

EXECUTIVE SUMMARY

Control of VOC Emissions from Conventional Oil and Natural Gas Sources 25 Pa. Code Chapter 129

Purpose and Summary of the Final-Omitted Rulemaking

The Environmental Quality Board (Board) amends Chapter 129 (relating to standards for sources) to read as set forth in Annex A. This final-omitted rulemaking amends §§ 129.131—129.140 to adopt reasonably available control technology (RACT) requirements and RACT emission limitations for conventional oil and natural gas sources of volatile organic compound (VOC) emissions. These sources include natural gas-driven continuous bleed pneumatic controllers, natural gas-driven diaphragm pumps, reciprocating compressors, centrifugal compressors, fugitive emissions components and storage vessels installed at conventional well sites, gathering and boosting stations and natural gas processing plants, as well as storage vessels in the natural gas transmission and storage segment. The Board adds definitions, acronyms and United States Environmental Protection Agency (EPA) methods to § 129.132 (relating to definitions, acronyms and EPA methods) to support the implementation of the control measures. Notice of proposed rulemaking is omitted under section 204(3) of the act of July 31, 1968 (P.L. 769, No. 240) (45 P.S. § 1204(3)), known as the Commonwealth Documents Law (CDL).

VOC emissions are precursors to the formation of ground-level ozone, a public health, welfare and environmental hazard. However, ground-level ozone is not emitted directly to the atmosphere from any sources, including conventional oil and natural gas sources. Ground-level ozone is formed by a photochemical reaction between emissions of VOC and nitrogen oxides (NO_x) in the presence of sunlight; oil and gas sources do emit these two pollutants. Ground-level ozone is a highly reactive gas, which at sufficiently high concentrations can produce a wide variety of effects harmful to public health and welfare and the environment. Additionally, climate change may exacerbate the need to address ground-level ozone. According to the EPA, atmospheric warming, as a result of climate change, may increase ground-level ozone in regions across the United States. This impact could also be an issue for states trying to comply with future ozone standards.

In accordance with sections 172(c)(1), 182(b)(2)(A) and 184(b)(1)(B) of the CAA (42 U.S.C.A. §§ 7502(c)(1), 7511a(b)(2)(A) and 7511c(b)(1)(B)), this final-omitted rulemaking establishes the VOC emission limitations and other RACT requirements consistent with the EPA's recommendations in the "Control Techniques Guidelines for the Oil and Natural Gas Industry," EPA 453/B-16-001, Office of Air Quality Planning and Standards, EPA, October 2016 (2016 O&G CTG) as RACT for these sources in Pennsylvania. See 81 FR 74798 (October 27, 2016). The EPA defines RACT as "the lowest emission limitation that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility." See 44 FR 53761 (September 17, 1979).

The Department reviewed the RACT recommendations included in the 2016 O&G CTG for their applicability to the ground-level ozone reduction measures necessary for this Commonwealth and determined that the VOC emission reduction measures and other requirements are appropriate for this source category. However, based on analysis of data specific to this

Commonwealth, the Department determined in three cases that RACT requirements more stringent than the recommendations in the 2016 O&G CTG are cost-effective and necessary to continue the Commonwealth's progress in attaining and maintaining the ground-level ozone NAAQS. The Department addressed VOC emissions from unconventional sources in a separate rulemaking.

In the first case, the Department determined that a 2.7 TPY VOC emission threshold for storage vessels is RACT as it is technically and economically feasible for both potential to emit and actual emissions from all covered storage vessels. The Department's analysis examined the sensitivity to the initial capital cost of the control device and found that the total cost per ton of VOC reduced is below the RACT benchmark of \$6,600 per ton reduced. Therefore, in § 129.133(a)(1) of this final-omitted rulemaking a 2.7 TPY VOC emission threshold applies to conventional owners or operators of storage vessels installed at conventional well sites, gathering and boosting stations and natural gas processing plants, and in the natural gas transmission and storage segment, based on the Department's cost analysis.

In the second case, § 129.136 of this final-omitted rulemaking establishes requirements for conventional owners or operators to implement reciprocating compressor rod packing replacements on reciprocating compressors located at conventional well sites. The requirement is based on the Department's analysis, further detailed in the Regulatory Analysis Form (RAF), which shows that it is both technically and economically feasible to require reciprocating compressor rod packing replacements every 26,000 hours of operation or every three years for reciprocating compressors located at conventional well sites. The analysis showed that the cost-effectiveness of the rod packing replacement is highly sensitive to the emissions factor used to represent emissions from reciprocating compressors. Using the average of several emission factors from the University of Texas at Austin's Emission Factor Improvement Study, the cost per ton of VOC reduced is approximately \$6,600 which is consistent with the RACT benchmark. See Harrison, M., Galloway, K., Hendler, A., Shires, T., Allen, D., Foss, M., Thomas, J., Spinhirne, J., [Natural Gas Industry Methane Emission Factor Improvement Study Final Report](#) Cooperative Agreement No. XA-83376101, Dec. 2011, https://dept.ceer.utexas.edu/ceer/GHG/files/FRreports/XA_83376101_Final_Report.pdf.

In the third case, the Department's analysis shows that it is both technically and economically feasible for an affected conventional owner or operator to implement instrument-based leak detection and repair (LDAR) inspections at a conventional well site with an average production of equal to or greater than 15 barrels of oil equivalent (BOE) per day with the frequency of inspections based on the production from each individual well at the well site. The owner or operator of a conventional well site with an average production of 15 BOE or more per day and with at least one individual well producing 15 BOE or more per day, on average, shall conduct monthly audible, visual, olfactory inspections (AVO) and quarterly instrument-based LDAR inspections of fugitive emissions components. The owner or operator of a conventional well site with an average of 15 BOE or more per day and at least one individual well producing 5 BOE or more but less than 15 BOE per day, on average, shall conduct monthly AVO inspections and annual instrument-based LDAR inspections of fugitive emissions components. In this final-omitted rulemaking, the Department also included an option for the owner or operator of a conventional well site producing, on average, equal to or greater than 15 BOE per day, and at

least one well producing, on average, equal to or greater than 5 BOE per day but less than 15 BOE per day to submit to the Department a request for an exemption from the annual instrument-based LDAR requirement. However, the request must include, among other information, a demonstration that the annual LDAR requirement is not RACT (technically or economically feasible) for the well site. If approved, this exemption request will be submitted to EPA as a revision to the Commonwealth's SIP.

The Department estimates that in 2020, sources installed at conventional well sites emitted an estimated 18,971 TPY VOC and that implementation of the control measures in this final-omitted rulemaking could reduce VOC emissions by as much as 9,204 TPY. These VOC emission reductions will contribute to reductions in the formation of ground-level ozone and to achieving and maintaining the ozone NAAQS.

While this final-omitted rulemaking requires VOC emission reductions, methane emissions are also reduced as a co-benefit, because both VOC and methane are emitted from oil and gas operations. Methane is a potent greenhouse gas with a global warming potential more than 28 times that of carbon dioxide over a 100-year time period, according to the EPA. The EPA has identified methane, the primary component of natural gas, as the second-most prevalent greenhouse gas emitted in the United States from human activities. The Department estimates that conventional well sites emitted 365,103 TPY methane in 2020, and that the co-benefit methane emissions reduction from this final-omitted rulemaking may be as much as 175,788 TPY. Furthermore, the technically and economically feasible RACT determinations in this final-omitted rulemaking for storage vessels, reciprocating compressors at well sites and fugitive emissions components result in a greater reduction of VOC emissions than implementing the EPA's RACT recommendations from the 2016 O&G CTG resulting in an additional 304 TPY of VOC and 5,790 TPY of methane emissions reductions.

This final-omitted rulemaking will be submitted to the EPA for approval as a revision to the Commonwealth's State Implementation Plan (SIP) following promulgation of the final-omitted regulation.

Affected Parties

This final-omitted rulemaking will apply statewide to owners or operators of one or more of the following conventional oil and natural gas sources of VOC emissions which were constructed on or before the effective date of this final-omitted rulemaking: natural gas-driven continuous bleed pneumatic controllers, natural gas-driven diaphragm pumps, centrifugal compressors, reciprocating compressors, fugitive emission components and storage vessels installed at conventional well sites, gathering and boosting stations and natural gas processing plants, as well as storage vessels in the natural gas transmission and storage segment.

The Department identified 4,719 conventional owners or operators of approximately 27,260 facilities in this Commonwealth that may be affected by this final-omitted rulemaking. Approximately 3,704 of the 4,719 conventional owners or operators may meet the definition of small business as defined in section 3 of the Regulatory Review Act (71 P.S. § 745.3). Based on information supplied by commentators on the proposed combined rulemaking, the Oil and Gas Production Report, and the Department's Air Information Management System (AIMS)

database, the Department estimates there are 27,260 conventional well sites. There are also 486 gathering and boosting stations, 15 processing plants, and 120 transmission stations in this Commonwealth that the Department cannot distinguish between conventional and unconventional sources. If any of these sources are used by the conventional industry, they are regulated through this final-omitted rulemaking. The Department estimates that conventional owners or operators have at least 6 storage vessels at 6 conventional well sites and 26,284 pneumatic controllers at 26,284 conventional well sites that will be subject to requirements under this final-omitted rulemaking. The owners or operators of approximately 95 of 27,260 conventional well sites will be required to implement instrument-based LDAR inspections under this final-omitted rulemaking.

Rulemaking Background and History

On December 17, 2019, the Board adopted the Control of VOC emissions from Oil and Natural Gas Sources proposed rulemaking (referred to as the combined rulemaking). The combined rulemaking included VOC RACT requirements for five categories of oil and natural gas sources of VOC emissions in this Commonwealth, including sources used by the unconventional and conventional industries. On May 23, 2020, the combined rulemaking was published for a 66-day comment period at 50 Pa.B. 2633 (May 23, 2020). Three public hearings were held virtually on June 23, 24, and 25, 2020. Over 100 individuals provided verbal testimony. The comment period closed on July 27, 2020. The Board received over 4,500 comments, including comments from the House and Senate Environmental Resources and Energy Committees (ERE Committees), members of the General Assembly and the Independent Regulatory Review Commission (IRRC). The majority of the commentators expressed their support for the VOC RACT requirements in the combined rulemaking, noting the need to address air emissions from the oil and gas sector. On March 15, 2022, the Board adopted the combined rulemaking as a final-form rulemaking.

Also, on March 15, 2022, the Board submitted the final-form combined rulemaking to IRRC for its consideration. On April 26, 2022, the House ERE Committee sent a letter to IRRC indicating their disapproval of the combined rulemaking due to their interpretation of language in the Pennsylvania Grade Crude Development Act, the act of June 23, 2016 (P.L. 375, No. 52) (58 P.S. §§ 1201—1208), known as Act 52. The letter stated the House ERE Committee's position that Act 52 requires the Board to submit two rulemaking packages — one that applies to unconventional oil and natural gas sources and one that applies to conventional oil and natural gas sources. The House ERE Committee's letter to IRRC initiated the concurrent resolution process under section 7(d) of the RRA (71 P.S. § 745.7(d)) which allows the General Assembly to adopt a resolution that disapproves and permanently bars a final regulation from taking effect. While the Board disagrees with the House ERE Committee's interpretation of Act 52, to address their concerns and avoid further delay, on May 4, 2022, the Board withdrew the combined rulemaking from IRRC's consideration. The Board then revised the combined rulemaking to apply only to unconventional oil and natural gas sources. On June 14, 2022, the Board adopted the revised Control of VOC Emissions from *Unconventional* Oil and Natural Gas Sources final-form rulemaking (referred to as the unconventional rulemaking). On July 21, 2022, IRRC unanimously approved the unconventional rulemaking.

Given the concerns expressed by the House ERE Committee and other commentators during the regulatory process for the combined rulemaking, the Department developed this separate rulemaking to control VOC emissions from *conventional* oil and gas sources of VOC emissions.

Final-Omitted Rulemaking

Under section 201 of the CDL (45 P.S. § 1201), an agency is required to provide public notice of its intention to promulgate, amend or repeal administrative regulations. Section 202 of the CDL (45 P.S. § 1202) also requires agencies to review and consider any written comments submitted under section 201 and authorizes agencies to hold public hearings as appropriate. However, under section 204 of the CDL (45 P.S. § 1204), an agency may omit or modify the procedures specified in sections 201 and 202, if:

The agency for good cause finds (and incorporates the finding and a brief statement of the reasons therefor in the order adopting the administrative regulation or change therein) that the procedures specified in sections 201 and 202 are in the circumstances impracticable, unnecessary, or contrary to the public interest.

Public notice and solicitation of public comments are impracticable, unnecessary, and contrary to the public interest for the amendments included in this final-omitted rulemaking. These procedures are impracticable and unnecessary because the VOC RACT requirements for the conventional oil and natural gas sources covered by this final-omitted rulemaking are identical to those contained in the combined rulemaking. As detailed above, the Board provided a comment period and three public hearings for the combined rulemaking and numerous members of the public provided testimony and submitted comments. Those comments were then used in the development of the final-form combined rulemaking and this final-omitted rulemaking. Therefore, this final-omitted rulemaking was already subject to a notice and comment process when the combined rulemaking was published in the *Pennsylvania Bulletin* on May 23, 2020.

The comment and response document included with this final-omitted rulemaking contains all comments received during the comment period for the combined rulemaking. A public comment period is also contrary to the public interest because it will delay the implementation of the VOC RACT requirements in this final-omitted rulemaking, resulting in the Commonwealth being unable to satisfy the December 16, 2022, sanction deadline. If the Board were to provide notice of proposed rulemaking, and an additional public comment period and public hearings, the Commonwealth would be unable to submit this rulemaking to the EPA as a SIP revision by December 16, 2022. The entire rulemaking process in this Commonwealth takes about two years, sometimes longer, from start to finish, and the concurrent resolution process under the RRA further lengthens that timeline. Additional delay of this rulemaking would further harm the public interest because the Commonwealth would lose millions of dollars in Federal highway funding and much needed VOC and methane emission reductions. As a result, the Board finds that the use of the final-omitted rulemaking process is for good cause and that additional public comment in this case is not necessary or in the public interest.

Advisory Groups

The combined rulemaking was presented to the Air Quality Technical Advisory Committee on December 9, 2021, the Citizens Advisory Council (CAC) Policy and Regulatory Oversight Committee on January 12, 2022 and the full CAC on January 18, 2022, and the Small Business Compliance Advisory Committee on January 27, 2022.

Recommendation to the Board

The Department recommends the Board adopt this final-omitted rulemaking.