



December 7, 2018

Ms. Ona Papageorgiou
NYS Dept of Environmental Conservation
625 Broadway
Albany, NY 12233-3251

Commissioner Basil Seggos
NYS Dept of Environmental Conservation
625 Broadway
Albany, NY 12233-1011

RE: Stakeholder Regulation Outline for Oil and Gas Sector Emissions, 6 NYCRR Part 203

Dear Ms. Papageorgiou and Commissioner Seggos,

Please accept the following comments on the "Stakeholder Regulation Outline" for emissions from the oil and natural gas sector dated November 8, 2018 by the New York State Department of Environmental Conservation (DEC). We appreciate that the Department plans to adopt regulations to reduce pollution and greenhouse gas emissions from oil and gas activities, and that some of the ideas that we proposed in our initial comments earlier this year are being considered.¹ As stated then, we urge the DEC to hold industry to the strongest possible standards by requiring state-of-the-art emission control technology, continuous air quality monitoring, and a robust program of reporting and inspection. Regulations should be as robust as possible to protect public health. Moreover, the most recent special report by the Intergovernmental Panel on Climate Change underscores the urgency of significant and immediate action to dramatically cut greenhouse gas emissions.²

Applicability and Scope

The outline states that combustion sources would not be regulated under the proposed program because other federal and state regulations already apply. A limited set of federal or state rules also exists for the non-combustion sources discussed in the outline, yet DEC is considering ways to improve upon them. Thus it is prudent for the Department to also adopt regulations that further reduce pollutants from the oil and gas sector which are combustion-related. By excluding combustion sources, many of the technology-based recommendations included with Otsego 2000's last letter have been disregarded.³ While we enthusiastically

¹ Initial letter from Otsego 2000 on DEC regulatory effort dated March 14, 2018:

http://www.otsego2000.org/wp-content/uploads/2018/12/Otsego-2000_letter-to-DEC-on-regs-3-14-18.pdf

² See 2018 Intergovernmental Panel on Climate Change (IPCC) Special Report: *Global Warming of 1.5 °C*;
<https://www.ipcc.ch/sr15/>

³ For example in prior comments, Otsego 2000 stated that an oxidation catalyst should be required in the exhaust stream of any large combustion engine or turbine, much like a catalytic converter is required on every automobile. This could significantly improve air quality in communities where oil and gas infrastructure, including compressor stations, are located. Notably, on their own accord, some pipeline operators install catalysts on emission sources even when not required to do so because they recognize the public health value of doing so. DEC should make this a standard operating requirement.

support efforts to reduce non-combustion emissions, we also urge DEC to commit to evaluating additional regulatory measures affecting combustion sources as well, either as part of this regulatory program or another.

It is also not completely clear where DEC intends to apply its regulatory authority. For example, storage vessels, pneumatic controllers, and pneumatic pumps may be located at many types of facilities, including power plants and other end-user sites. However, during a DEC webinar on the program, it was said that the proposed regulations would not apply beyond the "city gate." Whether a pneumatically-controlled device leaks methane into the air at a power plant or a compressor station, the greenhouse gas impact is just as real. Moreover the state clearly has jurisdictional authority over end-use facilities, so it does not make sense for the proposed regulations not to apply to them. In our view, DEC's proposed regulations should apply anywhere that equipment of concern is located.

With respect to oil and gas production, DEC asks whether its proposed regulations should apply to economically marginal or low-producing wells. Our response is unequivocally 'yes.' Environmental protection should not be sacrificed so that emission-prone, leaky wells can continue operating or so that more sub-par operations can be developed. Simply put, if such sites are unable to comply with the same set of strict regulations to avoid air pollutants and greenhouse gas emissions that are expected of others, then those operations should not be allowed to persist.

Facilities associated with the mobile transport of compressed natural gas (CNG) or liquefied natural gas (LNG) warrant special regulatory attention by DEC as well. These include, but are not limited to, decompressor stations, pipeline injection facilities, compressor/distribution facilities, and fueling stations that either receive or distribute natural gas by trucks and/or tractor trailers. Such operations constitute a rapidly growing and essentially unregulated industry in New York, as well as a source of significant public concern, especially with respect to the routine point-to-point transport of gas (also known as "virtual pipelines"). Leaking and venting of natural gas is commonplace at such facilities due to the frequent connecting, disconnecting, and purging of mobile-based equipment.

Consistent with prior comments, Otsego 2000 urges the Department to consider the regulations proposed in its outline as part of a broader initiative to improve the environmental review and regulation of fossil fuel infrastructure. We encourage DEC, in cooperation with the New York State Department of Health, to develop stricter standards and performance requirements at the state level to address deficiencies in the National Ambient Air Quality Standards (NAAQS).⁴ This should include, but not be limited to, revising the DEC Air Toxics Program involving NYCRR Part 212, DAR-1 modeling protocols and guidance, annual and short-term (AGC/SGC) concentrations, and assessment tools to better protect people and vulnerable subpopulations from exposure to air contaminants. We also encourage DEC to update State Environmental Quality Review (SEQR) guidance to ensure that all state and local agencies adequately consider the direct, indirect, and cumulative impacts of fossil fuel infrastructure projects— including lifecycle emissions of methane, a significant contributor to climate change.

⁴ NAAQS deficiencies, especially affecting populations in close proximity to gas infrastructure facilities, are discussed in *Summary of Compressor Stations and Health Impacts*, Southwest Pennsylvania Environmental Health Project, Feb 24, 2015 <https://www.environmentalhealthproject.org/sites/default/files/assets/resources/summary-compressor-station-emissions-and-health-impacts-02.24.2015.pdf>

Non-Combustion Emission Sources Identified in the Outline

We appreciate DEC's interest in eliminating emissions from the set of facilities and equipment listed in its outline. The following addresses each of them. Our comments frequently refer to solutions identified in bulletins published by the EPA's Natural Gas Star program. Significantly, many of the alternative technologies and techniques described by the program not only reduce emissions of methane and other pollutants, they also save pipeline companies and facility operators money by preventing waste and loss of product.

Storage Vessels

DEC proposes to regulate vessels with the potential to emit greater than or equal to 6 tons per year (TPY) of volatile organic compounds (VOCs).⁵ This inappropriately presumes that emitting less than this amount is not harmful. Also, based on the question posed about methane, it appears that DEC is not referring to all VOCs, but only "non-methane VOCs" (NMVOCs).

Methane constitutes 80% or more of natural gas and is a potent driver of climate change with a global warming potential (GWP) 86 times more powerful than carbon dioxide over a 20-year period according to the Intergovernmental Panel on Climate Change (IPCC). As such, methane should definitely be included in any regulations pertaining to storage vessels. Assuming that other hydrocarbons comprise roughly 15% of natural gas, a storage vessel containing unrefined natural gas which emits 6 tons per year of VOC's is also likely to emit over 30 tons of methane. This translates to 2,700 tons of carbon dioxide equivalents (CO₂e) annually. For gas storage vessels with a larger methane to NMVOC ratio, this amount would be higher.

We recommend that any threshold be based on the total hydrocarbon content of the storage vessel, including methane, and that a stricter level be applied. Optimally, vapor recovery technology should be required for all storage vessels. Requirements should also apply to whole storage systems, such that multiple tanks at a site, or tanks which are grouped together, are treated as a single storage vessel. Otherwise, a "per tank" threshold will encourage operators to circumvent regulation by using multiple smaller tanks that in the aggregate would allow more emissions.

Storage vessels containing liquefied natural gas (LNG) must be included in the proposed rule as well. These tanks are inherently leaky due to the use of evaporative "auto-refrigeration" to maintain cryogenic temperatures. Methane recapture should be a standard requirement for all LNG storage systems. Further, LNG is almost pure methane (lacking other hydrocarbon content), which underscores the importance of a rule that is not triggered solely by the potential to emit non-methane VOCs.

In its outline, DEC asks whether the proposed regulation should apply to brine and produced water tanks. Again, our response is an unequivocal 'yes.' These types of storage tanks collect hydrocarbons in addition to salty water, so they should be regulated. The Natural Gas Star program has identified several mechanisms for recovering gas from storage tanks. It should also be noted that where storage tanks are located in facilities

⁵ DEC states that the proposed requirement is for a 95% reduction of emissions from applicable storage vessels. However it is not clear how this metric would be determined. The "pre-regulated" emission level would vary from vessel to vessel and depend on the quality of the particular vessel's design. If the goal is a 95% reduction from 6 TPY, then this should be stated as 0.3 TPY.

with a Vapor Recovery Unit (VRU) or other vapor capture technology, there may be an opportunity for vapor capture functions to be integrated.

Finally, DEC's regulation of storage vessels should not be limited to permanent, stationary, or fixed-location facilities. The transport of high volumes of CNG and LNG by tractor-trailer is rapidly expanding in New York State. It is essential that DEC develop regulations for this activity that are protective of public health, safety, and the environment.⁶

Pneumatic Controllers

DEC proposes to require pneumatic controllers with bleed rates that are less than or equal to 6 standard cubic feet per hour (scf/h). However, according to Natural Gas Star data, pneumatic controllers with bleed rates of 6 scf/h are still considered marginally high-bleed.⁷ We agree that low-bleed pneumatic devices are preferable to high-bleed devices, but there are better alternatives. Compressed air, nitrogen gas, and electric controllers are all preferable to low-bleed natural gas pneumatic controllers that still vent methane into the atmosphere. We encourage DEC to require that these alternatives be used for new installations, and that pneumatic equipment using natural gas be phased out.

It should also be noted that electrically actuated controllers do not use very much electricity. Therefore, even at sites without utility service, electric-actuated devices can be used with the installation of a small photovoltaic solar array and battery storage. This is now often done in remote (and non-remote) areas for lighting, electric gates, etc. It is a practical application for natural gas infrastructure sites too. Finally, we ask that DEC clarify that this category titled "pneumatic controllers" is intended to apply to all similarly pneumatically actuated devices, including for example positioners, transducers, and pressure transmitters.

Pneumatic Pumps

Pneumatic pumps that operate on pressurized natural gas are frequently used in various infrastructure applications such as dehydrators and chemical injection. DEC proposes to require that natural gas from diaphragm pumps be routed to onsite control systems with a 95% emission control rate. However, a better alternative is to avoid leakage altogether by using pumps that operate on instrument air or electricity. Typically, AC or DC electric pumps also provide for more precise flow control. Some installers are now even using on-site solar power as a source of electricity for their pumps.⁸ As with pneumatic controls, we urge DEC to require that instrument air or electric pumps be required for new installations, and that pneumatic pumps that use natural gas be phased out. See also discussion of compressed air, nitrogen, and electric starters below.

Centrifugal Compressors

DEC proposes to reduce VOC and methane emissions from wet-seal centrifugal compressors by 95% or to replace them with dry-seal equipment. Most wet-seal centrifugal compressors in operation today are old and should be replaced or removed entirely. They are not only extremely leaky, but also tend to be coupled with antiquated, more polluting turbines. We are concerned that if wet-seal compressors continue to exist, operators may claim to meet the mandated emission reduction through maintenance measures that DEC will

⁶ Tractor-trailer trucks operated by Xpress Natural Gas (XNG) now carry over half a million cubic feet of CNG in tanks pressurized at over 4000 psi.

⁷ https://www.epa.gov/sites/production/files/2016-06/documents/11_pneumatics.pdf (See appendix)

⁸ <https://www.epa.gov/sites/production/files/2016-06/documents/convertgasdrivenchemicalpumpstoinstrumentair.pdf>

not be able to realistically verify. Otsego 2000 therefore recommends that older wet-seal turbine/compressors be phased out completely.

We strongly support DEC's proposal to require that no gas from compressor blowdown vents be emitted to the atmosphere and that all blowdown gas be rerouted to a vapor recovery system or combustion device.

According to the Natural Gas Star program, another mechanism of reducing emissions is to keep compressors fully pressurized when offline.⁹ See also the discussion of compressed air, nitrogen, and electric starters below.

Reciprocating Compressors

DEC's proposed regulation for reciprocating compressors appears to mirror OOOO ("quad O") requirements, which had been proposed by the EPA during the Obama administration. This includes replacing rod-packing every 26,000 hours of operation or 36 months, or alternatively by installing a vapor recovery system to capture rod-packing emissions. Otsego 2000 is familiar with and supports the practical, cost-effective vapor recovery system offered by REM Technologies known as "slipstream," which routes unburned vented gas from reciprocating engine rod-packing (or other sources) back through the air intake system of the reciprocating engine for combustion.¹⁰ In our view, such a system should not only be an alternative to regular maintenance of rod-packing, but instead an additional required level of protection. If a rod-packing, piston, or cylinder in a reciprocating compressor fails, a very significant loss of methane (along with reduced engine efficiency) can occur over a long period of time before the problem is discovered and fixed. The REM Tech system not only ensures that gas is recaptured, but also alerts the operator to sudden changes in emission levels that could indicate a more serious malfunction. We note that Canada has made a significant effort to encourage deployment of the REM Tech vapor recovery system at compressor stations and other gas infrastructure facilities.¹¹ We encourage New York State to take similar action.

According to the Natural Gas Star program, another mechanism of reducing emissions is to keep compressors fully pressurized when offline. See also discussion of compressed air, nitrogen, and electric starters below.

Pipeline and Compressor Blowdowns

Otsego 2000 strongly supports DEC's proposal to "fully capture pipeline blowdown gas with no venting to the atmosphere" using technology and operational options, including those described in its outline. It would be a demonstration of true leadership in this area if New York State did this. The Natural Gas Star program provides useful examples of how this can be done with case studies. Pigging with inert gas involves running a pigging device through the pipeline with an inert gas like nitrogen under pressure behind it, so that natural gas in the pipeline is pushed downstream.¹² Gas can also be rerouted using pump-down techniques that involve in-line compressors, portable compressors, and/or ejectors.¹³ We strongly recommend that these techniques be required by DEC.

⁹ https://www.epa.gov/sites/production/files/2016-06/documents/ll_compressorsoffline.pdf

¹⁰ <https://www.spartancontrols.com/rem-technology/rem-technology-products/slipstream/>

¹¹ <https://www.encana.com/news-stories/our-stories/innovation-closing-the-loop.html>

¹² <https://www.epa.gov/sites/production/files/2016-06/documents/useinertgases.pdf>

¹³ https://www.epa.gov/sites/production/files/2016-06/documents/ll_pipeline.pdf ;

see also <https://www.epa.gov/sites/production/files/2016-06/documents/injectblowdowngas.pdf>

DEC should require that gas facility operators and local authorities implement protocols for distributing information to anyone who may be impacted by blowdowns. Facility operators should be required to provide notice to local authorities and the public sufficiently in advance of any planned blowdowns. Furthermore, DEC should require that all blowdowns—whether planned or unplanned—be reported immediately to the designated Public Safety Answering Point (PSAP) within the local authority's jurisdiction so that pertinent information can be shared with the public through reverse 911 and other information outlets used by the local jurisdiction's emergency alert system. Special attention should be given to vulnerable populations, including but not limited to hospitals, schools, retirement communities, and elder care facilities. We also recommend that DEC maintain a publicly available record of blowdowns, regardless of volume, for all sites.

Metering and Regulating Stations

DEC states that it is considering Leak Detection and Repair (LDAR) requirements at metering and regulating (M&R) stations. While we support rigorous inspection and repair at all gas infrastructure facilities, this alone is not sufficient. See discussion of LDAR below. Where pneumatic controls and other equipment discussed in these comments exist at M&R stations, regulations pertaining to that equipment should also apply.

Pigging

We strongly support DEC's proposal to require a vapor recovery unit (VRU) or other gas recovering technology to capture vented emissions that occur during pigging operations.¹⁴ Pigging stations are often co-located with compressor stations or other major facilities where a VRU already exists or could be installed. Also pigging stations are not so abundant that requiring this feature would create a significant burden on gas transmission companies. The volume of natural gas lost during pigging operations is substantial, so this requirement is critical. DEC should address both hydrocarbons recovered during the pigging operation, as well as gas that would otherwise be lost during insertion and removal of the pigging device. Attention should be given to the detection and proper disposal of potentially toxic and radioactive residuals freed from the pipeline during pigging operations as well.

Other Non-Combustion Sources and Emission Reduction Techniques Not Identified in the Outline

In addition to the set of equipment identified in DEC's proposed outline, the Natural Gas Star program identifies several other types of equipment for which practical measures to reduce methane leakage and other pollutants would be beneficial.

Glycol dehydrators are used in natural gas systems to remove moisture from pipeline gas. However, the process typically produces significant emissions of methane, VOCs, and hazardous pollutants due to the venting of still column vapor and leaks associated with circulation pumps and pneumatic controls. "Zero emission dehydrators" combine several technologies to virtually eliminate these emissions.¹⁵ We recommend that DEC require the use of zero-emission dehydrators for all new applications and that they be phased in at existing sites as well. Where conventional dehydrators presently operate, modifications should also be made

¹⁴ <https://www.epa.gov/sites/production/files/2016-06/documents/pigging.pdf>

¹⁵ See <https://www.epa.gov/sites/production/files/2016-06/documents/zeroemissionsdehy.pdf>

It should be noted that "zero-emission dehydrators" may produce combustion emissions from burner exhaust, but they eliminate unburned emissions of methane and other pollutants due to venting and leakage.

to reduce emissions, for example by rerouting skimmer gas to reburners for combustion and piping gas that would otherwise be vented to a VRU.¹⁶

We also request that DEC require the use of compressed air, nitrogen gas, or electric starters on all turbines, engines, and pumps. A conventional method of start-up involves allowing pressurized natural gas to expand across the blades of a starter turbine. The unburned gas then escapes to the atmosphere. However, by using compressed air, nitrogen, or electric starters, this can be avoided.¹⁷ Several operators now do this as standard practice. DEC should make it a requirement.

Valves are another common leakage source that ought to be specifically addressed by DEC's proposed regulation. The Natural Gas Star Program has identified several improvement techniques including installation of excess-flow valves, inspection during pipeline replacement and repair, and testing of pressure relief valves which are particularly prone to leakage.¹⁸

Finally, DEC's regulations ought to address pipeline leakage. Internal gas main flexible liners are a cost-effective mechanism for reducing leakage ubiquitous to older systems.¹⁹ Composite wrap can also be used externally on pipelines in situations where pits, external corrosion, and other non-leaking defects occur.²⁰

Leak Detection and Repair (LDAR)

Like much of DEC's outline, the proposed LDAR requirements appear to mirror Control Techniques Guidelines (CTG) which were published by the EPA in 2016 but later abandoned by the current administration in Washington. Otsego 2000 supports rigorous inspection and repair at all gas infrastructure facilities. However, the federal program for LDAR implementation proposed in 2016 is not sufficient. In California the Bay Area and South Coast air quality management districts have adopted much stronger LDAR regulations affecting fugitive leak detection limits, time to repair, test methods, and monitoring frequency.²¹ We encourage the DEC to adopt measures that are at least as strong as these.

DEC states that it is exploring the idea of requiring continuous emissions monitoring at compressor stations. Otsego 2000 strongly supports this at compressor stations, as well as at other gas infrastructure facilities. We also maintain that such data should be publicly accessible.

¹⁶ <https://www.epa.gov/sites/production/files/2016-06/documents/pipeglycoldehydratortovru.pdf> and <https://www.epa.gov/sites/production/files/2016-06/documents/rerouteglycolskimmer.pdf>

¹⁷ <https://www.epa.gov/natural-gas-star-program/replace-gas-starters-air-or-nitrogen> ;

<https://www.epa.gov/sites/production/files/2016-06/documents/installelectricstarters.pdf>

¹⁸ See <https://www.epa.gov/sites/production/files/2016-06/documents/installexcessflowvalves.pdf> ; <https://www.epa.gov/sites/production/files/2016-06/documents/performleakrepairduringpipelinereplacement.pdf>;

<https://www.epa.gov/natural-gas-star-program/test-and-repair-pressure-safety-valves>

¹⁹ <https://www.epa.gov/sites/production/files/2016-06/documents/insertgasmainflexibleliners.pdf>

²⁰ https://www.epa.gov/sites/production/files/2016-06/documents/ll_compwrap.pdf

²¹ See the Bay Area Air Quality Management District Regulation 8, Rule 18 at

<http://www.baaqmd.gov/rules-and-compliance/current-rules> ,

direct link here: <http://www.baaqmd.gov/~media/dotgov/files/rules/reg-8-rule-18-equipment-leaks/documents/rg0818.pdf?la=en> ;

see also the South Coast Air Quality Management District Rule 1173 at

<http://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/regulation-xi> ,

direct link here: <http://www.aqmd.gov/docs/default-source/rule-book/reg-xi/rule-1173.pdf?sfvrsn=4>

Today, cost-effective modern equipment is readily available which can monitor and record data in real time for a variety of chemical compounds including for example VOCs, methane, nitrogen oxide, ground-level ozone, formaldehyde, and particulate matter. Continuous monitoring and recording of these air quality indicators would help to ensure regulatory compliance and evaluate performance relative to safe levels of exposure recommended by other respected public health agencies and organizations. Importantly, a record of emissions over time would build a better understanding among agencies, industry, and the public about both the magnitude and frequency of emissions—valuable information for improving state air quality standards as we have suggested. Further, it would remove mystery or speculation about what occurs or does not occur at facilities, thereby assisting both the public and industry with regard to dispute resolution. Continuous monitoring would also improve the ability to detect and provide public warning of harmful releases, and coordinate the most effective responses.

Finally, DEC states in its outline that to address the evolution of technology, the Department will accept submissions for the use of "innovative methane detection technology." However, we note that this is included under a heading titled "Alternative Compliance Pathway." Regardless of whatever alternative *detection* technologies are suggested by industry, their application must not be construed as a means of avoiding rigorous monitoring, reporting, and repair that should still be required.

Thank you for this opportunity to comment.

Sincerely,



Nicole A. Dillingham, Esq.
President, Otsego 2000
Board of Directors



Keith W. Schue
Technical advisor, Otsego 2000
Environmental Stewardship Committee

cc: The Honorable Governor Andrew M. Cuomo
NYSDEC Deputy Commissioner Jared Snyder
NYSDOH Commissioner Howard Zucker