

Final Control Techniques Guidelines for Reducing Smog-Forming Volatile Organic Compounds from the Oil and Natural Gas Industry: Fact Sheet

Overview

- On October 20, 2016, the U.S. Environmental Protection Agency issued final Control Techniques Guidelines (CTGs) for reducing smog-forming volatile organic compound (VOC) emissions from existing oil and natural gas equipment and processes in certain states and areas with smog problems.
- The final guidelines are part of EPA's strategy, announced in January 2015, to reduce harmful pollution from the large and complex oil and natural gas industry. VOCs contribute to the formation of ground-level ozone, or smog, which can harm the respiratory system, aggravate asthma and lung diseases, and is linked to premature death from respiratory causes. Children, people with asthma, older adults, and people of all ages who are active outdoors, especially outdoor workers, are the most at risk from ozone exposure.
- The CTGs are designed to assist states that are required to address VOC emissions from covered oil and gas sources as part of their state plans for meeting EPA's national standards for ground-level ozone. Affected areas and states will have to address the sources covered in the guidelines as part of state plans for meeting the ozone standards. Oil and gas development occurs in a number of these areas and states.
- Sections 182 and 184 of the Clean Air Act each require certain states to implement Reasonably Available Control Technology (RACT), to limit VOC emissions from existing sources covered by a CTG. EPA defines RACT as the lowest emissions limit a particular source can meet by applying technology that is reasonably available, considering both technological and economic feasibility.
- CTGs are not regulations and do not impose legal requirements directly on pollution sources; rather, they provide recommendations for state and local air agencies to consider as they determine what emissions limits to apply to covered sources in their jurisdictions in order to meet RACT requirements. States are encouraged to take additional steps to reduce VOC emissions beyond those included in the CTG.
- EPA developed the oil and gas RACT recommendations based on currently available data and information about the available approaches for reducing VOC emissions from these sources, including the costs of those approaches.
- The RACT recommendations in the oil and gas CTGs include technologies and approaches, such as replacing high-bleed pneumatic controllers with low-bleed controllers and replacing rod packing on a regular recommended schedule, that are widely available at a reasonable cost to reduce the amount of natural gas – and the VOCs that come with it -- that is vented to the air. Technologies and approaches such as these can help save natural gas that otherwise would go to waste.
- The requirement to implement RACT applies in ozone nonattainment areas classified as "Moderate" and above, and throughout the Ozone Transport Region. Twenty-one areas in

the U.S. currently are classified as “Moderate” and above for the 2008 ozone standards. The Ozone Transport Region encompasses 11 northeast states and the metropolitan statistical area that includes Washington D.C. and portions of northern Virginia. The states are: Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island and Vermont. While RACT is required only in these areas and states, states also may adopt the recommendations in the CTGs for other areas in their jurisdictions, if they choose.

- The CTGs also include model rule language that states may use as a starting point if they choose to adopt the RACT recommendations EPA has outlined. States may use different technology and approaches, subject to EPA approval. The CTG also includes detailed information on cost-effective control technologies to help states in making their RACT determinations.

What the Guidelines Cover

- The guidelines include EPA’s RACT recommendations for reducing VOC emissions from a range of equipment and processes used in the oil and natural gas production industry including: storage tanks, centrifugal and reciprocating compressors, pneumatic controllers, pneumatic pumps, and equipment leaks from natural gas processing plants. The guidelines also include RACT recommendations for reducing VOC leaks (also called fugitive emissions) at production gathering and boosting stations, and at oil and natural gas well sites.
- The CTGs establish requirements for a variety of equipment located at low-producing well sites (producing less than 15 barrels of oil equivalent per day), such as storage tanks, pneumatic controllers and pneumatic pumps. EPA is not finalizing a RACT recommendation for fugitive emissions at these well sites at this time. The CTGs issued today do not restrict state development of controls for low-producing well sites.
- The guidelines also do not address completions of hydraulically fractured oil and natural gas wells, because completions and recompletions of hydraulically fractured wells are covered under EPA’s New Source Performance Standards for the oil and natural gas industry.
- See the table at <https://www.epa.gov/controlling-air-pollution-oil-and-natural-gas-industry> for a summary of the RACT recommendations included in the final CTGs.

State Requirements under the CTGs

- States subject to the CTGs must submit their RACT rules to EPA for review and approval as part of the state implementation plan (SIP) process, whether they implement the recommendations EPA outlined in the guidelines or choose different approaches. EPA will evaluate each state’s rules and determine whether they meet RACT requirements under the Clean Air Act. The agency will do this through notice-and-comment rulemaking.
- Some areas or states subject to RACT requirements may not have any oil and natural gas sources covered by the CTGs in their jurisdictions. In this case, a state may meet its obligations under the CTGs by submitting a statement to EPA certifying that they do not have any covered sources.

Requirements for the 2008 ozone standards

- States subject to RACT requirements must revise their SIPs for the 2008 ozone standards to include their RACT determinations for the oil and gas sources covered by the CTGs. For this CTG, the revisions are due to EPA within two years after the CTGs are published in the Federal Register. In a memo also issued on October 20, EPA notes that states plans must require that emissions controls for the covered sources be implemented as soon as practical, but no later than Jan. 21, 2021.

Requirements for the 2015 ozone standards

- EPA anticipates designating attainment and nonattainment areas for the 2015 ozone standards in fall 2017, with designations taking effect by early 2018. States with nonattainment areas classified as “Moderate” and above for those standards and states in the Ozone Transport Region would have to make RACT determinations for the sources covered by the guidelines issued today, along with sources covered by all other CTGs. SIP revisions that include these RACT determinations would be due to EPA no later than two years after the effective date of designations.
- Tribes may choose to adopt RACT to address the oil and gas CTGs as part of a Tribal Implementation Plan. If tribes do not develop a plan for ozone nonattainment areas of Indian country classified as “Moderate” and above, the EPA will issue a Federal Implementation Plan if it determines that doing so is necessary or appropriate to protect air quality.

Emissions Reductions and Estimated Costs

- EPA estimates VOC emissions would be reduced by about 80,000 tons per year, if all affected states implement the recommendations as outlined in the oil and gas CTGs. VOCs contribute to the formation of ground-level ozone, or smog, which can harm the respiratory system, aggravate asthma and lung diseases, and is linked to premature death from respiratory causes
- Many controls to reduce VOCs also reduce methane – a potent greenhouse gas with a global warming potential more than 25 times that of carbon dioxide -- and other air toxics as a co-benefit. EPA estimates methane would be reduced by 200,000 tons if states implement the recommendations as outlined in the guidelines – the equivalent of reducing more than 4.5 million tons of carbon dioxide, or the greenhouse gas emissions of nearly a million passenger vehicles driven for one year. Air toxics, which are known or suspected to cause cancer and other serious health effects, would be reduced by 3,000 tons annually.
- EPA did not conduct a Regulatory Impact Analysis for the guidelines, because CTGs are not regulations; they are RACT recommendations for states. However, to assist states in making their RACT determinations, EPA is providing detailed information on the estimated costs of

reducing emissions from each type of equipment covered in the guidelines.

- If all affected states implement all of the RACT recommendations outlined in the CTGs, EPA estimates combined illustrative costs would be \$390 million in capital costs, with annual costs at \$100 million, after savings from the sale of recovered gas. These illustrative costs could vary, based on what steps states ultimately choose to reduce VOC emissions from covered sources in their areas.

BACKGROUND

- The final CTGs are one of a series of steps EPA has taken to reduce harmful pollution from the oil and natural gas industry:
 - In 2012, EPA issued New Source Performance Standards (NSPS) to reduce smog-forming VOC emissions from new, modified and reconstructed oil and gas sources. Those standards included the first federal requirements for natural gas wells that are hydraulically fractured, along with standards for other processes and equipment not previously regulated at the federal level.
 - In spring 2014, the Obama Administration released the Climate Action Plan: Strategy to Reduce Methane Emissions. As part of that Strategy, EPA developed a series of five technical white papers that focused on technical issues covering emissions, and mitigation techniques that targeted methane and VOCs. The agency sought independent peer review of the white papers and received more than 43,000 comments from the public.
 - In January 2015, EPA and the Administration announced a broad-based strategy to reduce methane and VOCs from the oil and natural gas industry. Focusing on the equipment and processes covered in the white papers, EPA asked states and tribes to volunteer to participate in a series of discussions on approaches the agency should consider in setting standards.
 - In August 2015, EPA proposed a suite of commonsense requirements to combat climate change, reduce air pollution that harms public health and provide greater certainty about Clean Air Act permitting requirements for the oil and gas industry. These measures included proposed updates to the New Source Performance Standards; proposed updates to clarify the agency's air permitting rules; a proposed Federal Implementation Plan to implement minor New Source Review permitting in Indian country; and draft CTGs for reducing VOC emissions from existing equipment and processes in the oil and natural gas industry.
 - In March 2016, EPA announced it would begin developing regulations for methane emissions from existing oil and gas sources immediately and will move as expeditiously as possible to complete this process.

- In May 2016, EPA issued final updates to its New Source Performance Standards and permitting rules to curb emissions of methane, smog-forming VOCs and toxic air pollutants such as benzene from new, modified and reconstructed sources, and final updates to permitting rules to provide greater certainty about Clean Air Act permitting requirements for industry. The agency also took a critical step toward regulating methane emissions from existing oil and gas sources, issuing for public comment a draft Information Collection Request that will require companies to provide information instrumental for developing comprehensive regulations.
- EPA reviewed other Control Techniques Guidelines, the final NSPS, state and local VOC emission reduction approaches, and information on costs, emissions and available control technologies, along with public comment it received on the draft CTGs released in 2015, in developing these final guidelines.

FOR MORE INFORMATION

- To read the final CTGs and information for states, visit <https://www.epa.gov/controlling-air-pollution-oil-and-natural-gas-industry>