

January 15, 2019

Commissioner Basil Seggos
Ona Papageorgiou, Bureau of Air Quality Planning
New York State Department of Environmental Conservation
625 Broadway Albany, NY 12233-3251

Dear Ms. Papageorgiou and Commissioner Segos:

Thank you for the opportunity to comment on the Stakeholder Regulation Outline for Oil and Gas Sector Emissions (6 NYCRR Part 203) recently issued by the Department of Environmental Conservation (DEC). We are glad to see DEC take on the challenge of controlling pollution from the oil and gas sector.

Please accept these comments on behalf of Earthworks, a national nonprofit organization committed to protecting communities and the environment from the impacts of mining and energy development while seeking sustainable solutions. For more than 25 years, we have fulfilled our mission by working with communities and grassroots groups to reform government policies, improve corporate practices, influence investment decisions, and encourage responsible materials sourcing and consumption.

Since 2014, Earthworks' certified thermographers have conducted nearly 1,400 individual investigations into air emissions from oil and gas facilities in 16 US states (as well as Canada, Mexico, and Argentina) using Optical Gas Imaging (OGI) technology (specifically a Forward Looking Infrared, or FLIR, camera).[1]

Taken together, Earthworks' library of OGI videos demonstrates the potential for pollution at every stage of shale gas development, from production to pipeline transport, and from numerous sources at the same site and across local areas. Most relevant for New York State, Earthworks has documented emissions at compressor stations of various sizes; gas metering and regulating stations; and pipelines, as well as during planned and unplanned venting activities.

Following are comments regarding DEC's overall approach to oil and gas emission regulation and comments on specific aspects of the Stakeholder Regulation Outline for which DEC requested input.

New York State Has The Opportunity To Lead

We appreciate DEC's initiative to develop regulations to control air pollution from the oil and gas sector. This effort reflects the fact that even though New York made the historic decision in 2014 to prohibit unconventional shale gas production, the state remains a large gas consumer and is

pursuing the build-out of gas transportation and delivery infrastructure. These trends unfortunately exacerbate both the global climate crisis and the persistence of ozone levels that exceed federal standards (i.e., are in non-attainment) in several parts of New York.

In 2018, Earthworks studied the question: "If New York builds and uses the proposed natural gas pipelines and associated infrastructure, can the Cuomo Administration achieve its goal of reducing greenhouse gas emissions (GHG) 40% below 1990 levels by 2030?" As detailed in our report, *New York's Energy Crossroads,* the answer is a resounding no. In fact, the plans for natural gas infrastructure currently considered would actually *increase* GHG by 12% above 2015 levels, driven by the state's 23% increase in natural gas use.[2]

In this context, New York can ill afford to get air pollution control regulations wrong. Any future regulations should reflect the leadership on climate to which Governor Cuomo and DEC aspire by regulating both methane and volatile organic compounds (VOCs) from all existing and new sources.

Any Future Rule Must Include Methane Control Requirements

Earthworks strongly supports DEC's proposal to include methane alongside VOCs in future regulations. The Stakeholder Outline specifies methane control with regard to storage vessel emissions, quarterly Leak Detection and Repair (LDAR), and reciprocating and centrifugal compressors. We recommend that any future rule clearly apply in its entirety to both VOCs and methane. Oil and gas operations emit both methane and VOCs, often simultaneously. For this reason, DEC should regulate them simultaneously.

In 2012, EPA adopted standards (Control Technique Guidelines or CTG) for the control of VOC pollution from oil and gas industry sources (40 CFR Part 60, Subpart OOOO). Just a few years later, the agency developed similar methane requirements (NSPS OOOOa). EPA concluded that GHG emitted from the same sources, "endanger both the public health and the public welfare of current and future generations."[3]

Control Technique Guidelines Do Not Directly Limit Greenhouse Gas Emissions

The CTG is limited by design to control only VOCs, not methane specifically (or other GHGs). As a result, many oil and gas industry sources of emissions are missed.

Operators who produce or process "dry" gas have potentially lower VOCs, but relatively higher methane. New York also transports and distributes large volumes of finished gas—the content of which is nearly all methane. As a result, the state's compressor, metering and regulating, and pigging stations release proportionately higher methane pollution. Unless DEC specifically regulates methane, many of these GHG sources from the oil and gas industry may escape protection from a CTG limited to VOCs.

DEC is aware that the EPA's 2012 CTG covers only select sources of VOC emissions from the production and processing segments of the onshore oil and natural gas industry (i.e., pneumatic controllers, pneumatic pumps, compressors, equipment leaks, and fugitive emissions). The CTG regulates storage vessels for VOC emissions as well, with the very notable exception of the distribution sector of the oil and natural gas industry.

Control Technique Guidelines Do Not Require the Most Effective Pollution Technologies

We recognize that, as a member of the Ozone Transport Region, New York is obligated to implement the CTG.[4] We welcome DEC's commitment to fulfilling the legal mandate for their implementation, particularly in light of threats by the US Environmental Protection Agency (EPA) to withdraw them.[5]

However, the CTG was designed to encourage voluntary measures by operators. As such, they are a floor, not a ceiling, with regard to what states can do to limit air pollution, and structurally less stringent than the protections that public health and climate trends demand.

The underlying standard for the CTG is Reasonably Available Control Technology (RACT), a US Clean Air Act requirement designed for existing sources in non-attainment areas. However, RACT gives operators significant leeway in determining what is "reasonable" and allows for site-by-site consideration of the "economic and technological considerations" of an emissions source.[6]

This approach differs from enforceable pollution controls, applicable across the board, that are necessary to protect against both known and unforeseen events. For example, a thief hatch on a storage vessel may meet RACT, but only a regulation specifically prohibiting venting from thief hatches will address pollution. RACT alone allows operators to adopt protections for some facilities but not at others (e.g., by citing cost). The resulting patchwork of protections can harm some New York residents more than others, and ultimately degrade both regional and statewide air quality.

DEC should require more effective pollution control technologies such as those classified as Best Available Control Technologies (BACT) and Lowest Achievable Emission Rate (LAER). For example, LAER could be applicable to all compressor stations statewide (not just Title V "major sources" in non-attainment areas).

DEC's Rule Should Model EPA's 2016 Methane Protections and Account For New York's Oil, Gas, and Pipeline Infrastructure

Earthworks recommends that DEC go beyond the CTG by adopting requirements in the New Source Performance Standards for methane and VOC control that were passed by the EPA in 2016 (40 CFR Part 60, Subpart OOOOa; hereafter referred to as NSPS OOOOa).

While these federal rules apply to new and modified emission sources, they provide an effective set of pollution control requirements that states are free to apply to existing sources as well. This is the approach recently proposed by the Ohio Environmental Protection Agency for new rules in that state.[7]

DEC should begin the discussion of controlling methane emissions across the entire oil and natural gas chain by carefully considering together the NSPS OOOOa and the CTG, with an eye toward New York's unique circumstances and needs. As a starting point, any rule must apply to all existing emission sources—without exception, including conventional oil and gas production. Second, DEC must regulate methane directly. Third, DEC must apply the methane regulation to all of New York's oil, gas, and pipeline sectors, especially downstream from processing and transmission.

This is important because neither OOOOa nor the CTGs were designed to cover distribution systems. Because of this regulatory gap, coupled with New York's large distribution sector, DEC

should develop complementary VOC and methane limits and LDAR schedules (including but not limited to pigging, metering and regulating stations, and power plants).

In the past, DEC has indicated it may omit facilities "beyond the city gate," (e.g., metering and distribution stations and power plants). The pollution impact of VOCs and methane is real regardless of where it occurs, and state emission control rules should apply statewide.

DEC should include combustion sources in future regulation**.** Technologies are available to oil and gas operators to reduce emissions from all types of sources (such as oxidation catalysts for engines), and they should be required.

Combustion represents "normal operations," and as such can produce large volumes of pollution at facilities such as compressor stations and power plants. In addition, studies on methane and VOC "leakage" from the oil and gas sector consider both unintentional leaks and intentional emissions, i.e., all pollution released by a facility.[8] There is simply no reason for DEC to omit large sources of pollution from future regulations.

DEC should include pipelines in the applicability of future regulation, especially LDAR requirements. Many valves, connectors, and other components exist along distribution and transmission lines that can leak, and should therefore be subject to regular inspections and repair to prevent pollution.

DEC should include underground gas storage facilities in the applicability of future regulation. These facilities comprise valves, connectors, injection pipes, and other components that can leak and should be inspected regularly. At minimum, DEC should consider regulations similar to California's, which require monitoring plans and LDAR for storage fields.[9]

Earthworks supports DEC's proposal to require a vapor recovery unit (VRU) or similar technology to capture emissions at pigging stations. These measures would be consistent with EPA Natural Gas STAR guidelines, in particular PRO Fact Sheet No. 505, "Recover Gas from Pipeline Pigging Operation."[10] VRUs also help reduce toxic air pollution exposures to nearby residents, since pigging is in effect venting and can release large volumes of emissions in a relatively short time.

Earthworks supports DEC's proposed requirement for low-bleed pneumatic controllers, which is in keeping with EPA regulations (OOOOa) and Natural Gas STAR program guidance on reducing methane emissions from natural gas industry pneumatic devices.[11] However, we encourage DEC to consider requiring zero-bleed controllers wherever pneumatic controllers are used (just as OOOOa does for processing plants). DEC could also consider requiring alternatives to some low-bleed pneumatic controllers (which still vent methane and VOCs), such as those based on compressed air and electricity. DEC should require that such alternatives and low-bleed controllers be phased in, and that gas-based controllers be phased out, over time.

DEC Should Impose Robust Periodic LDAR

Earthworks supports periodic (at least quarterly) Leak Detection and Repair (LDAR) site inspections. This schedule should apply to all covered equipment at all facilities (well sites, compressor stations, processing plants, metering and regulating stations, pigging stations, etc.).

DEC shouldn't exempt any operators from compliance with future regulation on the basis of "technical infeasibility," as implied in the "general items" section of the Stakeholder Outline. This could create a loophole for compliance with regulations that are designed to reduce pollution from all operations throughout the oil and gas production, transmission, and distribution process. LDAR and related measures are both technically feasible and safe.

DEC should avoid a potential LDAR loophole for operators with regard to "critical components." This can be achieved by having a shorter timeframe than 12 months for the repair of such components; clearly specifying which components and processes would be defined as critical; and requiring operators to apply to DEC for pre-approval of components they may later claim as critical in order to qualify for a repair delay. Such requirements would mirror the approach in California's greenhouse gas reduction rule, which clearly defines "critical components" and "critical process unit;" specifies that a delay would have to be based on a repair being technically infeasible without creating additional emissions; and requires operators to file requests for potential repair delays with the regulatory agency.[12]

In addition, DEC should also improve upon minimal LDAR requirements in the Stakeholder Guidance by requiring:

- More prompt repair schedules. California's 2017 greenhouse gas emission standards for the oil and gas sector requires repairs and equipment replacement in as little as 14 days.[13]

- More frequent LDAR for Clean Air Act Title V "major sources." Colorado requires monthly LDAR for certain major source facilities.[14]

- Reporting of emissions data and LDAR inspections on a publicly accessible website. Tracking and disseminating these data is essential for transparency and to support the ability of directly affected residents and the public to help ensure polluters' adherence to regulations.

DEC should include Innovative Technology/Alternative Compliance Pathways in future regulation. As described herein, Optical Gas Imaging (OGI) technology has become a standard part of LDAR procedures. In many states, regulatory agencies hire, train, equip, and certify inspectors to perform OGI and other LDAR inspections. More states now require operators, or their agents, to perform periodic LDAR inspections as well. To reduce the burden upon DEC and the regulated community, we suggest an Alternative Compliance Pathway embracing third-party verification as a complement to required LDAR compliance schedules.

DEC, just as operators, may partner with third parties such as private consultants, academic institutions, and non-governmental organizations to detect and report emissions leaks. DEC could require third party verifiers to use the same or similar DEC approved leak detection methods (i.e., OGI or EPA Method 21). These parties can provide valuable assistance to regulators and operators by revealing leaks most in need of repair. This would allow DEC to focus inspection and enforcement more efficiently.

Prioritizing repairs based upon known leaks would reduce emissions, save money, and lower the compliance burden. For instance, an operator can satisfy an LDAR inspection requirement by certifying to DEC that they fixed the leak detected by a third party during the same reporting period.

DEC should not allow less frequent monitoring for low production wells. Leaks exist and have an additive effect on pollution levels regardless of oil or gas production levels. In addition, leaks and other pollution problems are more likely to persist at low-producing and abandoned wells, which operators tend to inspect far less frequently. If DEC's goal is to reduce pollution and have an enforceable mechanism for doing so, all wells should be covered by a future rule.

Notably, Earthworks has filmed operational problems and leaks at wells in Pennsylvania that reported little or no production to the state.[15] As long as wells are classified as "active," operators should be held accountable for detecting and preventing pollution.

DEC should ensure that a future rule does not include any step-down provisions that allow operators to inspect sites less frequently over time. Earthworks has documented operational problems and leaks at facilities that appear to go unaddressed for months and sometimes years.

Other states allow step-down provisions for LDAR, which is problematic because it effectively incentivizes operators to perform well only initially, and not over time. Moreover, oil and gas facilities decline with age, making them more susceptible to malfunction and corrosion over time. Operators will have sufficient leeway with the days or weeks allowed to repair and replace faulty equipment under future regulation.

DEC Should Impose Strict Methane and VOC Limits From All Storage Vessels

Earthworks supports DEC's position that a future rule will prohibit storage vessels from venting to the atmosphere. This requirement should apply to *total* methane and VOC emissions when taken together, without distinction or separate Potential to Emit (PTE) volumes.

Future regulation should be comprehensive and specific regarding types of storage vessels included (e.g., produced water, condensate, oil) and control mechanisms (e.g., thief hatches, vent pipes, and vapor recovery units). There is precedent for this in Colorado, where in 2015, the state and EPA required an operator to install vapor recovery units and other appropriate engineering technologies for storage vessels in ozone nonattainment areas.[16]

DEC should ensure that future regulation covers all storage vessels, not just those "installed after the effective date of this rule." The latter approach would effectively exempt all existing storage vessels from regulation, which runs counter to the need for a rule covering existing and new sources of pollution. It would also greatly reduce the effectiveness of a future rule in actually reducing pollution.

DEC should not exempt storage vessels with VOC emissions under 6 tons per year (tpy). If DEC's goal is to reduce pollution and have an enforceable mechanism for doing so, all storage tanks should be covered by a future rule regardless of size. We also recommend that this regulation apply to the entire storage system at a well site or facility, rather than a single tank.

Multiple smaller tanks at a site could be exempt from regulation even if taken together they emit significant volumes of pollution. For example, just five tanks emitting 5 tpy together would cross the threshold for qualifying as a "major" emissions source in states considered in severe non-attainment for ozone.

We strongly recommend a lower VOC threshold for storage vessels. Notably, federal law sets the threshold for emission control at sources below 4 tpy (CFR 60.5395a); Wyoming recently lowered the control removal threshold from flashing emissions to 4 tpy of VOCs in some areas;[17] and Pennsylvania's recent proposal for VOC and methane control rules sets the threshold for newer storage vessels at 2.7 tpy of emissions.[18]

DEC Should Impose Strict Conditions Upon Pipeline and Compressor Station Blowdowns

Earthworks supports DEC's proposal to prohibit blowdown gas from being emitted into the atmosphere from compressors and pipelines. Technologies exist to prevent the release of emissions from compressor stations, and industry should be required to use them. Doing so would be consistent with EPA Natural Gas STAR guidelines, in particular the guidance in PRO Fact Sheet No. 401, "Inject Blowdown Gas into Low Pressure Mains or Fuel Gas System" recommending that operators redirect gas into the system rather than venting it into the atmosphere during blowdowns.[19] In addition, the Virginia Department of Environmental Quality is considering requiring a vent gas reduction system for a compressor station that would cut methane emissions by 99 percent.[20]

The industry has acknowledged that emissions can greatly increase during events such as blowdowns, which can last for several hours but be most intense during the first 30-60 minutes.[21] Emerging environmental health research confirms that episodic emission events can cause health impacts immediately or in as little as 1-2 hours, largely because toxicity is determined by the concentration of the chemical and intensity of exposure.[22]

Earthworks strongly supports DEC proposal that operators report blowdowns to the agency and responsible officials. We presume that this would primarily relate to unplanned events, since operators would be required in future regulation to prevent blowdown gas from being emitted into the atmosphere from compressors and pipelines. DEC should require that operators provide immediate notification for any planned events should all blowdown gas not be captured, as well as unplanned events. Operators should be required to report to DEC personnel, local emergency management personnel, and residents in at least a half-mile radius of the facilities.[23]

In closing, Earthworks looks forward to DEC's issuance of draft regulations to control oil and gas air pollution, and to participating in the public process to develop final rules that will protect the health of residents and help New York meet its laudable climate goals.

Thank you for your time and attention.

Sincerely,





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[1] Information about the Community Empowerment project and the OGI videos are at https://earthworks.org/campaigns/community-empowerment-project/

[2] Nadia Steinzor and Aaron Mintzes. *New York's Energy Crossroads: How the state's climate goals clash with natural gas infrastructure.* Earthworks 2018. https://earthworks.org/publications/new-yorks-energy-crossroads/

[3] EPA, 40 CFR Part 60, Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources. Final Rule, *Federal Register,* Vol. 81, No. 107, June 3, 2016.

[4] Memo from Anna Marie Wood, Air Quality Policy Division, US EPA, to Regional EPA Air Division Directors, October 20, 2016. https://www.epa.gov/sites/production/files/2016-10/documents/implementing_reasonably_available_control_technology_requirements_for_sources_covered_by_the_2016_con trol_techniques_guidelines_for_the_oil_and_natural_gas_industry.pdf

[5] Office of Information and Regulatory Affairs, Office of Management and Budget, "Notice of Proposed Withdrawal of the Final Control Techniques Guidelines for the Oil and Natural Gas Industry," Fall 2017 https://www.reginfo.gov/public/do/eAgendaViewRule?pubId=201710&RIN=2060-AT76

[6] RACT Information page, US Environmental Protection Agency. https://www.epa.gov/ground-level-ozone-pollution/ract-information

[7] Ohio Environmental Protection Agency. "Early Stakeholder Outreach: New Rules Regulating Emissions from the Oil and Gas Industry. November 16, 2018. https://epa.ohio.gov/Portals/27/regs/3745-31/ESO_NewOilandGasRules_2018.pdf

[8] See for example, Alvarez et al., "Assessment of methane emissions from the U.S. oil and gas supply chain," *Science,* July 2018; and Omara et al., "Methane Emissions from Natural Gas Production Sites in the United States: Data Synthesis and National Estimate," *Environmental Science and Technology,* September 2018.

[9] California Code of Regulations, Title 17, Division 3, Chapter 1, Subchapter 10 Climate Change, Article 4.

[10] See fact sheet at https://www.epa.gov/sites/production/files/2016-06/documents/pigging.pdf

[11] See fact sheet at https://www.epa.gov/sites/production/files/2016-06/documents/ll_pneumatics.pdf

[12] California Code of Regulations, Title 17, Division 3, Chapter 1, Subchapter 10 Climate Change, Article 4. §95667, Definitions and §95670, Critical Components.

[13] California Code of Regulations, Title 17, Division 3, Chapter 1, Subchapter 10 Climate Change, Article 4. Tables 2 and 4, "Repair time periods."

[14] Colorado Department of Public Health and the Environment. Fact sheet, "Revisions to Colorado Air Quality Control Commission's Regulation Numbers 3, 6, and 7." https://www.colorado.gov/pacific/sites/default/files/AP_Regulation-3-6-7-FactSheet.pdf

[15] "Leaky oil wells in Allegheny National Forest prove Pennsylvania needs conventional drilling rules more than ever." Leann Leiter, Earthblog, October 9, 2018. https://earthworks.org/blog/leaky-oil-wells-in-allegheny-national-forest-prove-pennsylvania-needs-conventional-drilling-rules-more-than-ever/

[16] Noble Energy, Inc. Settlement, US EPA, US Department of Justice, and the State of Colorado. April 2015. https://www.epa.gov/enforcement/noble-energy-inc-settlement

[17] Wyoming Department of Environmental Quality, "Oil and gas production facilities permitting guidance," revised August 2018. http://deq.wyoming.gov/media/attachments/Air%20Quality/Rule%20Development/Proposed%20Rules%20and%20Regulations/2018_Oil%20and%20Gas%20Guidance.pdf

[18] Pennsylvania Department of Environmental Protection. "Draft RACT regulation for the oil & gas industry." December 13, 2018.

http://files.dep.state.pa.us/Air/AirQuality/AQPortalFiles/Advisory%20Committees/Air%20Quality%20Technical%20Advisory%20Committee/2018/12-13-18/Draft_RACT_Reg_for_the_Oil_and_Natural_Gas_Industry_PPT_AQTAC_12-13-2018_for_posting.pdf

[19] See fact sheet at http://www.epa.gov/gasstar/documents/injectblowdowngas.pdf

[20] Mason Adams, Energy News Network, "Will 2019 be the year Virginia cracks down on methane emissions?" January 7, 2019. https://energynews.us/2019/01/07/southeast/will-2019-be-the-year-virginia-cracks-down-on-methane-emissions/

[21] TransCanada. "Blowdown notification." http://www.transcanada.com/docs/Our_Responsibility/Blowdown_Notification_Factsheet.pdf

[22] David Brown, Beth Weinberger, Celia Lewis and Heather Bonaparte, "Understanding exposure from natural gas drilling puts current air standards to the test," *Rev. Environ. Health* 2014, *available at* http://www.environmentalhealthproject.org/wp-content/uploads/2014/04/reveh-2014-0002-Brown-et-al.pdf

[23] A half-mile radius is a conservative estimate of the area within which elevated levels of toxic pollution are seen, and the distance within which health impacts have most clearly been correlated with the presence of oil and gas facilities. See the Oil and Gas Threat Map at https://oilandgasthreatmap.com/about/threat/