STATE OF NEW MEXICO

DEPARTMENT OF ENERGY, MINERALS, AND NATURAL RESOURCES
OIL CONSDERVATION COMMISSION

APPLICATION OF THE NEW MEXICO OIL CONSERVATION DIVISION TO ADOPT 19.15.27 NMAC AND 19.15.28 NMAC, AND TO AMMEND 19.15.7 NMAC, 19.15.18 NMAC, AND 19.15.19 NMAC; STATEWIDE **CASE NO. 21528**

EDF'S OPPOSITION TO NMOGA'S MOTION TO EXCLUDE EVIDENCE AND TESTIMONY PERTAINING TO ADDITIONS TO 19.15.27.8.C(1) PROPOSED BY EDF AND CLIMATE ADVOCATES

The New Mexico Oil and Gas Association ("NMOGA") filed a motion to exclude evidence and testimony under the New Mexico Oil and Gas Act Section 70-2-23 and 19.15.3 NMAC because, NMOGA claims, EDF's proposal to require control of emissions during initial flowback using "air pollution control equipment" capable of achieving a hydrocarbon control efficiency of at least 95% and "flowback vessels" "is "entirely new" and not contemplated by the rulemaking notice, and not a logical outgrowth of the New Mexico Oil Conservation Division's ("OCD") original proposal. NMOGA's characterization of EDF's proposal is fundamentally flawed and plainly incorrect for several reasons. First, OCD filed a very broad notice of rulemaking that clearly contemplates proposals, such as EDF's, to "reduce the venting and flaring of natural gas." OCD, Notice of Public Hearing for Proposed Rulemaking at 1 ("Notice") (attached as Exhibit 1). Notably, the essential purpose of EDF's suggested revision to the completion requirements is to require operators to flare, rather than vent, natural gas during the early stage of completions, known as the initial flowback stage. Thus, EDF's proposed revisions to the completion requirements fall squarely within the notice of rulemaking. Second, OCD's October 15, 2020 draft contain numerous provisions that clearly contemplate EDF's specific suggestions regarding the available equipment operators may use to combust, rather than vent,

natural gas during the initial flowback stage (e.g., as proposed, operators must use "air pollution control equipment" which means either a combustion device or a vapor recovery unit). Specifically, OCD's October 15, 2020 draft includes multiple provisions regarding the combustion, or flaring, of natural gas as it defines "Flare" or "Flaring" to mean "the controlled combustion of natural gas in a device designed for that purpose." Thus, EDF's suggestion that operators use a combustion device to control emissions during the initial flowback stage is clearly contemplated by OCD's draft October rule. Moreover, vapor recovery units are common pieces of equipment used by operators to capture and control waste, and clearly contemplated by the broad notice for this rulemaking and OCD's October draft. NMOGA incorrectly believes that EDF was prohibited from recommending that operators flare, rather than vent, natural gas during initial flowback because OCD *proposed* to allow operators to vent, rather than flare, during this period. This fallacious argument has no merit as one of the fundamental purposes of this rulemaking is to delineate those instances when an operator must capture, flare or vent natural gas. Indeed, not only were EDF's suggested revisions to the completion requirements fully noticed and well within the scope of this rulemaking but they go to a core concept in the rulemaking, namely in what instances may an operator vent rather than flare natural gas that cannot be captured, and the reliability of the equipment operators must use when flaring. For these reasons, EDF respectfully requests NMOGA's motion be denied and EDF's evidence and testimony to be placed in the record and considered in drafting the final rules.

I. The Only Difference Between EDF's and OCD's Proposal is that OCD Allows Venting During Initial Completion and EDF Requires the Gas be Routed to a Flare or Vapor Recovery Unit, and Thus, EDF's Proposed Modifications are Not New Concepts, Devices, or Processes, but Rather are a Foreseeable Proposal Based on the Broad Scope of this Rulemaking, and are a Logical Outgrowth of OCD's Proposal.

The scope of this rulemaking is contained in OCD's Notice: to "establish requirements for operators of oil and gas production facilities to report and reduce the venting and flaring of natural gas." OCD Notice at 1. NMOGA appears to argue that it is not the notice, but rather OCD's October 15, 2020 draft, that sets forth the scope of this rulemaking. NMOGA's argument is misplaced. The notice requirements under NMAC 19.15.3.9B.(1) for a rulemaking hearing only require "a summary of the full text of the proposed rule." There is no requirement or suggestion that the specific text of the proposed rules somehow limits the scope of what may be proposed by parties to a rulemaking, particularly where, as here, that party's proposal is so intricately linked to the summary put forth by OCD in its rulemaking notice.

OCD's summary of the proposed text of 19.15.27 NMAC in its Application to Adopt 19.15.27 NMAC ("Application") (attached as Exhibit 2) and Notice states it will "establish requirements for the operators of production facilities to report and reduce the venting and flaring of natural gas. Application at ¶ 3; Notice at 1. EDF's proposed language pertains to reducing the venting and flaring of natural gas. Furthermore, OCD has expressed a clear preference for flaring over venting "during drilling, completion, and production operations" unless it is "technically infeasible" or poses a safety risk. OCD Overview & Rule Making Process at 58 (Jan. 2021) ("OCD Package") (excerpt attached as Exhibit 3). EDF's proposed modifications are well within the broad scope of this rulemaking.

A. Because EDF's Proposed Modifications are not New, having Been Explicitly Considered by OCD and Submitted and Suggested to the Agency Several Times at Prior Stages in this Rulemaking Process, all Notice Concerns on the Part of NMOGA and the Public have been Addressed.

Proper notice has been given regarding EDF's proposed language in a number of ways. First, OCD's notice of the rule clearly contemplates the concept of reducing venting and flaring

during completion operations, giving notice that proposals would be accepted that consider this topic. Further, OCD specifically proposed requirements regarding both the initial flowback and separation flowback stages in its October 2020 draft. Third, EDF suggested that OCD consider that operators flare, rather than vent, natural gas during the initial flowback stage, during the public comment period that preceded the OCD's notice of rulemaking:

> [EDF] recommend[s] OCD add a requirement to Section 19.15.27.8.D. that requires operators combust, not vent, emissions during initial flowback. Current EPA requirements do not require combustion during initial flowback. To address this gap in the federal reduced emission completion requirements the Colorado Air Pollution Control Division has proposed a new requirement that requires operators to control emissions during initial flowback by 95%. Operators that use a combustion device to meet the control requirements must use a combustion device with a design destruction efficiency of at least 98% for hydrocarbons. In addition, owners or operators must use enclosed flowback vessels.[1]

EDF Comments at p. 7 (excerpt attached as Exhibit 4). OCD published all public comments, and thus NMOGA and other members of the public, as well as OCD, were on notice that EDF likely would propose similar language in the rulemaking.

B. OCD has specifically considered the devices EDF's language contemplates (flares, combustors, and vapor recovery units), making their inclusion foreseeable.

Specifically, NMOGA object to EDF's addition of the term "air pollution control equipment" to the definitions list and the following proposed language in 19.15.27.8.C(1):

[1] 5 C.C.R. 1001-9, Section D.VI.D.1.a(i).

C. **Venting and flaring during completion and recompletion operations.**

(1) During initial flowback, the operator must direct all fluids to flowback vessels and collect and control emissions from each flowback vessel on and after the date of initial flowback by routing emissions to an operating air pollution control equipment that achieves a hydrocarbon control efficiency of at least 95%. If a combustion device is used, it must have a design destruction efficiency of at least 98% for hydrocarbons. ~~shall route flowback fluids into a~~

(a) Owners or operators must use enclosed, vapor-tight flowback vessels with an appropriate pressure relief system to be used only as necessary to ensure safety.

(b) Flowback vessels must be inspected, tested, and refurbished where necessary to ensure the flowback vessel is vapor-tight prior to receiving flowback.

(c) Flares used to control emissions from flowback vessels and pressure relief systems must be equipped with an automatic igniter or continuous pilot.

~~completion or storage tank and commence operation of a separator as soon as it is technically feasible for a separator to function.~~

NMOGA fundamentally misunderstands the role of EDF's proposed definition within the proposed rule: it is not a "new device", as NMOGA claims, but rather it is simply a category which includes several waste reduction devices already contemplated and allowed by OCD as equipment. Air pollution control equipment means a combustion device or vapor recovery unit ("VRU"). Flares and combustion devices are common equipment used to flare natural gas and are explicitly included in OCD's draft rules. There is an abundance of evidence to indicate that the draft rules also contemplate the use of vapor recovery units, including from language in OCD's own exhibits[2] and the Technical Information[3] consulted, as indicated in OCD's Notice.

EDF acknowledges that OCD has applied the logical outgrowth test to this type of rulemaking previously[4] and does not dispute its application here. What is less certain is whether the logical outgrowth test can be applied to proposed language submitted by parties to a rulemaking before a final rule has issued. Regardless, under any viewing of the facts, EDF's

[2] *See, e.g.* OCD Package at 168-70, Draft Methane Advisory Panel (discussing methods for reducing waste from pneumatic controllers, including "a VRU, flare, enclosed combustion device"), 224 (detailing how vapors from a dehydrator could be routed to a VRU "where it can be put to beneficial use"), 232-34 (discussing VRUs associated with storage tanks), 399-401 (discussing how to incorporate VRU use into separator operations) (Fall 2019).

[3] Colorado Oil and Gas Commission, *Draft Amendments to E&P Waste Management,* 900 Series, June 2020 (including requirement in Proposed COGCC Rule 903.d(5) that "All Flared gas will be combusted in an enclosed device equipped with an auto-igniter or continuous pilot light and a design destruction efficiency of at least 98% for hydrocarbons") (excerpt attached as Exhibit 5); GaffneyCline, *Tackling Flaring: Learnings from Leading Permian Operators* at 14-17 (June 2020) (discussing best flaring and emission reduction operational practices, including use of VRUs) (excerpt attached as Exhibit 6).

[4] Order No. R-14834-B at p. 7 ¶ 5, Case No. 16078 (Dec. 27, 2010); Order No. R-14751 at p. 8 ¶ 5, Case No. 15959 (June 21, 2018).

proposed language, if adopted by OCD, is a logical outgrowth of OCD's proposed rules. A final rule qualifies as a logical outgrowth "if interested parties 'should have anticipated' that the change was possible, and thus reasonably should have filed their comments on the subject during the notice-and-comment period." *CSX Transportation v. Surface Transportation Board*, 584 F.3d 1076, 1079-80 (D.C. Cir. 2009) (internal quotations omitted).

As it pertains to the addition of the term "air pollution control equipment," EDF's proposed definition is not substantive and only serves to clarify the range of equipment available to operators to prevent waste during initial flowback of oil and natural gas completions. It is foreseeable that new regulatory language may be proposed to clarify substantive requirements.

As it pertains to EDF's suggestion that operators flare rather than vent during initial flowback, OCD has expressed its clear intent to enact regulations that favor flaring over venting at all stages of development. It is a logical outgrowth from this stated priority that EDF would suggest flaring (or beneficial use) over venting during a stage that OCD has regulated in other ways.

Unlike the circumstances NMOGA raises in the produced water rulemaking, EDF's changes are related, foreseeable, and a logical outgrowth of OCD's notice. In the produced water case, a party completely rewrote the objectives section, added a permitting requirement for produced water use, and prohibited freshwater use in oil and gas development. OCC's notice for that rule included a proposed change to the definition of "produced water," the addition of a requirement for a water use report, and to alter language to conform to a 2019 law. Application for Rulemaking in the Matter of Proposed Amendments to the Commission's Rules on Produced Water, 19.15.2, 19.15.16, and 19.15.34 NMAC (attached as Exhibit 7). The produced water

rulemaking did not contemplate the changes proposed by the party. Here, however, EDF's proposal clearly falls within the notice provided by OCD.

II. This Hearing is the Appropriate Time in the Rulemaking Process for Witnesses to Address any Remaining Disputes about the Best Ways to "Reduce the Venting and Flaring of Natural Gas" Because the Robust Nature of the Proceeding Allows for Cross-Examination and Presentation of Rebuttal Testimony.

EDF's testimony regarding this inserted language will allow EDF to explain that it is feasible for operators to control gas during the initial flowback stage using air pollution control equipment, thus minimizing methane emissions that stem from venting. As mentioned, *supra*, OCD has expressed a clear preference for flaring over venting "during drilling, completion, and production operations" unless it is "technically infeasible" or poses a safety risk. OCD Package at 58. EDF expert Tom Alexander will testify regarding how operators are able to safely route flowback fluids to enclosed, controlled flowback vessels equipped with pressure relief systems, making flaring of the gas during initial flowback technically feasible and safe.

III. Conclusion

EDF requests that the Hearing Officer deny NMOGA's motion and permit evidence regarding the safety and feasibility of reducing waste during initial flowback using common oil and gas equipment.

Dated: January 11, 2021

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STATE OF NEW MEXICO

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ENVIRONMENTAL DEFENSE FUND'S LIST OF EXHIBITS

1. OCD, Notice of Public Hearing for Proposed Rulemaking
2. OCD, Application to Adopt 19.15.27 NMAC
3. OCD Overview & Rule Making Process (excerpts)
4. EDF Comments on OCD's proposed draft (excerpts)
5. Colorado Oil and Gas Commission, *Draft Amendments to E&P Waste Management,* 900 Series, June 2020 (excerpts)
6. GaffneyCline, *Tackling Flaring: Learnings from Leading Permian Operators* (June 2020) (excerpts)
7. Application for Rulemaking in the Matter of Proposed Amendments to the Commission's Rules on Produced Water, 19.15.2, 19.15.16, and 19.15.34 NMAC

NOTICE OF PUBLIC HEARING FOR PROPOSED RULEMAKING

The State of New Mexico through the Oil Conservation Commission (OCC) hereby gives notice that the OCC will hold a public hearing to consider proposed rules to regulate the venting and flaring of natural gas from oil and natural gas production and gathering facilities. The public hearing will be held on-line and by telephone on January 5, 2021, at 9:00 a.m., and will be continued to the following day(s) if not completed.

Purpose of Proposed Rules. The proposed rules regulate the venting and flaring of natural gas from oil and natural gas production and gathering facilities.

Summary of Proposed Rules. The Oil Conservation Division (OCD) proposes to adopt two new rules and to amend three existing rules. The new rules are 19.15.27 NMAC, which establishes requirements for operators of oil and gas production facilities to report and reduce the venting and flaring of natural gas; and 19.15.28 NMAC, which establishes requirements for operators of natural gas gathering systems, including gathering pipelines, to report and reduce the venting and flaring of natural gas. The amended rules are 19.15.7 NMAC, to change the name of a form, add new forms, and provide instructions; 19.15.18 NMAC, to remove a provision requiring operators of production facilities an application to file an application to flare natural gas; and 19.15.19 NMAC, to remove two provisions regarding the venting of natural gas at production facilities.

Legal Authority. The proposed rules are authorized by the Oil and Gas Act, Sections 70-2-1 through 70-2-38 NMSA 1978, including Section 70-2-6 (authorizing the OCC to exercise jurisdiction, authority, and control of and over all persons, matters, and things necessary or proper to enforce the statute), Section 70-2-11 (authorizing the OCC to make rules to prevent waste, protect correlative rights, and to do whatever may be reasonably necessary to implement the statute), and Section 70-2-12 (enumerating the powers of the OCC and OCD). The public hearing is governed by the OCC's rule on rulemaking proceedings, 19.15.3 NMAC.

Availability of Proposed Rules. The full text of the proposed rules is available on the OCD's website, http://www.emnrd.state.nm.us/ocd, or by contacting the OCC Clerk, Florene Davidson at florene.davidson@state.nm.us.

Written Comments. Any person may submit written comments on the proposed rules no later than January 5, 2021, at 9:00 a.m., unless extended by the OCC, by mail, email, or delivery to the OCC Clerk, Florene Davidson, 2nd Floor, Wendell Chino Building, 1220 South St. Francis Drive, Santa Fe, New Mexico, 87505, or florene.davidson@state.nm.us. To deliver written comments to the OCC Clerk, upon arrival at the building, call (505) 476-3200 ext. 1, and an OCC representative will come to the front door.

Public Hearing. The public hearing will be held online and by telephone on January 5, 2021, at 9:00 a.m., and will be continued to the following day(s) if not completed. The public hearing will be transcribed and recorded. To access the public hearing on-line via the Webex platform and by telephone:

Online access code:	[xxx xxx xxx]
Online password:	[xxxxxxxxxxx]
Telephone:	[xxx-xxx-xxxx.]

Public comment will be accepted each day of the hearing beginning at 4:00 p.m.

Proposed Modifications, Technical Testimony, and Cross Examination. A person who intends to propose a modification to the proposed rules, to present technical testimony at the public hearing, or to cross-examine witnesses at the public hearing must file six copies of a Pre-Hearing Statement conforming to the requirements of 19.15.3.11(B) NMAC, no later than January 5, 2021, at 5:00 p.m. The Pre-Hearing Statement must be filed by mail, email, or delivery to the OCC Clerk, Florene Davidson, 2nd Floor, Wendell Chino Building, 1220 South St. Francis Drive, Santa Fe, New Mexico, 87505, florene.davidson@state.nm.us. To deliver a Pre-Hearing Statement to the OCC Clerk, upon arrival at the building, call (505) 476-3200 ext. 1, and an OCC representative will come to the front door. A person filing a Pre-Hearing Statement who intends to use projection equipment must contact the OCC Clerk no later than seven business days prior to the public hearing. A person who presents technical testimony at the public hearing will

be subject to cross-examination by the members of the OCC, the OCC's counsel, and other persons who filed Pre-Hearing Statements.

Oral Comments. A person who did not file a Pre-Hearing Statement may present non-technical testimony or make an unsworn statement at the public hearing. A person who wants to present non-technical testimony or make an unsworn statement at the public hearing must inform the hearing examiner. A person who presents non-technical testimony will be subject to cross-examination by the members of the OCC, the OCC's counsel, and other persons who filed Pre-Hearing Statements. A person may offer exhibits at the public hearing if the exhibits are relevant to the proposed rules and the person files the original exhibit and five copies conforming to the requirements of 19.15.3.12(C) NMAC prior the end of the public hearing. A person may file exhibits by mail, email, or delivery to the OCC Clerk, Florene Davidson, 2nd Floor, Wendell Chino Building, 1220 South St. Francis Drive, Santa Fe, New Mexico, 87505, florene.davidson@state.nm.us. To deliver exhibits to the OCC Clerk, call (505) 476-3200 ext. 1, and an OCC representative will come to the front door.

Persons with Disabilities. A person with a disability who needs a reader, amplifier, qualified sign language interpreter, or other form of auxiliary aid or service, such as a summary or other accessible form of document, in order to attend or participate in the public hearing, must contact the OCC Clerk, Florene Davidson, at (505) 476-3458 or florene.davidson@state.nm.us, or through the New Mexico Relay Network at 1-800-659-1779, no later than January 5, 2021.

Technical Information. OCD consulted the following technical information for the proposed rules, which is available on OCD's website:

New Mexico Energy, Minerals & Natural Resources Department and New Mexico Environment Department, *Report of the Methane Advisory Panel*, Fall 2019.

U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, *Oil and Natural Gas Sector: Hydraulically Fractured Oil Well Completions and Associated Gas During Ongoing Production*, April 2014.

U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, *Oil and Natural Gas Sector: Liquids Unloading Processes*, April 2014.

Colorado Oil and Gas Commission, *Aesthetic and Noise Control Regulations*, 800 Series, September 2014.

Colorado Oil and Gas Commission, *Safety Regulations*, 600 Series, January 2020.

Colorado Oil and Gas Commission, *E&P Waste Management*, 900 Series, January 2020.

Colorado Oil and Gas Commission, *Draft Amendments to E&P Waste Management*, 900 Series, June 2020.

North Dakota Industrial Commission, *Order No. 24665*, July 1, 2014.

North Dakota Industrial Commission, *Required Hearing Exhibit – Gas Capture Plan*, September 16, 2014.

North Dakota Industrial Commission, *APD Gas Capture Plan Required*, October 1, 2014.

North Dakota Department of Natural Resources, *Oil and Gas Update*, October 25, 2018.

North Dakota Industrial Commission, *Frequently Asked Questions Version 1121018*, Undated.

GaffneyCline, *Tackling Flaring: Learnings from Leading Permian Operators*, June 2020.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

APPLICATION OF OIL CONSERVATION DIVISION TO ADOPT 19.15.27 NMAC AND 19.15.28 NMAC, AND TO AMEND 19.15.7 NMAC, 19.15.18 NMAC, AND 19.15.19 NMAC; STATEWIDE **CASE NO. _____**

OIL CONSERVATION DIVISION'S APPLICATION TO ADOPT 19.15.27 NMAC AND 19.15.28 NMAC AND TO AMEND 19.15.7 NMAC, 19.15.18 NMAC, AND 19.15.19 NMAC

The Energy, Minerals and Natural Resources Department, Oil Conservation Division ("OCD"), applies to the Oil Conservation Commission ("Commission") to hold a public hearing to consider and adopt rules to regulate the waste of natural gas by venting and flaring in the production and gathering sectors of the oil and gas industry. The rules consist of two new and three amended rules.

The new rules are:

19.15.27 NMAC – Venting and Flaring of Natural Gas: OCD proposes to adopt a new rule to establish requirements for the operators of production facilities to report and reduce the venting and flaring of natural gas.

19.15.28 NMAC – Natural Gas Gathering Systems: OCD proposes to adopt a new rule to establish requirements for the operators of natural gas gathering systems, including gathering pipelines, to report and reduce the venting and flaring of natural gas.

The amended rules are:

19.15.7 NMAC – Forms and Reports: OCD proposes to amend an existing rule to rename a form, add new forms, and provide instructions for the use of those forms.

19.15.18 NMAC – Production Operating Practices: OCD proposes to amend an existing rule to remove a provision requiring the operators of production facilities to file an application to flare natural gas.

19.15.19 NMAC – Natural Gas Production Operating Practice: OCD proposes to amend an existing rule to remove two provisions regarding the venting of natural gas at production facilities.

3. OCD requests that the Commission set a special hearing on the proposed rules for January 5, 2021.

4. Pursuant to 19.15.3.8(C) NMAC, and in addition to the requirements of 19.15.3.11(B)(2) NMAC, OCD requests that the Commission:

a. establish a deadline for pre-hearing motions;

b. appoint a hearing examiner to hold a pre-hearing conference to decide procedural matters and non-dispositive pre-hearing motions before the hearing;

c. schedule a meeting to hear and decide dispositive motions, if any, before the hearing;

d. require persons to file pre-hearing statements no later than December 22, 2020; and

e. authorize a party, after it presents each witness individually for direct examination, to present its witnesses as a panel for the purpose of cross-examination.

5. The rules and public notice are attached.

Respectfully submitted,

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OVERVIEW & RULE MAKING PROCESS

TIFFANY A. POLAK

NEW MEXICO ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

JANUARY 2021

Methane Advisory Panel (MAP)

DESCRIPTION : Joint EMNRD and NMED led panel comprising a cross section of stakeholders and technical experts who discussed technical issues related to capturing methane.

WHO: 27 member team representing wide breadth of stakeholders.

WHEN: Sept – Nov 2019; Final Report issued Feb 2020.

RESULTS: Technical background report related to specific oil and natural gas equipment and processes for consideration in moving forward with an enforceable methane regulatory strategy.

Aztec Well Services
Bio-cultural diversity/Healthy indigenous communities advocate
Center for Civic Policy
Chaco Canyon Coalition
Chevron
Conoco Philips
Devon
DJR
Earthworks
Enduring Resources
Environmental Defense Fund
EOG
Epic Energy
Hanson Operating
Hilcorp Energy
Lucid
Marathon Oil
Merrion Oil and Gas Corp
New Mexico Environmental Law Center
Oxy
Private Rancher/Environmental Advocate
San Juan Citizens Alliance
Sierra Club
Stakeholder Participants:
Western Environmental Law
Whiptail Midstream
XTO

EMNRD OCD Proposed Rule Summary

TIFFANY A. POLAK

NEW MEXICO ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

Venting and Flaring of Natural Gas

19.15.27.8.A / 19.15.28.8.A	Flaring is preferred to venting, unless there are safety concerns

Venting and flaring of natural gas during drilling, completion or production operations [from a natural gas gathering system] constitutes waste and is prohibited except as authorized in Subsections B, C and D of 19.15.27.8 [Subsection B of 19.15.28.8] NMAC. The operator has a general duty to maximize the recovery [gathering] of natural gas and to minimize venting and flaring. During drilling, completion and production operations [gathering], the operator shall flare natural gas rather than vent natural gas except when flaring is technically infeasible or would pose a risk to safe operations or personnel safety, and venting is a safer alternative than flaring. **OCD modified rule to clarify that flaring is preferred to venting during all operational phases.**

METHANE ADVISORY PANEL

Fall, 2019

Convened by

New Mexico Environment Department

and

New Mexico Energy, Minerals and Natural Resources Department

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Introduction

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pneumatic devices air on newly constructed oil wells	(note older document, cost of controls and price of gas are no longer accurate) https://www.carbonlimits.no/project/zero-emission-technologies-pneumatic-controllers-in-usa/		grid power and only economic with a very large number of controllers on one site	
Route gas from a pump back to a process or control	https://www.epa.gov/sites/production/files/2016-10/documents/2016-ctg-oil-and-gas.pdf	**In use**	Low/Medium – need to have a low pressure process device in close proximity to the pump	
Electrical alternatives, including solar powered	http://www.calscan.net/solutions_ZeroGHGVenting.html (solar-powered package) https://exlar.com/content/uploads/2014/10/Venting-Solutions.pdf Small air compression solutions: https://westgentech.com/epod/ https://lcotechnologies.com/crossfire-compressor.html Electric/Solar Controllers: https://www.carbonlimits.no/project/zero-emission-technologies-pneumatic-controllers-in-usa/	**In use**	Medium - Solar systems are in use in Canada and therefore should be feasible in NM. Supplier has not verified feasible in NM, power demand may be greater than solar can supply.	**Varies with site size / amt of pneumatic equipment.**

What technology alternatives exist to reduce or detect emissions? Please list all alternatives identified along with contact information for further investigation of this technology or process.

Replace or retrofit continuous, gas powered high bleed pneumatic controllers.

What are the pros and cons of the alternatives?

Replacement or retrofit of high bleed devices is, in almost all cases, an effective emissions reduction.

For compressed air applications, economic drawbacks and challenges will create barriers for gas plays and smaller scale locations. In gas plays, the per-controller counts are much lower than oil plays, thus, creating a disincentive for the use of more expensive compressed air applications as those installations are uneconomic unless there is a significant number of controllers needed for the process. There are also application limitations as some services require rapid actuation response times; electric (including solar) may not be appropriate for pneumatic operations that require such rapid actuation response times.

With respect to controlling pumps, there are numerous potential safety and operational issues with connecting the discharge from a pneumatic pump to an existing control device and closed vent system. These issues can impact both the performance of the pump and result in back pressure on the other sources being controlled.

Whether considering a VRU, flare, enclosed combustion device, or any other control technique, control devices are designed for a specific set of conditions with a number of key assumptions. For example, a flare header might be designed to allow enough flow to permit two pressure safety valves (PSV) to open simultaneously without creating so much back pressure as to take either PSV out of critical flow. The design is sensitive to other flow streams in the pipe and putting a pump exhaust into that header could result in too much backpressure for the safety devices to function as intended. Conversely, but equally important, a pneumatic pump is chosen for a specific backpressure and the backpressure imposed by a PSV could stop the pump from functioning at a critical moment, exacerbating the already unstable situation that resulted in the opening of the PSVs.

Typically, pneumatics operate on a low-pressure gas stream. If the control device on a site is located a long distance from the pneumatic, the gas emitted from the controller make not make it to the control device, which can cause backpressure on the pneumatic and not allow for operation of the device. In particular, flares are often located at a safe setback distance from operational equipment. At times, control devices, such as flares, may operate at higher pressures than pneumatic devices, which would not allow for routing to the control device.

Additionally, enclosed combustion devices are designed for a maximum BTU load and may not be able to accommodate the exhaust gas from a pneumatic pump affected source without replacing the control device.

The design process for VRUs are even more sensitive to changes than other control devices. The VRU equipment is designed to recover vapors and raise their pressure enough to be useful, is expensive, and has a limited range of possible flow rates. Adding vapor loads to a VRU must be carefully evaluated on a case-by-case basis.

In some instances, an existing control device on a particular site may be owned and operated by a third party, such as a control device owned and operated by a gathering and collection system operator with a glycol dehydration unit on a well site. In these instances, the well site operator does not have the right to route a pneumatic pump affected source exhaust to the control device.

When evaluating use of compressed air on a location one important consideration is the system can introduce water into the pneumatic lines. Instrument air system have a tendency to introduce water into the pneumatic lines. Water can freeze in colder climates damaging the line or the device/pump. Water that makes it way to the device itself could cause the device to not operate or mis-operate. This could result in excess emissions on site.

What is needed and available for new wells?

NSPS OOOO already applies to new devices since October 2013. Pumps have been subject to NSPS OOOOa since late 2015.

Zero bleed solutions, including solar-powered, have been demonstrated at wellsites in Canada (noted above).

What is needed and available for existing wells?

Continuous high bleed pneumatic devices can be replaced in existing wells. NSPS OOOOa requirements are triggered for pumps that are replaced.

For larger existing wellpads (multiwell), retrofit with zero-bleed technology may be cost-effective.

What technology alternatives exist for this equipment or process itself?

In some cases, mechanical valves can be utilized without a pneumatic controller, but there are significant limitations including the control must be in close proximity to the process, can only be used for liquid level, and it may not be sufficient for some processes (like larger process flow or pressure). Retrofit is not feasible.

What are the pros and cons of the alternatives?

See above.

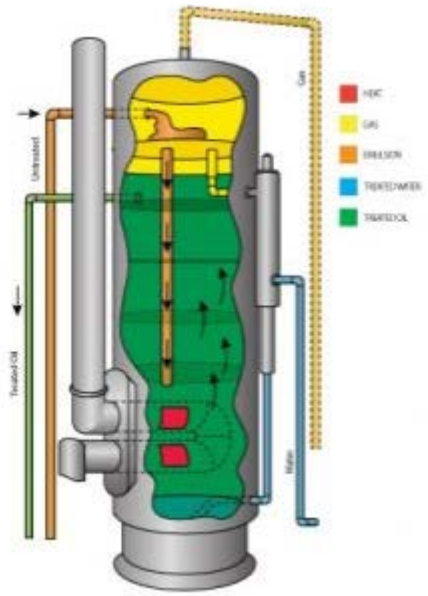
Costs of Methane Reductions:

What is the cost to achieve methane emission reductions?

The cost of switching from a continuous high bleed controller to a lower emitting option depends on the option chosen, which is dependent on the type of service, and can be dependent on access to electricity. US EPA's control technique guidelines cite an average capital cost per unit as $2,698. https://www.epa.gov/sites/production/files/2016-10/documents/2016-ctg-oil-and-gas.pdf

fuel gas system for fuel use.				
Route Recovered Gas to Vapor Recovery Unit. *Rather than venting gas that evaporates from the rich glycol in the flash tank separator, some operators have piped this gas to a vapor recovery unit, where it can be put to beneficial use.*	*https://www.epa.gov/sites/production/files/2016-06/documents/pipeglycoldehydratortovru.pdf* *California includes the following language regarding low-NOx VRU:* *If the vapor control device is to be installed in a region classified as non-attainment with, or which has not been classified as in attainment of, all state and federal ambient air quality standards, the owner or operator must install one of the following devices that meets all applicable federal, state, and local air district requirements:* *(A) A non-destructive vapor control device that achieves at least 95 percent vapor control efficiency of total emissions and does not result in emissions of nitrogen oxides (NOx); or,* *(B) A vapor control device that achieves at least 95 percent vapor control efficiency of total emissions and does not generate more than 15 parts per million volume (ppmv) NOx when measured at 3 percent oxygen and does not require the use of supplemental fuel gas, other than gas required for a pilot burner, to operate.* Source: https://ww3.arb.ca.gov/regact/2016/oilandgas2016/ogfro.pdf Example: http://www.aereon.com/enclosed-combustion-systems/certified-ultra-low-emissions-burner-ceb	In use		Low **Medium** High

What technology alternatives exist to reduce or detect emissions? Please list all alternatives identified along with contact information for further investigation of this technology or process.



(Reference: TCEQ Upstream O&G Heaters and Boilers Final Report, August 30, 2013

https://naturalgasindustryhub.com/what-are-heater-treaters/

Storage Vessels (Tanks):

Tanks are designed to operate at "near atmospheric" pressure. It is common practice to refer to their design rating in ounces of pressure instead of pounds. One (1) pound per square inch gauge (psig) = 16 ounces per square inch gauge (osig).

In the most recent version of API 12F (January 2019), tanks built to the standard have a design pressure of 16 (ounces per square inch gage) osig (with provisions for 24 osig during emergency upset conditions). However, existing tanks throughout New Mexico can have a design pressure ranging from 0-16 osig and be constructed with either carbon steel of fiberglass (only used in water service). 8 osig for carbon steel tanks and 4 osig for fiberglass tanks are likely the most common at existing sites.

Tanks in the production sector of the oil and natural gas industry are used to temporarily store segregated oil and water. Storage vessels can be installed as a single unit or in a grouping of similar or identical vessels, commonly referred to as a "tank battery." The reason for temporary storage is for feasibility of takeaway via pipeline or truck. In cases of pipeline (and pumps in general), it is important to minimize the number of times fluid drivers cycle on and off. There are also net positive suction head requirements to consider when pumping oil. In cases of trucking, it is important to have an appreciable load for takeaway. At sites where multiple tanks are located, tanks are often connected by a manifold. The method of tank operation varies depending on site-specific conditions.

Pipeline is the preferred method of takeaway but requires both a pipeline and available power. Trucking is the other option and has emissions associated with it that are quantified using EPA's AP-42 Emissions Factors (Section 5.2). Vapor balance return lines allow operators to take credit for reduced emission factors and are relatively easy to install. However, the challenge is in finding trucks that are certified in the practice of vapor balance. It is also difficult for operators to enforce the use of vapor balance. There is a perception that truck loading is the primary cause for left open thief hatches, but there is lack of industry data to corroborate.

The industry considers three separation mechanisms from storage tanks:

1) Flash vaporization of a homogenous, single-phase solution using pressure reduction
2) "Working" Losses due to changes in tank levels from filling/emptying
3) "Breathing" Losses due to changes in ambient conditions throughout any given day

Vapors created from this separation must either be recovered, destroyed or vented. For recovery and destruction strategies, it is paramount to adequately maintain pressure on storage tanks by use of thief hatches, pressure/vacuum relief valves and emergency relief valves. Vapor will flow to the path of least resistance. If a storage tank relief device is not properly specified or correctly installed, it can become the path of least resistance. If a storage tank relief device is not properly maintained (i.e. seal failures, worn springs, etc.), it can become the path of least resistance. If a thief hatch is left open after gauging, truck loading, maintenance, etc., it will definitely become the path of least resistance. This is a challenge for storage tanks because the range of control is relatively small and very sensitive to any errors or malfunction. It is especially challenging for existing locations that have even less of a design operating pressure. This plays a pivotal role in NSPS OOOOa compliance determination for closed vent systems if applicable.

Vapor Recovery Units (VRUs) work by using a small compressor to capture and compress the vapor emissions from the oil at low to near atmospheric pressures, reducing the amount of gas that is sent to the vapor combustion device from the storage tanks. They may be operated in conjunction with VRTs, where they compress the flashed gas for sales upstream of the tanks. VRU's can also be tied directly to the tank vent header system or CVS as long as there is an adequate gas blanket system installed to capture emissions directly from the tank and routed to a sales point instead of a combustion device. The VRU compressor is driven by a small natural gas or electric engine. The size is determined by site-specific conditions and production rates. At sites where there is not an adequate and/or reliable electric power source, natural gas engines must be used. VRU's, like all compressors, are rate limited; meaning, available compressors will be too large to run efficiently to control the vapors when emissions are very low. In some cases, VRT/VRU installations may be temporary. Installations would normally occur during the early phase of a well's life when production is highest. This equipment may be removed later when production falls below an economic or operational feasibility threshold. Installation of VRU's on tank headers is generally not recommended due to the safety and gas quality concerns this may introduce to the process (see page 7). In general, for sites authorized under NOI the NMED does not consider different operating strategies. Sites are evaluated for the maximum emissions expected from a site and do not consider the emission reductions/gas capture associated with the use of VRT's/VRU's.

https://www.sciencedirect.com/topics/engineering/oil-storage

https://www.epa.gov/natural-gas-star-program/estimates-methane-emissions-sector-united-states

Provide the segment(s) of the industry that the equipment or process is found:

The equipment/process is found in the upstream, midstream, and transmission segments.

Describe how the equipment or process is used:

Addressed in previous section.

Provide the common process configurations that use this equipment or process:

Addressed in previous section.

What is the distribution of the equipment or process across business segments?

Addressed in previous section.

How has this equipment or process evolved over time?

Tank standards changed to move from 8 oz to 16 oz pressure set points due to a change in API Standard 12F in January 2019 (available by subscription at https://www.monogramwebstore.org/publications/item.cgi?fce92c8f-40c7-4108-90d2-ba38757d174c). An increase in the pressure rating allows operators to set pressure relief devices at a higher setpoint, decreasing the likelihood of triggering relief devices that could vent to atmosphere. However, not all tanks are operated at these higher pressure ranges under normal operating conditions. It is important to note that retrofitting/replacing tanks is a significant economic challenge. Replacing tanks requires existing tanks to be cleaned, tested/treated for naturally occurring radioactive material (NORM), have piping removed, transported, and sold at a price that hardly recovers any value. Installing a new tank is roughly twice the cost of the tank. Retrofitting tanks really only applies when an operator decides to switch a tank from oil service to water service due to hazards associated with fiberglass tanks. The challenge in this is adequately protecting the retrofitted tank from corrosion. Newly constructed tanks are typically internally coated with a protective barrier in between the fluid and the carbon steel wall. This is performed in a controlled environment. Internally coating a tank in the field is much more difficult and commonly results in imperfections that accelerate corrosion. An alternative option is placing sacrificial anodes in the tanks, but this requires constant maintenance. Production decline rarely makes replacing/retrofitting tanks a viable option.

Thief hatch design changes have improved resulting in better seals to prevent tank emissions to atmosphere and better relieving control (closer to tank rating).

There is some recent technology that allows for operators to monitor the open/close status of thief hatches using magnetic switches. However, at this point in its development, reliability is unproven. There is also an economic burden given that it would require installation on every thief hatch. It would also require communications for remote monitoring.

Operators may consider the type of dump valve and the use and its intended service. Snap acting valves and throttling valves can be more appropriate in different settings, and an evaluation of the most appropriate device for the setting can improve dump valve performance. Advancements in communication technology (i.e. internet, email, etc.) have made it easier to right-size valves.

The most significant evolution in upstream has been in the ability to remotely monitor and control processes. Programmable Logic Control (PLC), Supervisory Control and Data Acquisition (SCADA) systems, etc. allow operators to monitor, trend, and control different aspects of their process that are enabled through the use of instrumentation (e.g. Pressure Transmitters, Flow Transmitters, Level Switches, Level Transmitters, etc.). While SCADA is installed for operational purposes, analysis of that data and integration of more SCADA over time can result in lower emissions as facilities are run more efficiently. PLC and SCADA systems require both instrumentation and communication equipment. This poses an economic burden and may not be scalable to smaller operators or many existing locations.

5. SEPARATORS - PATH FORWARD[179]

	OPTIONS	DESCRIPTION AND LINK TO INFORMATION IF AVAILABLE. PLEASE LIST THE BENEFIT THAT COULD BE ACHIEVED THROUGH THIS OPTION AND ANY DRAWBACKS OR CHALLENGES TO IMPLEMENTATION	EFFECTIVENESS OF COST NOW (choose one)	REPORTING, MONITORING AND RECORDING OPTIONS, INCLUDING REMOTE DATA COLLECTION	IS THIS OPTION HELPFUL IN THE SAN JUAN BASIN, PERMIAN BASIN OR BOTH
8.1	Applicability threshold	Storage tank equipment control requirements for existing facilities, not already subject to NSPS OOOO/OOOOa, should be based on appropriate thresholds. American Petroleum Institute's December 4, 2015 comments to EPA on the draft Control Techniques Guidelines suggests that a 15 tons per year VOC threshold is appropriate as existing source retrofits are more costly than controls on a new source. The throughput impacts the ability of the control equipment to function effectively. As noted in EPA's OOOO/OOOOa, requiring controls for new storage tanks below a certain VOC threshold may not be effective. For existing storage tanks, the control threshold will be even higher due to the additional cost to retrofit the equipment.	**LOW** MODERATE HIGH	Covered in NMED permit conditions	San Juan Permian Both
	COMMENT		SUGGESTION TO MAKE THIS OPTION MORE WORKABLE:		
8.2	Controls – VCUs and VRUs: Consider incorporating VCUs and VRUs into facility design to capture additional "flash		LOW **MODERATE** HIGH	Covered in NMED permit conditions	San Juan Permian

[179] The format of the Path Forward table evolved over the course of the meetings as the group tried to identify the best method for capturing the most useful information. As a result, there is some variation in the table headers from topic to topic in the final consolidated report.

	gas" not captured by separator, especially early in the well life when production is highest.				Both
	COMMENT		SUGGESTION TO MAKE THIS OPTION MORE WORKABLE:		
8.3	Separators / VRTs: Optimize separator design/operating parameters to maximize gas separation. Consider use of VRT after the separator as a second opportunity to minimize "flashing" in the storage tanks.	The facility should be designed and operated to safely recover as much flash gas as possible prior to storage.	**LOW** MODERATE HIGH	Covered in NMED permit conditions	San Juan Permian Both
	COMMENT		SUGGESTION TO MAKE THIS OPTION MORE WORKABLE:		
8.4	Inclusion of controlled tanks and relief devices in site specific LDAR	Minimize leaks from controlled tanks and relief devices through their inclusion in the existing site specific LDAR program (at the same frequency as the existing program).			San Juan Permian Both
	COMMENT		SUGGESTION TO MAKE THIS OPTION MORE WORKABLE:		
8.5	Control storage tanks with emissions above specified threshold (e.g., 10 tpy of CH4 or 2 tpy of VOCs) by 98%	See discussion above of CARB and Colorado proposed requirements in section discussing existing reduction strategies.	**Cost effective**	Robust recordkeeping and reporting requirements essential for compliance monitoring	San Juan Permian Both
	COMMENT		SUGGESTION TO MAKE THIS OPTION MORE WORKABLE:		

8.6	Require operators route tank emissions to VRU unless technically infeasible.	See discussion above of CARB requirements in section discussing existing reduction strategies.	**Cost effective**	Robust recordkeeping and reporting requirements essential for compliance monitoring	San Juan Permian Both
	COMMENT		SUGGESTION TO MAKE THIS OPTION MORE WORKABLE:		
8.7	Require operators use automated tank gauges to reduce fugitive emissions from thief hatches	See discussion above of Colorado proposed requirements in section discussing existing reduction strategies.	**Cost effective**	Robust recordkeeping and reporting requirements essential for compliance monitoring	San Juan Permian Both
	COMMENT A. Require operators to install vapor balance return lines. Delay effective date of regulations (by 1 year) to allow truck drivers to receive training and certification in operation. Require monitoring and reporting.		SUGGESTION TO MAKE THIS OPTION MORE WORKABLE:		
8.8	Require operators control emissions during unloading of emissions from tanks into trucks	See discussion above of Colorado proposed requirements in section discussing existing reduction strategies.	**Cost effective**	Robust recordkeeping and reporting requirements essential for compliance monitoring	San Juan Permian Both
	COMMENT		SUGGESTION TO MAKE THIS OPTION MORE WORKABLE:		
8.9	Convert Water Tank Blanket from Natural Gas to Produced CO2 Gas	https://www.epa.gov/sites/production/files/2016-06/documents/convertwatertank.pdf Natural Gas STAR Partner has switched water tank blanket from natural gas to CO2-rich produced gas, saving 32,600 Mcf per year of methane.	$1,000-$10,000		San Juan Permian Both

ENVIRONMENTAL DEFENSE FUND, THE WILDERNESS SOCIETY, AUDUBON NEW MEXICO, NATIONAL PARKS CONSERVATION ASSOCIATION

Environmental Defense Fund (EDF) The Wilderness Society (TWS), Audubon New Mexico and the National Parks Conservation Association greatly appreciate the opportunity to submit comments on New Mexico Oil Conservation Division's (OCD) Proposed Rules on Venting and Flaring of Natural Gas, Title 19, Chapter 15, Part 27.

EDF is a national membership organization with more than 2.5 million members residing throughout the United States and more than 18,000 residing in the state of New Mexico, many of whom are deeply concerned about the pollution emitted from oil and natural gas sources. EDF brings a strong commitment to sound science, collaborative efforts with industry partners, and market-based solutions to our most pressing environmental and public health challenges.

In New Mexico, EDF has been active in NMED rulemakings and participated as a member of the Methane Advisory Panel (MAP), which lead to the creation of the MAP White Paper.

The Wilderness Society (TWS) is a non-profit organization dedicated to uniting people to protect America's wild places. TWS is one of America's leading public lands conservation organizations. Since 1935, TWS has been dedicated to protecting America's wild places for current and future generations, which requires eliminating climate-changing emissions. We are committed to smart and sensible regulation and work to ensure that public resources are used effectively, efficiently, and responsibly. TWS has offices throughout the country, including an office Albuquerque, New Mexico. TWS has several thousand members in New Mexico and over one million members and supporters nationwide.

Audubon New Mexico is the statewide office of the National Audubon Society, a national nonprofit conservation organization dedicated to protecting birds and the places they need, now and in the future, throughout the Americas, using science, advocacy, education, and on-the-ground conservation. Founded in 1905, Audubon has approximately 1.7 million members nationwide, including more than 13,000 in New Mexico. Its state/regional offices, nature centers, chapters, and partners give Audubon an unparalleled wingspan that reaches millions of people each year to inform, inspire, and unite diverse communities in conservation action. Audubon has been engaging in research, education, advocacy and restoration activities with regards to oil and gas issues for many years and will continue to do so.

Formed in 1919, the National Parks Conservation Association's mission is to protect and enhance America's National Park System now and for future generations; our nearly 1.4 million members and supporters nationwide continue to fulfill this mission by working to connect our national parks with their surrounding landscapes.

I. Introduction

d. Flaring and Venting Release Air Toxics and Particulate Matter

Flaring also releases hazardous air pollutants ("HAPs") including known carcinogens such as benzene and particulate matter.[34] HAPs and particulate matter contribute to cancer and other serious health effects, including damage to the immune system, as well as neurological, reproductive (e.g., reduced fertility), developmental, respiratory and other health problems, including premature death.[35]

III. Technical Comments

1. Venting Must Be Prohibited Unless Necessary for Safety or During Emergency or Where Explicitly Authorized or Allowed by OCD, NMED or Federal law

In order to prevent waste and minimize the release of harmful pollutants, OCD's rules must clearly reflect the following hierarchy of actions:

- First, operators must capture, re-inject, or put to beneficial use all natural gas encountered during pre-production and production activities
- Second, operators must flare, rather than vent, any natural gas that cannot be captured, injected, or put to beneficial use
- Third, venting is only permissible in limited, explicitly enumerated instances such as where necessary for safety, temporarily during an emergency, or where authorized by OCD or another agency such as during downhole liquids unloading activities. Where venting is allowed, operators must use all reasonable efforts to minimize the amount and duration of venting.

We have suggested revisions to 19.15.27.8 that reflect these principles.

Second, we recommend OCD add a requirement to Section 19.15.27.8.D. that requires operators combust, not vent, emissions during initial flowback. Current EPA requirements do not require combustion during initial flowback. To address this gap in the federal reduced emission completion requirements the Colorado Air Pollution Control Division has proposed a new requirement that requires operators to control emissions during initial flowback by 95%. Operators that use a combustion device to meet the control requirements must use a combustion device with a design destruction efficiency of at least 98% for hydrocarbons. In addition, owners or operators must use enclosed flowback vessels.[36]

3. OCD must prohibit routine flaring from new and existing wells.

We recommend a number of revisions to the rule to reflect the fact that routine flaring is impermissible waste and needless pollution.

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[34] 81 Fed. Reg. 83008, 83069 (Nov. 18, 2016).
[35] EPA website, Health and Environmental Effects of Particulate Matter (PM), https://www.epa.gov/pm-pollution/health-and-environmental-effects-particulate-matter-pm; EPA website, Health and Environmental Effects of Hazardous Air Pollutants, https://www.epa.gov/haps/health-and-environmental-effects-hazardous-air-pollutants
[36] 5 C.C.R. 1001-9, Section D.VI.D.1.a.(i) (proposed July 30, 2020)

DEFINITIONS
100 SERIES

COMMENCEMENT OF PRODUCTION OPERATIONS means that a Well is capable of producing either separable gas or salable liquid hydrocarbons.

COMPLETED WELL. A well will be considered completed when oil or gas is produced through wellhead equipment from the producing interval(s) after the production string has been installed.

CUTTINGS TRENCH means a depression used specifically for the onsite disposal of dried cuttings generated from drilling a well.

FLARING means the combustion of natural gas during upstream Oil and Gas Operations, excluding gas that is intentionally used for onsite processes. Combustion required by the Air Quality Control Commission for purposes of emissions control is not Flaring.

FLOWBACK means the process of allowing fluids and entrained solids to flow from a Well following Stimulation, either in preparation for a subsequent phase of treatment or in preparation for cleanup and placing the Well into production. The term flowback also means the fluids and entrained solids that emerge from a Well during the flowback process. The flowback period begins when material introduced into the Well during the treatment returns to the surface following hydraulic fracturing or refracturing. The flowback period ends when gas is produced in separable quantities.

INVESTIGATION-DERIVED WASTE means those materials generated during site investigation and remediation activities, including but not limited to personal protective equipment, soil cuttings, drilling mud, purged Groundwater, decontamination fluids, and disposable or consumable equipment and supplies.

LAND APPLICATION means the disposal method by which treated E&P Waste is spread upon and mixed into soils.

LAND TREATMENT means the method by which E&P Waste is treated ex situ at the land surface to result in a reduction of hydrocarbon concentration by biodegradation and other natural attenuation processes. Land Treatment may be enhanced by tilling, disking, aerating, composting, or the addition of nutrients or microbes.

OILY WASTE means those materials containing unrefined petroleum hydrocarbons in concentrations in excess of the concentration levels in Table 915-1. Oily waste may include crude oil, condensate, or other material, such as soil, frac sand, drilling fluids, cuttings, and pit sludge that contain hydrocarbons.

POLLUTION means anthropogenic contamination or other degradation of the physical, chemical, biological, or radiological integrity of air, water, soil, or biological resource that is not authorized by the Commission's Rules or applicable regulations promulgated by another federal, state, or local government agency.

PRODUCTIVITY TEST means a test for determination of a reservoir's ability to produce economic quantities of oil or gas.

PRODUCTION EVALUATION means an evaluation of production potential for determination of requirements for infrastructure capacity and equipment sizing.

UPSET CONDITION means a sudden, unavoidable failure, breakdown, event, or malfunction, beyond the reasonable control of the Operator, of any equipment or process that results in abnormal operations and requires correction.

VENTING means intentionally allowing natural gas to escape into the atmosphere.

G. U.S. Environmental Protection Agency, 40 C.F.R. § 60.5375a, What GHG and VOC standards apply to well affected facilities? (2016) (hereinafter, "40 C.F.R. § 60.5375a"). Only the version of 40 C.F.R. § 60.5375a that became effective on August 2, 2016 applies to this rule; later amendments do not apply. 40 C.F.R. § 60.5375a may be examined at the U.S. Environmental Protection Agency, Region 8, 1595 Wynkoop St, Denver, CO 80202, and is available online at https://www.govinfo.gov/content/pkg/FR-2016-06-03/pdf/2016-11971.pdf.

H. U.S. Environmental Protection Agency, Regional Screening Levels for Chemical Contaminants at Super Fund Sites (hereinafter, "EPA's RSLs"). Only the version of EPA's RSLs in effect as of November 2, 2020 applies; later amendments do not apply. EPA's RSLs may be examined at the U.S. Environmental Protection Agency, Region 8, 1595 Wynkoop St, Denver, CO 80202, and are available online at https://www.epa.gov/risk/regional-screening-levels-rsls.

I. Western Coordinating Committee on Nutrient Management, Soil, Plant, and Water Reference Methods for the Western Region (4th edition, 2013). Only the 4th edition (2013) of the Soil, Plant, and Water Reference Methods for the Western Region applies to this rule; later amendments do not apply. Soil, Plant, and Water Reference Methods for the Western Region may be examined at the Soil Science Society of America, 5585 Guilford Road, Madison, WI 53711, and is available online at https://www.naptprogram.org/files/napt/publications/method-papers/western-states-methods-manual-2013.pdf.

902. POLLUTION

a. Operators will prevent Pollution.

b. Operators will prevent adverse environmental impacts on any air, water, soil, or biological resource resulting from Oil and Gas Operations and will protect and minimize adverse impacts to public health, safety, welfare, the environment, and wildlife resources.

c. Operators will prevent the unauthorized discharge or disposal of oil, condensate, gas, E&P Waste, chemical substances, trash, discarded equipment, and other oil field waste.

d. No Operator, in the conduct of any Oil or Gas Operation, may perform any act or practice which violates numeric or narrative water quality standards or classifications established by the Water Quality Control Commission for Waters of the State, or any Point of Compliance established by the Director pursuant to Rule 914. The Director may require the Operator to establish one or more points of compliance for any event of Pollution, which will be complied with by all parties determined to be a responsible party for such Pollution.

e. No Operator, in the conduct of any Oil or Gas Operation, may perform any act or practice which constitutes a violation of any applicable air quality laws, regulations, or permits as administered by the Air Quality Control Commission or any other local or federal agency with authority for regulating air quality associated with such activities.

f. No person may accept water produced from Oil and Gas Operations, or other oil field waste for disposal in a commercial disposal facility, without first obtaining a Certificate of Designation from the County in which such facility is located, in accordance with the regulations pertaining to solid waste disposal sites and facilities as promulgated by the Colorado Department of Public Health and Environment.

903. VENTING OR FLARING NATURAL GAS

a. Notice to Local Governments and Emergency Responders.

(1) **Prior Notice.** As soon as practicable prior to, but no later than two hours before, any planned Flaring and Venting of natural gas allowed pursuant to this Rule 903, Operators will provide verbal, written, or electronic notice to the Local Governmental Designee of the Relevant and Proximate Local Governments, if applicable, and to the local emergency response authorities.

(2) **Subsequent Notice.** In the event of Flaring or Venting due to an Upset Condition, Operators will immediately provide verbal, written, or electronic notice to the Local Governmental Designee of the Relevant and Proximate Local Governments, if applicable, and to the local emergency response authorities.

(3) **Waiver.** Local Governments and local emergency response authorities may waive their right to notice under this Rule 903.a at any time, pursuant to Rule 302.f.(1).A.

(4) **Recordkeeping.** Operators will maintain records of notice provided pursuant to this Rule 903.a, and provide the records to the Director upon request.

b. Emissions During Drilling Operations.

(1) Operators will capture or combust gas escaping from the Well during drilling operations using the best available technology.

(2) If capturing or combusting gas would pose safety risks to onsite personnel, Operators may request the Director's approval to Vent. Operators may obtain verbal approval, but will provide a written request which includes any documentation necessary to support such approval by submitting a Form 4, Sundry Notice within 7 days. The Operator need not seek a formal variance pursuant to Rule 502.a. A Form 23 may also be required if the criteria in Rule 428.c. are met. If Venting approved pursuant to this Rule 903.b.(2) exceeds 24 hours, the Operator must seek the Director's renewed approval to continue venting.

(3) Combustors will be located a minimum of 100 feet from the nearest surface hole location and enclosed.

c. Emissions During Completion Operations.

(1) Reduced Emission Completions Practices.

A. Reduced Emission Completion Practices are required on all newly completed and re-completed oil and gas wells.

B. To comply with the Reduced Emission Completion Practices required by Rule 903.c.(1).A, unless otherwise specified in this Rule 903.c, Operators will adhere to the standards for well completion and re-completion in 40 C.F.R. § 60.5375a, as incorporated by reference in Rule 901.b.

(2) Operators may Flare gas during completion operations with specific written approval from the Director under any of the following circumstances:

A. The Operator obtains the Director's approval to Flare through an approved Gas Capture Plan pursuant to Rule 903.e.

B. The Operator submits, and the Director approves, a Form 4, Sundry Notice, allowing the Operator to flare gas that would otherwise not be permitted pursuant to Rule 903.c.

i. On the Form 4, Sundry Notice, the Operator will explain why Flaring is necessary to protect or minimize adverse impacts to public health, safety, welfare, the environment, or wildlife resources.

ii. On the Form 4, Sundry Notice, the Operator will estimate anticipated Flaring volume and duration.

iii. On the Form 4, Sundry Notice, the Operator will explain its plan to connect the facility to a gathering line or otherwise utilize the gas in the future.

iv. The Director may approve a Form 4, Sundry Notice requesting permission to Flare during completion if the Director determines that the Flaring is necessary to protect public health, safety, welfare, the environment, and wildlife resources.

C. The Operator may direct gas to an emission control device and combust the gas if necessary to ensure safety or during an Upset Condition for a period not to exceed 24 cumulative hours. If Flaring pursuant to this Rule 903.c.(2).C exceeds 24 hours, the Operator must seek the Director's approval to continue Flaring. Within 7 days of the Flaring event, the Operator will submit a Form 4, Sundry Notice reporting the Upset Condition or safety issues that resulted in the Flaring event and include the estimated volume of gas Flared.

d. Emissions During Production.

(1) After the Commencement of Production Operations at an Oil and Gas Location, Venting or Flaring of natural gas produced from any Completed Well is prohibited except under the following circumstances:

A. Gas Flared or Vented during an Upset Condition is allowed for a period necessary to address the upset, not to exceed 24 cumulative hours. Operators will maintain records of the date, cause, estimated volume of gas Flared or Vented, and duration of each Upset Condition resulting in Flaring or Venting, and will make such records available to the Director upon request.

B. Gas Vented during gauging, sampling, or the loading out of liquids to transport vehicles, as long as the Venting is not prohibited by AQCC Regulation No. 7, 5 C.C.R. § 1001-9, as incorporated by reference in Rule 901.b.

C. Gas Vented during active and required maintenance, as long as the Venting is not prohibited by AQCC Regulation No. 7, 5 C.C.R. § 1001-9, as incorporated by reference in Rule 901.b.

D. Gas Vented from an access point on a storage tank that does not (and that is not required by AQCC Regulation No. 7, 5 C.C.R. § 1001-9 to) employ air pollution control equipment, unless the Venting is otherwise prohibited by the Commission's Rules or AQCC Regulation No. 7, 5 C.C.R. § 1001-9, as incorporated by reference in Rule 901.b.

E. If approved by the Director on a Gas Capture Plan pursuant to Rule 903.e, gas Flared during a Production Evaluation or Productivity Test for a period not to exceed 60 days.

F. Gas Vented during a Bradenhead Test pursuant to Rule 419.

G. Well liquids unloading, as long as the well liquids unloading employs best management practices to minimize hydrocarbon emissions as required by the AQCC Regulation No. 7, 5 C.C.R. § 1001-9, as incorporated by reference in Rule 901.b. Operators will Flare

gas escaping into the air during liquids unloading if the escape of the gas poses a risk to public health, safety, or welfare due to the risk of a fire, explosion, or inhalation.

H. Flaring approved pursuant to Rule 903.d.(3) or on a Form 4, Sundry Notice prior to November 2, 2020.

(2) For any instance of Venting or Flaring permitted pursuant to Rules 903.d.(1).A–G for a period that exceeds 8 consecutive or 24 cumulative hours, the Operator will submit a Form 4, Sundry Notice reporting:

A. The estimated or measured volume and content of gas Vented or Flared;

B. Gas analysis of the gas Vented or Flared, including hydrogen sulfide; and

C. Explanation, rationale, and cause for the Venting or Flaring event.

(3) At wells that have Commenced Production Operations prior to November 2, 2020 that are not connected to a natural gas gathering line, the Operator may request permission from the Director to Flare natural gas, or to Vent casinghead gas, by submitting a Sundry Notice, Form 4. The Director may approve a request to Flare, or Vent casinghead gas, for a period not to exceed 12 months, if the Director determines that Flaring the gas or Venting casinghead gas is necessary to produce the Well and will protect public health, safety, welfare, the environment, and wildlife resources. The Form 4, Sundry Notice will describe:

A. The estimated volume and content of the gas to be Flared;

B. Gas analysis including hydrogen sulfide for the subject well;

C. For requests based on lack of available infrastructure, the Operator will state why the Well cannot be connected to infrastructure;

D. When the Well(s) will be connected to infrastructure, and why the Operator commenced production of the Well before infrastructure was available and whether the mineral Owner will be compensated for the Vented or Flared gas; and

E. Options for using the gas instead of Flaring or Venting, including to generate electricity, gas processing to recover natural gas liquids, or other options for using the gas.

(4) Measurement and Reporting.

A. Operators will measure the volume of all gas Vented, Flared, or used at an Oil and Gas Location by direct measurement or by estimating the volume of gas Vented, Flared or used. The volume of gas Vented, Flared, or used will be reported on a per well basis on the Operator's Form 7, Monthly Report of Operations.

B. Operators will notify all mineral owners of the volume of oil and gas that is Vented, Flared, or used on-lease. Operators will maintain records of such notice and provide the records to the Director upon request.

(5) All Flared gas will be combusted in an enclosed device equipped with an auto-igniter or continuous pilot light and a design destruction efficiency of at least 98% for hydrocarbons.

(6) Pits.

A. Pits with uncontrolled actual Volatile Organic Compound (VOC) emissions of greater than 2 tons per year (tpy) will not be located within 2,000 feet of a Building Unit or a Designated Outside Activity Area.

B. After November 2, 2020, Operators will not construct new pits with uncontrolled actual VOC emissions greater than 5 tpy.

C. Operators will provide the basis for their determination of applicability under Rule 903.d.(6) to the Director on a Form 4, Sundry Notice no later than November 2, 2021 for existing pits, or on a Form 15, Pit Permit for new pits.

e. Gas Capture Plans.

(1) Gas Capture Plan Submission.

A. Operators will submit a Gas Capture Plan as an attachment to their Form 2A, pursuant to Rule 304.c.(12).

B. Gas Capture Plans will demonstrate compliance with the requirements of Rules 903.b–d and include the following information:

i. A description and map of the location of the closest or contracted natural gas gathering system or point of sale.

ii. The name of the company operating the closest or contracted natural gas gathering system.

iii. The Operator's plan for connecting their facility to a natural gas gathering system, including:

aa. Discussion of potential rights of way issues;

bb. Construction schedules;

cc. Date of availability of the gas gathering line;

dd. Whether the nearest or contracted gas gathering system has capacity to accept the anticipated gas to be produced at the location at the time of application; and

ee. Alternatives to flaring during production operations prior to connection to gas gathering lines, including, but not limited to: onsite use, natural gas liquid processing, electrical power generation, gas to liquid, or other options.

iv. For a Wildcat (Exploratory) Well or if the Operator anticipates conducting a Production Evaluation or Productivity Test, a description of the planned Production Evaluation or Productivity Test and any issues related to the Operator's ability to connect to a gas gathering line.

v. Any anticipated safety risks that will require the Operator to allow gas to escape, rather than being captured during drilling operations, pursuant to Rule 903.b.(2).

(2) Verification. Operators will verify that their facility has been connected to a gathering line by submitting a Form 10, Certificate of Clearance pursuant to Rule 219.

Gaffney Cline

Tackling Flaring: Learnings from Leading Permian Operators

June 2020

About this Report

This research was prepared on behalf of the Environmental Defense Fund.

About GaffneyCline

GaffneyCline is a global consultancy that has been offering technical, commercial, and strategic advice to the oil and gas sector since 1962. GaffneyCline's reputation demonstrates that the advice delivered, together with its industry insights, is of high-quality, impartial, technically based, and commercially astute. GaffneyCline is well known as one of the leading suppliers of Reserves and Resources assessments, which are required for many purposes including statutory reporting, stock exchange listing, development planning, project finance, and asset valuation.

In addition, GaffneyCline offers a full range of upstream, midstream and downstream technical and commercial consultancy services. These range from seismic interpretation, static and dynamic reservoir modelling, field development planning, facilities and pipeline engineering, gas monetization, LNG/GTL, mergers and acquisitions, economics and project finance, unitization & redetermination, and expert witness work, exploration prospect assessment, fiscal & regulatory advice, negotiation support , strategic consulting on energy matters, carbon intensity assessments, new technology assessments, and site visit assessments.

GaffneyCline operates worldwide from three main offices located in London, Houston and Singapore, and supported by offices in Buenos Aires, Sydney and Dubai.

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Introduction

The practice of flaring and venting is in serious question, especially during an increasingly competitive oil & gas environment brought about by pandemic-constrained demand and a global supply glut. Flaring is a pressing challenge that industry and its stakeholders must address today.

Recent publicly available information indicate numerous Permian producers are consistently "best-in-class" with respect to flaring intensity, achieving rates from less than 1.0 to 2.6 percent where the basin average is about 4 percent.[1]

The two primary reasons industry often cites for flaring is the lack of takeaway transportation[2] and operational upsets. Our study indicates that top-tier producers treat gas takeaway capacity as a manageable constraint and handle operational upsets with both just-in-time planning and taking action to increase reliability within the operational supply chain.

We are grateful that a subset of Permian producers in this top tier – **Chevron, EOG Resources, Occidental, Parsley Energy, and Pioneer Natural Resources** – were willing to share their journey to eliminating flaring as well as their best practices when flaring is necessary. We conducted in-depth interviews with leadership in each organization, along with reviewing sustainability reports, SEC filings, Texas Railroad Commission filings, public reports, and public statements to round out the discussion and provide additional perspective.

Industry, scientific, and academic literature is rife with potential solutions, and some in industry are taking collaborative steps in the right direction[3] but others may fall short of ensuring meaningful flaring reductions. To effectively develop and implement solutions, Permian stakeholders can learn from these best-in-class producers that demonstrate reducing flaring is practical and achievable industry-wide. Our intention is that this brief report generates discussion and accelerates industry action and, ultimately, accountability by all stakeholders – communities, investors, banks, and regulators.

Impact of flaring on Permian methane emissions

Flaring has always been a concern from an economic waste perspective, but new science is indicating it is also an important source of greenhouse gas emissions. It is now known that reducing greenhouse gas emissions is required to prevent the earth from warming more than 2 degrees Celsius (3.6 degrees Fahrenheit).[4] Recent studies suggest extensive flaring is not only a primary source of upstream CO2 emissions,[5] but also a significant source of methane emissions in the Permian due to malfunctioning and unlit flares. Increased scrutiny of incomplete flare combustion and venting is warranted as the warming potential of methane is approximately 84 times that of carbon dioxide over a 20-year period.[6]

Through its Permian Methane Analysis Project (PermianMAP), the Environmental Defense Fund found that around 11% of Permian flares surveyed were either unlit or malfunctioning. Of that 11%, 5% were unlit

avoid long-term fixed commitments, while others have created innovative, more complex arrangements that get their associated gas to sales. Although the terms of these contracts are confidential, producers shared with us that they provide timing and location of well development and projected production volumes well enough in advance to enable midstream companies to respond with adequate gathering and processing capacity. In the spirit of partnership, midstream companies share existing and planned future capacity additions and constraints to better align drilling schedules.

> "Anticipating and developing infrastructure needs to transport our products well ahead of our development plans lowers costs, maximizes efficiencies and netbacks, and minimizes flaring."
>
> Billy Helms
> COO, EOG Resources

An integrated model

At the other end of the spectrum is investing in an integrated model in which the producer owns and operates its own gathering systems to ensure takeaway. For example, EOG owns and operates compressors and low pressure gathering systems, which, in addition to ensuring reliability, may open up multiple markets and create optionality with processors.

Occidental cited a recent example where they completed a development program tying 395 wells into a single gathering system to prevent flaring from both infield development and existing wells. In this system, they installed both high and low pressure systems to maximize takeaway capacity and eliminate the need to flare gas.

Pioneer owns interests in 11 gas processing plants, including the related gathering systems.

3 Best flaring and emission reduction operational practices

Despite all efforts to eliminate routine flaring, at times producers have no choice but to flare in the case of operational upsets and high gas line pressures.

Operational upsets primarily occur due to unplanned upsets or malfunctions at gas gathering or processing facilities. Failure of equipment in the midstream sector, such as a compressor, can cascade to upstream facilities. For example, a compressor engine failure can cause an unanticipated increase in the pressure on a low-pressure gathering pipeline system. This pressure increase can cause fail-safe devices at upstream production facilities to send gas to flare automatically.

Ensuring flaring functionality and efficiency

When flaring does occur, producers use myriad equipment and processes to ensure flare tips are lit and that the flares are functioning properly. Each company discussed numerous emissions monitors and controls incorporated into facilities design. For example, EOG utilizes data collection and analysis tools to constantly monitor flared volumes at the facility, route, and foreman levels. Monitored flaring is discussed with engineering, foremen, and lease operators based on data collected from these tools. Real time, automatic changes in operating pressure are investigated with the goal to reduce flaring. When considering cost, they are incorporated into facilities budgets routinely and are considered nondiscretionary elements of facilities design. One producer pointed out that any of these types of emissions controls are relatively inexpensive or are already embedded in facilities design (i.e., SCADA). Pioneer has remote monitoring of these flares via SCADA system and failure alarms that are directed to a technician for quick repairs.

Utilizing trained staff or contractors to routinely and frequently check flares was cited as one of the best practices in terms of both operational efficacy and cost efficiency.

Flaring and emissions controls practices commonly cited by study participants		
Daily AVO (auditory, visual, olfactory) observation of flare stacks	Monthly preventive maintenance	High pressure alarms on production separators
Remote observation of tank batteries by integrated operation centers	Thermocouples (temperature sensors) to ensure pilot stays lit	Designing flares to handle wide range of production rates
Continual flare vs auto-ignite to prevent foul out ignition issues	Flares designed at correct velocity to ensure gas flow does not cause pilot light to extinguish	Blower packages to introduce oxygen to efficiently combust high BTU gas
Dual tip flares (high pressure and low pressure) sized for maximum production flow in an emergency situation	Ensure that production levels stay below flare capacity to ensure combustion efficiency	Low level alarms to prevent gas blowby to tanks which prevents venting
Tie in to SCADA systems and programmable logic controllers ("PLCs") to monitor flare ignition	Flare failure alarms directed to technicians for immediate repairs	

Planning for operational upsets and increasing reliability

Operational upsets and high pressure issues are usually out of a producer's control, but leading producers take a pro-active, strategic approach to manage these upsets. Strategic solutions include:

- Escalation processes for unplanned flaring events to ensure decisions are made at the right level so an individual with the resources and authority can do things like authorize overtime, expedite parts, move crews around, or ultimately decide to shut in production if necessary to reduce flaring.

- Ensuring reliability by installing and maintaining company-owned rather than third-party compressors or, similarly, low-pressure gathering systems. Owning infrastructure and equipment provides a higher level of control and ensures maintenance and repairs are done expeditiously and correctly.

> "An escalation process for unplanned flaring allows decisions to be made by an individual with the resources and authority."
>
> Chevron

- Adding compression to counter the effect of higher pressure new wells pushing lower pressure older wells off the gathering system. Occidental provided an example where, in order to eliminate flaring, it installed its own compression because the third-party gatherer would not be able to make the installations for an extended period of time.

The producers in our study stressed that no matter who owns, operates, or maintains the equipment, midstream companies and producers should work together to avoid circumstances such as operational upsets that require flaring.

Use of Vapor Recovery Units

All participants in the study use vapor recovery units ("VRUs") on the majority of their production facilities. Pioneer installs multiple VRUs at all horizontal tank batteries regardless of the economics of recovered gas to ensure 100% VRU capture efficiency. In addition, to minimize the safety and environmental impact,

Pioneer utilizes flares as back-up to VRUs for emergencies that would otherwise be vented. Additionally, Pioneer's engineering design process considers VRU capacities as a limiting factor for facility design. They measure the gas off the tanks across several facilities to create a conservative benchmark for the amount of gas to be recovered per barrel of oil produced for future VRU designs.

Over 90% of Parsley's production flows through facilities with a VRU, and their VRUs have a 99% emissions capture efficiency manufacturer rating on all new facilities. In addition, Pioneer and Parsley both use a redundant low pressure stack system in case a VRU goes down. If a VRU fails or malfunctions, the low pressure gas that comes off the tanks is routinely vented by some operators, but in the dual pressure design used by these producers, vapors are routed to a flaring system and combusted rather than vented.

When we started the study, we asked each producer what technologies and solutions were being utilized and/or explored to handle associated gas and eliminate routine flaring (e.g., microscale LNG, CNG,

enhanced oil recovery using gas, onsite power generation, distributed generation, and injection into storage sites). Each producer responded they continuously look to improve existing, and innovate new, flaring technology and processes. Occidental has had success in the Permian with piloting enhanced oil recovery projects using reinjected associated gas, and Chevron is in the permitting process for a pilot reinjection well as a means for temporary storage. But producers were also unanimous in the view that the only viable, long term solution is getting gas to market, which prevents the need to find a use or temporary home for it. A participant from Chevron summed it up best, saying "the most efficient flare is one that isn't taking volumes."

How does a responsible flaring practice translate to the financials?

Each company participating in this study is publicly traded, so not only do they have responsibility to protect the environment, they also have a duty to their shareholders to protect value and provide an acceptable return on investment. The producers in this study saw the bridge from responsible flaring practices to the financial statements in terms of protecting cash flow, risk mitigation, and access to capital markets.

Protecting cash flow. The producers recognized that flaring is financially wasteful and it is a protection of shareholder resources to not combust natural gas and the more profitable natural gas liquids, but rather sell it, adding to production, cash flows and top line revenues.

Risk mitigation. In terms of risk, it was noted that long-term investors are not just interested in a dividend but in the long term stability of their investment. Direct evidence such as public reports of flaring intensity vis-a-vis peers indicate these companies are managing their assets responsibly and for the long-term.

> "Overall ESG accountability is something that's going to differentiate companies in their performance over the long term. We don't think this is something that's going away."
>
> David Dell'Osso
> COO, Parsley Energy

Access to capital markets. One-on-one meetings at investor conferences are confidential, but Parsley CEO Matt Gallagher has stated publicly that "investors are so focused on [flaring] that they spend as much as 15 minutes of an hour-long one-on-one meeting on 'in the weeds' questions about flaring, venting, and other environmental issues."24 So producers are certainly listening to their investors, meaning they understand that a responsible approach to flaring can attract investment (or prevent divestment), facilitate access to capital markets (when they eventually open), and possibly drive a premium to multiples. David Dell'Osso of Parsley stated, "We think that the companies that demonstrably lead in the ESG space will ultimately compete better for investor

STATE OF NEW MEXICO
ENERGY MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION COMMISSION

IN THE MATTER OF PROPOSED AMENDMENTS TO THE COMMISSION'S RULES ON PRODUCED WATER, 19.15.2, 19.15.16, AND 19.15.34 NMAC

CASE NO. 21281

APPLICATION FOR RULEMAKING

The New Mexico Energy, Minerals and Natural Resources Department, Oil Conservation Division (Division) hereby applies to the Oil Conservation Commission (Commission) to amend rules 19.15.2, 19.15.16, and 19.15.34 NMAC.

The Division states that:

(1) The proposed rule changes:

(a) Amend 19.15.2.7 NMAC to conform the definition of "produced water" with the definition found in the Oil and Gas Act, NMSA 1978, §70-2-33(K) (2019).

(b) Amend 19.15.16 NMAC to add a section requiring the filing of a water use report for a hydraulically fractured well that provides the portion of the water used in fracturing which is potable, nonpotable or recycled produced water.

(c) Amend 19.15.34 NMAC to conform the language in this Part to the legislative changes in Laws 2019, chapter 197 (HB 546) concerning produced water.

(2) A draft of the proposed rule change is attached as Exhibit A to this Application.

(3) The applicant for this rulemaking is the Division.

(4) The contact for the applicant shall be:

Cheryl L. Bada, Deputy General Counsel
1220 South St. Francis Drive
Santa Fe, NM 87505
cheryl.bada@state.nm.us

(505) 476-3214

(5) A proposed legal notice is attached as Exhibit B.

The Division requests that the Commission, at a meeting held no sooner than 15 days and no later than 60 days from the submittal of this Application, grant a hearing on the proposed rule changes and issue an order pursuant to 19.15.3.8(C) NMAC specifying procedures to conduct the rulemaking and hearing in a manner that addresses the current COVID-19 crisis.

Respectfully submitted,

NEW MEXICO
OIL CONSERVATION DIVISION

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Proposed Rule Changes for the Oil Conservation Commission

TITLE 19 NATURAL RESOURCES AND WILDLIFE
CHAPTER 15 OIL AND GAS
PART 2 GENERAL PROVISIONS FOR OIL AND GAS OPERATIONS

19.15.2.7 DEFINITIONS: These definitions apply to 19.15.2 NMAC through 19.15.39 NMAC.

P. Definitions beginning with the letter "P".

(10) "Produced water" means [~~water~~] a fluid that is an incidental byproduct from drilling for or the production of oil and gas.

TITLE 19 NATURAL RESOURCES AND WILDLIFE
CHAPTER 15 OIL AND GAS
PART 16 DRILLING AND PRODUCTION

19.15.16.21 WATER USE REPORT: For a hydraulically fractured well, an operator shall report, on form C-103 or C-105, the amount of water reported on the disclosure required by Subsection B of 19.15.16.19 NMAC and the breakdown of that amount by types of water including produced water, nonpotable water and potable water. As used in 19.15.16.21 NMAC

A. "nonpotable water" means water, other than produced water, which contains 1,000 mg/l or more of TDS; and

B. "potable water" means water, other than produced water, which contains less than 1,000 mg/l of TDS.

TITLE 19 NATURAL RESOURCES AND WILDLIFE
CHAPTER 15 OIL AND GAS
PART 34 PRODUCED WATER, DRILLING FLUIDS AND LIQUID OIL FIELD WASTE

19.15.34.2 SCOPE: 19.15.34 NMAC applies to the transportation, disposal, recycling, re-use or the direct surface or subsurface disposition [~~by use~~] of produced water [~~produced or used~~] in connection with the development or production of oil or gas or both [~~; in road construction or maintenance, or other construction; in the generation of electricity or in other industrial processes~~]. 19.15.34 NMAC also applies to the transportation of drilling fluids and liquid oil field waste.

19.15.34.3 STATUTORY AUTHORITY: 19.15.34 NMAC is adopted pursuant to the Oil and Gas Act, Paragraph (15) of Subsection B of Section [~~70-2-12(B)~~] 70-2-12 NMSA 1978, which authorizes the division to regulate the disposition, handling, transport, storage, recycling, treatment and disposal of produced water during, or for reuse in, the exploration, drilling, production, treatment or refinement of oil or gas [~~of water produced or used in connection with the drilling for or producing of oil and gas or both~~] and Paragraph (21) of Subsection B of Section [~~70-2-12(B)~~] 70-2-12 NMSA 1978 which authorizes the regulation of the disposition of nondomestic wastes from the exploration, development, production or storage of crude oil or natural gas.

19.15.34.6 OBJECTIVE: To encourage the recycling [~~,~~] or re-use [~~or disposition~~] of produced water [~~by use~~] in a manner that [~~will afford reasonable protection against contamination of fresh water~~] protects public health, the environment and fresh water resources and establish procedures by which persons may transport, recycle, reuse and dispose [~~of~~] produced water, drilling fluids and other liquid oil

Exhibit A

field waste in activities related to the exploration, drilling, production, treatment or refinement of oil or gas.

19.15.34.7 DEFINITIONS: These definitions apply to 19.15.34.2 NMAC through 19.15.34.21 NMAC. See 19.15.2.7 NMAC for additional definitions.

A. "Recycling facility" is a stationary or portable facility used exclusively for the treatment, re-use or recycling of produced water [~~intended for disposition by use~~]. A recycling facility does not include oilfield equipment such as separators, heater treaters and scrubbers in which produced water may be used.

19.15.34.8 REQUIREMENTS FOR [~~DISPOSITION BY USE~~] REUSE, RECYCLING [~~FACILITIES~~] OR DISPOSAL OF PRODUCED WATER:

A. Recycling or [~~disposition by use~~] reuse of produced water.

(1) No permit or registration is required from the division for the [~~disposition by use~~] reuse of produced water for drilling, completion, producing [~~, secondary~~] or enhanced recovery [~~, pressure maintenance~~] of oil or natural gas or plugging of wells pursuant to 19.15.34 NMAC.

(2) Any other [~~disposition by use~~] reuse of produced water in the exploration, drilling, production, treatment or refinement of oil or gas requires prior approval by the appropriate division district office on form C-147. Approval requirements will be determined by the district office based upon the proposed use.

(3) Research using produced water is to be encouraged through pilot projects approved by the appropriate division district office.

(4) All produced water for recycling or [~~disposition by use~~] reuse shall be handled and stored in a manner that [~~will afford reasonable protection against contamination of fresh water~~] protects public health, the environment and fresh water resources.

(5) All operations in which produced water is used shall be conducted in a manner consistent with hydrogen sulfide gas provisions in 19.15.11 NMAC or NORM provisions in 19.15.35 NMAC, as applicable.

(6) All releases from the recycling and re-use of produced water shall be handled in accordance with 19.15.29 NMAC.

(7) Any discharge, handling, transport, storage, recycling or treatment for the disposition of treated produced water, including disposition in road construction maintenance, roadway ice or dust control or other construction, or in the application of treated produced water to land, for activities unrelated to the exploration, drilling, production, treatment or refinement of oil or gas is subject to rules adopted by the water quality control commission.

B. Disposal of produced water. Persons disposing of produced water shall use one of the following disposition methods:

(1) [~~disposition in a manner that does not constitute a hazard to fresh water, public health, or the environment;~~] delivery to a [~~permitted salt~~] produced water disposal well [~~or facility~~] permitted pursuant to 19.15.26 NMAC, a surface waste management facility permitted pursuant to 19.15.36 NMAC or a permanent pit permitted pursuant to 19.15.17 NMAC; [~~or to a drill site for use in drilling fluid; or~~]

(2) [~~use~~] recycling or reuse in accordance with 19.15.34 NMAC; or [~~other authorization from the division.~~]

(3) for uses regulated by the water quality control commission pursuant to the Water Quality Act, a person shall obtain a permit from the department of environment before using the produced water, recycled or treated water or treated product or any byproduct of the produced water.

19.15.34.9 RECYCLING FACILITIES:

B. In addition to the other applicable rule requirements, registration of a recycling facility is required in the following circumstances:

(3) when the recycling facility is an addition to a [~~salt~~] produced water disposal well permitted under 19.15.26 NMAC;

19.15.34.13 OPERATIONAL REQUIREMENTS FOR RECYCLING CONTAINMENTS:

C. A recycling containment shall be deemed to have ceased operations if less than [~~20%~~] twenty percent of the total fluid capacity is used every six months following the first withdrawal of produced water for use. The operator must report cessation of operations to the appropriate division district office. The appropriate division district office may grant an extension to this determination of cessation of operations not to exceed six months.

19.15.34.14 CLOSURE AND SITE RECLAMATION REQUIREMENTS FOR RECYCLING CONTAINMENTS:

F. Reclamation of all disturbed areas no longer in use shall be considered complete when all ground surface disturbing activities at the site have been completed, and a uniform vegetative cover has been established that reflects a life-form ratio of plus or minus fifty percent [~~(50%)~~] of pre-disturbance levels and a total percent plant cover of at least seventy percent [~~(70%)~~] of pre-disturbance levels, excluding noxious weeds.

19.15.34.18 DENIAL OF FORM C-133: The division may deny approval of a form C-133 if:

D. the applicant or officer, director or partner in the applicant, or a person with an interest in the applicant exceeding twenty-five percent [~~(25%)~~], is or was within the past five years an officer, director or partner in the applicant, or a person with an interest in the applicant exceeding twenty-five percent [~~(25%)~~] in another entity that possesses or has possessed an approved form C-133 that has been cancelled or suspended, has a history of violating division or other state or federal environmental laws; is subject to a commission or division order, issued after notice and hearing, finding such entity to be in violation of an order requiring corrective action; or has a penalty assessment for violation of division or commission rules or orders that is unpaid more than 70 days after issuance of the order assessing the penalty.

NOTICE OF PUBLIC MEETING AND PUBLIC HEARING

The New Mexico Oil Conservation Commission (Commission) hereby gives notice that the Commission will hold the following public meeting and public hearing commencing at 9:00 a.m. on July 16, 2020 online and via telephone. Oral comments may be made either on-line or by telephone. The Commission shall make available to the public a preliminary agenda for the meeting no later than two weeks prior to the meeting, and a final agenda for the meeting no later than 72 hours before the meeting.

Case No. _____: APPLICATION OF THE NEW MEXICO OIL CONSERVATION DIVISION TO AMEND THE COMMISSION'S RULES FOR PRODUCED WATER IN 19.15.2, 19.15.16, AND 19.15.34 NMAC; STATEWIDE.

The New Mexico Oil Conservation Division (OCD) proposes to (1) amend 19.15.2.7 NMAC to conform the definition of "produced water" with the definition found in the Oil and Gas Act, NMSA 1978, §70-2-33(K) (2019); (2) amend 19.15.16 NMAC to add a section requiring the filing of a water use report for a hydraulically fractured well that provides the portion of the water used in fracturing which is potable, nonpotable, or recycled produced water; and (3) amend 19.15.34 NMAC to conform the language in 19.15.34 NMAC to the legislative changes in Laws 2019, chapter 197 (HB 546) concerning produced water.

Purpose of Proposed Rule. The proposed rule implements the changes in produced water management and authority enacted by House Bill 546 (Laws 2019, chapter 197) in the 2019 Legislature.

Legal Authority. The proposed rule is authorized by the Oil and Gas Act, Sections 70-2-1 through 70-2-38 NMSA 1978, and specifically, Section 70-2-6 (authorizing the Commission to exercise jurisdiction, authority, and control of and over all persons, matters, and things necessary or proper to enforce the statute), Section 70-2-11 (authorizing the Commission to make rules to prevent waste, protect correlative rights, and to do whatever may be reasonably necessary to implement the statute), and Section 70-2-12 (enumerating the powers of the Commission and OCD). The public hearing is governed by the Commission's rule on rulemaking proceedings, 19.15.3 NMAC.

Availability of Proposed Rule. The full text of the proposed rule may be obtained from the Commission Clerk, Florene Davidson at florene.davidson@state.nm.us or (505) 476-3458, or can be viewed on the Rules page of the OCD's website at http://www.emnrd.state.nm.us/ocd.

Public Hearing. The Commission will hold a public hearing on the proposed rule at the Commission meeting commencing at 9:00 a.m. on July 16, 2020 online and via telephone. For information on how to participate in the hearing please contact the Commission Clerk, Florene Davidson at florene.davidson@state.nm.us or (505) 476-3458 or visit the OCD's website at http://www.emnrd.state.nm.us/ocd. The hearing may be continued to the following day(s) if not completed.

Proposed Modifications, Technical Testimony, and Cross Examination. Any person intending to propose a modification to the proposed rule, to present technical testimony at the hearing, or to cross-examine witnesses must file a Pre-Hearing Statement conforming to the requirements of Subsection B of 19.15.3.11 NMAC, no later than 5:00 p.m. on July 2, 2020. Filing may be accomplished by first class mail to the Commission Clerk, Florene Davidson, 3rd Floor, Wendell Chino Building, 1220 South St. Francis Drive, Santa Fe, New Mexico, 87505, or electronic mail to OCD.Hearings.state.nm.us. Any person who presents technical testimony will be subject to cross-examination by the members of the Commission, the Commission's counsel, or another person who has filed a Pre-Hearing Statement on the subject matter of the person's direct testimony.

Oral Comments. Any person who has not submitted a Pre-Hearing Statement may present non-technical testimony or make an unsworn statement at the hearing, and may offer exhibits at the hearing so long as the exhibits are relevant to the proposed rule and do not unduly repeat the testimony. Any person who presents non-technical testimony will be subject to cross-examination by the Commission, the Commission's counsel, or another person who has filed a Pre-Hearing Statement on the subject matter of the person's direct testimony.

Written or Electronic Comments. Any person may submit written or electronic comments on the proposed rule no later than 9:00 a.m. on July 16, 2020, unless extended by the Commission or the Chair of the

Commission, by first class or electronic mail to the Commission Clerk, Florene Davidson, 3rd Floor, Wendell Chino Building, 1220 South St. Francis Drive, Santa Fe, New Mexico, 87505, or florene.davidson@state.nm.us.

Persons with Disabilities. If you are an individual with a disability who needs a reader, amplifier, qualified sign language interpreter, or any other form of auxiliary aid or service to attend or participate in the hearing, including a summary or other accessible form of document, please contact the Commission Clerk, Florene Davidson, florene.davidson@state.nm.us or (505) 476-3458, or through the New Mexico Relay Network at 1-800-659-1779, no later than July 2, 2020.

Technical Information. There is no technical information for the proposed rule.