

Statement of
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on the
Environmental Protection Agency's new Oil and Natural Gas Sector -- New Source Performance
Standards and National Emission Standards for Hazardous Air Pollutants
Before the
Committee on Environment and Public Works
Subcommittee on Clean Air and Nuclear Safety
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I. Introduction

Mr. Chairman and Members of the Subcommittee, my name is Tisha Schuller, and I am the President and CEO of the Colorado Oil & Gas Association (COGA). I appreciate the opportunity to testify today regarding the Environmental Protection Agency's (EPA) new Oil and Natural Gas Sector -- New Source Performance Standards and National Emission Standards for Hazardous Air Pollutants. Prior to joining COGA, I served as a Principal and Vice President with Tetra Tech, a national environmental consulting and engineering firm. In addition to running business operations, I spent 15 years conducting environmental permitting for oil and natural gas projects across the country. I have a B.S. in Earth Systems with an emphasis in Geology from Stanford University.

The Colorado Oil & Gas Association is an industry trade association founded in 1984; we currently have over 150 members representing all aspects of Colorado's oil and gas industry.

Colorado has a robust 100 year history of industry drilling across Colorado, in every corner of the state. Across Colorado, our industry works with community stakeholders to understand and address their concerns so that oil and gas development may be conducted in harmony with community priorities.

Colorado also has some of the most advanced and comprehensive oil and gas regulations in the country. Virtually every aspect of activity is regulated from cement and casing, hydraulic fracturing, waste management, reclamation, wildlife, water, and air emissions.

Colorado has over 45,000 active wells. One of Colorado's most productive oil and gas fields is the Wattenberg field in the DJ Basin located north of Denver. The heart of the Wattenberg field is located in Weld County; in this one county there are over 18,000 active wells.

Oil and gas is a key industry in Colorado. For context, in 2010 our industry supported over 100,000 jobs in Colorado and contributed \$1.1 billion to state and local revenues. Some

Colorado counties rely on oil and gas revenue for over 60 percent of their revenue. We are proud of the work we do in Colorado and the workers who live in these communities.

Colorado has some of the more protective air emission regulations and resulting controls in the country. The Colorado Department of Public Health and Environment (CDPHE) has adopted rules which regulate volatile organic compounds (VOC) emissions from oil and gas operations in the state. Additionally the Colorado Oil and Gas Conservation Commission (COGCC) has requirements which encourage the capture of natural gas through green completions and further regulate VOCs to control odors in certain parts of the state.

In 2004, Colorado's Air Quality Control Commission (AQCC) added Colorado's Regulation Number 7 to reduce ozone precursors. This regulation is overseen by the CDPHE Air Quality Control Division and was focused on reducing ozone precursors in the non-attainment area, but also includes some statewide requirements. Regulation Number 7 is implemented based on a system-wide control approach that requires each company to achieve a percentage-emission reduction level during the ozone season (summer) and a slightly lower percentage-emission reduction level during the non-ozone season (to enable periodic maintenance of control devices in the off-season). When first adopted, emissions reduction requirements became more stringent each year until they reached the current stringent requirements. The system-wide approach provides oil and gas operators flexibility to service and reposition their emission control devices (ECDs) as production levels in the field change.

The Wattenberg field, mentioned earlier, is in a non-attainment area for ozone; as part of Regulation 7 implementation, the oil and gas industry has invested in emissions controls that significantly reduced air emissions and ozone precursors. To date, over \$40 million has been spent by the industry to install over 3,000 control devices. Even with increased drilling activity, well permits issued in the Wattenberg Field demonstrate that the area shows a significant decrease in emissions. Each year operators submit emissions reports for Regulation 7, and as a result we know that ozone levels have shown a downward trend since the implementation of these regulations.

In 2008, the COGCC added a rule that reduced emissions completions (REC), or green completions, be used when technically and economically feasible. Where not feasible, best management practices to reduce emissions are required. The purpose of this rule was to encourage the capture of natural gas and reduce potential odors associated with well completion.

We understand that EPA based aspects of their rule on Colorado's air rules including CDPHE Regulation 7 to reduce ozone precursors and COGCC Rule 805 for green completions. As we have found in Colorado, there are positive aspects of the rules which promote conservation through the capture of natural gas and the resulting emissions reductions. In particular, Colorado air quality has benefited from the addition of low bleed pneumatic devices and the implementation of reduced emissions completions.

We appreciate EPA's willingness to phase in requirements to meet both equipment manufacturing constraints and the needs for operators to modify their processes. We would also like to acknowledge that EPA has been working diligently to clear up the many technical issues

contained in the final rule that resulted from the short, court-mandated timeframe for the rulemaking.

The new rule was the product of a complicated rulemaking, conducted in a short time frame, with many moving parts. As a result, our industry continues to thoroughly review the final rule to fully understand its impacts. We also acknowledge that EPA will be challenged to revise the rule so that the compliance requirements are clear and realistic by the effective date of the rule.

My testimony will focus on what we have learned from Colorado's rules and how the regulations might be improved for effective implementation.

II. EPA's New Source Performance Standard and Colorado Comparison

For background purposes, this section provides an overview of new EPA rules compared with the existing Colorado requirements.

1. *Reduced Emission Completions (RECs) or "green completions"* Federal Proposal

Subpart OOOO: RECs or green completions with pit flaring for gas not suitable for entering a pipeline, required for all hydraulically fractured or re-fractured, non-exploratory or non-delineation wells, beginning in 2015.

Colorado Regulations

COGCC Section 805.b(3): RECs or green completions shall be used when technically and economically feasible. If not feasible, Best Management Practices are allowable. According to the COGCC rules, "operators must employ sand traps, surge vessels, separators and tanks as soon as possible during flowback and cleanout operations to safely maximize resource recovery and minimize releases to the environment."

Subpart OOOO addresses VOC emissions from any new or existing hydraulically fractured non-exploratory or non-delineation wells (wells that are in close proximity to a gathering line). By January 1, 2015, these wells will require RECs or green completions, in combination with pit flaring for gas unsuitable to enter a sales pipeline.

The COGCC's requirement for RECs is essentially equivalent to the EPA Subpart OOOO rule for the purpose of overall emission inventory with the noteworthy exception that RECs are required only where technically or economically feasible; where RECs are not implemented, Best Management Practices or BMP's are acceptable.

2. *Pneumatic Devices* Federal Proposal

Subpart OOOO: Zero emission limit at gas processing plants (equivalent to non gas-driven pneumatic controllers). Six standard cubic feet per hour (SFCH) at individual locations (equivalent to low bleed gas-driven pneumatic controllers).

Colorado Regulations

CDPHE Reg. No. 7, XVIII.C.1: No or low-bleed pneumatic devices required for all new & existing applications, exceptions allowed. This rule only applies in ozone non-attainment areas.

COGCC Section 805.b(2)E - No or low-bleed pneumatic devices required for new, repaired or replaced devices where technically feasible.

The Subpart OOOO does not allow VOC emissions from devices at gas processing plants, and devices at individual sites would be limited to emissions of six SCFH or the equivalent to low bleed devices. CDPHE's Regulation Number 7 already requires no or low-bleed equipment for all new and existing applications in ozone nonattainment areas, with some exceptions allowed. Also, the COGCC contains statewide no or low-bleed pneumatic device requirements, where technically feasible. This level of mandated control in Colorado is essentially equivalent to Subpart OOOO for the purpose of overall emission inventory.

3. *Storage*

Federal Proposal

Subpart OOOO: 95 percent VOC reduction for new or modified storage vessels with emissions of six tons per year (tpy).

Subpart HH: 95 percent control of hazardous air pollutants (HAPs) at production facilities.

Colorado Regulation

CDPHE Reg. No. 7, XII.G.2: 95 percent VOC reduction at gas processing plants if emissions from condensate tanks are greater than or equal to two tpy. This rule only applies in ozone non-attainment areas.

CDPHE Reg. No. 7, XVII.C.1: 95 percent VOC reduction for condensate storage tanks if emissions are greater than or equal 20 tpy.

CDPHE Reg. No. 7, XVII.C.2: For condensate storage tanks with past uncontrolled actual emissions less than 20 tpy VOC may become subject to Section XVII.C.1 with addition of a newly drilled well or recompletion.

CDPHE Reg. No. 7, XIID: Condensate tanks in ozone non-attainment areas shall be controlled under a system wide approach.

COGCC Section 805.b(2)A): 95 percent VOC reduction for liquids condensate & crude oil tanks if emissions greater than five tpy within 1/4 mile of an affected building (applies only to Garfield, Mesa & Rio Blanco Counties)

The federal rule is equivalent to Colorado's Regulation Number 7, as applied in ozone nonattainment areas. The COGCC regulation lowers the threshold to five tpy for requiring control if the site is within 1/4 mile of an "affected building" for Garfield, Mesa & Rio Blanco Counties on the western slope of the state.

Subpart OOOO requires condensate tanks with VOC emissions of six tpy to reduce emissions by 95 percent. However Colorado's Regulation Number 7 already requires tanks with uncontrolled emissions that are greater than or equal to two tpy within ozone nonattainment areas be reduced by 95 percent and statewide if emissions are greater than or equal to 20 tpy.

Under Regulation Number 7, condensate tanks in ozone non-attainment areas shall be controlled under a system-wide approach. Furthermore, if the tanks are within 1/4 mile of an affected building, COGCC rules lowers the threshold for condensate and crude oil tanks for uncontrolled emissions greater than or equal to five tpy. In addition, Colorado has other requirements for auto-ignitors and surveillance at controlled locations based on emission level. This level of mandated control in Colorado is essentially equivalent to Subpart OOOO for the purpose of overall emission inventory.

4. *Gas Processing Facilities*

Federal Rule

Subpart OOOO: Allows advanced leak detection tools as an alternative to the Leak Detection and Repair (LDAR) protocol based on Method 21 organic vapor analyzer leak measurements.

Subpart HH: 500 parts per million threshold for valve leaks.

Colorado Regulations

Colorado has adopted NSPS Subpart KKK on LDAR under Reg. 7, XII.G.1 – this applies to all gas processing plants located in ozone non-attainment areas.

Colorado has already adopted NSPS Subpart KKK regulations for LDAR at gas plants. However, Colorado has not allowed the new leak detection monitoring options as presented under Subpart OOOO.

III. National Emissions Standard for Hazardous Air Pollutants (NESHAP) Standard for Oil and Natural Gas Production

1. *Dehydrators*

Federal Rule

Subpart HH: 95 percent reduction of Hazardous Air Pollutants in all large glycol dehydrators or one tpy benzene emissions. Small unit specific dehydrator emission limits will be based on a formula set out in the final rule.

Colorado Regulations

CDPHE Regulation 7, XII.H and XVII.D: 90 percent reduction of VOCs where VOC emissions are under 15 tpy.

COGCC Section 805.b(2)C): 90 percent reduction of VOCs required where VOC emissions are under five tpy within 1/4 mile of an affected building – this applies only to Garfield, Mesa & Rio Blanco Counties

For glycol dehydrators the federal proposal requires 95 percent control on large units or one tpy benzene compliance and a formula based emission limits on smaller dehydrators. Colorado's Regulation Number 7 requires 90 percent reduction on an emission threshold of 15 tpy, and COGCC rules for Garfield, Mesa & Rio Blanco Counties regulate that the threshold is lowered to five tpy if the site is within 1/4 mile of an "affected building." This level of mandated control in Colorado is essentially equivalent to the Federal proposal for the purpose of overall emission inventory.

IV. Suggestions for Improvement

While generally Colorado's regulations are equivalent in mandated controls to the federal regulations, COGA does have three main concerns: 1. Emissions Estimates; 2. Compliance Requirements; and 3. Economic Analysis.

1. Emissions Estimates

We are concerned that the emissions estimates used in developing the rules were overestimated resulting in an overstatement of the emission reduction benefits of the rules. Two separate studies, one conducted by the American Petroleum Institute and America's Natural Gas Alliance (API/ANGA) and the other by IHS-CERI came to this conclusion. Both studies found that EPA was overstating emissions from oil and gas operations. In 2010, EPA introduced a new methodology to calculate emissions that more than doubled the estimated emissions from natural gas production. This new calculation method substantially overestimates the amount of methane emissions from hydraulic fracturing and other unconventional natural gas production activities.

The API/ANGA study found overall methane emissions to be 50 percent lower than EPA's estimates used in the regulations. The survey examined data from 91,000 wells distributed over a broad geographic area; this was 10 times more wells than EPA surveyed. In one example from this survey, API/ANGA concluded that the re-fracture rate of wells was between 0.07 and 2.3 percent rather than the estimated 10 percent used by EPA. This resulted in a decrease of EPA's emissions estimates from re-fractured wells by 72 percent.

In another example, the IHS-CERI study found that the EPA assumed that if green completions were not used, then all methane would be vented into the atmosphere. EPA also assumed that if a state did not require green completions, then it was not being done at all. These assumptions generate inflated emissions results.

We recommend that EPA revise its emissions estimates with an analysis of the referenced studies and revise the emission reduction benefits stated in the preamble of the rules.

2. *Compliance Requirements*

The monitoring, testing, and recordkeeping requirements associated with these rules threaten to undermine the economic benefits associated with increased natural gas recovery.

For example, the federal rule requires monthly Method 22 monitoring or visual inspections for smoke on combustors/flares. This requires operators to have a monthly three-hour observation of every flare to ensure that there is no smoke. With the diverse locations of wells and automation technology, this seems to make little economic or environmental sense. Instead we propose a common sense monitoring of flares as part of routine site visits.

As a second example, while there has been a tremendous improvement from the 30 day advance notice of completion operations, COGA still believes the two day pre-notification for every well prior to being hydraulically fractured or refractured is excessive. With the reality of schedule changes due to weather, supplies, and equipment logistics, we anticipate that multiple notifications are likely per site. Instead, COGA proposes that these notification requirements be eliminated and EPA relies on the annual report required in the rule for compliance determinations.

As a third example, the rules requirements for tracking and labeling pneumatic devices is overly onerous. A single piece of equipment alone may have three of these devices. We suggest instead that EPA require review of sales or purchase records to verify addition of these controls.

Additionally, the continuous monitoring, performance testing, recordkeeping and reporting provisions are almost identical to those contained in NESHAP, Subpart HH for major sources of HAPs. The Clean Air Act mandates these stringent compliance components, but requires the use of economic considerations for determining the actual requirements. EPA's economic analysis does not consider the impact of implementing major HAP source compliance assurance requirements on the remote, dispersed, unstaffed and small emission sources that are the norm in oil and gas operations.

Lastly, EPA granted only a one year delay in compliance for Best System of Emission Reduction (BSER) for tank emissions because it believes that only a few hundred tanks will be covered. EPA acknowledges that tens of thousands of tanks will be installed annually, but they assume that few of these tanks will have sufficient flow or emissions to trigger control requirements at the six tpy VOC threshold. This assumption appears to have its roots in assuming that tanks on new wells will have the same operating characteristics as tanks at existing wells which are predominately low volume wells at the end of their economic life. In practice, new wells would seldom have tank emissions below six tpy VOCs. Instead, we recommend a three year compliance period, because of the estimated 28,000 tanks per year that will require controls. Controls that meet the major

source NESHAP requirements are not currently available in the estimated required volume.

Overall, we recommend that EPA gather input from state agencies such as CDPHE's Air Quality Control Division on how to streamline the monitoring, testing, and recordkeeping requirements associated with this rule for practical implementation for both operators and state regulators. This component is critical to ensuring that the burdens of compliance don't negate the benefits of emissions reductions.

3. *Economics*

The EPA has estimated that there will be significant cost savings for the industry associated with these new rules. The EPA has also estimated the cost of control equipment required by the rules. It appears likely that the EPA has overstated these cost savings and underestimated the cost of the required control equipment. The accuracy of these calculations are important in communicating the benefit of the rule and determining the efficacy of compliance requirements.

For example, the definition of a low-pressure well could have big impacts on the cost estimate. While flow will vary by well, venting occurs for only a couple of days of production in the Wattenberg field in Colorado. This can range between 100 and 400 MCF. When operators examined the cost of the sand separator/REC production equipment a few years ago, it was about \$35,000 per well. With natural gas at roughly \$2 per MCF, it's pretty obvious that spending \$35,000 to recover \$500 or so worth of gas does not result in a cost savings.

We recommend that more effort is invested into validating the required costs and anticipated benefits in order to ensure that some requirements, such as green completions for low pressure wells, make sense when balancing the air emissions reductions with the compliance costs. In many cases, the control device needed is only one cost of the entire project. Piping, contractors, engineering services and other costs will go into making these changes. These costs should be considered in the cost-benefit analysis.

V. Conclusion

Our industry is committed to a continual process of reducing our air emissions. As seen in Colorado, capturing natural gas for sale while reducing emissions can create win-win situations for industry and the environment. Because many elements of this rule have been implemented in Colorado, we have some practical suggestions to balance emissions reductions with logistical considerations and technical feasibility. These suggestions will also help eliminate redundancy and confusion for Colorado operators due to the overlap of these rules with those in our state.

Our industry will work diligently with our state regulators to continue to fully understand and address the requirements of this new rule. We hope that the final rules will allow for flexibility to encourage practical implementation.