CORE PRINCIPLES TO INFORM THE OIL CONSERVATION DIVISION'S DEVELOPMENT OF A PROPOSED METHANE WASTE RULE

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A. INTRODUCTION

New Mexico holds the opportunity to develop the nation's strongest, most effective rules governing the prevention of methane waste. We offer the following core principles to constructively inform the New Mexico Oil Conservation Division's ("OCD's") development of an oil and gas methane waste rule to achieve this end. These principles aim to guide the rulemaking process and to inform the content of the rule itself. The principles further OCD's legal obligations as found in the New Mexico Constitution, the New Mexico Oil and Gas Act, and Governor Lujan Grisham's Executive Order 3.

B. CORE PRINCIPLES

1. OCD's Rule Must Embrace A Near-Zero Tolerance for Methane Waste to Safeguard the Public Interest and Prevent Harm to New Mexicans.

a. New Mexico Law Provides a Strong Foundation for Regulating Methane Waste.

The New Mexico Constitution makes protection of New Mexico's natural heritage an imperative. It states:

> The protection of the state's beautiful and healthful environment is hereby declared to be of fundamental importance to the public interest, health, safety and the general welfare. The legislature shall provide for control of pollution and control of despoilment of the air, water and other natural resources of this state, consistent with the use and development of these resources for the maximum benefit of the people.

New Mexico Constitution Article 20, Section 21. This constitutional mandate animates OCD's responsibilities to oversee the development of oil and gas resources. Put simply, OCD's methane waste rule must prioritize the state's public interest over private interests and corporate profits. This can be achieved by a rule prohibiting methane to the fullest of extent that is technologically possible with strictly limited exceptions only for true emergency.

The New Mexico Oil and Gas Act specifically prohibits waste. Oil and gas operators are charged with preventing "[t]he production or handling of crude petroleum oil or natural gas of any type or in any form, or the handling of products thereof, in such manner or under such conditions or in such amounts as to constitute or result in waste." N.M. Stat. § 70-2-2. New Mexico regulators at OCD and the Oil Conservation Commission are similarly charged with "prevent[ing] waste" and "protect[ing] correlative rights" of operators. N.M. Stat. § 70-2-11; 19.15.2.3 NMAC. New Mexico Courts have found that of these duties, "the prevention of waste is the paramount power, inasmuch as this term is an integral part of the definition of correlative rights." *Cont'l Oil Co. v. Oil Conservation Comm'n*, 373 P.2d 809, 814 (N.M. 1962).

The Oil and Gas Act prohibits both "underground waste" and "surface waste." While the prohibition against "underground waste" seeks to maximize extraction of as much oil and gas

from underground reservoirs as possible, the prohibition against "surface waste" seeks to ensure that these resources are captured for use once they reach the surface. OCD's duty to prohibit methane waste is premised on the statutory concept of "surface waste" defined:

> as those words are generally understood in the oil and gas business, and in any event to embrace the unnecessary or excessive surface loss or destruction without beneficial use, however caused, of natural gas of any type or in any form or crude petroleum oil, or any product thereof, but including the loss or destruction, without beneficial use, resulting from evaporation, seepage, leakage or fire, especially such loss or destruction incident to or resulting from the manner of spacing, equipping, operating or producing, well or wells, or incident to or resulting from the use of inefficient storage or from the production of crude petroleum oil or natural gas in excess of the reasonable market demand.

N.M. Stat. § 70-2-3(B). This definition provides OCD and OCC authority to adopt a rule that prohibits or controls methane waste from all aspects of the oil and gas production process.

b. New Mexico Needs a Modernized Methane Waste Rule to Prevent Large and Harmful Quantities of Waste.

Methane waste is caused by aging oil and gas infrastructure and industry business and operating practices that maximize profit without sufficient regard to waste of resources or the public interest. Existing New Mexico regulations on oil and gas production are outdated and have failed to prevent the waste of large quantities of natural gas through venting, flaring, and leaks. The vast methane "hot spot" that NASA and NOAA discovered looming over northwest New Mexico's San Juan Basin exemplifies the oil and gas industry's chronic waste problem.[1] But runaway venting and flaring of methane in southeast New Mexico's Permian Basin is equally problematic.[2] There, industry is in the midst of a massive drilling boom to produce oil while treating significant amounts of natural gas produced along with the oil as disposable waste. While some companies have taken modest voluntary actions to control venting, flaring and leaks in their operations, these isolated efforts have been entirely insufficient to reverse New Mexico's chronic and growing methane waste problem.

New Mexicans lose more than $40 million each year in royalties that operators are not required to pay for oil or gas produced on federal or state lands when they vent, flare, or leak methane rather than sell it.[3] New Mexicans also face grave threats from rising temperatures, declining snowpack, rising wildfire danger, and other impacts brought on by a changing climate—impacts to our natural and cultural heritage and our ability to support a thriving, durable economy for all. The oil and gas industry exacerbates these threats by wasting methane, a climate pollutant more than 80 times the potency of carbon dioxide in driving climate change. Further, the same

[1] Kort, E. A., C. Frankenberg, K. R. Costigan, R. Lindenmaier, M. K. Dubey, and D. Wunch (2014), Four corners: The largest US methane anomaly viewed from space, Geophys. Res. Lett., 41, doi:10.1002/2014GL061503.
[2] "Data: Venting and flaring at 'all-time high' in Permian basin as oil and gas booms," Carlsbad Current-Argus, June 7, 2019, available at https://www.currentargus.com/story/news/local/2019/06/07/new-mexico-oil-gas-industry-permian-basin-venting-flaring-epa-energy/1370402001/
[3] EDF "New Mexico Oil and Gas Data," available at https://www.edf.org/nm-oil-gas/

practices that cause methane waste also release volatile organic compounds. These air pollutants contribute both to ozone formation and harmful fine particulate matter, which are "linked to a wide range of health effects, including aggravated asthma, increased emergency room visits and hospital admissions, and premature death."[4] Wasteful industry practices also release air toxics such as benzene, ethylbenzene, and n-hexane "suspected of causing cancer and other serious health effects."[5]

A modernized methane waste rule could achieve dramatic and immediate reductions in methane waste. Stronger regulations would impel regulatory oversight, ensure consistent action across all operators, and incentivize industry cooperation and investment to ensure better planning, technology innovation and deployment, and tighter operating practices. Over the past 50 years, results-oriented environmental regulation has been hugely successful in driving innovation, deployment of new technologies, and development of new workforce skills. A modernized methane waste rule can harness our inventive capabilities, create economic opportunities, and generate a trained workforce to reduce waste, save money, protect public health, and safeguard New Mexico's natural and cultural heritage.

2. The State Must Complete and Implement a New Rule in 2020.

Two factors compel swift action to complete and implement a modernized methane waste rule by the end of 2020.

First is the massive amount of methane that is currently wasted at both existing and new oil and gas operations in New Mexico, estimated by EDF at roughly 1 million metric tons per year. This is equivalent to the greenhouse gas emissions from almost 30 million cars or over 20 coal plants.[6] This waste comes from existing wells, tank batteries, compressor stations, and processing plants with components that vent routinely and are prone to leak. It also comes from new drilling and production, mainly due to the oil boom underway in the Permian Basin where gas is also produced but too often vented or flared rather than marketed. OCD statistics show that venting increased by 56% and flaring increased by 117% in 2018. Preliminary figures for 2019 indicate that venting and flaring is continuing to grow. Over 500,000 metric tons of methane were wasted in the New Mexico Permian in 2018, 4% of total gas production, just from venting and flaring of this "associated gas."

Second, for any given well, the time window for preventing waste is narrow. That is, high initial rates of production volumes in shale wells now typical in New Mexico are followed by steep, immediate declines. The average horizontal well operating in the Permian Basin, for example, "declines 86% over the first three years of well life," necessitating "continual drilling … to maintain field production."[7] In the San Juan Basin, aggressive re-drilling for gas is subject to

[4] https://www.epa.gov/controlling-air-pollution-oil-and-natural-gas-industry/basic-information-about-oil-and-natural-gas (last visited July 15, 2019).
[5] *Id.*
[6] EDF "New Mexico Oil and Gas Data"
[7] J. David Hughes, *How Long Will The Shale Revolution Last?*, Sec. 4.3.4, p.97 (Spring 2019).

similar production declines.[8] Under these circumstances, every new well drilled before a new rule is completed and implemented represents a significant lost opportunity to prevent waste.

3. The Rule Must Cover All Sources of Methane Waste and Use a Holistic, Systems-Based Approach to Prevent Waste.

a. OCD and OCC Must Promulgate a Rule that Covers all Significant Sources of Methane Waste.

OCD's methane waste rule, in conjunction with a complementary air quality rule the New Mexico Environment Department is expected to propose to the New Mexico Environmental Improvement Board to address air pollution from oil and gas operations, must address all significant sources of waste associated with oil and gas production. To inform this effort, OCD should rely on a full spectrum of reliable data sources including the EPA GHG Reporting and Inventory Programs, peer-reviewed research reported in scholarly journals, permit compliance data reported to NMED, and data reported to OCD on venting and flaring. These data sources indicate that significant sources of waste include venting, flaring, and leaks from a wide range of oil and gas equipment and operations including(but not necessarily limited to):

- Pneumatic devices;
- Storage tanks;
- Liquids unloading;
- Pipeline blowdowns;
- Well completions and workovers;
- Compressors;
- Dehydrators; and
- Production of associated gas at oil wells.

Proven, cost-effective technologies and practices are available to reduce or eliminate waste from each of these sources. The combined set of regulations must ensure that *each* of these sources is required to use such technologies and practices wherever possible to minimize waste.

To reduce venting, the OCD rule must prohibit the deliberate release of natural gas from wells and require any gas that must be released, e.g., for emergency reasons due to unplanned equipment outages, to be flared. The rule must also require operators to use equipment in new and existing operations that eliminates or minimizes venting, such as from pneumatic devices or tanks. The rule must also require operators to adopt robust leak detection and repair programs to minimize waste from malfunctioning equipment.

To reduce flaring, the rule must prohibit routine, long-term flaring of gas from new wells. While the rule could allow for narrow exceptions, e.g., for emergencies or disposal of contaminated gas, these must be specific and limited in extent. In essence, the rule must end routine flaring due to inadequate take-away capacity as a standard and acceptable business practice.

[8] *See* https://geology.com/royalty/production-decline.shtml (last visited July 15, 2019).

Further, to reduce flaring at existing wells, the rule should adopt a system under which operators would be required to capture and market an increasing percentage of associated gas produced from all wells through limits that tighten over a several-year time period. Examples of this approach include the Bureau of Land Management's Methane Waste Prevention Rule and the proposed Methane Waste Prevention Act introduced in the U.S. House of Representatives earlier this year, which begins at a required 85% capture rate and rises to a 99% capture rate within five years. These limits would create strong incentives for operators to line up adequate takeaway capacity or pursue alternative approaches such as reinjection, expanded field use, or alternative methods for productive use such as compressed natural gas or natural gas liquids removal.

b. OCD and the OCC Must Adopt a Holistic, Systems-Based Approach to Regulating Upstream and Midstream Facilities that Integrates Action to Prevent Waste Into the Larger Oil and Gas Development and Approval Process.

Methane waste is caused not just by individual sources, but also by a market failure in how upstream and midstream oil and gas operators plan for, invest in, and operate interconnected networks of production, gathering, and processing infrastructure. The OCC and OCD must put in place a methane waste rule that addresses these interconnected networks—e.g., the spatial location and temporal sequencing of infrastructure, from well-head to gathering lines to processing facilities. In so doing, New Mexico can foster innovation in industry planning, investment, construction, and operations and better synchronize upstream production with midstream pipeline, compression, and processing capacity.

This holistic, systems-based approach can be achieved by integrating action to prevent waste into all stages of the oil and gas development and approval process, from start to finish. In this way, OCD and OCC can promote transparency and provide themselves and the public with assurances that the oil and gas industry is actively taking steps to overcome the aforementioned market failure underlying methane waste. This, in turn, can inform whether any requests to the OCD or OCC for exceptions to the rule's provisions dealing with venting, flaring, and leaks are in fact warranted—i.e., because operators have demonstrated they have actively taken steps to prevent waste and an exception is sought as a last resort. Put differently, where operators do not actively assess opportunities to prevent methane waste as they plan for, invest in, and operate oil and gas infrastructure, they should not be entitled to seek 11^{th} hour exceptions.

To exemplify this approach, we focus on three key components of the oil and gas development process: the promulgation of well spacing and density rules, the execution and approval of unitization agreements, and the approval of drilling permits.

Well spacing and density rules set the spatial pattern of development across a particular oil and gas pool. As such, they provide an early and essential opportunity to consider ways to prevent methane waste across an entire pool. To seize this opportunity, OCC and OCD must craft a methane waste rule that clearly places "surface waste" management on an equal footing with "underground waste" management when considering and approving appropriate well spacing and density rules. The Oil and Gas Act, N.M. Stat. § 70-2-3, expressly provides that "surface waste"

can result from the "manner of spacing." 19.15.15 NMAC. Yet our review of OCC and OCD decision-making suggests that well spacing and density rules have given short shrift, if any attention at all, to surface waste management issues. In their proposals for initial spacing and density rules, and in applications seeking to intensify well density and spacing, the new rule must require that operators identify infrastructure investment and other actions they will take across the oil and gas pool to prevent surface waste.

Unitization or unit agreements facilitate the orderly development and reduce the total costs of operating oil and gas fields owned by multiple lessees. They do this by consolidating and coordinating operations across all lessees in a single operator, sharing the risks and costs of development, improving the economics of production, and consolidating infrastructure. In so doing, unit agreements set the stage for the development and approval of individual drilling permits in specific locations within an oil and gas field. By providing a field-wide lens, unit agreements present an opportunity to better synchronize production from unitized fields with midstream oil and gas operations. OCC and OCD must therefore retain the authority to deny or condition unit agreements to ensure that they acknowledge and account for methane waste at the field level and to ensure that lessees, whether intentionally or not, do not subordinate action to prevent methane waste to short-term profit motives or defer action to prevent waste to the drilling stage, where field-level opportunities to prevent waste may be lost.

Once well spacing patterns are set, and where unit agreements are in place, the final regulatory decision-making step in the oil and gas production process is the drilling permit. Drilling permits can help prevent waste by identifying the disposition of the gas produced, accounting for site-specific geographic, engineering, and other technical factors relevant to a drilling project, and fine-tuning plans set in motion by well spacing and density rules and unit agreements. To facilitate action to prevent waste at the drilling permit stage, OCD's rule should do two things:

First, the drilling permit application should provide that operators package approval requests into a single application for all oil and gas infrastructure anticipated over a 6- to 12-month time period within a given field or unit based on geographic proximity or potential use of shared infrastructure such as gathering systems, compressor stations, or processing facilities. Notably, the U.S. Bureau of Land Management already employs a "master development plan" or "plan of development" type approach that illustrates the utility of moving from well-by-well permitting to multi-well permitting. This approach to drilling permits would result in more holistic decision-making across an entire field (or, at least, area larger than the footprint of an individual well pad) and create efficiencies for OCD, increase public transparency, and create incentives for industry to conduct planning, investment, and permitting activities in a more efficient and comprehensive manner.

Notably, we are *not* advocating that OCD approve multiple drilling requests in one fell swoop that ignores site-level impacts and implications; on the contrary, OCD must still make its drilling approval decisions on an individual-well basis. Rather, we urge OCD to require field- or unit-level *applications*, which would package together drilling requests for all related wells in a single place. This will enable OCD to develop a comprehensive view of each unit or field of new wells that might not be possible through piecemeal applications. Multi-well applications would thus help OCD consider cumulative impacts and address field- or unit-level strategies for reducing

waste when deciding to approve or deny drilling requests while still attending to well-specific concerns when issuing its decision.

Second, the rule should strengthen the current requirements for gas capture planning and the criteria the agency uses to judge plan adequacy. Gas capture plans should be required to include information on the amount, timing, and degree of certainty of takeaway capacity that will be available at the time new wells begin production. Plans should also be a mandatory element of the drilling permit approval process provided by 19.15.14.8 NMAC; i.e., the rule should require that approvals be deferred or denied if plans are inadequate. Gas capture planning represents a key opportunity for the state to intervene to correct the market imperfection that has led to massive amounts of wasted gas. Better planning will bring upstream and midstream operators together to improve their ability to forecast aggregate future production and ensure timely investment in new gathering, boosting and processing capacity.

4. OCD Must Establish Straightforward, Data-Based Decision Tools to Facilitate Compliance and Enforcement

OCD and the OCC should craft a waste prevention rule with clear, straightforward data-based decision tools. Under this system, operators would be required to report the information needed by OCD to determine compliance and would know in advance the consequences for non-compliance. For example, operators already report gas production and flaring volumes to OCD. This data could be used by OCD to determine whether an operator has complied with the flaring reduction targets discussed above through calculation of the percentage of an operator's production that is being flared. When flaring is above the applicable capture rate, the rule would establish a clear schedule of fines and other compliance measures such as production curtailments scaled to the level of violation.

Similarly, the rule's reporting requirements would also need to capture the results of compliance activities such as leak detection programs, and equipment retrofits or replacements. To maintain the integrity of the system, exemptions from requirements should be strictly circumscribed so that operator efforts are directed at compliance, not evading the rule's provisions, and OCD staff is not overwhelmed with applications for exemptions. Pending the grant of an exemption, the operator would be obligated to comply with the rule.

5. The Rule Must Establish Requirements for Public Transparency and Accountability.

The monitoring and reporting needed to support compliance are equally fundamental to transparency and oversight. To make reported information accessible to the public, the rule must require that:

- All data reported to OCD be publicly available without fee in a sortable, searchable and downloadable manner as soon as possible after information is submitted to the agency;

- Spacing rule applications, unitization agreements, and gas capture plans be available for public review, with reasonable time given for notice and comment; and

- Third-party auditing and verification procedures be adopted to ensure that reporting is complete and accurate.

6. OCD Must Take Immediate Steps to Prevent Methane Waste Through Interim Action Pending Adoption and Implementation of a New Rule.

Given New Mexico's large, chronic and growing methane waste problem, OCD must take immediate interim action to prevent waste. Existing policies such as the April 2016 Notice to Operators requiring gas capture planning and the March 2017 Notice to Operators regarding failure to comply with venting and flaring reporting obligations have proven ineffective. OCD must therefore issue an interim directive—for example through a new Notice to Operators—that bolsters its existing regulations and deters operators from gaming the system by rushing to drill wells pending completion of a more stringent revised rule. The notice must:

- Inform operators that effective immediately and pursuant to HB 546, OCD will impose fines for:
    - Failure to accurately report vented and flared volumes on Form C-115 Operators Monthly Reports;
    - Venting gas from oil wells beyond 60 days following well completion (the current regulatory standard); and
    - Flaring gas without an approved Form C-129 Application for Exception from No-Flare Rule, or for flaring in excess of volumes that have been approved.
- Defer new flaring approvals for wells that have received repeated approvals for the same facility or facilities leading to long-term flaring pending OCD review;
- Require deferral of decisions on Form C-101 Applications for Permit to Drill that lack adequate gas capture plans until deficiencies are corrected;
- Request that operators, pending a rule, voluntarily combine approval requests for all oil and gas wells and infrastructure anticipated over a 6 to 12-month time period within a given field or unit; and
- Remind oil and gas operators that, when requesting changes to well spacing and density rules from the OCC or OCD, their application must demonstrate to the OCC or OCD's satisfaction that requested changes prevent surface waste, not just underground waste, pursuant to N.M. Stat. § 70-2-3(B).

An interim directive could be swiftly developed and issued to drive early action to prevent waste as the rule-making process is underway. It would also serve to familiarize OCD staff with tools available to prevent waste, and such "learning by doing" would enable OCD headquarters and field office staff to better inform the rulemaking process and implement the

rule when it becomes effective. We recommend issuing this interim directive by no later than the end of 2019.

C. CONCLUSION

The above core principles provide constructive ideas to inform New Mexico's development of the strongest, most effective rules nationally to prevent methane waste caused by oil and gas production. The principles are grounded in a straightforward goal: near-zero tolerance for methane waste. Given the chronic, massive scale of the methane waste problem and its adverse impacts on New Mexicans, we hope that the Oil Conservation Division and all stakeholders give them due consideration.