the appropriate posture to address such issues and outstanding questions remain as to whether such standards belong in the relevant NESHAP, we are including below a tentative proposal about what standards could be if we were not to finalize the proposed understanding in the previous subsection. To derive

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[57] *Id.* 7412(d)(6).
[58] *LEAN*, 955 F.3d at 1100.

the alternative proposed standard for each such emission point discussed, the EPA first determines the appropriate MACT floor under CAA section 112(d)(3) and then analyzes whether to adopt a more stringent standard under a combined CAA section 112(d)(2) beyond the floor review and CAA section 112(d)(6) technology review. For these unregulated emission points, the EPA proposes to set MACT floors that reflect the state of the industry at the time the Agency first promulgated the Oil and Gas NESHAP in 1999 to align with the statutory framework of CAA section 112. CAA section 112 requires that the EPA set technology-based standards under CAA section 112(d)(2)-(3) (MACT standards) for listed source categories, including Crude Oil and Natural Gas Production and Natural Gas Transmission and Storage Facilities, by the year 2000.[59] CAA section 112(d)(6) then requires that the EPA review and, as necessary, revise the standards every eight years.[60] Under the statutory framework, Congress clearly envisioned that the initial MACT standards would be based on technological performance around the 1990-2000 time period, and subsequent technology developments would be evaluated every eight years. Therefore, to best align with the statutory framework we are conducting the MACT analysis for unregulated emission points considering the performance of units prior to promulgation of the original NESHAP. This avoids the potential of establishing standards decades after the year 2000 deadline, which could create a cost burden that Congress did not intend the EPA to impose without due consideration.[61] In addition, the EPA would treat the unregulated emissions fairly by setting MACT floors (which cannot consider costs) based on the state of the oil and gas industry in 1999 (when the NESHAP was initially promulgated) instead of the industry's performance recently. In *U.S. Sugar Corp. v. EPA*, 113 F.4th 984 (D.C. Cir. 2024), the D.C. Circuit upheld the EPA's decision to use an original dataset when it recalculated the MACT floors for certain emission units on remand. The EPA explained that one of its reasons for not using more recent data was to avoid a "'potentially inequitable outcome' – some units could be subject to 'more

[59] 42 U.S.C. 7412(e).
[60] 42 U.S.C. 7412(d)(6).
[61] 77 FR 49490 (August 16, 2012); 81 FR 35824 (June 3, 2016); 89 FR 16820 (March 8, 2024).

stringent standards solely because of the EPA error'" at the time of initial standard setting.[62] Similarly here, the currently unregulated oil and gas emission points would be unfairly subject to more stringent standards than would have been adopted if the EPA were to set MACT floors based on recent emissions data because the Agency did not set MACT for these sources in 1999.

After determining the MACT floor, the EPA then assesses whether the MACT floor should be strengthened under a combined CAA 112(d)(2)/112(d)(6) review. CAA section 112(d)(2) requires the EPA to determine whether a more stringent standard than the MACT floor is "achievable" considering cost and the other factors listed in that subsection.[63] CAA section 112(d)(6) similarly requires the EPA to assess "whether standards should be tightened in view of developments in technologies and practices since the standard's promulgation or last revision, and, in particular, the cost and feasibility of developments and corresponding emissions savings."[64] Because of the similarity of the two reviews, the EPA is conducting one review based on current developments and other factors, as required by CAA section 112(d)(6).

Provided below are the EPA's analyses and the resulting proposed standards for the following unregulated emission points: AGRUs at natural gas processing plants; storage vessels without flash emissions at field production facilities prior to the point of custody transfer to natural gas processing plants and at natural gas processing plants; storage vessels at natural gas transmission and storage facilities; transport vessel loading operations at natural gas processing plants and at natural gas transmission and storage facilities; and natural gas-driven process controllers and pumps at natural gas transmission and storage facilities. For each of these emission points, the EPA first describes its proposed MACT standard under CAA section 112(d)(3) and then analyzes whether a more stringent standard is necessary under a combined CAA section 112(d)(2) beyond-the-floor and CAA section 112(d)(6) technology review.

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[62] *U.S. Sugar Corp.*, 113 F.4th at 1000.
[63] *Nat'l Lime Ass'n*, 233 F.3d at 629.
[64] *Nat'l Ass'n for Surface Finishing*, 795 F.3d at 5.

b. AGRUs

AGRUs are used to remove acidic components in natural gas to meet sales gas quality specifications. AGRUs include an absorber unit and a regenerator unit. In the absorber, sour gas is contacted with amine solvent to remove H_2S and CO_2 to produce a sweetened gas stream and an amine solution rich in absorbed acid gases. The rich amine solution is routed to a regenerator to produce regenerated or lean amine and an acid gas stream. The lean amine is recycled for reuse in the absorber. The acid gas stream is vented to a control device. AGRU emissions that originate from the regenerator acid gas stream can contain H_2S, CO_2, BTEX, and CS_2. If high concentrations of H_2S are present, the acid gas stream is routed to a sulfur recovery unit.

i. NESHAP subpart HH (AGRUs at Major Source Natural Gas Processing Plants)

CAA Section 112(d)(3) MACT Floor Determination

The 1997 Background Information Document (1997 BID) for the proposed NESHAP subpart HH standards discussed AGRUs, explaining that AGRUs had the potential for significant HAP emissions.[65] Specifically, the HAPs identified were BTEX, COS, and CS_2. However, there was no specific data on HAP emissions or control methods for AGRUs.

Controls used for glycol dehydrators and storage vessels with the PFE were extensively studied, and the EPA established MACT standards of 95 percent emission reduction in 1999 for these sources (both new and existing). The EPA determined that 95 percent control reflected the emission reductions achieved by the best performing 12 percent of these two sources at the time.[66] The EPA also set a 95 percent standard for new sources, indicating that to be the performance level by the best controlled source. The types of control devices used to reduce emissions from dehydrators and storage vessels with the PFE, particularly combustion devices, are commonly used devices to reduce emissions from AGRUs. Because the types of controls

[65] National Emission Standards for Hazardous Air Pollutants for Source Categories: Oil and Natural Gas Production and Natural Gas Transmission and Storage Background Information for Proposed Standards. EPA-453/R-94-079a. (April 1997).
[66] 42 U.S.C. 7412(d)(3).

used for glycol dehydrators and storage vessels also are used to control AGRUs, and in fact the same devices could be used to co-control AGRU emissions, it is reasonable to conclude that the best controlled 12 percent of AGRUs at the time were also achieving 95 percent control of their HAP emissions. The EPA is not aware of factors other than control technology that would affect the emissions achieved by the best performing AGRUs.[67]

In 1985, pursuant to CAA section 111, the EPA promulgated new source performance standards (NSPS) for SO_2 emissions from acid gas removal at natural gas processing plants. The 1985 NSPS required control of acid gas by sulfur capture or emission reduction ranging from 74 to 99 percent reduction of SO_2 emissions (depending on the sulfur feed rate and sulfur content of the acid gas). One of the control techniques used to meet this standard is combustion, which would also reduce HAP in the stream by at least 95 percent.

For the reasons explained above, the EPA concludes that 95 percent reduction in HAP emissions from AGRUs represents the level of control for the best performing similar source, and the level of control for the top performing 12 percent of sources. Therefore, the EPA is proposing a 95 percent reduction as the MACT floor for both new and existing AGRUs at major source natural gas processing plants. The EPA is specifically soliciting comment on this determination, along with information to support or refute these assumptions about the controls used in 1999 to reduce emissions from AGRUs at natural gas processing plants. (Question #7a)

CAA 112(d)(2) Beyond-the-Floor/Section 112(d)(6) Technology Review

The EPA then assesses whether the MACT floor should be strengthened under a combined CAA 112(d)(2)/112(d)(6) review. We reviewed various sources of information to identify potential options for standards more stringent than the MACT floor, as well as for developments in practices, processes, and control technology since the time frame for which the

[67] *Cement Kiln Recycling Coal. v. EPA*, 255 F.3d 855, 864-65 (D.C. Cir. 2001) ("if factors other than MACT technology do indeed influence a source's performance, it is not sufficient that EPA considered sources using only well-designed and properly operated MACT controls" because they "may not reflect what the best-performers actually achieve").

MACT floor was determined (as discussed in the previous section). For AGRUs, these sources included information submitted in response to the 2023 ICR and other NESHAP regulations in the petroleum industry.

The EPA assessed the options to revise the stringency of these MACT floor standards by considering the cost weighed against the emission reductions that a more stringent standard can achieve, with the inherent energy impacts of regulating energy production.

The EPA determined that 98 percent control represents a development in practices, processes, and control technologies from the MACT level for AGRUs at major source natural gas processing plants. In responses to the 2023 ICR, several sources reported controls that achieved at least a 98 percent reduction in HAP emissions. In addition, 98 percent reduction is a standard in the Petroleum Refinery NESHAP (NESHAP subpart UUU). The EPA estimated the incremental cost effectiveness of increasing the stringency from the 95 percent MACT level to 98 percent for AGRUs is just under $15,000 per ton of additional reduction in HAP, which is above what we had previously determined to be unreasonable. We had determined that the cost effectiveness of $11,750 (adjusted for inflation) was not reasonable in the 2022 technology review for the NESHAP for the Gasoline Distribution NESHAP (NESHAP subpart R).[68]

Proposed Standard for AGRUs at Major Source Natural Gas Processing Plants

Based on the above MACT floor analysis under CAA section 112(d)(3) and the beyond-the-floor/technology review under CAA sections 112(d)(2)/112(d)(6), we are proposing that HAP emissions from new and existing AGRUs at major source natural gas processing plants be reduced by 95 percent or greater.[69]

ii. NESHAP subpart HHH

The 2023 ICR responses identify one AGRU at a major source natural gas transmission and storage facility. We therefore propose standards for HAP emissions from AGRUs at major

[68] 87 FR 35608 (June 10, 2022).

[69] The proposed standard allows for routing to a flare. Flares operated property under the General Provisions of the NESHAP are expected to achieve 95 percent or greater reduction.

source natural gas transmission and storage facilities subject to NESHAP subpart HHH. We are also requesting comments and information on the existence of AGRUs at natural gas transmission and storage facilities, as well as emissions and control information (Question #7b).

We are proposing the same standards for NESHAP subpart HHH for the same basic reasons as discussed for natural gas processing plants under NESHAP subpart HH. Controls used for glycol dehydrators at natural gas transmission and storage facilities were extensively studied, and the EPA established MACT standards of 95 percent emission reduction in 1999 for glycol dehydrators (both new and existing). The EPA determined that 95 percent control reflected the emission reductions achieved by the best performing 12 percent of this source at the time.[70] The EPA also set a 95 percent standard for new sources, indicating that to be the performance level by the best controlled source. The types of control devices used to reduce emissions from dehydrators, particularly combustion devices, are commonly used devices to reduce emissions from AGRUs. Because the types of controls used for glycol dehydrators also are used to control AGRUs, and in fact the same devices could be used to co-control AGRU emissions, it is reasonable to conclude that the best controlled 12 percent of AGRUs at the time were also achieving 95 percent control of their HAP emissions. The EPA is not aware of factors other than control technology that would affect the emissions achieved by the best performing AGRUs.[71] The proposed standards require a 95 percent reduction in HAP emissions or route to a flare.

c. Storage Vessels Without the PFE Prior to the Point of Custody Transfer and Storage Vessels Without the PFE at Natural Gas Processing Plants (NESHAP subpart HH)

Crude oil, condensate, and produced water are typically stored in fixed-roof storage vessels. These fixed-roof vessels, which are operated at or near atmospheric pressure conditions, are typically located in tank batteries at well sites and at centralized gathering facilities in the oil and natural gas production segment and at transmission and storage facilities in the oil natural

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[70] 42 U.S.C. 7412(d)(3).
[71] *Cement Kiln Recycling Coal.*, 255 F.3d at 864-65.

gas transmission and storage segment. A tank battery refers to the collection of process components used to separate, treat, and store crude oil, condensate, intermediate hydrocarbon liquids, and produced water. At well sites and centralized gathering facilities, the extracted products from production wells enter the tank battery through the production header, which may collect product from many wells.

Emissions are a result of working, breathing, and flash losses. Working losses occur due to the emptying and filling of storage vessels. Specifically, emissions are released through a vapor vent as liquid is pushed into the storage vessel, displacing any built-up vapors in the vessel. Breathing losses are the release of gas associated with daily temperature fluctuations and other equilibrium effects. Flash losses occur when a liquid with entrained gases is transferred from a vessel with higher pressure to a vessel with lower pressure, and thus, allowing entrained gases or a portion of the liquid to vaporize or flash.

NESHAP subpart HH currently regulates storage vessels with the PFE, but it excludes storages vessels without the PFE. Because storage vessels without the PFE in this industry segment emit HAP, they remain unregulated emission points. Therefore, we propose standards for storage vessels without the PFE.

According to the information provided in the 2023 ICR responses, there are stand-alone major source storage vessels without the PFE located at oil and natural gas production sites located in the producing operations (*i.e.*, prior to the point of custody transfer to a natural gas processing plant) and at natural gas processing plants that have the potential to emit HAP at levels greater than the major source thresholds.[72]

CAA Section 112(d)(3) MACT Floor Determination

The EPA studied emissions and controls for storage vessels with the PFE at oil and gas production sites and natural gas processing plants for the original promulgation of NESHAP

[72] CAA section 112(n)(4)(A) prohibits aggregating emissions at oil and natural gas production sites for purposes of determining major source status. *See* 42 U.S.C. 7412(n)(4)(A).

subpart HH in 1999, yet no specific information is available regarding analysis of storage vessels without the PFE. However, submerged fill techniques were mentioned in the 1997 BID, and the EPA recognizes that submerged filling has long been a standard practice in the oil and natural gas industry because splash filling causes a considerable loss of valuable petroleum product.

There are many similarities between the storage vessels at gasoline bulk plants and those in at oil and natural gas production sites and at natural gas processing plants. While the specific composition of the oil or condensate differs from gasoline, the design, operation, size, and HAP emitted are the same. Bulk gasoline plants have long been studied by the EPA, beginning with the development of Control Technique Guidelines (CTG) in 1977.[73] Submerged filling is a primary control technique discussed in the 1977 CTG, although the prevalence of its use in 1977 is not discussed. However, in 2008, the EPA promulgated NESHAP subpart BBBBBB, which covers HAP emissions from bulk gasoline plant area sources.[74] NSPS subpart BBBBBB requires that submerged filling be used to load gasoline into bulk plant gasoline storage vessels.[75] When this regulation was proposed in 2006, the EPA asserted that "approximately 5,500 out of 5,900 bulk plants are estimated to utilize submerged fill."[76]

The EPA concludes that in 1999, submerged filling at oil and natural gas production sites and at natural gas processing plants represents the control utilized at the best performing similar source, as well as the control utilized for the top performing 12 percent of sources. This is based on the knowledge that it has long been the standard industry practice utilized in the petroleum industry to save valuable product, and the fact that in 2006, the EPA determined that over 93 percent of the comparable storage vessels at bulk gasoline terminals employed submerged filling.

Based on this information, the EPA concludes submerged filling for storage vessels without the PFE that are stand-alone major sources prior to the point of custody transfer to

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[73] Control of Volatile Organic Emissions from Bulk Gasoline Plants. EPA-450/2-77-035. (December 1977).
[74] 73 FR 1933 (January 10, 2008).
[75] 40 CFR 63.11086.
[76] 71 FR 66072 (November 9, 2006).

natural gas processing plants, and at major source natural gas processing plants, represents the control utilized at the best performing similar source, as well as the control utilized for the top performing 12 percent of sources. Therefore, the EPA established a MACT floor under CAA section 112(d)(3) that requires submerged filling for both new and existing storage vessels without the PFE that are stand-alone major sources prior to the point of custody to a natural gas processing plant, and for both new and existing storage vessels without the PFE at major source natural gas processing plants. We are specifically soliciting comment on this determination, along with information to support or refute these assumptions about the use of submerged filling in 1999 to reduce emissions from storage vessels without the PFE at oil and natural gas production sites and at natural gas processing plants. (Question #8)

CAA 112(d)(2) Beyond-the-Floor/Section 112(d)(6) Technology Review

The EPA then assesses whether the MACT floor should be strengthened under a combined CAA 112(d)(2)/112(d)(6) review. We reviewed various information sources to identify standards more stringent than the MACT floor and find developments in practices, processes, and control technology since we determined the MACT floor (as discussed in the previous section). For storage vessels without the PFE, our review included basic petroleum industry practices, NESHAP subpart HH standards for storage vessels with the PFE at these same sites, and responses to the 2023 ICR.

The EPA assessed the options to revise the stringency of these MACT floor standards by considering the cost weighed against the emission reductions that a more stringent standard can achieve, with the inherent energy impacts of regulating energy production.

Operators sometimes use internal floating roof tanks to reduce emissions from storage vessels. The small quantities of liquid stored in these types of tanks typically do not provide sufficient buoyancy to support floating roofs. While a floating roof effectively limits vaporization, the EPA still considers them a technically infeasible control method for storage tanks in the Oil and Natural Gas Production source category.

The EPA determined that 95 percent control represents a development in practices, processes, and control technologies from the MACT level of submerged filling. This is the standard for storage vessels with the PFE in NESHAP subpart HH. In addition, a number of storage vessels without the PFE reported controls that achieved at least 95 percent reduction in HAP emissions. The incremental cost effectiveness to 95 percent for storage vessels without the PFE is estimated to be just under $18,000 per ton of additional reduction in HAP. This is above a level that we had already previously determined to be unreasonable.

iii. Proposed Standards for Storage Vessels Without the PFE Prior to the Point of Custody Transfer and Storage Vessels Without the PFE at Major Source Natural Gas Processing Plants

Based on the above MACT analysis under CAA section 112(d)(2)-(3) and technology review under CAA section 112(d)(6), we are proposing to require the installation and use of submerged filling to reduce HAP emissions from new and existing stand-alone major storage vessels without the PFE prior to point of custody transfer to a natural gas processing plant, and for new and existing storage vessels without the PFE at major source natural gas processing plants.

d. Storage Vessels at Natural Gas Transmission and Storage Facilities (NESHAP subpart HHH)

Storage vessels at natural gas transmission and storage facilities are typically fixed-roof storage vessels at atmospheric conditions that contain condensate and produced water. While there may be other storage vessels that contain process fluids such as maintenance and lubricating oils, these storage vessels are not in the scope of the NESHAP.

No storage vessels (whether with or without PFE) are currently regulated in NESHAP subpart HHH. There were no methanol emissions specifically reported in the 2023 ICR responses for storage vessels at major source natural gas transmission and storage facilities. During the 2023 ICR data collection, the EPA did not specifically request information on storage

vessel emissions. However, based on previous analyses, the EPA found that the composition of the gas at natural gas transmission and storage facilities included small amounts of HAP. Specifically, a 2011 analysis concluded that 2.97 percent of the VOC emissions in gas streams at natural gas transmission and storage facilities was HAP.[77] Therefore, the EPA maintains that the reported VOC emissions contain the same type of HAP emitted from storage vessels at oil and natural gas field production facilities and natural gas processing plants, although in smaller quantities. Therefore, we are proposing standards for storage vessels at major source natural gas transmission and storage facilities. Since the EPA used previously established HAP-to-VOC ratios to estimate HAP emissions from the VOC emissions reported in the 2023 ICR responses for storage vessels at major source natural gas transmission and storage facilities, the EPA requests data on the quantities of HAP emissions as a component of VOC emissions from these storage vessels (Question #8a).[78] If EPA receives information during the comment period that the 2011 analysis was incorrect, the HAP-to-VOC ratio was incorrect, or other relevant information that EPA's assumptions related to methanol emissions from natural gas transmission or storage facilities are incorrect, the EPA will revise the final rule accordingly.

CAA Section 112(d)(3) MACT Floor Determination

The discussion in section III.B.4.b of this preamble regarding the expected use of submerged filling to reduce working losses for storage vessels at oil and natural gas production sites and natural gas processing plants also applies to storage vessels at natural gas transmission and storage facilities. Therefore, the EPA concludes that in 1999, submerged filling at natural gas transmission and storage facilities plants represents the control utilized at the best performing similar source, as well as the control utilized for the top performing 12 percent of sources, to reduce working loss emissions. Submerged filling is a measure to reduce working loss emissions,

[77] Memorandum. Brown, H., EC/R Incorporated, to Moore, B., EPA/OAPS/SPPD. "Composition of Natural Gas for Use in the Oil and Natural Gas Sector Rulemaking." (July 28, 2011).
[78] Memorandum. Wilson, D., Enoch, S., Weyl, R., ERG, to Pope, A., EPA. "Documentation for NEI Updates for Oil and Natural Gas Production and Natural Gas Transmission and Storage" (July 15, 2011).

but it does not impact flash emissions. In the 2023 ICR responses, there was no instance where flash emissions (or any emissions from a storage vessel at a natural gas transmission and storage facility) were reported to be routed to a control device. If no control devices are utilized at this time, the EPA is comfortable concluding that no control devices were in place in 1999 to reduce flash emissions from storage vessels at natural gas transmission and storage facilities.

Based on this information, the EPA concludes submerged filling for storage vessels at major source natural gas transmission and storage facilities represents the control utilized at the best performing similar source, as well as the control utilized for the top performing 12 percent of sources. Therefore, the EPA established a MACT floor under CAA section 112(d)(3) that requires submerged filling for both new and existing storage vessels at major source natural gas transmission and storage facilities. We are specifically soliciting comment on this determination, along with information to support or refute these assumptions about the use of submerged filling in 1999 to reduce emissions from storage vessels without the PFE at oil and natural gas production sites and at major source natural gas processing plants. (Question #8b)

CAA 112(d)(2) Beyond-the-Floor/Section 112(d)(6) Technology Review

The EPA then assesses whether the MACT floor should be strengthened under a combined CAA 112(d)(2)/112(d)(6) review.

We reviewed various sources of information to identify potential options for standards more stringent than the MACT floor, as well as for developments in practices, processes, and control technology since the time frame for which the MACT floor was determined (as discussed in the previous section). For storage vessels, the primary source was the controls used for storage vessels at sources subject to NESHAP subpart HH.

The EPA assessed the options to revise the stringency of these MACT floor standards by considering the cost weighed against the limited emission reductions that a more stringent standard can achieve, with the inherent energy impacts of regulating energy production. The EPA determined that the use of combustion devices (including flares) and VRUs that achieve 95

percent control represents a development in practices, processes, and control technologies from the MACT level. This is the level of control for storge vessels with the PFE in NESHAP subpart HH. The incremental cost effectiveness to 95 percent for storage vessels at major source natural gas transmission and storage facilities is estimated to be just under $550,000 per ton of additional reduction in HAP. This is above a level that we had already previously determined to be unreasonable.

iii. Proposed Standards for Storage Vessels at Major Source Natural Gas Transmission and Storage Facilities

Based on the above MACT floor analysis under CAA section 112(d)(3) and the beyond-the-floor/technology review under CAA section 112(d)(2)/112(d)(6), we are proposing to require the installation and use of submerged filling to reduce HAP emissions from new and existing storage vessels at major source natural gas transmission and storage facilities.

e. Transport Vessel Loading Operations

Loading operations are used to conduct a transfer of liquids from storage vessels to a type of transportation (*i.e.*, transport) vessel using loading racks. Typically, the transfer of the liquids is for the purpose of transporting refined or waste products to an end destination. The types of transport vessels loaded can be tank trucks, railcars, marine vessels (barges and ships), and smaller containers such as drums or totes. At onshore natural gas production facilities, natural gas processing plants, and natural gas transmission and storage facilities, the liquids loaded primarily are crude oil, condensate, and produced water, and the transport vessels into which the liquids are loaded are almost exclusively tank trucks.

Loading losses from the loading of liquids into transport vessels occur as organic vapors in “empty” transport vessels are displaced to the atmosphere by the liquid being loaded into the vessels. These vapors are a composite of (1) vapors formed in the empty vessel by evaporation of residual product from previous loads, (2) vapors transferred to the vessel in vapor balance systems (if present) as product is being unloaded, and (3) vapors generated in the vessel as the

new product is being loaded. The quantity of evaporative losses from transport vessel loading operations is a function of the physical and chemical characteristics of the cargo, the method of unloading the previous cargo, operations to transport the empty carrier to a loading terminal, the method of loading the new cargo, and the physical and chemical characteristics of the new cargo.[79]

i. NESHAP subpart HH (Transport Vessel Loading Operations at Major Source Natural Gas Processing Plants)

CAA Section 112(d)(3) MACT Floor Determination

In the 1997 BID for the proposed standards, there are statements regarding transport vessel loading techniques at oil and natural gas sites. Specifically, at both tank batteries and natural gas processing plants, the EPA states "transfer may also involve loading crude oil, condensate, or produced water into tank trucks, railcars, and barges through the use of splash loading or submerged fill techniques."[80]

In 1995, the EPA promulgated MACT standards for Marine Vessel Loading Operations.[81],[82] While the loading of marine vessels is not a common practice in the oil and natural gas industry, loading petroleum-based liquids into marine vessels is analogous to the loading of oil, condensate, and produced water into tank trucks or railcars. Specifically, the basic design of the loading rack and the operation to fill the transport vessel (marine vessel or tank truck) is the same, as are the HAP emitted. In 40 CFR part 63 subpart Y, the major source MACT requirements for existing sources with HAP emissions less than 10 and 25 tons must utilize submerged fill methods.

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[79] U.S. Environmental Protection Agency. (Last updated in January 1995). AP 42 Compilation of Air Pollutant Emission Factors. Fifth Edition. Section 5.2: Transportation And Marketing Of Petroleum Liquids.
[80] National Emission Standards for Hazardous Air Pollutants for Source Categories: Oil and Natural Gas Production and Natural Gas Transmission and Storage Background Information ·for
Proposed Standards. EPA-453/R-94-079a. April 1997. pp. 2-16, 2-18.
[81] 60 FR 48399 (September 19, 1995).
[82] 40 CFR part 63, subpart Y.

In 2008, the EPA promulgated NESHAP for area source gasoline distribution bulk terminals, bulk plants, and pipeline facilities.[83,84] As discussed in section III.B.4.b of this preamble, the design, operation, size, and HAP emitted from storage vessels and transport vessel loading operations are similar at natural gas processing plants and gasoline bulk plants. The requirement for cargo loading at bulk plants in 40 CFR part 63 subpart BBBBBB is submerged filling.

The EPA concludes that in 1999, for transport vessel loading operations at natural gas processing plants, submerged filling represents the control utilized at the best performing similar source, as well as the control utilized for the top performing 12 percent of sources. This is based on the knowledge that it has long been the standard industry practice utilized to save valuable product, and the fact that the EPA concluded that this was the appropriate standard to reduce HAP from comparable marine vessel loading operations and at bulk gasoline plants.

Based on this information, the EPA concludes that submerged filling to reduce HAP emissions from transport vessel loading operations at major source natural gas plants represents the control utilized at the best performing similar source, as well as the control utilized for the top performing 12 percent of sources. Therefore, the EPA established a MACT floor under CAA section 112(d)(3) that requires submerged filling for both new and existing transport loading operations at major source natural gas processing plants. We are specifically soliciting comment on this determination, along with information to support or refute these assumptions about the use of submerged filling in 1999, and currently, to reduce emissions from transport vessel loading operations at major source natural gas processing plants. (Question #9a)

CAA 112(d)(2) Beyond-the-Floor/Section 112(d)(6) Technology Review

The EPA then assesses whether the MACT floor should be strengthened under a combined CAA 112(d)(2)/112(d)(6) review.

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[83] 73 FR 1933 (January 8, 2008).
[84] 40 CFR part 63, subpart BBBBBB.

We reviewed various sources of information to identify potential options for standards stricter than the MACT floor, as well as for developments in practices, processes, and control technology since the time frame for which the MACT floor was determined (as discussed in the previous section). For transport loading operations at major source natural gas plants, the sources where for more stringent controls were in the 2023 ICR responses and NESHAP subpart R, which covers loading racks at major source bulk gasoline terminals.

The EPA assessed the options to revise the stringency of these MACT floor standards by considering the cost weighed against the emission reductions that a more stringent standard can achieve, with the inherent energy impacts of regulating energy production. In the responses to the 2023 ICR, over 25 percent of the major source natural gas processing plants reported that HAP emissions from transport vessel loading operations were controlled by combustion devices. NESHAP subpart R includes a numeric emission limit of 10 milligrams of total organic compounds per liter of gasoline loaded. This limit is unique to gasoline, but the control devices typically employed to achieve this standard include combustion devices and vapor recovery units. These types of devices can be used to control emissions from cargo vessel loading operations at natural gas processing plants, and the EPA concludes that they can achieve a 95 percent reduction in HAP emissions in the oil and natural gas industry. Therefore, we conclude that this represents a development in control technology from submerged filling alone. The incremental cost effectiveness to 95 percent for transport vessel loading operations at major source natural gas processing plants is estimated to be $47,000 per ton of additional reduction in HAP. This is above a level that we had already previously determined to be unreasonable.

Proposed Standards for Transport Vessel Loading Operations at Major Source Natural Gas Processing Plants

Based on the above MACT floor analysis under CAA section 112(d)(3) and the beyond-the-floor/technology review under CAA sections 112(d)(2)/112(d)(6), we are proposing to

require the installation and use of submerged filling to reduce HAP emissions from new and existing transport vessel loading operations at major source natural gas processing plants.

ii. NESHAP Subpart HHH (Transport Vessel Loading Operations at Major Source Natural Gas Transmission and Storage Facilities)

CAA Section 112(d)(3) MACT Floor Determination

The discussion above related to the 1999 MACT floor for transport vessel loading operations at natural gas processing plants is also applicable for natural gas transmission and storage facilities. Based on this information, the EPA concludes that submerged filling to reduce HAP emissions from transport vessel loading operations at major source natural gas transmission and storage facilities represents the control utilized at the best performing similar source, as well as the control utilized for the top performing 12 percent of sources. Therefore, the EPA established a MACT floor under CAA section 112(d)(3) that requires submerged filling for both new and existing transport loading operations at major source natural gas transmission and storage facilities. We are specifically soliciting comment on this determination, along with information to support or refute these assumptions about the use of submerged loading in 1999, and currently, to reduce emissions from transport vessel loading operations at natural gas transmission and storage facilities. (Question #9b)

CAA 112(d)(2) Beyond-the-Floor/Section 112(d)(6) Technology Review

The EPA then assesses whether the MACT floor should be strengthened under a combined CAA 112(d)(2)/112(d)(6) review. As mentioned in regard to NESHAP subpart HH, we reviewed various sources of information to identify potential options for standards stricter than the MACT floor, as well as for developments in practices, processes, and control technology since the time frame for which the MACT floor was determined (as discussed in the previous section). For transport loading operations at major source natural gas plants, the most relevant source identified was control information for loading racks at major source bulk gasoline terminals related covered by NESHAP subpart R.

The EPA assessed the options to revise the stringency of these MACT floor standards by considering the cost weighed against the emission reductions that a more stringent standard can achieve, with the inherent energy impacts of regulating energy production. NESHAP subpart R includes a numeric emission limit for loading racks that is unique to gasoline, but the control devices typically employed to achieve this standard include combustion devices and vapor recovery units. These types of devices can be used to control emissions from cargo vessel loading operations at natural gas processing plants, and the EPA concludes that they can achieve a 95 percent reduction in HAP emissions in the oil and natural gas industry. Therefore, we conclude that this represents a development in control technology from submerged filling alone. The incremental cost effectiveness to 95 percent for transport vessel loading operations at major source natural gas transmission and storage facilities is estimated to be $64 million per ton of additional reduction in HAP. This is above a level that we had already previously determined to be unreasonable.

Proposed Standards for Transport Vessel Loading Operations at Major Source Natural Gas Transmission and Storage Facilities

Based on the above MACT floor analysis under CAA section 112(d)(3) and the beyond-the-floor/technology review under CAA sections 112(d)(2)/112(d)(6), we are proposing to require the installation and use of submerged filling to reduce HAP emissions from transport vessel loading operations at major source natural gas transmission and storage facilities.

f. Regulation of Emissions from Natural Gas-Driven Process Controllers at Major Source Natural Gas Transmission and Storage Facilities (NESHAP subpart HHH)

Process controllers are automated instruments used for maintaining the process condition, such as liquid level, pressure, pressure difference, or temperature. In the oil and gas industry, many process controllers are powered by pressurized natural gas and emit natural gas into the atmosphere. However, process controllers may also be powered by electricity or compressed air, and these types of process controllers do not use or emit natural gas. Natural gas-driven process

controllers are a source of HAP emissions. Process controllers are used in several segments of the oil and natural gas industry, including at well sites, gathering and boosting stations, and natural gas processing plants. Process controllers are also used at natural gas transmission and storage facilities. While there are many natural gas-driven process controllers used in the industry, each individual natural gas-driven process controller only emits an average of approximately 25 pounds of HAP per year.

i. CAA Section 112(d)(3) MACT Floor Determination

Process controllers were not evaluated as part of the original rulemaking efforts for NESHAP subpart HHH. Emissions of methane and VOC are regulated under CAA section 111 of the CAA. The EPA has gathered information on these devices through other rulemakings that have taken place over time. New, modified, or reconstructed natural gas-driven process controllers are subject to 40 CFR part 60, subpart OOOO since 2012, and beginning in 2016, new, modified, or reconstructed natural gas-driven process controllers are subject to 40 CFR part 60, subpart OOOOa. Under both regulations, new natural gas-driven process controllers at transmission and storage facilities are required to operate at a natural gas bleed rate of less than 6 standard cubic feet per hour (scfh) (*i.e.*, low-bleed), with exceptions for demonstrated functional needs and safety. In 2024, process controllers subject to 40 CFR part 60, subparts OOOOb and OOOOc became subject to zero-emission standards, except for those at non-electrified sites in Alaska. [85]

MACT Floor for New Process Controllers

Based on information provided in response to the 2023 ICR questionnaire, all natural gas transmission major source facilities have electrical power provided by the grid or on-site power generation. In the final 1999 NESHAP, it was also determined that many natural gas transmission and storage facilities had electrical service in 1999. The existence of electricity

[85] Emission Guidelines OOOOc regulating existing sources will be implemented through a future state or Federal plan.

provides the opportunity to use electric process controllers or pneumatic process controllers that are powered by compressed air. Both of these options eliminate organic HAP emissions from process controllers. While there are other options currently available to allow the use of zero-emitting process controllers, such as solar-powered electrical process controllers or pneumatic controllers that are powered by nitrogen gas, these options were not common in 1999. However, it is safe to assume that zero-emitting electric process controllers or pneumatic process controllers powered by compressed air were in use at natural gas transmission and storage facilities with electrical service in 1999, meaning that the "best controlled similar source" has zero HAP emissions.

Based on this information, the EPA concludes that zero emissions for process controllers at natural gas transmission and storage facilities represents the emissions level achieved by the best performing similar source. Based on this information, the EPA determines zero-emissions to be the MACT floor for new process controllers at existing major source transmission and storage facilities We are specifically soliciting comment on this determination, along with information to support or refute these assumptions about the use of zero emission process controllers at natural gas transmission and storage facilities in 1999. (Question #10a)

MACT Floor for Existing Process Controllers

While specific information is not available to confirm the prevalence of the use of low-bleed pneumatic controllers specifically at natural gas transmission and storage facilities in 1999, it is safe to assume that at least 12 percent of natural gas driven process controllers at these facilities were low-bleed devices at that time. Therefore, the EPA concludes that the use of low-bleed natural gas driven process controllers represents the control level utilized for the best performing 12 percent of sources. Based on this, the EPA established an existing source MACT floor under CAA section 112(d)(3) that requires natural gas-driven process controllers at existing major source transmission and storage facilities to operate at a natural gas bleed rate of less than 6 scfh (*i.e.*, low-bleed), with exceptions for demonstrated functional needs and safety. We are

specifically soliciting comment on this determination, along with information to support or refute these assumptions about the location, use, and the types of process controllers used at natural gas transmission and storage facilities in 1999. (Question #10b)

CAA 112(d)(2) Beyond-the-Floor/Section 112(d)(6) Technology Review

The EPA then assesses whether the MACT floor for existing sources process controllers should be strengthened under a combined CAA sections 112(d)(2)/112(d)(6) review. For existing natural gas-driven process controllers at major source natural gas transmission and storage facilities, this is based on the new source MACT floor.

The EPA assessed various factors, including considering the cost weighed against the emission reductions that a more stringent standard can achieve, and the inherent energy impacts of regulating energy production. The estimated HAP emissions reductions for a facility switching to zero-emissions process controllers is approximately 0.03 tons per year. The incremental cost effectiveness of this zero-emissions option is estimated to be $4.5 million per ton of additional reduction in HAP. This is above a level that we had already previously determined to be unreasonable.

The MACT standard for new sources was determined to be the use of zero-emission process controllers at major source natural gas transmission and storage facilities. As this standard would eliminate all HAP emissions from process controllers, under CAA section 112(d)(6) technology review and a CAA section 112(d)(3) beyond-the-floor analysis, there are no developments in practices, processes, and control technologies that would achieve greater emission reductions from the 1999 MACT floor for new sources.

iii. Proposed Standards for Process Controllers at Major Source Natural Gas Transmission and Storage Facilities

Based on the above MACT floor analysis under CAA section 112(d)(3) and the beyond-the-floor/technology review under CAA sections 112(d)(2)/112(d)(6), we are proposing standards that require all natural gas-driven process controllers at existing major source

transmission and storage facilities to operate at a natural gas bleed rate of less than 6 scfh (*i.e.*, low-bleed), with exceptions for demonstrated functional needs and safety. For new major source natural gas transmission and storage facilities, we are proposing that all process controllers have zero emissions.[86]

g. Regulation of Emissions from Natural Gas-Driven Pumps at Natural Gas Transmission and Storage Facilities (NESHAP subpart HHH)

In the oil and natural gas industry, pumps are used for many purposes, including chemical injection, hot glycol circulation for heat tracing/freeze protection, and glycol circulation in dehydrators. These pumps are generally either piston pumps or diaphragm pumps that can be powered by compressed air, compressed natural gas, or electricity. Of these pumps, those that are units driven by natural gas emit HAP to the atmosphere as part of their normal operation. Pumps can also have emissions from equipment leaks; however, those emissions are not related to normal operations and are addressed separately. In many situations across all segments of the oil and gas industry, natural gas-driven pneumatic pumps are used where electricity is not readily available. Natural gas-driven pumps are used in several segments of the oil and natural gas industry, including well sites, gathering and boosting stations, and natural gas processing plants. Natural gas-driven pumps are also used in the natural gas transmission and storage facilities.

i. CAA Section 112(d)(3) MACT Floor Determination

As pumps were not evaluated as part of the original rulemaking efforts for NESHAP subpart HHH, there was no information gathered in connection with the 1998 proposal or 1999 Final Rule. Thus, there is no data available from that time period to perform a detailed MACT floor analysis.

As noted in section III.B.4.e of this preamble, all natural gas transmission major source facilities for which information was provided in the 2023 ICR have electrical power provided by

[86] In terms of cost and impact, the EPA anticipates all affected sources will emit zero emissions via instrument air starting in 2029 due to the NSPS Emission Guidelines OOOOc. *See* 40 CFR 60.5394c, the model rule for States implementing controller requirements, and the EIA in the docket.

the grid or on-site power generation. Further, the 2024 Phase II ICR data indicated that approximately 95 percent of the pumps in the natural gas transmission and storage category have zero emissions by using either electrical pumps or pumps powered by compressed air rather than natural gas.

Based on information provided in response to the 2023 ICR questionnaire, all natural gas transmission major source facilities have electrical power provided by the grid or on-site power generation. In the 1999 Final NESHAP, it was also determined that many natural gas transmission and storage facilities had electrical service in 1999. While we believe that the percentage of zero emission pumps at major source natural gas transmission and storage facilities in 1999 may have been less than 95 percent, we expect that at least 12 percent of the pumps would have been either electrical pumps or pumps driven by compressed air and have zero emissions, as it has been common since at least the 1990s in the oil and gas industry to use natural gas-powered pumps where electricity is not available and to use electrical pump or pumps driven by compressed air where electricity is available. As these pumps have zero emissions, there is no technology or practice that could achieve a higher emissions reduction rate.

Based on this information, the EPA concludes zero emissions for pumps at major source natural gas transmission and storage facilities, represents the emissions level achieved by the best performing similar source, as well as the emissions level achieved by the top performing 12 percent of sources. Therefore, the EPA established a MACT floor under CAA section 112(d)(3) that requires zero emissions for both new and existing pumps at major source natural gas transmission and storage facilities. We are specifically soliciting comment on this determination, along with information to support or refute these assumptions about the use of zero emissions pumps at natural gas transmission and storage facilities in 1999. (Question #11a)

ii. CAA 112(d)(2) Beyond-the-Floor/Section 112(d)(6) Technology Review

As discussed above, the MACT floor was determined to be the use of zero-emission pumps at major source natural gas transmission and storage facilities. As this standard would eliminate all HAP emissions from pumps, there are no developments in practices, processes, and control technologies that would achieve greater emission reductions from the MACT level.

iii. Proposed Standards for Pumps at Major Source Natural Gas Transmission and Storage Facilities

Based on the above MACT floor analysis under CAA section 112(d)(3) and the beyond-the-floor/technology review under CAA sections 112(d)(2)/112(d)(6), we are proposing that all pumps at new and existing major source natural gas transmission and storage facilities have zero emissions.

5. Proposed Changes to Small Dehydrator Emission Limit Equations

Dehydrators are used in the oil and gas industry to remove water from natural gas to meet pipeline quality standards. The most common approach to remove water from production streams is to use a liquid desiccant like triethylene glycol (TEG). During the dehydration process, the liquid desiccant primarily absorbs water, but it can also inadvertently separate methane, VOCs, and other HAP out of the gaseous stream. Once the liquid desiccant is saturated with gases, it can be regenerated through a heat treatment in a reboiler. At this stage, the absorbed water, methane, VOCs, and other HAP stored in the liquid desiccant degas and are vented to the atmosphere. At some sites, the liquid desiccant is recirculated with a natural-gas-assisted pump where even more natural gas components are absorbed into the liquid desiccant thereby leading to higher emissions during the degassing process. While the total HAP emissions from dehydrators may vary by operational, compositional, and system variables, it is largely understood that HAP emissions will scale with the concentration of HAP in the inlet stream to the dehydrator.

The HAP emissions from dehydrators at major sources are regulated in both NESHAP subpart HH and NESHAP subpart HHH. For both regulations, dehydrators are separated into two

subcategories: Large Dehydrators and Small Dehydrators. In NESHAP subpart HH, the following definitions apply.

Small glycol dehydration unit is defined as a glycol dehydration unit, located at a major source, with an actual annual average natural gas flowrate less than 85 thousand standard cubic meters per day or actual annual average benzene emissions of less than 0.90 Mg/yr.[87,88]

Large glycol dehydration unit is defined as a glycol dehydration unit with an actual annual average natural gas flowrate equal to or greater than 85 thousand standard cubic meters per day and actual annual average benzene emissions equal to or greater than 0.90 Mg/yr.[89] A glycol dehydration unit complying with the 0.9 Mg/yr control option under 40 CFR 63.765(b)(1)(ii) is considered to be a large dehydrator.

The definitions in NESHAP subpart HHH are similar to the definitions in subpart HH, except the flowrate criteria are different.

Small glycol dehydration unit means a glycol dehydration unit, located at a major source, with an actual annual average natural gas flowrate less than 283.0 thousand standard cubic meters per day or actual annual average benzene emissions less than 0.90 Mg/yr.[90] *Large glycol dehydration unit* means a glycol dehydration unit with an actual annual average natural gas flowrate equal to or greater than 283.0 thousand standard cubic meters per day and actual annual average benzene emissions equal to or greater than 0.90 Mg/yr.[91] A glycol dehydration unit complying with the 0.9 Mg/yr control option under 40 CFR 63.1275(b)(1)(ii) is considered to be a large dehydrator.

The EPA is not proposing any changes to the large dehydrator provisions in either NESHAP subpart HH or NESHAP subpart HHH. However, revisions are being proposed to the small dehydrator requirements in both NESHAP subparts.

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[87] Determined using NESHAP subpart HH, 40 CFR 63.772(b).
[88] 40 CFR 63.761
[89] Determined using NESHAP subpart HH, 40 CFR 63.772(b).
[90] Determined using NESHAP subpart HHH, 40 CFR 63.1282(a).
[91] Determined using NESHAP subpart HHH, 40 CFR 63.1282(a).

For small dehydrators both NESHAP subpart HH and NESHAP subpart HHH include equations that calculate dehydrator-specific limits for the combined emissions of BTEX. The equations in NESHAP subpart HH are as follows.

For existing sources:

Equation 1

$$EL_{BTEX} = 3.28x10^{-4} \times Throughput \times C_{i,BTEX} \times 365 \frac{days}{year} \times \frac{1\ Mg}{1x10^{6}\ grams}$$

Where:

EL_{BTEX} = Unit-specific BTEX emission limit, megagrams per year;

3.28×10^{-4} = BTEX emission limit, grams BTEX/standard cubic meter-ppmv;

Throughput = Annual average daily natural gas throughput, standard cubic meters per day; and

$C_{i,BTEX}$ = Annual average BTEX concentration of the natural gas at the inlet to the glycol dehydration unit, ppmv.

For new sources:

Equation 2

$$EL_{BTEX} = 4.66x10^{-6} \times Throughput \times C_{i,BTEX} \times 365 \frac{days}{year} \times \frac{1\ Mg}{1x10^{6}\ grams}$$

Where:

EL_{BTEX} = Unit-specific BTEX emission limit, megagrams per year;

4.66×10^{-6} = BTEX emission limit, grams BTEX/standard cubic meter-ppmv;

Throughput = Annual average daily natural gas throughput, standard cubic meters per day; and

$C_{i,BTEX}$ = Annual average BTEX concentration of the natural gas at the inlet to the glycol dehydration unit, ppmv.

Similar equations are in NESHAP subpart HHH, as follows.

For existing sources:

Equation 1

$$EL_{BTEX} = 3.10x10^{-4} \times Throughput \times C_{i,BTEX} \times 365 \frac{days}{year} \times \frac{1\ Mg}{1x10^{6}\ grams}$$

Where:

EL_{BTEX} = Unit-specific BTEX emission limit, megagrams per year;

3.10×10^{-4} = BTEX emission limit, grams BTEX/standard cubic meter-ppmv;

Throughput = Annual average daily natural gas throughput, standard cubic meters per day; and

$C_{i,BTEX}$ = Annual average BTEX concentration of the natural gas at the inlet to the glycol dehydration unit, ppmv.

For new sources:

Equation 2

$$EL_{BTEX} = 5.44x10^{-5} \times Throughput \times C_{i,BTEX} \times 365 \frac{days}{year} \times \frac{1\ Mg}{1x10^{6}\ grams}$$

Where:

EL_{BTEX} = Unit-specific BTEX emission limit, megagrams per year;

5.44×10^{-5} = BTEX emission limit, grams BTEX/standard cubic meter-ppmv;

Throughput = Annual average daily natural gas throughput, standard cubic meters per day; and

$C_{i,BTEX}$ = Annual average BTEX concentration of the natural gas at the inlet to the glycol dehydration unit, ppmv.

Under both NESHAP subparts HH and HHH, the BTEX emission limits calculated through Equations 1 and 2. These standards may be met by emission reductions using control devices, process modifications, or a combination of control devices and process modifications. Alternatively, the standards can be met by demonstrating that the actual emissions from the uncontrolled operation of the glycol dehydration units are below the emission limit threshold.

Demonstration of compliance with the standards is achieved via monitoring, recordkeeping, or documentation of work practices, dependent on the emissions reduction method selected.

The EPA has received feedback from industry that suggest that using the small dehydrator emissions limit equations provided in NESHAP subparts HH and HHH, and the GlyCalc™ software can generate emission limits for BTEX near zero.[92] In these cases, industry contends that the cost to control reaches infinite values for sources with very low inlet BTEX concentrations. Specifically, industry stakeholders explained that the infinitesimally high cost of control tends to arise in values of $C_{i,BTEX}$ below 1 ppmv. To alleviate this problem, industry stakeholders suggested that small glycol dehydrators with inlet concentrations below the BTEX emission rates used to establish the MACT floor should be exempt from the emission standards.

On November 27, 2015, the EPA published a request for information regarding the compliance demonstrations for small glycol dehydration units with low BTEX emissions.[93] Industry provided input on this issue, including the following.

The Gas Processors Association reported that they conducted gas analyses for a new glycol dehydrator unit with inputs from several gas streams from their facility. The results from these tests found that their actual BTEX concentrations in their input streams were below the detection limit of 0.1 ppmv for the test they performed. In tandem to this measurement, the commenter also calculated the respective emission limits using the equations listed in the NESHAP. From the comparison of the values, the petitioner concluded that the calculated emission limits were untenable for a device that had input stream with concentrations of BTEX below the detection limit.[94] Another commenter cited the example of a TEG dehydrator used to treat the gas in a molecular sieve regeneration bed at a gas plant that was determined a major

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[92] Gas Processors Association (GPA). (2012). Administrative Petition for Reconsideration of Oil and Natural Gas Sector: New Source Performance Standards and National Emission Standards for Hazardous Air Pollutant Reviews; Final Rule, Promulgated at 77 FR 49490 (August 16, 2012); Docket ID. No. EPA-HQ-OAR-2010-0505. (October 16, 2012).

[93] 80 FR 74068 (November 27, 2015).

[94] Boss, T., Interstate Natural Gas Association of America. (2016). Letter to Witosky, M., EPA. RE: Docket ID No. EPA-HQ-OAR-2015-0747. Response to EPA Request for Information for Natural Gas Transmission and Storage NESHAP (40 CFR, part 63, subpart HHH). March 11, 2016. Document ID No. EPA-HQ-OAR-2015-0747-0023.

source under the NESHAP subpart HH. The throughput for the dehydrator averaged around 7.5 MMscf/day and the uncontrolled benzene emissions were 0.11 tpy. The BTEX concentration of the inlet stream measured less than 2 ppmv. To control this dehydration unit according to the requirements in the NESHAP subpart HH, an emission limit of 0.001 tpy of BTEX needed to be met. This emission limit require a 99.87 percent control. For this reason, the petitioner noted that the high level of control is excessive for a unit with less than 2 ppm inlet BTEX and a low volumetric throughput.[95]

Moreover, commenters suggested that the EPA should (1) add regulatory text to exempt glycol dehydrators with an average BTEX concentration of the natural gas at the inlet to the glycol dehydration of 1 ppmv or less from the requirements of 40 CFR 63.765(b)(1)(iii) and 63.1275(b)(1)(iii), or (2) develop an alternative standard for glycol dehydrators with low concentrations of BTEX in the input streams regardless of HAP concentrations in the glycol reboiler still overhead.[96] To address the petitioner's concerns, the EPA proposes an alternative of the original compliance equation where unit-specific parameters lead to an inviable emission limit using the original equation. The alternative equation is to be used by small glycol dehydrators whose BTEX inlet concentration is three times the relative detection limit of BTEX in the inlet stream to the dehydrator or lower. Thus, the proposed alternative equations are in the following format.

$$EL_{BTEX,alt} = Constant * Throughput * \left(3 * \sum RDL_{i,BTEX}\right) * 365 \frac{days}{year} * \frac{1\,Mg}{1\,x\,10^{6} grams}$$

Where:

$EL_{BTEX, alt}$ = Unit-specific BTEX emission limit for small dehydrators with $C_{i,BTEX}$ of $(3*\sum RDL_{i,BTEX})$ or less, megagrams per year;

[95] Hite, M., Gas Processors Association. (2016). Letter to U.S. Environmental Protection Agency Docket Clerk. Re: Comments on Oil and Natural Gas Sector: National Emission Standards for Hazardous Air Pollutants; Request for Information (Docket ID. No. EPA-HQ-OAR-2015-0747). (March 11, 2016). Document ID No. EPA-HQ-OAR-2015-0747-0025.

[96] Todd, M. American Petroleum Institute. (2016). Letter to McCarthy, G., EPA. Re: Environmental Protection Agency's (EPA's) "Request for Information – Oil and Natural Gas Sector: National Emission Standards for Hazardous Air Pollutants". (March 11, 2016). Document ID No. EPA-HQ-OAR-2015-0747-0022.

Constant = BTEX emission limit, grams BTEX/standard cubic meter-ppmv from current equations (3.28×10^{-4} for small existing dehydrators in subpart HH; 4.66×10^{-6} for new small dehydrators in subpart HH; 3.10×10^{-4} for small existing dehydrators in subpart HHH; and 5.44×10^{-5} for small new dehydrators in subpart HHH);

Throughput = Annual average daily natural gas throughput, standard cubic meters per day; and

RDL_i = relative detection limit of benzene, toluene, ethylbenzene, and xylenes, ppmv.[97]

Based on data received in a previous rulemaking, the EPA estimates that the relative sum of the detection limits of BTEX is 0.116 ppmv.[98] This would mean that three times the sum of the detection limits of BTEX amounts to 0.348 ppmv. The EPA believes that the RDLs for BTEX may be higher than 0.116 ppmv in this source category and is specifically requesting data specific to the relative detection limits of BTEX in inlet streams of glycol dehydrators (Question #9a).

We are also seeking comment on this application of the compliance equation for small glycol dehydrators on two specific questions. First, does this use of the equation ease the demonstration and verification of compliance on the part of operators and enforcement personnel? (Question #9b) Second, does using this equation create any incentive for operators to change the control methods used for these units to achieve compliance, and if so, how? (Question #9c)

6. Electronic Reporting

The EPA is proposing that owners and operators of Oil and Natural Gas Production Facilities and Natural Gas Transmission and Storage Facilities submit electronic copies of the required performance test reports through the EPA's Central Data Exchange (CDX) using the

[97] The RDL for Benzene is 0.022 ppmv, for Toulene is 0.014 ppmv, for Ethyl Benzene is 0.057 ppmv and for Xylenes is 0.023 ppmv.

[98] Representative Detection Limit (RDL) for Organic HAP for Lime Manufacturing Sources, Docket ID. EPA-HQ-OAR-2017-0015.

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. The proposed rule requires that performance test results be submitted in the format generated through the use of the EPA's Electronic Reporting Tool (ERT) or an electronic file consistent with the xml schema on the ERT website.[99] Similarly, performance evaluation results of continuous emissions monitoring systems (CEMS) that include a relative accuracy test audit must be submitted in the format generated through the use of the ERT or an electronic file consistent with the xml schema on the ERT website. Electronic files consistent with the xml schema on the ERT website must be accompanied by all the information required by 40 CFR 63.7(g)(2) in PDF format. The proposed rule also requires that Notification of Compliance Status (NOCS) reports be submitted as a PDF upload in CEDRI.

For semiannual compliance reports, the proposed rule requires that owners and operators use the appropriate spreadsheet template to submit information to CEDRI. A draft version of the proposed template[s] for these reports is included in the docket for this rulemaking. The EPA specifically requests comment on the content, layout, and overall design of the template[s] (Question #10).

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, 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.

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[99] *https://www.epa.gov/electronic-reporting-air-emissions/electronic-reporting-tool-ert.*

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 sources, air agencies, the EPA, and the public. Moreover, electronic reporting is consistent with the EPA's plan to implement Executive Order 13563 and is in keeping with the EPA's agency-wide policy. [100,101] 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.

7. Additional Proposed Actions

In addition to the proposed actions described above, we are soliciting comment on three additional issues related to the NESHAP.

As referenced in section II.C of this preamble, we requested testing for glycol dehydrators and acid gas removal units in the 2024 Phase II ICR. We requested analysis of rich TEG samples from glycol dehydrators and rich amine from AGRU's to detect the presence of metals that could be transferred from the raw natural gas to the rich glycol during dehydration or the rich amine solution from acid gas removal units during acid gas removal. We collected data on units that emit HAP to help inform the Agency in its review of the Oil and Gas NESHAP with respect to additional HAP that could be emitted from the oil and gas category.

The data showed negligible but detectable concentrations of metals for both units using EPA Method 6000/7000 for mercury and EPA Method 200 for all other metals. Notably, both EPA Method 200 and Method 6000/7000 test for trace elements in solution, and as such, the results do not reflect the concentration of metals in the gas phase. For the EPA to set standards

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

[101] 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.

applicable to the HAP, the HAP need to be in the gas phase at detectable levels to trigger CAA section 112(d).

To determine the potential HAP concentrations in the gas streams of glycol dehydrators and amine units, the vapor pressure of the metals must be considered. For most metals, the vapor pressure is negligible at working conditions (1-50 bar, and 300-450 Kelvin).[102] However, mercury can produce substantial emissions depending on the concentration of the aqueous stream. Using the data provided, the average concentration of mercury was multiplied by its vapor pressure for a range of working temperatures.[103] The resulting value as seen in the docket showed the theoretical concentration of mercury in the gas phase for both devices. For both units the results showed negligible, theoretical concentrations of mercury. Additionally, both units are fully enclosed and have low flow, making the potential of mercury and other metallic HAP to be minimal.

We are soliciting comment on whether to further pursue analysis of potential metal HAP emissions (Question #11). We consider the low levels of detected metals in solution, and the low likelihood of HAP emissions that could result from the presence of these metals to not warrant further investigation. Nonetheless, we invite comment and data showing more than theoretical emissions of HAP from such units, and what the magnitude of what those emissions may be before committing to further investigation of these potential emissions. We also request information from operators for data or information indicating that AGRUs and glycol dehydrators retain the metals that could be present in the amine and TEG, thereby reducing the potential for metal emissions where such metals could be present in the gas being treated.

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[102] U.S. Environmental Protection Agency. *Background Technical Support Document for the National Emission Standards for Hazardous Air Pollutants: Crude Oil and Natural Gas Production Facilities and Natural Gas Transmission and Storage Facilities - Technology Review and Reconsideration. NESHAP Subparts HH and HHH. Proposed Rules*. Natural Resources Division, Office of Clean Air Programs, Research Triangle Park, NC. (January 2026).

[103] Hicks, W.T., *Evaluation of Vapor-Pressure Data of Mercury, Lithium, Sodium, and Potassium*, J. Chem. Phys., 1963, 38, 8, 1873-1880, https://doi.org/10.1063/1.1733889.

The second issue the EPA is soliciting comment on adding other modeling software that can quantify emissions from glycol dehydrators and associated equipment for the purpose of determining emissions and showing compliance with applicable NESHAP. While the 1999 Final Rule allowed only the Glycalc™ model to be used for these purposes, the EPA now recognizes that operators use other available software.

The EPA has approved the use of the ProMax™ model as suitable for performing the emissions and related parameter determinations for which the GLYCalc™ model is already allowed in subpart HH and may be used as an alternative to the GLYCalc™ model under a list of stipulated conditions.[104] We are requesting comment on adding ProMax™ version 6.0 (or if an earlier version should also be acceptable) as an alternative to GLYCalc™ within the regulatory text, and other programs that operators may already be using, or considered using but declined to use because they were not listed in the NESHAP as acceptable alternatives (Question #12a). We also solicit comment on whether the EPA should revise the standard to a generic reference allowing the use of such software, and what performance requirements the EPA should include with a generic allowance of such software without requiring that the trademarked name of the software be promulgated into the NESHAP (Question #12b). Finally, since GRI-GLYCalc™ was classified as Legacy Software in 2023 and will no longer be supported or updated, should references to GRI-GLYCalc™ be removed from both NESHAP subpart HH and subpart HHH? (Question #12c)

As discussed in section III.B.5 of this preamble, NESHAP subparts HH and HHH include equations that are required to be used to calculate glycol-dehydrator-specific limits for the combined emissions of BTEX. In the 2011 Proposed Rule Amendments, the EPA originally proposed these equations. In the 2012 Final Rule, the EPA revised these equations in response to

[104] Johnson, S., EPA. (2022). Letter to Mr. Josh Ravichandran, Consulting Engineer – Western U.S., Bryan Research & Engineering, LLC.March 31, 2022. Letter approving the use of ProMax™ as an alternative to GLYCalc™, Docket ID No. EPA-HQ-OAR-2025-1348.

public comments. Specifically, the EPA stated "[i]n response to comments, we revised the MACT floor limit, which was calculated based on the average of the best performing 12 percent of small glycol dehydration units in the subpart HH source category (and the best performing five for subpart HHH), to account for these units' variability. To account for variability in the operation and emissions, the BTEX emission rates (in terms of g BTEX/scm-ppmv) were used to calculate the average emission rate and the 99 percent UPL to derive the MACT floor limit."[105] The details for this analysis were provided in a technical memorandum.[106] Regarding the changes made in the final rule, petitioners indicated that because significant changes were made to the MACT limit for small glycol dehydrators from the proposal to the final rule, it was impracticable for the public to comment on those changes during the comment period. Therefore, we are specifically requesting comment on the 2012 MACT floor analysis for small glycol dehydrators that determined the UPL (Question#16).

The UPL approach addresses variability of emissions test data from the best-performing source or sources in setting MACT standards. The UPL also accounts for uncertainty associated with emission values in a dataset, which can be influenced by components such as the number of samples available for developing MACT standards and the number of samples that will be collected to assess compliance with the emission limit. The UPL approach has been used in many environmental science applications. As explained in more detail in the UPL Memorandum, the EPA uses the UPL approach to reasonably estimate the emissions performance of the best-performing source or sources to establish MACT floor standards when the EPA has emissions test data that allow for such calculations.[107]

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[105] Oil and Natural Gas Sector: New Source Performance Standards and National Emission Standards for Hazardous Air Pollutants Reviews 40 CFR parts 60 and 63 Response to Public Comments on Proposed Rule, (August 23, 2011). (76 FR 52738). Document ID EPA-HQ-OAR-2023-0234-0448. p. 255.

[106] Memorandum. Brown, H., EC/R Inc., to Nizich, G. and Moore, B., EPA. Impacts of Final MACT Standards for Glycol Dehydration Units – Oil and Natural Gas Production and Natural Gas Transmission and Storage Source Categories. (April 17, 2012). Docket ID EPA-OAR-2010-0505-4494.

[107] For more information regarding the general use of the UPL and why it is appropriate for calculating MACT floors, see *Use of Upper Prediction Limit for Calculating MACT Floors* (UPL Memorandum), which is available in the docket for this rulemaking.

C. Technical Corrections to Subparts HH and HHH

We are proposing the following technical corrections to the CFR subparts HH and HHH. We are proposing to remove the word "fuel" from the text of 40 CFR 63.772(h)(4)(iii) "inlet gas fuel sampling" because it is not fuel being sampled. In addition, we are proposing to add a reference to the text of 40 CFR 63.766 (b)(3) in introduction in 40 CFR 63.766(b) that was inadvertently omitted.

D. What compliance dates are we proposing, and what is the rationale for the proposed compliance dates?

As discussed in section III.B.4 of this preamble, while the EPA proposes that CAA section 112(d)(6) does not require the Agency to expand the NESHAP to previously unregulated emission points, we are proposing in the alternative emission limits for these emission points. The EPA is proposing a series of compliance dates for the addition of methanol as a regulated HAP. The EPA is also proposing alternative compliance dates for the alternative standards we are proposing should the Agency proceed to finalize the alternative proposal with respect to unregulated emission points. Under CAA section 112(h)(i)(3)(A), those proposed compliance dates provide for compliance as expeditiously as practicable, but must require compliance within 3 years.

We are proposing new requirements for the control of methanol emissions from small dehydrators and storage vessels at major sources subject to subpart HH. This requirement will require owners or operators to identify all affected units where methanol could be introduced and emitted. Operators will have to begin recordkeeping and reporting to show compliance with the new standard. The EPA considers 12 months a reasonable period to comply where operators use combustion as the control method because we do not anticipate that operators will need to acquire and install new control systems and monitoring systems to verify compliance. However, the EPA is taking comment on whether non-combustion control methods are as effective as combustion control with respect to methanol. Since such units that do not currently use

combustion may need to be addressed, we are accepting comment on whether 12 months is sufficient for existing sources that do not use combustion devices to come into compliance (Question #18a).

For AGRU's, the alternative limits would require some owners or operators to identify all affected units, acquire and install control systems and monitoring systems to verify compliance, and conduct recordkeeping and reporting. While EPA data show most operators already possess the necessary controls, the Agency cannot practically distinguish them from operators who must acquire and install new systems which could take up to three years. Given this impracticality, we are proposing to provide up to three years for existing sources to comply with the proposed alternative requirements.

For storage vessels at facilities subject to NESHAP subpart HHH, the proposed alternative standard would require owners or operators to identify all affected units, review and revise operations to ensure that submerged fill will be used at all times and revise any recordkeeping and reporting procedures. The EPA is proposing to provide a year for existing sources to comply with this proposed alternative requirement. The EPA is proposing a year because sources generally use submerged fill, but the Agency considers it plausible that since it was not a requirement, new procedures may be required to ensure that submerged fill will be used at all times. The EPA considers a year as a reasonable period come into compliance.

We are proposing new requirements for control of HAP emissions from storage vessels without PFE at major facilities subject to NESHAP subpart HH. The proposed alterative standard would require owners or operators to identify all affected units, review and revise operations to ensure that submerged fill will be used at all times and conduct recordkeeping and reporting. The EPA is proposing to provide a year for existing sources to comply with these proposed alternative requirements. The EPA is proposing a year because sources generally use submerged fill, but the Agency considers it plausible that since it was not a requirement, new procedures

may be required to ensure that submerged fill will be used at all times. The EPA considers a year as a reasonable period come into compliance.

The EPA's alternative proposal requires submerged fill for control of emissions from transport vessel loading operations at major source facilities subject to NESHAP subpart HHH. The proposed alterative standard would require owners or operators to identify all affected units, review and revise operations to ensure that submerged fill will be used at all times, and conduct recordkeeping and reporting. The EPA is proposing to provide a year for existing sources to comply with these proposed alternative requirements. The EPA is proposing a year because sources generally use submerged fill, but the Agency considers it plausible that since it was not a requirement, new procedures may be required to ensure that submerged fill will be used at all times. The EPA considers a year as a reasonable period come into compliance.

We are proposing standards for natural gas-driven process controllers at major sources subject to NESHAP subpart HHH. This requirement will require owners and operators to identify all affected units, acquire and install process controllers meeting the standards, and begin recordkeeping and reporting. While our analysis indicates that facilities have generally converted their systems to lower-emitting units, the EPA recognizes that in a case where a controller must be replaced for compliance, the period of time required to replace a unit could be significant because it could include scheduling a shut-down of the operation. Therefore, the EPA is accepting comment on a proposal to allow existing sources to come into compliance by no later than 36 months after the effective date of the rule to allow operators to acquire and install equipment (Question #18b).

We are proposing zero emission standards for natural gas-driven pumps at major sources subject to NESHAP subpart HHH. This requirement will require owners or operators to identify all affected units, acquire and install pumps with zero emissions, and begin recordkeeping and reporting. While most units will already be zero-emission units, the Agency allows that some units may still exist that require replacement. The EPA is proposing that existing sources come

into compliance within 12 months. However, based on the idea that some units may need to be replaced, the EPA is taking comment on whether it is reasonable that existing sources have up to 12 months to comply with these new requirements (Question #18c).

We are proposing to change the application of CAA section 112(n)(4) as it applies to glycol dehydrators and storage vessels that are used upstream of processing plants in the production segment. We are proposing that glycol dehydrators and storage vessels be treated as associated equipment with respect to determining major source status, unless those units emit sufficient HAP to be considered major sources. This change will not affect prior determinations or the current status of existing sources. Any change to the status of facilities under this change would take force and effect upon application by an operator to change the status of an existing source, or determine first-time status for a new source, either of which can be effectuated upon application.

IV. Request for Comments

We are soliciting comments on this proposed rulemaking. In addition to general comments on this proposed rulemaking, we are also interested in additional data that may improve the analysis. We are specifically interested in receiving information regarding developments in practices, processes, and control technologies that reduce HAP emissions. Additionally, throughout this preamble, we solicit comment and responses to questions related to the differing standards. For convenience, we provide these questions in table 3.

Table 3. List of Questions

Question Number	Question
1	Should the EPA adopt OGI and 40 CFR part 60 appendix K as an alternative to EPA Method 21 leak detection and repair at processing plants?
2a	Approximately how many current major sources will be affected, such that the facility or unit would convert from a major source to an area source?
2b	What cost savings will your facility achieve due to it being converted from a major source to an area source under this change?

2c	Will facilities that would no longer be considered major sources remove or modify their current control systems such that the unit or facility would increase HAP emissions from current emissions?
3a	The EPA requests comment and information on whether methanol is emitted at natural gas transmission and storage facilities.
3b	If you provide comments that indicate there are no methanol emissions, the EPA requests information and rationale for this claim.
4a	The EPA is soliciting comment on using BTEX limits as a surrogate for all HAP except methanol.
4b	The EPA is soliciting data and comment as to whether BTEX is an appropriate surrogate for methanol emitted from small dehydrators and storage vessels.
5a	The EPA is specifically requesting comment on whether BTEX is a surrogate for methanol emissions from small dehydrators that comply using a method other than combustion.
5b	The EPA also requests information, analyses, and data that may support such surrogacy.
5c	The EPA is requesting comment on whether this additional standard is necessary for methanol emissions, or if the BTEX equation can also be proven to be an appropriate surrogate for methanol.
6a	The EPA is specifically requesting comment and information on whether methanol is emitted from dehydrators at natural gas transmission and storage facilities.
6b	If the comments indicate there are no methanol emissions, the EPA is requesting information and rationale for this claim.
7	The EPA is specifically requesting comment on the interpretation adopted by the D.C. Circuit in *LEAN* and the scope of the Agency's obligation and statutory authority to impose additional standards under the CAA section 112(d)(6) process for particular emission points not previously regulated.
7a	The EPA is requesting comment on whether AGRUs at facilities located prior to the point of custody transfer to a natural gas processing plant may also emit at major source levels and thus should be regulated to reduce emissions by 95 percent.
7b	The EPA is requesting comments and information on the existence of AGRUs at natural gas transmission and storage facilities, as well as emissions and control information.
8a	The EPA is proposing submerged fill as the MACT standard under CAA sections 112(d)(2)-(3), and requesting data showing that storage vessels are a source of HAP emissions at major source natural gas transmission and storage facilities.
8b	We are specifically soliciting comment on information to support or refute the assumptions about the use of submerged filling in 1999 to reduce emissions from storage vessels without the PFE at oil and natural gas production sites and at major source natural gas processing plants.
9a	We are soliciting comment on the EPA's proposal to establish a MACT standard under CAA section 112(d)(2)-(3) that requires submerged filling for both new and existing transport loading operations at major source natural gas processing plants and at major source transmission and storage facilities. We are specifically soliciting comment on this determination, along with information to support or refute these

	assumptions about the use of submerged filling in 1999, and currently, to reduce emissions from transport vessel loading operations at major source natural gas processing plants.
9b	We are specifically soliciting comment on information to support or refute these assumptions about the use of submerged loading in 1999, and currently, to reduce emissions from transport vessel loading operations at natural gas transmission and storage facilities.
10a	The EPA is soliciting comment on the proposal to establish that the MACT standard for existing sources is the use of low-bleed natural gas driven process controllers.
10b	We are specifically soliciting comment on information to support or refute these assumptions about the location, use, and the types of process controllers used at natural gas transmission and storage facilities in 1999.
11a	The EPA is requesting comment on the proposal to establish a MACT standard under CAA section 112(d)(2)-(3) that requires zero emissions for new and existing pumps at new natural gas transmission and storage facilities. We are specifically soliciting comment on this determination, along with information to support or refute these assumptions about the use of zero emissions pumps at natural gas transmission and storage facilities in 1999.
12a	The EPA believes that the BTEX RDLs may be higher than 0.116 ppmv in this source category and is specifically requesting data specific to the relative detection limits of BTEX in inlet streams of glycol dehydrators.
12b	Does this use of the equation ease the demonstration and verification of compliance on the part of operators and enforcement personnel? Second, do you have any comment on the EPA's use of a UPL in this standard.
12c	Does using this equation create any incentive for operators to change the control methods used for these units to achieve compliance, and if so, how?
13	The EPA requests comment on the content, layout, and overall design of the template[s] for performance reports.
14	Should EPA pursue more information to determine the actual emissions of metal HAP from acid gas removal units, glycol dehydrators, or other potential sources of metal HAP? Submit data showing actual emissions from oil and gas production, storage, or transmission units.
15a	The EPA is requesting comment on adding Promax™ version 6.0 (or if an earlier version should also be acceptable) as an alternative to Glycalc™ within the regulatory text, and other programs that operators may already be using, or considered using but declined to use because they were not listed in the NESHAP as acceptable alternatives.
15b	The EPA is soliciting comment on whether the Agency should revise the standard to a generic reference allowing the use of such software, and what performance requirements should be included with a generic allowance of such software without requiring that the trademarked name of the software be promulgated into the NESHAP.
15c	GRI-GLYCalc™ was classified as Legacy Software in 2023 and will no longer be supported or updated. The EPA is soliciting comment on whether references to GRI-GLYCalc™ should be removed from both NESHAP subparts HH and HHH?
16	The EPA is requesting comment on the 2012 MACT floor analysis for small glycol dehydrators that determined the UPL.

17	The EPA is soliciting industry comment as to the potential savings of the deregulatory provisions of this proposal.
18a	The EPA is taking comment on whether non-combustion control methods are as effective as combustion control with respect to methanol.
18b	The EPA is accepting comment on a proposal to allow existing controllers to come into compliance by no later than 36 months after the effective date of the rule to allow operators to acquire and install equipment.
18c	The EPA is accepting comment on a proposal to allow existing pumps to come into compliance by no later than 36 months after the effective date of the rule to allow operators to acquire and install equipment.

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 13563: Improving Regulation and Regulatory Review

This action is not a significant regulatory action, and the EPA therefore did not submit this action to the Office of Management and Budget (OMB) for review. The EPA prepared an economic analysis of the potential costs and benefits associated with this action. This analysis, *Economic Impact Analysis for National Emission Standards for Hazardous Air Pollutants: Crude Oil and Natural Gas Production Facilities and Natural Gas Transmission and Storage Facilities. Technology Review and Reconsideration,* can be found in the docket for this action (see Docket ID No. EPA-HQ-OAR-2025-1348).

The proposed option in which the EPA proposes that it is not obligated at this time to revise the NESHAP to add standards for previously unregulated emission points, does not have quantified cost and emissions impacts. However, there may be cost savings and increased emissions because of the change to the major source definition in the production segment of subpart HH. Those impacts cannot be quantified for this proposed action due to a lack of information on the universe of sources to which the change in definition might apply. The EPA solicits comment on the potential cost savings and emissions impacts of the deregulatory provisions of this proposal (Question #17).

The economic analysis includes estimates of incremental compliance costs and emissions reductions for two additional scenarios: the alternative proposed standards, and hypothetical more stringent standards that rely more on numerical limits than work practices. The more stringent standards are not being proposed; they are included to provide additional information to the public. Both scenarios are assessed relative to a baseline scenario that includes assumptions about the application of control measures in lieu of this action.[108] The pollutants for which we estimate emissions reductions are HAP and VOC. The analysis horizon over which the present value (PV) and equivalent annualized value (EAV) are estimated are for years 2028 to 2038. We estimate the PV and EAV under three and seven percent discount rates discounted back to 2025 in 2024 dollars.

The analysis is based on applying assumptions about the distribution of equipment, emissions profiles, and control cost and performance to an estimate of the universe of potentially affected sources. After accounting for baseline levels of control, our central analysis scenario for the alternative proposal standards assumes that there are no quantifiable control cost and emissions impacts; the only estimated costs pertain to the recordkeeping and reporting requirements discussed in section VI.C of this preamble. For the more stringent standards, our central analysis scenario assumes that only standards applying to vessel loading operations at current major sources result in cost and emissions impacts (other than recordkeeping and reporting). We estimate that there are 648 (449 in production and 199 in processing) and 65 major source facilities subject to NESHAP subparts HH and HHH, respectively, for a total of 713 major source facilities. Of those, we assume that 94 percent of NESHAP subpart HH processing facilities and 23 percent of NESHAP subpart HHH facilities include vessel loading

[108] Baseline control is assumed to result from the EG OOOOc for the more stringent standards for storage vessels (both subparts) and process controllers and pumps (NESHAP subpart HHH), and for other reasons (*e.g.*, State regulations) based our assessment of the ICR and technical expertise for AGRUs (alternative proposal and more stringent standards), storage vessels (alternative proposal standards), and vessel loading operations (alternative proposal and more stringent standards).

operations. Furthermore, we assume that 46 percent of vessel loading operations at NESHAP subpart HH processing facilities are controlled to at least 95 percent in the baseline.

The estimated compliance costs and emissions reductions are summarized in tables 4 and 5. There are no estimated impacts for the proposed option, though there may be cost savings and increased emissions because of the change to the major source definition in the production segment of subpart HH. For the alternative proposal standards, the estimated costs are attributable to recordkeeping and reporting, and there are no estimated emissions impacts. The estimates of the more stringent option are much higher than those for the alternative proposal standards since they include control costs.

Table 4. Present Value (PV) and Equivalent Annualized Value (EAV) of the Estimated Compliance Costs
[Million 2024$, Discounted to 2025]

	3 Percent discount rate		7 Percent discount rate	
Option	**PV**	**EAV**	**PV**	**EAV**
Proposed Option	0	0	0	0
Alternative Proposal Standards	0.9	0.1	0.7	0.09
More Stringent Standards	35	3.7	27	3.6

Table 5. Estimated Emissions Reductions
[Thousand short tons]

Option	HAP	VOC
Proposed Option	0	0
Alternative Proposal Standards	0	0
More Stringent Standards	8,800	32,000

B. Executive Order 14192: Unleashing Prosperity Through Deregulation

This action is not an Executive Order 14192 regulatory action because this action is not significant under Executive Order 12866.

C. Paperwork Reduction Act (PRA)

The information collection activities in the proposed amendments for 40 CFR part 63, subparts HH and HHH were submitted for approval to the Office of Management and Budget (OMB) under the PRA. The ICR document that the EPA prepared has been assigned EPA ICR number 1788.14 and 1789.13. You can find a copy of the ICR in the docket for this rule, and it is briefly summarized here.

The EPA is proposing a number of amendments to the Crude Oil and Natural Gas Production Facilities and from Natural Gas Transmission and Storage Facilities, regulating them under 40 CFR part 63, subparts HH and HHH. The amendments consist of: (1) already regulated emission points of currently regulated HAP; (2) proposed standards unregulated emission points as an alternative to the proposal that regulation is not required) ; and (3) regulated emission points of HAP for not currently regulated HAP. The EPA is also proposing amendments to add electronic reporting requirements for certain reports and performance test results. This ICR reflects the EPA's proposed changes to several emission points in the Crude Oil and Natural Gas source category. The information collected will be used by the EPA and delegated State and local agencies to determine the compliance status of affected facility subject to 40 CFR part 63, subparts HH and HHH. To address the average annual burden associated with these source categories, the EPA used a conservative assessment in the cost calculations associated with the increased burden due to the proposed and alternative amendments.

40 CFR part 63, subpart HH. The respondents are owners and operators of Crude Oil and Natural Gas Production Facilities. For the purposes of this ICR, it is assumed that oil and natural gas affected facilities located in the U.S. are owned and operated by the oil and natural gas industry, and that none of the affected facilities in the U.S. are owned or operated by Federal,

State, Tribal, or local government. All affected facilities are assumed to be privately owned for-profit businesses.

The EPA estimates an average of 3,580 respondents will be affected by 40 CFR part 63, subpart HH over the three-year period (2026-2028). The average annual burden for the recordkeeping and reporting requirements for these owners and operators is 55,400 person-hours, with an average annual cost of $8,920,000 over the three-year period. Compared to the previously approved ICR (1789.13), the proposed amendments would result in an increase in burden of 600 hours (total estimated hours difference between the previous and new (revised) ICR from 55,400 to 54,800, or 600 hours) and $70,000 (total estimated cost difference between the previous ICR and new (revised) ICR is $70,000 (from $8,920,000 to $8,850,000) on average over the 3-year period. Dividing $70,000 by 3,580 respondents represents a $20 (19.55)/respondent change. Similarly, dividing 600 hours by 3,580 respondents represents a 0.2 (0.167) hour/respondent change. This reflects an increase in burden per respondent of 0.2 hour and $20 per year, on average over the 3-yr period.

Respondents/affected entities: Owners and operators of Crude Oil and Natural Gas Production Facilities.

Respondent's obligation to respond: Mandatory.

Estimated number of respondents: 3,580.

Frequency of response: Varies depending on affected facility.[109]

Total estimated burden: 55,400 hours (per year). Burden is defined at 5 CFR 1320.3(b).

Total estimated cost: $8,920,000 ($2024) plus $1,110,000 of annualized capital O&M costs.

40 CFR part 63, subpart HHH. The respondents are owners and operators of Natural Gas Transmission and Storage Facilities. For the purposes of this ICR, it is assumed that oil and

[109] The specific frequency for each information collection activity within this request is shown in tables 1a through 1d of the Supporting Statement in the public docket.

natural gas affected facilities located in the U.S. are owned and operated by the oil and natural gas industry, and that none of the affected facilities in the U.S. are owned or operated by Federal, State, Tribal, or local government. All affected facilities are assumed to be privately owned for-profit businesses.

The EPA estimates an average of 100 respondents will be affected by 40 CFR part 63, subpart HHH over the three-year period (2026-2028). The average annual burden for the recordkeeping and reporting requirements for these owners and operators is 5,620 person-hours, with an average annual cost of $793,000 over the three-year period. Compared to the previously approved ICR (1789.12), the proposed amendments would result in an increase in burden of 240 hours (total estimated hours difference between the previous and new (revised) ICR is from 5,380 to 5,620, or 240 hours) and $34,000 (total estimated cost difference between the previous ICR and new (revised) ICR is $34,000 (from $793,000 to $759,00) on average over the 3-year period. Dividing $34,000 by 106 respondents represents a $320/respondent change. Similarly, dividing 240 hours by 106 respondents represents a 2.3 hour/respondent change. This reflects an increase in burden per respondent of 2.3 hour and $320 per year, on average over the 3-yr period.

Respondents/affected entities: Owners and operators of Natural Gas Transmission and Storage Facilities.

Respondent's obligation to respond: Mandatory.

Estimated number of respondents: 106.

Frequency of response: Varies depending on affected facility.[110]

Total estimated burden: 5,620 hours (per year). Burden is defined at 5 CFR 1320.3(b).

Total estimated cost: $793,000 ($2024), which includes no capital costs or O&M costs.

[110] The specific frequency for each information collection activity within this request is shown in tables 1a through 1d of the Supporting Statement in the public docket.

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 rulemaking. The EPA will respond to any ICR-related comments in the final rule. You may also send your ICR-related comments to OMB's Office of Information and Regulatory Affairs using the interface at www.reginfo.gov/public/do/PRAMain. Find this particular information collection by selecting "Currently under Review - Open for Public Comments" or by using the search function. OMB must receive comments no later than **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

D. Regulatory Flexibility Act (RFA)

I certify that this action will not have a significant economic impact on a substantial number of small entities under the RFA. The small entities subject to the requirements of this action are small businesses with operations in the oil and natural gas industry. As described in section VI.A of this preamble, the Agency assumes that for the proposed option, in which the EPA is not setting new standards for previously unregulated emission points, there are no compliance costs. For the alternative proposal standards, no small entities are estimated to experience a compliance cost impact of more than one percent of revenues. For the more stringent standards (which are not being proposed), the Agency estimates that between 2 and 6 (3–9 percent) small entities may experience a compliance cost impact more than one percent of revenues, while one (one percent) small entity may experience a compliance cost impact more than three percent of revenues. Details of this analysis are presented in *Economic Impact Analysis for National Emission Standards for Hazardous Air Pollutants: Crude Oil and Natural Gas Production Facilities and Natural Gas Transmission and Storage Facilities. Technology*

Review and Reconsideration, which can be found in the docket for this action (see Docket ID No. EPA-HQ-OAR-2025-1348).

E. Unfunded Mandates Reform Act (UMRA)

This action does not contain an unfunded mandate of $100 million (adjusted annually for inflation) or more (in 1995 dollars) as described in UMRA, 2 U.S.C. 1531–1538, and does not significantly or uniquely affect small governments. This action imposes no enforceable duty on any State, local or Tribal governments or the private sector.

F. Executive Order 13132: Federalism

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

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

This action has Tribal implications. However, it will neither impose substantial direct compliance costs on federally recognized Tribal governments, or preempt Tribal law, and does not have substantial direct effects on one or more Indian Tribes, the relationship between the Federal Government and Indian Tribes or on the distribution of power and responsibilities between the Federal Government and Indian Tribes, as specified in E.O. 13175.[111] In the November 2021 Proposal for the New Source Performance Standards for Oil and Natural Gas Sector, the EPA found that 112 unique Tribal lands are located within 50 miles of an affected oil and natural gas source, and 32 Tribes have one or more oil or natural gas sources on their lands.[112] While many of the affected sources impacted by proposed NESHAP subparts HH and HHH Tribal lands are owned by private entities, some Tribes also own affected sources. There would be Tribal implications associated with this rulemaking in the case where an affected

[111] *See* 65 FR 67249 (November 9, 2000).
[112] 86 FR 63143 (November 15, 2021).

source is owned by a Tribal government or in the case of the NESHAP a Tribal government is given delegated authority to enforce the rulemaking.

While the EPA has not consulted with Tribal officials under the EPA Policy on Consultation and Coordination with Indian Tribes in the process of developing this action, the Agency specifically requests comments from Tribal officials on this action in accordance with the EPA Policy on Consultation and Coordination with Indian Tribes, and will engage in consultation with Tribal officials as these rules becomes finalized and implemented.

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

Executive Order 13045 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 a significant regulatory action under section 3(f)(1) of 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.

I. 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.

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

This action does not involve any new technical standards. Therefore, the NTTAA does not apply.

List of Subjects in 40 CFR Part 63

Environmental protection, Administrative practice and procedures, Air pollution control, Hazardous substances, Reporting and recordkeeping requirements, Volatile organic compounds.

Lee Zeldin,
Administrator.

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