From: Sandra Richardson
To: DOH, Air Quality
Cc: Sean Flynn; Brooks Richardson
Subject: CLR v ND DEQ
Date: Friday, December 13, 2019 4:13:11 PM
Attachments: 2019-12-13 NDDEQ Response.pdf

On Behalf of Sean Flynn, Senior Director, Health, Safety & Environment, Continental Resources, Inc. Please see the attached.

Regards,

Sandy Richardson
Sr. Administrative Assistant to Eric Eissenstat- Sr. VP, General Counsel, Chief Risk Officer, & Secretary

Continental Resources,Inc.
20 N. Broadway
OKC, OK 73102
P/F: 405.234.9120
Sandy.richardson@clr.com
www.clr.com

Mailing:
PO Box 268836
OKC, OK 73126

Continental
RESOURCES

Via Electronic Mail (AirQuality@ND.gov) and Federal Express

December 13, 2019

North Dakota Department of Environmental Quality
Division of Air Quality
918 E Divide Avenue
Bismarck, ND 58501-1947

Re: Comments of Continental Resources, Inc. in Response to DEQ Notice of Opportunity to Comment on Rulemaking Petition and Solicitation of Views on Administrative Rules Relating to Air Emissions from Oil and Gas Facilities

Continental Resources, Inc. ("Continental") respectfully submits these comments in response to the North Dakota Department of Environmental Quality's ("DEQ" or "the Department") solicitation of comments dated October 11, 2019 ("Rulemaking Notice"). As set forth in more detail below, Continental strongly supports:

(1) adoption of 40 C.F.R. Part 60, Subpart OOOO ("Quad O") and Subpart OOOOa ("Quad Oa") through incorporation of those subparts by reference in chapter 33.1-15-12-02; and

(2) amendment of DEQ's rules governing fugitive organic compounds emissions from oil and gas facilities to clearly define an objective standard for compliance with practically enforceable limits that are consistent with corresponding federal regulations.

I. Continental Resources' Interests in DEQ's Potential Rulemaking To Amend Its Rules Governing Fugitive Organic Compounds Emissions At Oil and Gas Facilities in North Dakota.

Continental is the largest operator of oil and gas facilities in North Dakota, operating more than 1600 facilities across the state. Continental has consistently strived to lead industry efforts to reduce emissions and increase gas capture at oil and gas facilities in North Dakota. Continental first developed a fugitive emissions leak inspection program in 2006, and has continued to develop and refine its program into a standard setting leak detection and repair ("LDAR") program. Today, Continental's LDAR program includes on-going, routine, and documented inspections of facilities for the detection of potential leaks using AVO (audio, visual, olfactory) and OGI (Optical Gas Imaging) device inspections, with internal operational standards that meet and often exceed both state and federal regulatory requirements.

Continental is proud to be a leading operator in an oil and gas state with the cleanest air in the country. Thus, Continental has no interest in weakening or lessening any state regulation governing the minimization of fugitive emissions from oil and gas facilities. To the contrary, Continental's interest is to ensure the Department acts timely to: (a) assume primacy for enforcement of Quad O and Quad Oa, as mandated by HB 1024; and (b) maintain consistent state rules with clear, objective and practicably enforceable regulations that will further reduce the potential for fugitive emissions in North Dakota.

II. A Timely Rulemaking Is Mandatory For DEQ To Assume Primacy Over Quad O and Quad Oa

In House Bill 1024, the North Dakota legislature specifically allocated funding and personnel resources to the Department "related to the state assuming primacy over the quad O and quad Oa federal air pollution programs… ."[1] HB 1024 became effective on May 1, 2019.

North Dakota Century Code section 28-32-07 mandates DEQ engage in the rulemaking necessary to implement HB 1024 within nine months of May 1, 2019 – i.e., no later than February 1, 2019.

> **28-32-07. Deadline for rules to implement statutory change.**
> Any rule change, including a creation, amendment, or repeal, made to implement a statutory change must be adopted and filed with the legislative council within nine months of the effective date of the statutory change. If an agency or the commission needs additional time for the rule change, a request for additional time must be made to the legislative council. The legislative council may extend the time within which the agency or commission must adopt the rule change if the request by the agency or commission is supported by evidence that the agency or commission needs more time through no deliberate fault of its own.

Valuable time has been lost in the seven months since HB 1024 became effective. Continental urges the Department to immediately initiate the necessary rulemaking to adopt Quad O and Quad Oa.

III. A Rulemaking Singly Focused on Adoption of Quad O and Quad Oa by Reference is the Quickest, Cleanest and Best Method to Achieve the Primacy Mandated by HB 1024.

In light of the valuable time lost since enactment of HB 1024, the quickest, cleanest and best way for the Department to obtain primacy over Quad O and Quad Oa is to initiate a rulemaking solely focused on adopting those subparts by reference, as they exist on the date the Department completes its rulemaking, in chapter 33.1-15-12. *First,* the Department has used chapter 12 to

[1] House Bill No. 1024, Sixty-sixth Legislative Assembly of North Dakota (Jan. 3, 2019). "Quad O" and "Quad Oa" refer to 40 C.F.R. Part 60, Subpart OOOO and Subpart OOOOa of the Environmental Protection Agency's New Source Performance Standards enacted under the Clean Air Act.

adopt by reference most of the EPA's other New Source Performance Standards ("NSPS") set forth in title 40, Code of Federal Regulations, part 60. Doing so here ensures consistency, clarity, and ease of administration through a technical rulemaking when updates become necessary as a result of federal amendments. Second, adoption of Quad O and Quad Oa by reference in the Department's regulations is eligible for automatic partial delegation under Section 111(c) of the Clean Air Act, as explained in the February 27, 2014 letter from Region 8 of the United States Environmental Protection Agency to Terry O'Clair. Thus, incorporation by reference of Quad O and Quad Oa will not result in any delay potentially caused by the need to obtain EPA approval. Third, incorporation of Quad O and Quad Oa by reference will help ensure the Department complies with North Dakota Century Code §§ 23.1-01-04 and 23.1-06-07. Both of these statutes expressly prohibit the Department from adopting any air quality rules or standards affecting oil and gas production and processing facilities which are more strict than federal rules or standards under the federal Clean Air Act, 42 U.S.C. § 7401 et seq.

23.1-01-04. Rulemaking authority - Limitations.

1. Except as provided in subsection 2, the department of environmental quality may not adopt any rule for the purpose of the state administering a program under the federal Clean Air Act [42 U.S.C. 7401 et seq.]; federal Clean Water Act [33 U.S.C. 1251 et seq.]; federal Safe Drinking Water Act [42 U.S.C. 300 et seq.]; federal Resource Conservation and Recovery Act [42 U.S.C. 6901 et seq.]; federal Comprehensive Environmental Response, Compensation, and Liability Act [42 U.S.C. 9601 et seq.]; federal Emergency Planning and Community Right to Know Act of 1986 [42 U.S.C. 11001 et seq.]; federal Toxic Substances Control Act [42 U.S.C. 2601 et seq.]; or federal Atomic Energy Act of 1954 [42 U.S.C. 2011 et seq.]; which is more stringent than corresponding federal regulations that address the same circumstances. In adopting the rules, the department may incorporate by reference corresponding federal regulations.
2. The department may adopt rules more stringent than corresponding federal regulations or adopt rules where there are no corresponding federal regulations, for the purposes described in subsection 1, only if the department makes a written finding after public comment and hearing and based upon evidence in the record, that corresponding federal regulations are not adequate to protect the public health and the environment of the state. Those findings must be supported by an opinion of the department referring to and evaluating the public health and environmental information and studies contained in the record which form the basis for the department's conclusions.

* * * *

23.1-06-07. Requirements for adoption of air quality rules more strict than federal standards.

1. Notwithstanding any other provisions of this title, the department may not adopt air quality rules or standards affecting coal conversion and associated facilities,

> petroleum refineries, or oil and gas production and processing facilities which are more strict than federal rules or standards under the federal Clean Air Act [42 U.S.C. 7401 et seq.], nor may the department adopt air quality rules or standards affecting such facilities when there are no corresponding federal rules or standards, unless the more strict or additional rules or standards are based on a risk assessment that demonstrates a substantial probability of significant impacts to public health or property, a cost-benefit analysis that affirmatively demonstrates that the benefits of the more stringent or additional state rules and standards will exceed the anticipated costs, and the independent peer reviews required by this section.
>
> * * * *

By adopting Quad O and Quad Oa through incorporation by reference, the Department can ensure enforceability and the primacy mandated by HB 1024.

IV. EPA's Recent Rulemakings Do Not Impact DEQ's Need To Timely Adopt Quad O and Quad Oa

Although EPA's September 2019 proposed rule was published after the legislature passed HB 1024, there is no condition, provision, or other directive to suggest DEQ should depart from the legislature's signaled intent. In addition, the other pending rulemaking proceedings involving Quad O and Quad Oa were initiated prior to the legislature's passage of HB 1024. The legislature would not have allocated resources for the adoption of Quad O and Quad Oa if it had concerns about the already pending rulemakings. The directive from the legislature mandating this action should not be impacted because EPA has merely proposed a revision to the federal rules that may or may not be finalized in an undetermined final form at an undetermined point in the future.

Continental urges DEQ to incorporate the Quad O and Quad Oa programs by reference as they exist on the date the rule is published. With respect to any future revisions to the federal rules, modification to the incorporated federal regulations can be incorporated into the administrative code by DEQ through subsequent technical rulemakings. DEQ can ensure through this process that state requirements remain consistent with updated federal regulations. As stated above, the combined effect of N.D.C.C. §§ 23.1-01-04, 23.1-06-07, and the delegated Quad O and Quad Oa programs require state air quality rules that are completely aligned with corresponding federal rules.[2]

V. The Department Must Also Initiate a Rulemaking to Amend Its Existing Rules Governing Fugitive Organic Compounds Emissions To Ensure They Remain Enforceable and Consistent With Quad O and Quad Oa.

[2] This is true unless and until the Department, after a public hearing on not less than 90 days' notice, together with a supporting risk assessment, cost-benefit analysis, and independent peer reviews, makes a written finding that the federal regulations are not "adequate to protect the public health and the environment of the state." *See* N.D.C.C. §§ 23.1-01-04 and 23.1-06-07.

The authorities Continental cited above also dictate the Department must amend its existing regulatory scheme governing fugitive organic compounds emissions. Specifically, the Department must take steps to realign its current application of N.D. Admin. Code section 33.1-15-07-02(1) and chapter 33.1-15-17 to make them consistent with Quad O, Quad Oa, and the restrictions in N.D.C.C. §§ 23.1-01-04 and 23.1-06-07.

Chapter 17 of the Department's rules expressly govern all fugitive emissions "from any source whatsoever." N.D. Admin Code § 33.1-15-17-01. Nothing in Chapter 17 exists to suggest that the mere existence of a fugitive emission, without more, constitutes a violation. In fact, the regulations in chapter 17 recognize that complete elimination of any and all fugitive emissions is not possible, and so they impose on owners and operators of fugitive emissions sources the requirement to take "reasonable precautions to prevent such emissions from causing air pollution as defined in section 33.1-15-01-04." In addition, specific sections in chapter 17 prohibit fugitive emissions that "exceed" particular thresholds at or beyond the property line of the fugitive emissions source. *See* N.D. Admin Code §§ 33.1-15-17-02 through § 33.1-15-17-04.

As written, Chapter 17's regulations for fugitive emissions are entirely consistent with corresponding federal regulations, including Quad O and Quad Oa. However, in recent years, the Department has chosen not to apply Chapter 17 to fugitive emissions from oil and gas production facilities that contain volatile organic compounds. Instead, the Department has asserted instead that <u>any</u> fugitive organic compounds emissions, of <u>any</u> volume and from <u>any</u> source, constitute a violation of N.D. Admin. Code § 33.1-15-07-02.1.

There can be no doubt the Department's application of N.D. Admin. Code § 33.1-15-07-02.1 to strictly prohibit all fugitive emissions containing organic compounds exceeds any corresponding federal regulation. Indeed, a zero-fugitives standard is not technically feasible. Oil and gas facilities do not use a leakless technology to control emissions from the wellhead to the flare because such technology does not exist. In recognition of this fact, the EPA and many other oil and gas states,[3] have adopted a regulatory approach that requires operators to discover and, in a timely manner, fix leaking equipment. Among the federal requirements prescribed by Quad Oa are regulations governing the control of greenhouse gases ("GHGs") and volatile organic compounds ("VOCs") from fugitive emission components at oil and gas facilities. These regulations require semiannual monitoring and the timely repair of fugitive emission components.[4] With limited exception, if fugitive emissions are identified between the wellhead and the flare, the operator must repair the component from which the emissions originated within 30 days.[5] Notably, the presence of fugitive emissions at oil and gas facilities does <u>not</u> automatically constitute a violation of law.

[3] *See e.g.,* Okla. Admin. Code 252:100-7-60.5(a)(2)(A) (Oklahoma regulation requiring that minor sources comply with Quad Oa).
[4] *See* 40 C.F.R. § 60.5397a.
[5] *Id.* at §60.5397a(h).

The Department has recognized that "a completely leakless fugitive component does not currently exist" and "monitoring or other type of observation is appropriate to ensure that leaks are caught if they develop."[6] Nevertheless, its current application of N.D. Admin. Code § 33.1-15-07-02.1 defines an impossible "zero-fugitives" compliance standard that is incompatible with federal regulations. So, with the adoption of Quad O and Quad Oa, operators in North Dakota would be faced with the specter of fully complying with applicable federal regulations, but still being found in violation by the Department under N.D. Admin. Code § 33.1-15-07-02.1, simply because some undetermined amount of fugitive emissions containing some undetermined amount of volatile organic compounds were observed through a forward-looking infrared ("FLIR") camera. This result would be inconsistent with Quad O, Quad Oa, the EPA-approved SIP for North Dakota, chapter 17 of the Department's air quality rules, and basic principles of administrative law. Realignment of these rules is not only necessary under N.D.C.C. §§ 23.1-01-04 and 23.1-06-07, it is also good public policy to clearly define an objective standard of compliance.

VI. A Timely Rulemaking Is Statutorily Required In Response To Continental's Petition for Rulemaking

On June 12, 2019, Continental petitioned DEQ to amend N.D. Admin. Code § 33.1-15-07-02.1, because the Department's interpretation of the rule is more stringent than any corresponding federal Quad Oa regulations governing fugitive emissions.[7] And, with respect to legacy facilities not subject to Quad O and Quad Oa, the Department's zero-fugitives policy has no corresponding federal regulations. In both cases, any enforcement of § 33.1-15-07-02.1 as currently applied by the Department would violate N.D.C.C. §§ 23.1-01-04 and 23.1-06-07.

Continental's June 12 petition proposed the Department clarify the scope and applicability of § 33.1-15-07-02.1 by revising the regulation in conjunction with DEQ's adoption of the Quad O and Quad Oa programs. Continental believed then that the timing for doing both through a single, timely rulemaking made sense. Just as the Department has nine months from the effective date of HB 1024 (i.e., until February 1, 2020) to deliver a final rule to the legislative rules committee adopting Quad O and Quad Oa, the Department is also required by statute to review and revise rules identified as more stringent than federal regulations within nine months of the filing of the petition for such a rulemaking (i.e., until March 12, 2020). *See* N.D.C.C. § 23.1-01-04.3.

However, now that seven months have passed, a single rulemaking to consider both adoption of Quad O and Quad Oa and amendment of the uncontrolled emissions regulation, § 33.1-15-07-02.1, is not likely to be achieved by the February 1, 2020 deadline. Accordingly, Continental urges the Department to initiate simultaneous rulemakings. The rulemaking to adopt Quad O and Quad Oa by reference can be accomplished swiftly, by February 1, and automatic partial delegation from EPA is already assured. Meanwhile, the rulemaking to realign § 33.1-15-07-02.1 with chapter 17

[6] *See* North Dakota Department of Health Environmental Health Section Division of Air Quality Response to Public Comments Regarding Issuance of an Air Pollution Control Permit to Construct for the Meridian Energy Group, Inc. – Davis Refinery (June 2018) at pp. 37-38.

[7] *See* CLR Petition at 3.

and corresponding federal regulations can also begin, with completion by March 13, 2020 to the Legislative Council, and subsequent delivery to EPA for any necessary approval of the changes to North Dakota's State Implementation Plan.

VII. The Proposed Amendment

Continental originally proposed a revision to § 33.1-15-07-02.1 that expressly references Quad O and Quad Oa. The Department, in its preliminary analysis dated November 10, 2019, noted an issue with this proposal because § 33.1-15-07-02.1 applies to more than just oil and gas facilities. Continental has taken this point into account, as well as the fact that a single rulemaking cannot likely be concluded before February 1. Finally, Continental has reviewed a proposed amendment from the North Dakota Petroleum Council that offers a different approach.

Continental supports two amendments that would realign the Department's uncontrolled emissions regulation, § 33.1-15-07-02.1, with its fugitive emissions regulations in Chapter 17. The proposed amendment to § 33.1-15-07-02.1 is minor:

33.1-15-07-02. Requirements for organic compounds gas disposal.

1. No person may cause or permit the emission of organic compounds gases and vapors, except from an emergency vapor blowdown system or emergency relief system, unless these gases and vapors are burned by flares, or an equally effective control device as approved by the department. Minor sources, as determined by the department and not subject to New Source Performance Standards (NSPS), may be granted exemptions to this subsection. Fugitive emissions from oil and gas facilities controlled pursuant to this section, and managed in accordance with chapter 33.1-15-17, shall be considered to comply with this provision.

Continental respectfully submits this proposed addition returns the uncontrolled emissions regulation to its original intent: facilities with potential organic compounds emissions must have control devices installed and operating, while any fugitive emissions remain governed by Chapter 17.

In addition, Continental supports addition of a new section in Chapter 17 that would define an objective compliance standard for control of fugitive organic compounds emissions consistent with Quad O and Quad Oa:

(Proposed) 33.1-15-17-05. Reasonable precautions for abating and preventing fugitive organic compounds emissions from oil and gas production facilities.

1. For oil and gas facilities subject to the monitoring and repair requirements set forth in sections 5416 and 5417 of 40 CFR, part 60, subpart OOOO, as applicable to

specific fugitive emissions components at the facility, the operator's compliance with such provisions shall constitute compliance with section 33.1-15-17-01(2).

2. For oil and gas facilities subject to the monitoring and repair requirements set forth in sections 5397a, and/or 5416a and 5417a of 40 CFR, part 60, subpart OOOOa, as applicable to specific fugitive emissions components at the facility, the operator's compliance with those provisions shall constitute compliance with section 33.1-15-17-01(2).

3. For oil and gas facilities not subject to 40 CFR, part 60, subpart OOOO, or subpart OOOOa, as adopted in chapter 33.1-15-12, the operator may demonstrate compliance with section 33.1-15-17-01(2) by:

   a. implementing and documenting compliance with a monitoring and repair program in which the operator conducts routine inspections and repairs as necessary tanks, hatches, compressors, vent lines, pressure relief valves, packing elements, and couplings to minimize fugitive emissions from equipment used for gas containing organic compounds. As part of the program: (a) tank hatches must hold a positive working pressure or must be repaired or replaced; and (b) any identified source of fugitive emissions shall be repaired or replaced as soon as practicable, but no later than 30 calendar days after detection of the fugitive emissions, unless a written notice has been provided to the Department with an explanation why a longer period is necessary; or

   b. implementing and documenting compliance with an alternative program that is equally effective in minimizing emissions as that prescribed in subsection a, above.

4. Fugitive emissions from oil and gas facilities managed pursuant to this section shall be considered to comply with section 33.15.07-02.1.

Continental respectfully submits addition of this new section in Chapter 17 will help ensure the Department's regulations remain fully aligned with corresponding federal regulations, as well as defining a clear and objective standard for compliance in controlling fugitive emissions at legacy facilities that also remains consistent with federal standards.

Conclusion

Continental appreciates the Department's consideration of these comments and we welcome additional dialogue. Please contact me at Brooks.Richardson@clr.com or 405-234-9643 if you have any questions.

Sincerely

Sean Flynn
Senior Director, Health, Safety & Environmental
Continental Resources, Inc.

Kautzman, Rheanna M.

From: theodora bb <tbb58763@yahoo.com>
Sent: Friday, December 13, 2019 4:30 PM
To: DEQ, DEQ; DOH, Air Quality; Semerad, Jim L.
Subject: Comment on Rule-making Petition ND Admin Code 33.1-15-07-02

DDecember 13, 2019

Dave Glatt, ND DEQ Director, deq@nd.gov
James L Semerad, jsemerad@nd.gov
AirQuality@nd.gov

Re: Rulemaking Petition to amend ND Admin Code 33.1-15-07-02 (1) filed by Continental Resources Inc and (2) the ND DEQ anticipated adoption of the federal new source performance standards for crude oil and natural gas, 40 CFR Part 60, Subpart 000 (Quad O) and Subpart 0000a (Quad Oa)

Mr. Glatt and Mr. Semerad:

This is in response to Questions 1, 2, 3, and 4.

We know that the ambient air quality measurement is already at 61 PPB, as measured by the Williston air quality monitor, which is also the most distant location from the center of the five (5) oil-producing counties in western North Dakota.

Further, we know that 70 PPM is the non-attainment level and requires the federal EPA involvement to protect human health in western North Dakota. We know North Dakota needs to strengthen its' air quality regulations -and not weaken existing state laws.

I recommend you keep Chapter 7's ban on emitting VOC's (volatile organic compounds) into the air in western North Dakota. Further I recommend you centralize and locate a permanent air quality monitor in the center of the five (5) oil-producing counties to get a more accurate reading of the actual volume of air pollutants that western North Dakota residents are breathing every day, including on Fort Berthold Indian Reservation.

By weakening the state air quality regulations, you will allow the oil companies to spew unlimited tons of volatile organic compounds (VOCs) and hazardous air pollutants (HAPs) into the air that families, elderly, and children must breathe in the five oil-producing counties - if not the entire State of North Dakota and eastern Montana. In effect, you will also increase the likelihood of 70 PPB non-attainment level.

We know that VOC gases emitted into the air we breathe, specifically benzene, is a cancer-causing agent. VOCs also damage nervous systems, especially harming young children and

families who have no choice but to stay in western North Dakota when one, or more, wells are put near their already-existing homes.

We also know that VOCs react with nitrogen oxides and produce ozone which has been visible in western North Dakota since the intensive oil and gas extraction started in 2006-07. Ozone reacts with the molecules in our airways and causes chronic or catastrophic health diseases. The American Lung Association recommends that the public avoid being outside for an extended period of time when air pollution levels are high. Rural residents in western North Dakota work outdoors and need to breathe safe, clean air.

Portions of at least 3 of the five (5) oil-producing counties are within the Fort Berthold Indian Reservation boundaries. I am a permanent resident of one of these oil-producing counties, within the Fort Berthold boundaries, and I will be adversely impacted if you approve this weakening of state air regulations

While the State of North Dakota had benefited and received one-third of its' oil and gas revenue from Fort Berthold Indian Reservation, ND DEQ has been well aware that Fort Berthold has not had any air quality monitoring since the oil and gas extraction started in 2007.

Saying you lack jurisdiction to enforce air quality protections on Fort Berthold does not eliminate ND DEQ's responsibility to help protect the human health of all North Dakota residents - including tribal members and residents within the Fort Berthold boundaries. Your lack of jurisdiction does not dismiss our valid concerns about ND DEQ's inability to protect air quality and human health for all residents in the oil-producing counties of western North Dakota.

Your public notice requesting public comments on this proposed matter, has failed to identify the deadline hour for public comment today, December 13, 2019. You haven't identified your COB hours. These comments are emailed to you by, or before, the estimated COB time of 4:30 PM CT today.

I am a member of Dakota Resource Council and the local DRC affiliate, or chapter, Fort Berthold POWER (Protectors of Water and Earth Rights).

Thank you for allowing me to comment.

Theodora Bird Bear
Mailing address: P.O.Box 616, New Town ND 58763

encana

North Dakota Department of Environmental Quality
Division of Air Quality
918 E. Divide Ave.
Bismarck, ND 58501-1947
ATTN: James Semerad, Director

December 13, 2019

RE: Notice of Opportunity to Comment on Rulemaking Petition and Solicitation of Views on Administrative Rules Relating to Air Emissions from Oil and Gas Production Facilities

Mr. Semerad,

Encana Oil & Gas (USA) Inc. ("Encana") appreciates the opportunity to provide comments on the North Dakota Department of Environmental Quality's ("ND DEQ") proposed rulemaking related to air emissions from oil and gas facilities.

The North Dakota Petroleum Council ("NDPC") is an industry trade group representing oil and gas producers operating in the state of North Dakota. The NDPC is submitting comments on the proposed rulemaking related to air emissions from oil and gas facilities. Encana participated in NDPC's workgroup dedicated to reviewing and developing comments on the proposed rule. Encana endorses the comments submitted by NDPC. Encana will continue to work collaboratively with its peers to advocate for a regulatory framework that protects the environment and promotes responsible oil and gas exploration and development.

If you have any questions about this letter, please direct them to Devin Koele at devin.koele@encana.com. Thank you again for the opportunity to participate in this endeavor.

Sincerely,

Doug Jordan

Doug Jordan
Manager, Air Compliance – Envir & Reg Compliance
Encana Oil & Gas (USA) Inc.

Kautzman, Rheanna M.

From: NDPC <ndpc@ndoil.org>
Sent: Friday, December 13, 2019 3:39 PM
To: DOH, Air Quality
Cc: Ron Ness; Kari Cutting; Brady Pelton
Subject: NDPC Supplemental Comments Re: Rulemaking Petition and Solicitation of Views
Attachments: 2020 DEQ Air Quality Rules Supplemental Comments by NDPC - FINAL Signed.pdf; Appendix A - NDPC Proposal for NDAC Amends - 12.13.2019.pdf

Importance: High

Dear Director Semerad:

Please find attached supplemental comments and proposed amendments to the ND Administrative Code offered by the North Dakota Petroleum Council regarding the "Notice of Opportunity to Comment on Rulemaking Petition and Solicitation of Views on Administrative Rules Relating to Air Emissions from Oil and Gas Production Facilities" published October 11, 2019.

We look forward to your review and subsequent air emissions rulemaking.

Sincerely,

North Dakota Petroleum Council
100 W. Broadway Avenue
Suite 200
PO Box 1395
Bismarck, ND 58501
701.223.6380
ndpc@ndoil.org
www.ndoil.org

NORTH DAKOTA PETROLEUM COUNCIL

NORTH DAKOTA
PETROLEUM
COUNCIL

100 West Broadway, Ste. 200 | P.O. Box 1395 | Bismarck, ND 58501-1395
701.223.6380 | ndpc@ndoil.org | www.NDOil.org

December 13, 2019

James Semerad, Director
Division of Air Quality
North Dakota Department of Environmental Quality
918 East Divide Avenue
Bismarck, ND 58501-1947

RE: Supplemental Comments on Administrative Rules Relating to Air Emissions from Oil and Gas Production Facilities

Dear Mr. Semerad:

Thank you for the opportunity to provide supplemental comments on the administrative rules relating to air emissions from oil and gas facilities. The North Dakota Petroleum Council (NDPC) offers these additional comments to supplement those submitted by NDPC on November 12, 2019. They are intended to provide additional information to the North Dakota Department of Environmental Quality (DEQ). The attached comments supplement, and do not supplant, NDPC's previously submitted comments unless stated expressly.

NDPC remains strongly supportive of DEQ incorporation of the federal new source performance standards for crude oil and natural gas, 40 C.F.R. Part 60, Subpart OOOO (Quad O) and Subpart OOOOa (Quad Oa), into the ND Administrative Code by reference within N.D. Admin. Code Chapter 33.1-15-12. If DEQ incorporates Quad O and Quad Oa by reference, NDPC believes DEQ should also simultaneously amend N.D. Admin. Code 33.1-15-07 (Chapter 7) to provide needed clarity and regulatory certainty.

To best provide this needed clarity, NDPC respectfully suggests the proposed amendments to the ND Administrative Code attached as Appendix A. The first suggested change adds language to section 2 of Chapter 7, clarifying the applicability of N.D. Admin Code 33.1-15-17 (Chapter 17) to fugitive emissions from oil and gas facilities. NDPC then proposes creating a new section, section 05, within Chapter 17 that codifies certain of the mechanisms that can be used at oil and gas facilities under Chapter 17's reasonable precaution standard to demonstrate compliance with the general provisions governing fugitive emissions and the requirements for organic compounds gas and vapor disposal located in Chapter 7.

Under the proposed section 33.1-15-17-05, facilities subject to the specific fugitive emission component and/or closed vent system monitoring requirements in subpart Quad O and subpart Quad Oa will be deemed in compliance with the reasonable precaution standard in subsection 33.1-15-17-01(2). For oil and gas facilities not subject to the fugitive emission component and/or closed vent system monitoring requirements of Quad O or Quad Oa, the proposed language of subsection 33.1-15-17-05(3) provides that operators who implement and document compliance with a

monitoring and repair program shall also be deemed to have undertaken reasonable precautions. The proposed subsection 33.1-15-17-05(3) is modeled on the existing provision requiring operators to minimize emissions from equipment used for gas containing hydrogen sulfide (H_2S) in N.D. Admin. Code § 33.1-15-20-04(4). NDPC has modified the language to apply to fugitive organic compounds emissions from oil and gas facilities. Subsection 33.1-15-20-04(4) is an existing provision that has been approved by the U.S. Environmental Protection Agency (EPA) as a part of the ND air quality State Implementation Plan (SIP). NDPC believes it provides a good model on which to base specific fugitive emission controls for organic compounds from oil and gas facilities.

We thank you again for the opportunity to provide comments on North Dakota air emissions administrative rules. Adopting the federal Quad O and Quad Oa standards and having the ability to implement those standards on the state level are in the best interests of the oil and gas industry, the State of North Dakota, and the nation. The adjustments to the ND Administrative Code suggested by NDPC will result in consistency of state Quad O and Quad Oa implementation, resulting in greater regulatory certainty necessary to minimize emissions and continue safe, efficient, and effective oil and gas operations within North Dakota.

Sincerely,

Ron Ness, President
North Dakota Petroleum Council

Enclosure:
Appendix A

33.1-15-07-02. Requirements for organic compounds gas disposal.

1. No person may cause or permit the emission of organic compounds gases and vapors, except from an emergency vapor blowdown system or emergency relief system, unless these gases and vapors are burned by flares, or an equally effective control device as approved by the department. Minor sources, as determined by the department and not subject to New Source Performance Standards (NSPS), may be granted exemptions to this subsection. Fugitive emissions from oil and gas facilities controlled pursuant to this section, and managed in accordance with chapter 33.1-15-17, shall be considered to comply with this subsection.

2. Organic compounds gases and vapors which are generated as wastes as the result of storage, refining, or processing operations and which contain hydrogen sulfide, shall be incinerated, flared, or treated in an equally effective manner before being released to the ambient air. The emissions from all devices designed for incinerating, flaring, or treating waste organic compounds gases and vapors shall result in compliance with chapters 33.1-15-02 and 33.1-15-16.

3. Each flare required under this section must be equipped and operated with an automatic igniter or a continuous burning pilot.

Proposed new section to Chapter 17

33.1-15-17-05. Reasonable precautions for abating and preventing fugitive organic compounds emissions from oil and gas facilities.

1. For oil and gas facilities subject to the monitoring and repair requirements set forth in sections 5416 and 5417 of 40 CFR, part 60, subpart OOOO, as applicable to specific fugitive emissions components at the facility, the operator's compliance with such provisions shall constitute compliance with section 33.1-15-17-01(2).

2. For oil and gas facilities subject to the monitoring and repair requirements set forth in sections 5397a and/or 5416a and 5417a of 40 CFR, part 60, subpart OOOOa, as applicable to specific fugitive emissions components at the facility, the operator's compliance with those provisions shall constitute compliance with section 33.1-15-17-01(2).

3. For oil and gas facilities not subject to 40 CFR, part 60, subpart OOOO, or subpart OOOOa, the operator may demonstrate compliance with section 33.1-15-17-01(2) by:

    a. implementing and documenting compliance with a monitoring and repair program in which the operator conducts routine inspections and repairs as necessary tanks, hatches, compressors, vent lines, pressure relief valves, packing elements, and couplings to

minimize fugitive emissions from equipment used for gas containing organic compounds. As part of the program,

i. tank hatches must hold a positive working pressure or must be repaired or replaced; and

ii. any identified source of fugitive emissions shall be repaired or replaced as soon as practicable, but no later than 30 calendar days after detection of the fugitive emissions, unless a written notice has been provided to the department with an explanation as to why a longer period is necessary; or

b. implementing and documenting compliance with an alternative program that is equally effective in minimizing emissions as that prescribed in paragraph a, above.

4. Fugitive emissions from oil and gas facilities managed pursuant to this section shall be considered to comply with section 33.15.07-02(1).

Kautzman, Rheanna M.

From: NW Landowners Association <northwestlandownersassociation@gmail.com>
Sent: Friday, December 13, 2019 3:24 PM
To: DOH, Air Quality
Cc: Bob Grant; Bryan Ankenbauer; David King; Hal Ross; Howard Rice; Kathy Johnson; Kenton Onstad; Larry Peterson; Marvin Heller; Myron Hanson; NWLA Galen Peterson; Pete Artz; Steven & Patricia Jensen; Troy Coons
Subject: NWLA NDDEQ Air Quality Comments
Attachments: _NWLA NDDEQ Air Quality Comments.docx.pdf

Please see the attached comments of Northwest Landowners Association on Rulemaking Petition and Solicitation of Views on Administrative Rules Relating to Air Emissions from Oil and Gas Production Facilities.

Kind regards,

Amy Shelton
Executive Director
Northwest Landowners Association
northwestlandownersassociation@gmail.com
701-721-4446

Northwest Landowners Association
Comments to NDDEQ Air Quality Division
December 13, 2019

North Dakota Department of Environmental Quality
Division of Air Quality
C/O Jim Semerad, Director
918 E Divide Avenue
Bismarck, ND 58501-1947

Via Email to: AirQuality@nd.gov

Re: Comments of Northwest Landowners Association on Rulemaking Petition and Solicitation of Views on Administrative Rules Relating to Air Emissions from Oil and Gas Production Facilities

Dear Mr. Semerad:

The Northwest Landowners Association (NWLA), which is an association of landowners in our state's oil-producing counties, does not support Continental Resource's petition to change N.D.A.C. § 33-15-07-2(1). We think the petition is not a reasonable request and should simply be denied.

In researching this issue, our understanding is that Continental appears to believe the rule is unclear and therefore needs to be revised. We also found that Continental has gone out of its way to try to get this rule changed. Continental filed a state court lawsuit to challenge this rule (which Continental lost). Then Continental appealed and lost the appeal too. Our state's Supreme Court explained that "Continental wants the district court to read ambiguity into the Rule where it doesn't otherwise exist." In other words, Continental's petition for rulemaking is a solution in search of a non-existent problem. The rule is perfectly fine as is. If Continental has concerns about the rule, our view is that Continental should simply comply with the rule as a good operator.

Further, the rule serves an important purpose. From our perspective, it protects landowners such as our members in North Dakota's oil-producing counties from unreasonable air emissions from oil and gas facilities. It also protects landowners statewide from unreasonable emissions from all sources (not just oil and gas). Our reading of the rule is that it if a facility emits into the air organic compounds or vapors, then the facility must install a "flare" or "equally effective control device approved by [DEQ]." That's it. In our experience, any reputable oil and gas operator should be doing this regardless of any rule. It's common sense.

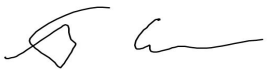
DEQ also requested feedback on NSPS Quad O and Quad Oa. We understand that DEQ is working on implementing these federal programs. We also understand, however, that these

federal programs may significantly change over the next several months. Our main comment is that we believe Quad O and Quad Oa is a separate issue from N.D.A.C. § 33-15-07-2(1), and they should be treated separately. Trying to consider these rules together is confusing and needlessly complicated, especially because it's unclear what may happen with Quad O and Quad Oa going forward. N.D.A.C. § 33-15-07-2(1) has been on the books for decades, and regardless of what happens with Quad O and Quad Oa, we believe that N.D.A.C. § 33-15-07-2(1) should remain on the books. It's a simple, easy to understand, and effective regulation. We do not believe the rules are the same.

Regarding the timing issues with Quad O and Quad Oa, we suggest that DEQ wait, if possible, to implement Quad O and Quad Oa until the rules themselves are settled. Otherwise, DEQ may end up duplicating work by implementing these programs and then having to go through the process of re-implementing these programs.

Thank you for the opportunity to comment on this issue,

Northwest Landowners Association
Troy Coons, Chairman



From:	JP Holmes
To:	DOH, Air Quality
Cc:	Lisa Deville
Subject:	Comment on Continental"s Partisan for Rule making Due Dec 13th, 2019
Date:	Friday, December 13, 2019 5:53:26 PM
Attachments:	Env, Methane Study EW ND FLIR.docx

My name is Lisa DeVille, I am the President of Fort Berthold Protectors of Water and Earth Rights (Fort Berthold POWER). I live with my husband, five children and five grandchildren. We have lived our whole lives in Mandaree. Mandaree and the Fort Berthold are special to me because this where I was raised and where I choose to raise my family. My family and my ancestors are buried here along the shores of Lake Sakakawea. Being Native American, this is the only land that we have left that is our own.

We are connected to the Earth. We are taught in the story of our creation that we are created from the Earth; that the Earth is our Mother, so we must protect it.

Natural gas is burned off at an alarming rate in Fort Berthold. We are losing a precious natural resource that is being burned within less than a mile from our homes. I am very concerned about the physical effects of oil and gas flaring and venting. My children and grandchildren breathe in this air. How is this going to affect our health? We need the rules in place NOW to prevent further illness.

I am the Vice President of Fort Berthold POWER and I have worked to secure the protections on air quality like the EPA's New Source Performance Standard. We've been living with oil and gas for nearly a decade and we did not know that there would be so much environmental destruction with fracking. There are over 1,000 oil and gas well pads on the Fort Berthold Reservation. I have a Master's in Business Administration and Management, and I also have a degree in environmental science. I am trained in using Geographic Information System (GIS) technology. I have worked with Professor Tanya Driver at the Nueta, Hidatsa, Sahnish College to create a map of the oil and gas wells on the Fort Berthold Reservation.

In November 2015, my husband Walter and I traveled to Washington, D.C., to attend meetings at the EPA, BLM, the Office of Management and Budget, and a morning briefing for delegates to hear about our oil and gas issues. I presented images of infrared cameras that make visible the harmful methane emissions.

For the past 10 years I have witnessed the increase of oil and gas industrialization along with the environmental impacts. We are very much affected by the pollution from flares. Every direction you look there are gas flares that sound like a roaring jet plane that rumbles the ground like a train passing by. At night the sky is lit up like it is still day. I can feel the earth rumble at night time when everything is quiet. So, do other members of my family.

In August of 2017, both my husband, Walter and I got ill from respiratory infections. We first went to IHS where we received medication but did not get any better for several weeks. We then went to the McKenzie County Clinic, where a physician told us that we had the same symptoms as oil field workers who had come to the clinic. Walter was given a steroid shot, but I took medication again. It took about 8 weeks for Walter and me to fully heal from the infection. I am very concerned about the air pollution from oil and gas near my home, because I worry that it will impact my health and my family's health.

I have learned that methane is the second largest contributor to human caused global warming after carbon dioxide. It has a global warming potential that is 86 times greater than carbon dioxide. In addition to methane, natural gas leaked and vented from oil and gas development also contains volatile organic compounds and hazardous air pollutants such as benzene, a known carcinogen. Long term exposure to these emissions result in health impacts such as: asthma, cancer, neurological damage, pulmonary reduction, coronary problems, endocrine disruptive, and headaches. The impact can be devastating if we're breathing in carcinogenic material that is a result of the oil and gas production.

Federal protections against wasteful processes that pollute our air and create noisy and ugly flares, like the EPA New Source Performance Standards, are especially important because the industry has too much influence over our tribal government. We have seen that our TBC put profit before people. We have oil and gas industry propaganda in the school system, so our kids are learning that fracking and all harmful practices are safe.

Between 2009 and 2014, oil and gas producers on public and tribal lands vented, flared and leaked about 375 billion cubic feet of natural gas. That's enough to supply over 5 million homes for one year. Our air is being polluted and our state and tribal tax dollars are being burned or vented into the atmosphere. In North

Dakota, oil development has overwhelmingly outpaced gas capture due to lack of infrastructure, a major oversight that has left Reservations and public lands open to unnecessary flaring; and the oil industry has been given a free pass to willfully waste a valuable, finite resource.

If the North Dakota DEQ does what Continental is asking by replacing the no venting law with Quad 0 and Quad 0a, then all oil wells drilled prior to 2017 would be unregulated with regard to VOCs. This would mean that thousands of oil and gas wells and other non-oil and gas sources would be unregulated. Only wells drilled after January 1, 2017 would be regulated. This would put North Dakota at risk of going into ozone nonattainment in the future because with our current number of wells we are dangerously close to going into ozone nonattainment already.

The North Dakota DEQ should reject Continental's rulemaking petition. Instead, the North Dakota DEQ should keep its no venting law (ND Admin Code 33.1-15-07-02(1)) in place, while also adopting Quad 0 and Quad 0a. By keeping the no venting law in place and adopting Quad 0 and Quad 0a, old oil and gas wells (those prior to 2017) would be covered by the state regulation of VOCs and new wells would be covered by Quad 0 and Quad 0a (aka the EPA Methane Rule). Under this scenario, it is less likely that ND would go into nonattainment for ozone and there would be two different regulatory tools that could be used to address VOC emissions from the oil and gas industry.

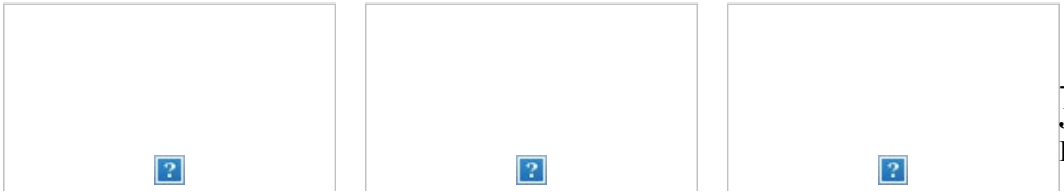
“The FLIR camera was specifically built to detect hydrocarbons and volatile organic compound (VOC) emissions from oil and gas. the video links below are from Earth Works,

FLIR camera
factsheet: https://earthworks.org/cms/assets/uploads/archive/files/publications/FACTSHEET_FLIR.pdf

Oil & gas air pollution
factsheet: https://earthworks.org/cms/assets/uploads/archive/files/publications/FS_oilandgas_airpollution.pdf

In 2018 EarthWorks did a Flir study on Fort Berthold Indian Reservation, with the assistance of Walter and Lisa Deville of Fort Berthold POWER. In these FLIR study videos one can see how much leaking is happening around generator tanks, flares and etc. Even though these leaks happened on Fort Berthold Indian Reservation this is indicative of what is happening in the rest of North Dakota.

Preview YouTube video En Preview YouTube video WI Preview YouTube video Rir



--
JP Holmes

Preview YouTube video XT Preview YouTube video En Preview YouTube video XT

EARTHWORKS

MEMO

From: Pete Dronkers, Certified Optical Gas Imaging Thermographer & Southwest Circuit Rider

Subject: Statement on FLIR video evidence featured in Dakota Resource Council report “Oil & Gas Pollution’s Impacts on North Dakota Families”

Between July 11th and July 13th, 2017, Earthworks traveled to Dunn and Williams counties, ND to investigate and document emissions from active oil and gas sites using a FLIR GF320 infrared camera. Working together with the Dakota Resource Council, we identified and visited 12 recently well sites in residential areas drilled in the last 2 years. I recorded visible and concerning emissions at 5 of these sites near Williston and the Fort Berthold Reservation.

The FLIR GF320 is the oil and gas industry standard in leak detection and repair, and is utilized by state regulatory agencies across the country to monitor emissions from the oil and gas sector. This technology does not speciate or quantify pollutants, but it does make visible hydrocarbons and volatile organic compounds (VOCs) that are normally invisible to the naked eye. As an Infrared Training Center (ITC) certified OGI thermographer (certification #86618), my specific observations on the emissions seen in these videos can be found below.

HRC Operating Fort Berthold 1H Well Site (Fort Berthold Reservation)
Video: https://youtu.be/cY3mfnZEd6o
Tank vapor emissions from a tank battery containing hydrocarbons. These emissions are an unknown blend of hydrocarbons and VOC's. There is likely a significant amount of methane.

HRC Operating Fort Berthold 8-12H Well Site (Fort Berthold Reservation)
Video: https://youtu.be/UEpah9g2JDc
Tank vapor emissions from a tank battery containing hydrocarbons. These emissions are an unknown blend of hydrocarbons and VOC's. There is likely a significant amount of methane.

HRC Operating Fort Berthold 13H Well Site (Fort Berthold Reservation)
Video: https://youtu.be/753IojkdVD0
Tank vapor emissions from a tank battery containing hydrocarbons. These emissions are an unknown blend of hydrocarbons and VOC's. There is likely a significant amount of methane.

EARTHWORKS

Statoil & Gas LP Lougheed 2-11 XE #1TFH Well Site (Williston)
Video: https://youtu.be/o6ayGWltHCo
Emissions showing hydrocarbon exhaust from what is likely a large generator or other large engine. These emissions are likely low in methane but high in hydrocarbons and VOC's that escape complete combustion through the engine.

Zavanna LLC Arrowhead 10-3 Well Site (Williston)
Video: https://youtu.be/bLT8CBytwAM
Tank vapor emissions from a tank battery containing hydrocarbons. These emissions are an unknown blend of hydrocarbons and VOC's. There is likely a significant amount of methane.

Independent laboratory (third party) testing confirms that the GasFindIR cameras can see the following gases at the minimum detected leak rate (MDLR):

1-Pentene - 5.6g/hr
Benzene - 3.5g/hr
Butane -0.4g/hr
Ethane - 0.6g/hr
Ethanol - 0.7g/hr
Ethylbenzene - 1.5g/hr
Ethylene - 4.4g/hr
Heptane - 1.8g/hr
Hexane - 1.7g/hr
Isoprene - 8.1g/hr
MEK - 3.5g/hr
Methane - 0.8g/hr
Methanol - 3.8g/hr
MIBK - 2.1g/hr
Octane - 1.2g/hr
Pentane - 3.0g/hr
Propane - 0.4g/hr
Propylene - 2.9g/hr
Toluene - 3.8g/hr
Xylene - 1.9g/hr

For more information on the FLIR GF320 camera, please visit: http://www.flir.co.uk/ogi/display/?id=55671

For more information on Earthworks' Community Empowerment Project, please visit http://www.cep.earthworksaction.org

From:	JP Holmes
To:	DOH, Air Quality
Cc:	Lisa Deville
Subject:	Disregard Previous Comment on Continental"s Partisan For Rule Making Due DEC 13th, 2019
Date:	Friday, December 13, 2019 7:02:04 PM
Attachments:	Env, Methane Study EW ND FLIR.docx

My name is Lisa DeVille, I am the Vice President of Fort Berthold Protectors of Water and Earth Rights (Fort Berthold POWER). I live with my husband, five children and five grandchildren. We have lived our whole lives in Mandaree. Mandaree and the Fort Berthold are special to me because this where I was raised and where I choose to raise my family. My family and my ancestors are buried here along the shores of Lake Sakakawea. Being Native American, this is the only land that we have left that is our own.

We are connected to the Earth. We are taught in the story of our creation that we are created from the Earth; that the Earth is our Mother, so we must protect it.

Natural gas is burned off at an alarming rate in Fort Berthold. We are losing a precious natural resource that is being burned within less than a mile from our homes. I am very concerned about the physical effects of oil and gas flaring and venting. My children and grandchildren breathe in this air. How is this going to affect our health? We need the rules in place NOW to prevent further illness.

I am the Vice President of Fort Berthold POWER and I have worked to secure the protections on air quality like the EPA's New Source Performance Standard. We've been living with oil and gas for nearly a decade and we did not know that there would be so much environmental destruction with fracking. There are over 1,000 oil and gas well pads on the Fort Berthold Reservation. I have a Master's in Business Administration and Management, and I also have a degree in environmental science. I am trained in using Geographic Information System (GIS) technology. I have worked with Professor Tanya Driver at the Nueta, Hidatsa, Sahnish College to create a map of the oil and gas wells on the Fort Berthold Reservation.

In November 2015, my husband Walter and I traveled to Washington, D.C., to attend meetings at the EPA, BLM, the Office of Management and Budget, and a morning briefing for delegates to hear about our oil and gas issues. I presented images of infrared cameras that make visible the harmful methane emissions.

For the past 10 years I have witnessed the increase of oil and gas industrialization along with the environmental impacts. We are very much affected by the pollution from flares. Every direction you look there are gas flares that sound like a roaring jet plane that rumbles the ground like a train passing by. At night the sky is lit up like it is still day. I can feel the earth rumble at night time when everything is quiet. So, do other members of my family.

In August of 2017, both my husband, Walter and I got ill from respiratory infections. We first went to IHS where we received medication but did not get any better for several weeks. We then went to the McKenzie County Clinic, where a physician told us that we had the same symptoms as oil field workers who had come to the clinic. Walter was given a steroid shot, but I took medication again. It took about 8 weeks for Walter and me to fully heal from the infection. I am very concerned about the air pollution from oil and gas near my home, because I worry that it will impact my health and my family's health.

I have learned that methane is the second largest contributor to human caused global warming after carbon dioxide. It has a global warming potential that is 86 times greater than carbon dioxide. In addition to methane, natural gas leaked and vented from oil and gas development also contains volatile organic compounds and hazardous air pollutants such as benzene, a known carcinogen. Long term exposure to these emissions result in health impacts such as: asthma, cancer, neurological damage, pulmonary reduction, coronary problems, endocrine disruptive, and headaches. The impact can be devastating if we're breathing in carcinogenic material that is a result of the oil and gas production.

Federal protections against wasteful processes that pollute our air and create noisy and ugly flares, like the EPA New Source Performance Standards, are especially important because the industry has too much influence over our tribal government. We have seen that our TBC put profit before people. We have oil and gas industry propaganda in the school system, so our kids are learning that fracking and all harmful practices are safe.

Between 2009 and 2014, oil and gas producers on public and tribal lands vented, flared and leaked about 375 billion cubic feet of natural gas. That's enough to supply over 5 million homes for one year. Our air is being polluted and our state and tribal tax dollars are being burned or vented into the atmosphere. In North

Dakota, oil development has overwhelmingly outpaced gas capture due to lack of infrastructure, a major oversight that has left Reservations and public lands open to unnecessary flaring; and the oil industry has been given a free pass to willfully waste a valuable, finite resource.

If the North Dakota DEQ does what Continental is asking by replacing the no venting law with Quad 0 and Quad 0a, then all oil wells drilled prior to 2017 would be unregulated with regard to VOCs. This would mean that thousands of oil and gas wells and other non-oil and gas sources would be unregulated. Only wells drilled after January 1, 2017 would be regulated. This would put North Dakota at risk of going into ozone nonattainment in the future because with our current number of wells we are dangerously close to going into ozone nonattainment already.

The North Dakota DEQ should reject Continental's rulemaking petition. Instead, the North Dakota DEQ should keep its no venting law (ND Admin Code 33.1-15-07-02(1)) in place, while also adopting Quad 0 and Quad 0a. By keeping the no venting law in place and adopting Quad 0 and Quad 0a, old oil and gas wells (those prior to 2017) would be covered by the state regulation of VOCs and new wells would be covered by Quad 0 and Quad 0a (aka the EPA Methane Rule). Under this scenario, it is less likely that ND would go into nonattainment for ozone and there would be two different regulatory tools that could be used to address VOC emissions from the oil and gas industry.

"The FLIR camera was specifically built to detect hydrocarbons and volatile organic compound (VOC) emissions from oil and gas. the video links below are from Earth Works,

FLIR camera
factsheet: https://earthworks.org/cms/assets/uploads/archive/files/publications/FACTSHEET_FLIR.pdf

Oil & gas air pollution
factsheet: https://earthworks.org/cms/assets/uploads/archive/files/publications/FS_oilandgas_airpollution.pdf

Walter and Lisa Deville of Fort Berthold POWER worked with EarthWorks on a flir study within the Fort Berthold Indian Reservation from 2017 to 2018 to document leaks. Even though these leaks happened on Fort Berthold Indian Reservation this is indicative of what is happening in the rest of North Dakota.

Preview YouTube video En Preview YouTube video WI Preview YouTube video Rir

--

Preview YouTube video XT Preview YouTube video En Preview YouTube video XT

ND Department of Environmental Quality Hearing
Administrative Rules Relating to Air Emissions from Oil and Gas Production Facilities

A dead planet can't grow crops or sustain a healthy civilization and environment. Given North Dakota's role as our nation's second largest state oil producer, and the role of increasing ozone, again, and VOCs including methane and other greenhouse gases, in further imperiling our planet's climate, it's imperative that the North Dakota Department of Environmental Quality get this right. The states are our firewall in this area against the accumulating, increasingly disastrous effects of greenhouse gases on destructive climate change.

As the North Dakota Department of Environmental Quality (DEQ) adopts Quad-O/Oa, it:

1) Should NOT amend NDAC 33.1-15-07-02.1 as requested in the Petition for Rulemaking;
2) *IF* it amends NDAC 33.1-15-07-02.1 at all, any new language should emphasize the requirements to as stringently as possible prevent or capture all possible fugitive emissions and releases to the fullest extent currently humanly possible of preventing them; otherwise, at the very least, it
3) Should NOT otherwise amend NDAC 33.1-15-07-02.1.

As currently written and enforced, NDAC 33.1-15-07 – Control of Organic Compounds Emissions (Chapter 7) Section 2, including Requirements for organic compounds gas disposal, Subsection 1 (NDAC 33.1-15-07-02.1), is working to prevent release or capture of fugitive emissions for productive use or storage of greenhouse gases released in hydrocarbon production increasingly imperiling our climate and civilization. The NDDEQ's analysis and approach is on the right track.

As a responsible, modern, industrialized and civilized society, we must insist that those who profit from producing their products openly face up to and bear the full costs of safe production, including disposal of dangerous components they produce, and not externalize inconvenient costs, or simply ignore or dump unwanted or less profitable byproducts into the environment, disregarding their effects on humanity and further jeopardizing our living world. This includes ozone (from a climate battle the world has already recognized, fought, corrected and won), VOCs including methane, and other fugitive emission releases.

In doing so, both producers and their regulators, need to forthrightly assure the public that whether self-reporting or regulatory oversight, the detection equipment used is correctly tested, fully reliable, and especially, accurately captures, records and reports all releases of emissions in the sometimes severe cold and usually windy conditions when used here. Otherwise, the entire regulation of fugitive emissions is nothing more than a facially good-looking sham.

Continental maintains that the state has imposed a "zero leaks" rule that is "impossible" to achieve with current technology, more stringent than federal rules, adding that the mere existence of a fugitive emission doesn't automatically mean that emissions control equipment is not functioning properly. Continental is asking for an exception for such leaks in state rules, as long as emission control equipment is installed and operating.

The DEQ took steps to reduce emissions in the years after state regulators found oil and gas production facilities here were emitting higher levels of organic compounds than their non-Bakken counterparts. The dispute with Continental began a few years ago, when regulators started using **optical gas imaging cameras** to inspect oil and gas production facilities – with better equipment, improved detection *should* occur. The DEQ believes that the rule interpretation hasn't changed as it now sees some things violating the rule.

The Director of the North Dakota Department of Environmental Quality (DEQ) correctly responds that fulfilling this request could affect the state's ability to ensure oil companies are maintaining their emission controls once installed. "Our concern is that there would be no incentive for industry to properly maintain their systems, which would result in increased emissions," Director Glatt said. This would leave the department

"**powerless** to act where a facility's control equipment was not working properly to control emissions," said Jim Semerad, director of the air quality division at the DEQ.

The problem here is not only insuring adequate incentive for properly maintaining producers' emission control equipment systems, but that several recent, reputable studies show that under-reporting of fugitive emissions is nearly universal in the oil industry. Adding an exception for what Continental characterizes as a "very small portion" escaping from piping components would only further exacerbate already serious problems. Lenient petroleum industry **self-regulation** hasn't seemed to work so far, why should anyone think it would going forward? *See* separate materials, attached: **Far More Methane Leaking at Oil, Gas Sites in Pennsylvania than Reported**, Inside Climate News, 2-16-18.

Also, earlier, "**EPA** estimates that leaks not found and repaired could be resulting in **additional volatile organic chemical emissions of 80 million pounds annually**." Enforcement Alert: Proper Monitoring Essential to Reducing Fugitive Emissions Under Leak Detection and Repair Programs, *in* EPA Office of Regulatory Enforcement, Vol 2 No. 9, Oct, 1999.
https://nepis.epa.gov/Exe/ZyNET.exe/500003SW.txt?ZyActionD=ZyDocument&Client=EPA&Index1995%20Thru%201999&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&UseQField=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5CZYFILES%5CINDEX%20DATA%5C95THRU99%5CTXT%5C00000016%5C500003SW.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r105g16/r105g16/x150y150g16/i600&Display=hpfr&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1

Also see pg 41, **Comparative Monitoring Results** table, for 17 refineries, *esp.* comparing the large **Leak Rate**, differences between Company versus NEIC monitoring. Company versus NEIC averages 1.3 versus 5.0. *And* **Emissions Rate**: Company versus NEIC monitoring (in lb/hr) averages 1,177.0 versus 2,775.5. Enforcement Alert: Proper Monitoring Essential to Reducing Fugitive Emissions Under Leak Detection and Repair Programs, EPA Office of Regulatory Enforcement, Vol 2 No. 9 Oct 1999 https://nepis.epa.gov/Exe/ZyNET.exe/500003SW.txt?ZyActionD=ZyDocument&Client=EPA&Index=1995%20Thru%201999&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&UseQField=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A\ZYFILES\INDEX%20DATA\95THRU99\TXT\00000016\500003SW.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h|-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r105g16/r105g16/x150y150g16/i600&Display=hpfr&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=2

Further, an unsupported conclusion that complying with what Continental describes as a "zero leaks" rule is – in one word, "**impossible**" – needs adequate support. It should offer a enough analysis to enable the regulators to make an intelligent and informed decision. Merely stating that leakless technology is infeasible is only a conclusion – it doesn't present sufficient facts for an intelligent decision, or address what other leakless or low-leak technology is unavailable or insufficient, such as graphite-packed control valves, bellows-sealed valves, and hermetically sealed valves and flanges. Continental should at least attempt to explain whether such methods couldn't be used, and if not, why they're infeasible. So far, theirs isn't an "explanation," a good faith, reasoned indication of why such measures aren't feasible.

Also, why are **leakless valves** and other components for oil production even made? Who buys and uses them? Is implementing their use "**impossible**" only due to increased producer cost, including possibly increased maintenance downtime? If such valves are required, won't market incentives for their increased improvement and production, and reduced costs for production volume economies of scale, continuously make their use increasingly less expensive, therefore more practical? How would a company that couldn't comply with this

here, still do so if recovering petroleum under California's or Colorado's more restrictive regulations? If adequate controls against fugitive emissions costs more, that cost should be passed on to the products' buyers.

Continental says that its proposal is intended to ensure the state acts timely to keep its rules **consistent** with **federal** regulations. However, it's petition proposes amending the relevant DEQ rule now, **interjecting it** *while* the EPA itself is *also* currently proposing to amend Quad-Oa under one of two different possible changes. Continental's **petition** only adds an additional, short-term rush to needlessly **churn** rule provisions merely to save a producer more money, sooner, and likely vent more methane and other emissions while the regulatory framework in this area is currently undergoing potential change by the EPA. Preventing needless methane, ozone and other fugitive, toxic emissions as long as possible is the only sane choice to make for now.

Continental adds that its proposal will help ensure regulatory "**certainty**." This seems gratuitously **specious**. Not only has DEQ been uniformly applying the rule for some time, but *any* clear regulation and enforcement, including requiring zero emissions, provides "certainty" – a term often used for some time as an added throw-away adjective, to enhance the notion of murky or excessive government regulation.

Continental's view is that its proposal would **enhance** DEQ's regulatory authority to enforce proper maintenance of emissions control systems. Such authority already seems fully sufficient, without need for enhancement. As ND DEQ's own Rulemaking | Preliminary Analysis correctly notes, "For the 2008 Ozone Infrastructure SIP (ISIP) and the 2015 ISIP, NDAC 33.1-15-07 has been a vital element when demonstrating that the State has the ability to regulate ozone precursors to maintain compliance with the ozone NAAQS."

Continental adds that its proposal would ensure that North Dakota continues to enjoy the nation's "**cleanest**" air. Whether ND's air is superficially – or arguably, vaguely "clean," – misses the point; glibly gliding past and ignoring the central, critical issue today and in the future. With the increasing destruction from manmade climate change, every needless emission of ozone, VOCs like methane, or CO2 that can be prevented must be. As DEQ's own Rulemaking | Preliminary Analysis notes, if the EPA had not "disused lowering the ozone standard further in the atmosphere to 60 ppb" from 70 ppb, it could cause the entire state to be classified as a "nonattainment" area (i.e., not in compliance with the NAAQS). However that occurred, the DEQ then correctly lists some of the undesirable costs of risking designation as "nonattainment."

As DEQ correctly observes in its Preliminary Department Analysis of Effects of Petitioner's Proposed Language, beginning on page 4 of its Rulemaking | Preliminary Analysis, the consequences – intended or not – of the petitioner's proposed language would remove the language that requires organic gases and vapors to be controlled by flares or an equally effective control device, unless that control device is required under 40 CFR 60, Subpart OOOO or OOOOa. This change would limit and prevent the Department from being able to control organic compounds from sources other than those in the oil and natural gas industrial sectors covered by Quad-O/Oa, which would likely result in higher emissions of organic compounds from other industrial and agricultural sources throughout the state. The language as proposed by the petitioner could also threaten the Department's approved 2015 Ozone ISIP. Concluding that demonstrating that the changes to Chapter 7 don't interfere with attainment of the ozone NAAQS in North Dakota or in other states could be very difficult and time-consuming.

The DEQ also correctly notes, if the petitioner's language remains as proposed it would remove the federally enforceable tank limits and make every previous tank restricted under Chapter 7 now subject to Quad-O/Oa. This would have the effect of increasing the permitting and recordkeeping burden on industry *and* the Department without any appreciable environmental benefit. Further, all minor sources would need to be re-evaluated and re-permitted for VOC controls and air toxics.

Even worse is that if the petitioned language is accepted as written, the requirement that organic vapors and gases be controlled via combustion would be removed for the many wells or sources not subject to 40 CFR 60, Subpart OOOOa – pre-2015 oil wells. As the DEQ analysis states, neither NDAC 33.1-15-07 nor NDAC 33.1-

15-17 have requirements for LDAR programs for monitoring gaseous fugitive emissions. Currently, on an oil well site (upstream), organic vapors and gases are required to be routed to and combusted by a flare with a minimum of 90% destruction and removal efficiency. NDAC 33.1-15-07 requires that wellhead emissions need to be combusted. The only other requirement for the combustion of wellhead gas would be under NDAC 33.1-15-07-02.2 which requires gas that contains hydrogen sulfide (H2S) be combusted. Since Bakken is a sweet crude with very low amounts of H2S, NDAC 33.1-15-07.02.2 would not apply to Bakken wells.

Also, if DEQ has been **fining** Continental for leaks, WHY are such leaks repeatedly still occurring? The DEQ's Rulemaking | Preliminary Analysis is correct. Further, as it concludes, implementing the changes sought by Continentals' petition would incure prohibitive costs across wide sectors of the energy industry, and possibly unintended other sectors, in North Dakota.

The time is long past, when we could entertain the encouraged belief that we could accommodate unfettered emissions from oil and gas production. What were *you* doing in 1988? In a regulatory and political system properly functioning foremost on behalf of humanity, our climate, life and its environments, radical measures would have been immediately implemented with justified, now proven, alarm – at least by the time NASA climate scientist Dr. James **Hansen** testified before Congress on June 23, 1988 (and again, before a Senate transportation subcommittee on May 8, 1989) – over thirty years ago – about increasingly clear and urgent scientifically validated evidence of man made climate change. **Ex-Nasa scientist: 30 years on, world is failing 'miserably' to address climate change**. www.theguardian.com/environment/2018/jun/19/james-hansen-nasa-scientist-climate-change-warning, Jun 19, 2018.

To date, "All we've done is agree there's a problem." "[I]n 1988, he told a U.S. congressional hearing he could declare "with 99% confidence" that a recent sharp rise in temperatures [*after decades of increasing atmospheric CO2, methane and other greenhouse gases*] was a result of human activity." *Ibid.* "Since then, the world's greenhouse gas emissions have mushroomed despite repeated, increasingly frantic warnings about civilization-shaking catastrophe, from scientists amassing reams of evidence in Hansen's wake." "These findings hadn't occurred in a vacuum, of course – the Irish physicist John Tyndall confirmed that carbon dioxide is a heat-trapping gas in the 1850s. A 1985 scientific conference in Villach, Austria, concluded the temperature rise in the 21st century would be 'greater than in any man's history.'" "The changes in motion would 'affect life on Earth for centuries to come,' the New York Times warned (Jun 24, 1988) the morning after Hansen's testimony."

"His warnings have "blossomed into an **international consensus** ... that the temperature rise must be curbed to 'well below' 2°C (3.6°F) above pre-industrial times. But in this time emissions have soared (in 1988, 20 billion tons of carbon dioxide was emitted – by 2017 it was 32 billion tons) with promised cuts insufficient for the 2°C goal. *Ibid.* "'The solution isn't complicated, it's not rocket science,' Hansen said. 'Emissions aren't going to go down if the cost of fossil fuels isn't honest. Economists are very clear on this. (In arguing for a tax on carbon-producing fuels, Hansen asserts 'We need a steadily increasing fee that is then distributed to the public.')" "The dawdling global response to warming temperatures means runaway climate change now looms." *Ibid.*

"We are all raised to believe knowledge is **power** but Hansen proves the untruth of that slogan. Power is power," said Professor Dr. Naomi **Oreskes**, a Harvard academic who studies the history of science, and coauthored The Merchants of Doubt. "That power has been most aggressively wielded by fossil fuel companies such as Exxon and Shell which, despite being well aware of the dangers of climate change decades before Hansen's touchstone moment in 1988, funded a network of groups that ridiculed the science and funded sympathetic politicians. Later, they were to be joined by the bulk of *[a major political]* party, which now recoils from any action on climate change as heresy." "Obama was committed to action but couldn't do much with the Congress he had," Oreskes said. "To blame the Democrats and Obama is to misunderstand the political context. There was a huge, organized network that put forward a message of confusion and doubt." *Ibid.*

See also "**Americans 'under siege' from climate disinformation**; Fake news spread by those with a profit motive is leaving many people oblivious to the threat of climate change" www.theguardian.com/science/2017/jun/08/americans-under-siege-from-climate-disinformation-former-nasa-chief-scientist, Jun 8, 2017. "Americans are 'under siege' from disinformation designed to confuse the public about the threat of climate change, **NASA's former chief scientist** Ellen **Stofan**, who [decided to leave] 'NASA in December, 2017' 'before the election results,' has said. She added that "a constant barrage of half-truths had left many Americans oblivious to the potentially dire consequences of continued carbon emissions, despite the science being unequivocal." "We are under siege by fake information that's being put forward by people who have a profit motive," she said, citing oil and coal companies as culprits. "Fake news is so harmful because once people take on a concept it's very hard to dislodge it." "The harder part is this active disinformation campaign. I'm always wondering if these people honestly believe the nonsense they put forward. When they say 'It could be volcanoes' or 'the climate always changes' … to obfuscate and to confuse people, it frankly makes me angry." *Ibid.*

"Throughout her career, Stofan has highlighted the role of planetary science in understanding the Earth's environment and said it provided some of the most inarguable proof that atmospheric carbon dioxide leads to a warmer climate. She draws parallels between carbon emissions on Earth and the runaway greenhouse effect on Venus, a planet which once had oceans but is now a toxic inferno with surface temperatures approaching 500°C. The Earth is not destined for such an extreme scenario – even if all the CO2 were burned its oceans would not boil off completely – but Venus demonstrates the dramatic changes that can unfold when the fine balance of a planet's atmosphere is tipped. 'We won't go all the way to Venus, but the consequences of putting more and more CO2 into the atmosphere are really dire,' she said. 'There are models that suggest if we burn off all our fossil fuels, the Earth would become uninhabitable for humans.'" *Ibid.*

Instead, we've witnessed and wasted complacent, confused, denying decades as some of the largest fossil fuel producers denied, and fund further denials and misinformation about, the clearly looming, unchecked catastrophes. We can no longer entertain cries of "excessive" regulatory costs from a relatively few eager, if hard-working, profit-motivated producers – who've been given the privilege to extract these hydrocarbons for our use – to prudently curb needless waste from hydrocarbon production.

It may be understandable that smaller, independent producers might strenuously argue for more lenient regulations over fugitive emissions, such as ozone, VOCs including methane, CO2 and HAPs. The cost of implementing such regulations may have a greater comparative impact on smaller producers, whose profit margins depend on a more fragile structure spread over fewer producing units. Larger producers have much broader economies of scale to spread such responsible compliance costs over; indeed, larger producers have come to finally publicly recognize and argue for this responsibility.

The U.S. is now again a net exporter of petroleum products, beyond our own needs. With the destruction and costs of devastating climate change rapidly bearing down upon us, we must strive to use the utmost care in safeguarding every stray molecule of ozone, methane and CO2 that until today has been wasted or vented to contribute to this destruction.

The Dept of Environmental Quality is considering a control component rule to carefully regulate the needless release and waste of valuable but otherwise harmful methane into the atmosphere. Petroleum and allied engineers are highly educated, experienced experts in hydrocarbon extraction science – it's the basis of their work and the foundation for gains they increasingly make at more efficiently extracting more hydrocarbons. So we would assume they respect and endorse their expert fellow scientists who work in climate and related areas.

Year after year average global temperature is increasing. Based on their various continuously improving, increasingly reliable climate models, climate scientists around the world expect increasing greenhouse gases to impact our weather patterns in dangerously weird ways: hot, dry areas will experience hotter, drier conditions;

and wet areas will experience more rain, including increasingly severe hurricanes and other storms, plus rising ocean levels.

We've arrived at this point from many compromises, between the more lenient rules that usually profitable, well-funded industry prefer, and the tighter rules sought by those interested foremost in keeping our environment at least not irretrievably damaged, irreparably injured or destroyed. Now this includes our entire climate. It's long been fairly common understanding, that to avoid particularly effective regulation, encourage **underfunding** and under-staffing the regulatory department, and weakening their regulations. For the most effectively lenient, real world regulation, weaken the regulations, under-fund the more powerful, centralized federal regulators, and under-staff them with inexperienced enforcement. So it's left to each state, with usually far more meager funding and manpower resources, to regulate, enforce and police the regulatory scheme as best it can. As attorney Rob Bilott, who successfully represented those harmed by dumping toxic PFOS/C8 (Teflon chemicals) observed, the EPA hasn't really been much involved, at least there, for the last thirty years. Amanpour and Company, on the movie Dark Waters, Nov 14, 2019 www.pbs.org/video/mark-ruffalo-rob-bilott-dupont-and-dark-waters-rtlhwk/ And lately, it's been headed by one or another of its strongest opponents.

Similarly, *see* **Assessment of State-Level Fugitive Emissions Programs in Comparison to EPA NSPS Reconsideration Proposal**, Dec 17, 2018. Dr. Renee McVay, PhD Research Analyst, Oil & Gas, Environmental Defense Fund 301 Congress Avenue, Suite 1300, Austin, TX 78701; Kate Roberts, MS Research Analyst, Oil & Gas, Environmental Defense Fund, 123 Mission St, 28th Floor, San Francisco, CA 94105 www.edf.org/sites/default/files/content/Appendix_A_McVay_and_Roberts_Assessment_of_State-Level_Fugitives_Emiss...pdf *which in Appendix A begins:*

This report addresses and responds to EPA's claims about the relative efficacy of state-level fugitive emissions programs in its proposed rule, EPA's NSPS, Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources Reconsideration, 83 Fed. Reg. 52056 (Oct 15, 2018) ("Proposal"), and supporting memo, Equivalency of State Fugitive Emissions Programs for Well Sites and Compressor Stations to Proposed Standards at 40 CFR Part 60, Subpart OOOOa, EPA Docket ID No. EPA-HQ-OAR-2017-0483 (Apr 12, 2018). EPA claims that: "Through this evaluation, we have identified aspects of certain existing state fugitive emissions programs that we propose to find to be at least equivalent to the proposed amendments in this action."

In the Proposal, EPA proposes to deem California, Colorado, Ohio, Pennsylvania, Texas and Utah as states that have "equivalent" fugitive emissions programs for well sites.[ii] This Proposal also claims that California, Colorado, Ohio and Pennsylvania regulate compressor stations equivalently to the Proposal's standards.

EPA's suggestion that these states' LDAR programs **are equivalent** is **devoid** of any quantitative analysis and **misrepresents** the emissions reductions achievable by each state's program, as it **ignores** many differences between the fugitive emissions programs in these states, **including** scope and coverage of facilities and segments, threshold emissions detection requirements, time-frame for repairing leaks, and other provisions of each program. **Many** of these state programs' fugitive emissions requirements are **significantly less rigorous** than the proposed standards in EPA's Proposal, and **thus achieve fewer benefits**.

In **this analysis**, we **quantitatively compare** the wells and compressor stations covered and the emissions reduced from the so-called equivalent state programs to the proposed standards in the Proposal. We also **include** a **detailed comparison** of the scope and requirements of each state program. This comparison **clearly indicates** that **many** of these programs **do not achieve** the **emissions reductions** that the Proposal does within each state. These state programs **therefore** do **not guarantee equivalency** with the Proposal.

Furthermore, because the **Proposal** is a **weakening** of **the original 2016 NSPS**,[iii] we **also compared state** LDAR standards to the **original** NSPS requirements. **When** compared to the original 2016 NSPS requirements, **the state programs achieved even fewer relative emissions reductions**.

What ARE "North Dakota values"? Is there room enough here for all? Is it time for ND to choose, between successful, productive agriculture and more cheaply obtainable hydrocarbon extraction? In ND over only the past three years, we've seen record-breaking exceptional and severe droughts throughout the state, followed this year by one of the wettest on record in the majority of counties. That's left many North Dakota farmers with crop losses, unable to timely harvest their crops, or some crops with higher than expected, typical moisture content. The day of the DEQ public hearing on this,Crystal Sugar announced it wouldn't harvest any more Red River Valley **sugar beets** this year, saying it's uneconomic to do so. The rest will be wasted, left lying in the fields, as parts of our **potatoes** and other crops are. **Corn moisture** was up, and "**wheat falling**" numbers were concerning. The same day, Chicago O'Hare airport canceled over 1,000 flights due to snow and record cold.

METHANE RELEASE DANGERS

The DEQ must already have ample notice, that beyond the real value of wasting otherwise usable natural gas and the related tax revenue, methane released into the atmosphere greatly contributes to our planet's increasing, destructive greenhouse effect and climate change at a rate 84 to 86 times more potent than CO2 for the first 20 years after its release. Methane, CH4, is far more potent than CO2 as a greenhouse gas, capturing more of the sun's radiative force, but it persists for less time in the atmosphere. Taking that into account, scientists calculate that over a 100-year period the "**Global-Warming Potential**" of the gas is 28 times greater than for carbon dioxide. *The Guardian, Sep 29, 2017.*

Scientists have projected that the world needs to cut its overall greenhouse gas emissions nearly in half by mid-century to avert catastrophic effects from global warming. According to the EPA, methane accounted for more than 10 percent of all U.S. greenhouse gas emissions from human activities as recently as 2017. Nearly a third of those emissions were generated by the natural gas and petroleum industry. **Trump Administration to Relax Restrictions on Methane, a Powerful Greenhouse Gas**, The Oil and Gas Industry is Split on the Rollback, Juliet Eilperin and Brady Dennis, Aug 29, 2019 www.washingtonpost.com/climate-environment/2019/08/29/trump-administration-reverse-limits-methane-powerful-greenhouse-gas/ Furthermore, "David McCabe, a senior scientist at the Clean Air Task Force, noted that **the biggest cuts in methane emissions** from the gas and oil sector have happened during exploration. **Emissions dropped sharply** in 2012 and 2016, respectively, **after new** federal **requirements for pollution controls took effect**. "The best information we have is that **the emissions dropped because of regulations**," McCabe said.

"The EPA estimates that the proposed changes ... would save the oil and natural gas industry $17 million to $19 million a year. That is **a small fraction of the industry's annual revenue, which exceeds $100 billion annually**. **Several of the world's biggest fossil-fuel companies**, including Exxon, Shell and BP, have **opposed the rollback and urged** the Trump administration to **keep the standards in place**. Collectively, these firms account for 11% of the nation's natural gas output. In a statement Thursday, Shell U.S. President Gretchen Watkins noted that the company has pledged to reduce its methane leaks from its global operations to less than 0.2 percent by 2025." *Ibid.* "Still, the **EPA acknowledged** that **its proposed rollback could have public health implications**. The fact that more volatile organic compounds could be released, the agency wrote in its proposal, "**will degrade air quality and are likely to adversely affect health and welfare**" due to more air pollution. But, the agency added, "**we are unable to quantify these effects** at this time." *Ibid.* "Ben Ratner, a senior director at the advocacy group Environmental Defense Fund, said in an interview that **rolling back the regulations could reward bad actors in the industry**[, *g*]iven that many major players had embraced limits on methane ...." *Ibid.*

While methane doesn't linger as long in the atmosphere as carbon dioxide, it's initially far more devastating to the climate because of how effectively it absorbs heat. www.edf.org/climate/methane-other-important-greenhouse-gas; https://thinkprogress.org/california-just-put-serious-limits-on-methane-leaks-6392ea30289/ "A study from the California Air Resources Board released in February 2017 found naturally occurring (but usually underground) benzene is released at half the state's natural gas leaks. **Flaring** – the process of burning off gas, rather than capturing and processing it – [*also*] adds ground-level **ozone**, diminishing air quality in the

surrounding areas. The study "really demonstrates the need and value" of passing *California's* new rule, "for reducing economic waste and climate pollution – but also for protecting public health." Other studies from around the country have found a link between fracking for oil and gas and negative, localized health impacts." *Ibid.*

See also **Global Greenhouse Gas Emissions will Hit Yet Another Record High this Year, Experts Project**, "We're blowing through our carbon budget the way an addict blows through cash," said one author Chris Mooney and Brady Dennis, Dec. 3, 2019 www.washingtonpost.com/climate-environment/2019/12/03/global-greenhouse-gas-emissions-will-hit-yet-another-record-high-this-year-experts-project/. *And* **Federal Court Reinstates Key Methane Rule, Calls Zinke's Delay "Baseless**," The safeguard, which targets methane, a potent greenhouse gas, is now back in full effect. NRDC, Feb 28, 2018 www.nrdc.org/experts/nrdc/federal-court-reinstates-key-methane-rule-calls-zinkes-delay-baseless *Also* **A Changing Climate for State Policy-Making Regarding Climate Change**, *in* JDSupra, Nov 22, 2019 www.jdsupra.com/legalnews/a-changing-climate-for-state-policy-94867/ "Issued by 13 federal agencies, the 2018 **Fourth National Climate Assessment** presented a stark warning on the consequences of climate change for the U.S. The report predicts that if significant steps aren't taken to rein in global warming, the damage will reduce the U.S. economy by as much as 10% by the end of the century. The report, mandated by Congress and made public by the White House, is notable not only for the precision of its calculations and bluntness of its conclusions – the 1,656-page assessment **lays out the devastating effects of a changing climate on the economy** – but also in how it conflicts with President Donald Trump's environmental deregulation plan. U.S. policy efforts at the state and local levels are ramping up to address this complex topic. These include:" **Targeting Net-Zero Emissions**; **Reducing** greenhouse gas emissions and increasing use of **Renewable resources**; and **Cleaning Up and Conserving Energy Performance**; and more, as noted there.

"There is also an economic component to the rule. In California alone, more than $50 million worth of natural gas each year is wasted. Annually, some 75,000 tons of methane are released by leaky equipment and intentional venting." *Ibid.* And **North Dakota is the SECOND largest U.S. state petroleum producer**, ahead of California.

[As a corollary,] "If Congress [then] follow[ed] through with repealing the *BLM* rule, it [was] expected to cost taxpayers, who receive revenue for natural gas development on public land, $800 million over the next 10 years. The value of the lost gas is projected to be roughly $330 million annually – and the rule only applied to new oil and gas development.

Meanwhile, in 2017 **California** [was] not the only state taking action against leaky natural gas infrastructure. **Colorado**, whose regulations were the basis for the BLM rule, put limits on methane emissions in place back in 2014. Earlier in 2017, **Ohio** took steps to limit methane emissions from the oil and gas industry, and there was an ongoing rule-making process in **Pennsylvania** to do the same. The California PUC [would] also likely take steps later in 2017 to regulate leaks from natural gas transmission lines, which are another significant and dangerous source of methane. O'Connor pointed out, though, that "[D]espite California's comprehensive set of rules, 90% of the state's natural gas is imported from other states. "Even if we get our gas production [leaks] down to zero, we still have a significant footprint." he said.

"Ironically, studies have found that trapping otherwise lost gas is a net benefit for producers. It would cost less for oil and gas developers to fix the leaks than lose [the resource] when the gas disappears into thin air – but it takes investment. That investment is often in the form of jobs, inspectors, repairmen and the like, which is one reason that there is broad support for limiting natural gas leaks and venting. According to recent polling, **73% of voters want the federal government to require companies to reduce gas leaks. Another 61% support laws that minimize wasteful practices like venting and flaring natural gas**. www.edfaction.org/blog/2017/02/27/blm-vote-looming-new-poll-shows-americans-support-common-sense

Meanwhile, the problem might be even worse than estimated. In 2017, another report[1] found that **refineries and power plants are leaking a whole lot more natural gas than the industry is reporting. Natural gas leaks** are 21 to 120 times larger than reported at power plants and **11 to 90 times larger at refineries**, according to the study, released in 2017 by Purdue University and the Environmental Defense Fund.
1 www.purdue.edu/newsroom/releases/2017/Q1/estimates-of-emissions-from-natural-gas-fueled-plants-much-too-low,-study-finds.html "It's a better fuel all around as long as you don't spill it," Paul Shepson, Purdue's Jonathan Amy Distinguished Professor of Analytical and Atmospheric Chemistry, said in a statement. "But it doesn't take much methane leakage to ruin your whole day if you care about climate change."

Even if a more stringent regulatory system is in place, relying on producer detection and reporting of fugitive emissions is demonstrably fraught with technology limitations and failures, and prevalent underreporting. Because of discrepancies in industry reporting, it's hard to estimate exactly how much natural gas is leaking. The rates Shepson and colleagues found were "significantly higher" than estimates done with industry data and reported by the EPA in 2014. In fact, **studies have repeatedly found that the oil and natural gas industry – from fracking to transportation and storage to production and combustion – leaks far more than it reports**. "It would be informative to gather more data," *Shepson told ThinkProgress via email.*

Similarly, **Far More Methane Leaking at Oil, Gas Sites in Pennsylvania than Reported**: An EDF comparison of company-reported data and research measurements finds as much as 5 times more methane, a climate-warming greenhouse gas, is leaking. Inside Climate News, Feb 16, 2018, by Neela Banerjee https://insideclimatenews.org/news/16022018/methane-leaks-oil-natural-gas-data-global-warming-pennsylvania-edf-study *See* separate document, attached.

Additionally, Detection "[e]quipment failures in the icy cold … *or with anything above lower wind speeds* … raise questions about how accurate emissions estimates from oil and gas wells are in place[s] where climate change stakes are high." *See* separate document, **Arctic Methane Leaks Go Undetected Because Equipment Can't Handle the Cold**, Inside Climate News, May 31, 2018, by Sabrina Shankman https://insideclimatenews.org/news/31052018/arctic-oil-gas-methane-leak-detection-technology-reliability-problems-alaska-climate-change, attached.

Of course, even if it weren't leaking at all, the boom in **natural gas** production would still be **concerning**. The natural gas boom has been lauded as a way to transition the country to a clean energy economy. Natural gas, when burned, emits a little over half as much carbon dioxide as coal, the primary source of electricity in the U.S. That benefit, though, disappears when as little as 3% of natural gas **leaks** during the fossil fuel's life cycle. And even the best case, slowing catastrophic climate change – while better than flinging humanity headlong into it – doesn't actually prevent or avoid rising sea levels, intensified storms or desertification. *Supra* – https://thinkprogress.org/california-just-put-serious-limits-on-methane-leaks-6392ea30289/

The peaks and valleys in carbon dioxide levels track the coming and going of ice ages (low carbon dioxide) and warmer interglacials (higher levels). Throughout these cycles, atmospheric carbon dioxide was never higher than 300 ppm; in 2018, it reached **407.4 ppm** *(black dot)*. Sep 19, 2019 www.climate.gov/news-features/understanding-climate/climate-change-atmospheric-carbon-dioxide While methane is a more potent greenhouse gas than CO2, over 200 times more CO2 is in the atmosphere. E.g., CO2 levels are now 407 ppm (parts per million) while methane levels are 1.75 ppm. Hence the extent of warming that methane contributes is calculated at 28% of the warming CO2 contributes. (An included graph at the link to this source shows the various forcings that influence climate (methane is CH4, right above CO2).) skepticalscience.com/methane-and-global-warming.htm

According to the EPA's overview of greenhouse gases, CO2 accounts for about 82% of all greenhouse gas emissions from human activities in the U.S. Methane, which accounts for only 14% of emissions worldwide, traps up to 100 times more heat than carbon dioxide over a 5-year period; so even though carbon dioxide molecules outnumber methane 5 to 1, this comparatively smaller quantity of methane is still **19** times **greater** a

problem for climate change **over a 5 year period**, and **4 times greater over a 100 year period**. To put it another way, any methane molecule released today is 100 times more heat-trapping than a molecule of carbon dioxide, or potentially even higher according to NASA's Goddard Institute for Space Studies. www.giss.nasa.gov/research/news/20110220/

Methane traps up to 100 times more heat in the atmosphere than carbon dioxide within a 5 year period, and 72 times more within a 20 year period. While methane also leaves the atmosphere within a decade it makes for a short-lived, but intense climate changer. So methane warms the planet rapidly, but it dissipates from the atmosphere more quickly than carbon dioxide. According the EPA, the Global Warming Potential (GWP – a measure the EPA created) of methane is 21, which indicates its effect over a 100 year period. GWP represents how well a gas absorbs heat or, in other words, how long a gas sticks around to warm the earth. It is measured relative to carbon dioxide over a particular time period, usually 100 years. A 2009 report published by The World Watch Institute, www.worldwatch.org/files/pdf/Livestock%20and%20Climate%20Change.pdf, stressed that **the more relevant GWP figure** is **72**, since it's **within the next 20 years that we desperately need to act to stop climate change before a domino effect is initiated and our imbalanced bio-systems spiral out of livable conditions**.
www.sciencedaily.com/releases/2014/03/140327111724.htm; www.onegreenplanet.org/animalsandnature/methane-vs-carbon-dioxide-a-greenhouse-gas-showdown/

Throughout at *least* central North America, many petroleum producers have recently been exceeding state-imposed methane release limits, especially from new wells, from the Texas Permian to North Dakota and on into Alberta. Moreover, ND already insisted on, and producers agreed, to tighten allowed methane and flaring releases. A couple of years ago during an "open" ND Industrial Commission "hearing," including Commission member Governor Dalrymple, the oil and gas industry operating here promised through a designated representative they could meet and produce within designated annually decreasing allowable releases. However, since then, instead of meeting those specific requirements, reported overall methane and flaring releases have been regularly increasing, without penalty, blamed largely on lack of pipeline infrastructure, since allowed production and new wells continued to exceed gas processing capacity.

Some Increasing Climate Change Effects:
The world's oceans absorb carbon dioxide that would otherwise stay in the atmosphere. Between 1994 and 2007, oceans absorbed 34 gigatons of carbon dioxide, or 31% – nearly a third – of what humans put into the atmosphere during that time, a study published in the journal Science concluded. (About 28% went to plants and roughly 46% to the atmosphere.) Mar 15, 2019 www.ecowatch.com/oceans-absorb-co2-2631712140.html?rebelltitem=1 As the oceans absorb our increasing CO2 discharges, it also increases ocean acidification – combined, these are currently leading to massive bleaching destruction of earth's coral reefs, which hug our coastlines, and where most of our oceans' species live, including the once vast array of ocean food sources for mankind. *Source:* EPA's Climate Change Indicators (2016).
https://archive.epa.gov/climatechange/kids/impacts/signs/acidity.html

This Florida Keys Neighborhood has been Flooded for Nearly 3 Months, Greg Allen, NPR Morning Edition, Nov 28, 2019 www.npr.org/2019/11/28/783349974/this-florida-keys-neighborhood-has-been-flooded-for-nearly-3-months

"The **flooding** here and elsewhere is happening during so-called **'king tides**.' Those are times, mostly in the fall, when the moon's gravitational pull means tides are higher than usual. On Key Largo, to walk to Paul Butler's house it's best to wear rubber boots. 'Did you see the 'No Wake' sign?' he asks. The recently installed 'No Wake' signs are for drivers, not boaters. There are several inches of water on his street and others in this low-lying neighborhood. Butler has lived here 25 years and seen this kind of flooding before. 'It used to happen once a year during king tide, but it would only last for like a week or 10 days,' he says. 'This year, it's been going on for about 75 days, I think.' Other neighbors put it at 80 days and counting."

Not far away, on Virginia Key, scientists are also charting the rising sea level. Brian McNoldy, with the University of Miami's Rosenstiel School of Marine and Atmospheric Science, has been monitoring a tidal gauge; **for five months running**, the average has broken tide records, he says. "Right now, we're running about 8 to 9 inches above them," McNoldy says. "**But there have been times in recent weeks when we've been up to 18 inches**. And **that definitely is impactful**."

Increased flooding from high tides is a problem not just in Florida, but also in other low-lying coastal communities around the U.S. **Boston**, **Charleston** and **Norfolk** are just three cities that have seen flooding this year during exceptionally high king tides. William Sweet, an oceanographer with NOAA, released a report earlier this year warning of the increasing threat of high-tide flooding. He says **unfortunately, the predictions are already coming true**. "Sea level rise, decades' worth of it has caught up," Sweet says. "These sort of garden variety events, you know, seasonal high tides, winds blowing offshore that used to not be a problem?" Now, he says, they are a problem, causing flooding in an increasing number of coastal areas.

A few Extremes some Good People are Going to, to Reduce Methane Releases Elsewhere; Others are implementing useful technologies and bearing the cost:

Chew On This: Farmers are Using Food Waste to Make Electricity, Allison Aubrey, Nov 30, 2019 www.npr.org/sections/thesalt/2019/11/30/783001327/chew-on-this-farmers-are-using-food-waste-to-make-electricity *The page at this link includes pictures of some of the impressive equipment involved.*

As the season of big holiday meals kicks off, it's as good a time as any to reflect on just how much food goes to waste. If you piled up all the uneaten food over a year in the U.S., it would be enough to fill a skyscraper in Chicago about 44 times, according to an estimate from the U.S. Dept. of Agriculture. And, when all this food rots in a landfill, it emits **methane**, a powerful greenhouse gas that contributes to climate change. In fact, a recent report from the United Nations from a panel of climate experts estimates that up to 10 percent of all human-made greenhouse gas emissions are linked to food waste.

So, **here's one solution** to the problem: Dairy farmers in Massachusetts are using food waste to create electricity. They feed waste into anaerobic digesters, built and operated by Vanguard Renewables, which capture the methane emissions and make renewable energy. The process begins by gathering wasted food from around the state, including from many Whole Foods locations. We visited the chain's store in Shrewsbury, Mass., which has installed a Grind2Energy system, an industrial-strength grinder that gobbles up all the food scraps the store can't sell, explains Karen Franczyk, the sustainability program manager for Whole Foods' North Atlantic region. The machine will grind up all kinds of food waste – "everything from bones, we put whole fish in here, to vegetables to dry items like rice or grains," Franczyk says as the grinder is loaded. It also takes frying fats and greases.

While Whole Foods donates a lot of surplus food to food banks, a lot of waste is left over. Much of it is generated from prepping prepared foods. Just as when you cook in your own kitchen, lots of bits remain, such as onion or carrot peel, rinds, stalks or meat scraps. The grinder turns all these bits into a slurry. "It really becomes kind of a liquefied food waste," Franczyk says.

From here, the waste is loaded into a truck and sent to an anaerobic digester. "There's no question it's better than putting it in the trash," Franczyk says. She says the chain is committed to diverting as much waste as possible and aims for zero waste. In addition to food donations, Whole Foods composts; this waste-to-energy system is yet another way to meet its goal. "We really do like the system," she says.

We visited Bar-Way Farm, Inc. in Deerfield, Mass. Owner Peter Melnik, a fourth-generation dairy **farmer**, showed us how his anaerobic digester, installed next to his dairy barn, works. "We presently take in about a 100 tons [of waste], about three tractor-trailer loads, every day." In addition to all the food waste from Whole Foods, he gets whey from a Cabot Creamery in the area, plus waste from a local brewery and a juice plant.

In the digester, he combines all of this waste with manure from his cows. The mixture cooks at about 105 degrees Fahrenheit. As the **methane** is released, it rises to the top of a large red tank with a black bubble-shaped dome. "We capture the gas in that bubble. Then we suck it into a big motor," Melnik explains. Unlike other engines that run on diesel or gasoline, this engine runs on methane. "This t**urns a big generator, which is creating one megawatt of electricity**" continuously, Melnik says – enough to power more than just his farm. "We only use about 10% of what we make, the rest is fed onto the [electricity] grid," Melnik explains. It's **enough to power about 1,500 homes**. He says times are tough for dairy farmers, so this gives him a new stream of revenue. Vanguard pays him rental fees for having the anaerobic digester on his farm. In addition, he's able to use the liquids left over from the process as fertilizer on his fields.

"The digester has been a home run for us," Melnik says. "It's made us more sustainable – environmentally [and] also economically." Vanguard Renewables hopes to expand its operations in the state and elsewhere. "There's more than enough food waste in Massachusetts to feed all of our five digesters, plus many more," says CEO John Hanselman. Massachusetts has a state law that prohibits the disposal of commercial organic waste – including food – by businesses and institutions that generate at least one ton of this waste per week. This has created an incentive for food businesses to participate in the waste-to-energy initiative. Hanselman points to **Europe, where thousands of digesters are in operation**. His hope is that the concept will spread here. "The food waste recycling through anaerobic digestion could be done in every part of the country," Hanselman says. The company is currently building an anaerobic digester on a farm in Vermont. The gas produced there will be piped to Middlebury College, which will help the college reduce its carbon footprint.

Some Climate Change Effects – On Human Health (Treat it as though your very life depended on it):

Why Climate Change Poses a Particular Threat to Child Health, Nov 14, 2019 Nurith Aizenman, www.npr.org/sections/goatsandsoda/2019/11/14/778992862/why-climate-change-poses-a-particular-threat-to-child-health:
"When it comes to global health, the world has made remarkable strides over the past two decades: ... unprecedented progress vaccinating kids, treating diseases and lifting millions out of poverty. The childhood death rate has been slashed in half since 2000. Adults are living an average 5½ years longer. Now scientists say **these successes are under serious threat from climate change**. The warning comes in a sweeping new study in the journal The Lancet. www.lancetcountdown.org/2019-report/ It's the latest in an annual – and evolving – effort by researchers from more than a dozen universities plus the World Health Organization to track the health impacts of climate change."

As climate change has also been underway – slowly pushing up the average temperatures experienced around the planet by about 1.8° F compared with preindustrial times, roughly around the mid-19th century – temperature boost has had a wide and complicated range of consequences for world health, says Dr. Nick Watts of University College London, who led the study. For instance, it has meant the **conditions** for growing all sorts of **crops** around the world have become less favorable. "Each of the major crops," Watts says. "We track maize; we track rice, soybean, and spring and winter wheat." Watts says the research team found that **the yield potential for these staple crops is now down as much as 6%**. That might not sound like much, but with reduced crop yields, "**who is going to be the most vulnerable?**" Watts asks. "**Children**."

Particularly kids in poorer countries. When fewer crops are produced, prices go up, and people get less food. That leads to malnutrition, which can be especially devastating for kids because their bodies are still growing. "They end up with these health impacts that stick with them through the rest of their life – gastrointestinal disease, cardiovascular disease, cognitive defects," Watts says. "And that has a really profound lifelong impact that is irreversible."

Another health-related effect of climate change: It's improving conditions for the spread of a **bacteria** called **Vibrio**. "It's a **nasty bug**. It causes all sorts of problems," Watts notes, including cholera, wound infections and diarrhea, which in poorer countries is an especially big killer for kids.

Here's how climate change plays a role: As the surface temperature of the ocean rises, the salinity patterns in the water shift. "And then you start to see, over time, those ideal conditions develop into algal blooms," Watts says. The blooms then produce **critical levels** of Vibrio, which make it into the water supply and can then be ingested by humans. Compared with the baseline prior to the acceleration of climate change, says Watts, "we have seen the number of days suitable around the world for the transmission of Vibrio **double**" – from 53 days to 107 days.

Even though these impacts disproportionately hit poor countries, the report's authors stress that every nation is affected. Dr. Renee Salas is an emergency room doctor and Harvard professor who authored the report's section on the U.S. "People living in the U.S. are experiencing the health harms of climate change today," she says. Salas saw the impact in her own ER at Massachusetts General Hospital during a massive heat wave in Boston last July. An elderly man was carried in. He was in a terrible state of disorientation. He was living in low-income housing, Salas says. And he had no air conditioning.

"I'll always remember the ambulance crew said that when they opened the door the amount of heat that hit them was just really striking," she says. Salas' research on climate change has sprung directly from these experiences. "As an emergency medicine doctor, I'm trained to respond to emergencies," she says. "And **I can think of no greater emergency facing the health of our country than climate change**."

Lack of Progress on Climate Change is Putting Canadians' Health at Risk, Doctors Say, Air pollution, heat waves, forest fires, flooding causing deaths, report from The Lancet finds; The Canadian Press, Posted Nov 28, 2018, Last Updated Nov 29, 2018. "Chronic exposure to air pollution from greenhouse-gas-emitting activities contributes to the deaths of more than 7,000 Canadians a year " www.cbc.ca/news/health/climate-change-canada-air-pollution-lancet-countdown-1.4924792 "A new report from one of the world's most prestigious medical journals says Canada's failure to cut greenhouse-gas emissions isn't just killing the planet; it's killing Canadians. The report on the health impacts of climate change, published Wednesday in The Lancet, concludes that successfully tackling climate change would be the single biggest thing governments can do to improve human health this century. Chronic exposure to air pollution from greenhouse-gas-emitting activities is contributing to the deaths of an estimated 7,142 Canadians a year, and 2.1 million people worldwide, the report said."

"Heat waves, forest fires, flooding and major storms are causing more deaths and long-term illnesses but little data is available on how many. The first recommendation in the report is simply to track the number of heat-related illnesses and deaths in Canada, something that isn't done at all in most provinces. … Dr. Courtney Howard, an emergency physician from Yellowknife who wrote the Canadian section of the report, said right now the world is on pace for temperature increases we can't adapt to, resulting in more deaths and disease."

Dr. Howard said "the last few summers have alerted Canadians to what climate change is going to look like, with record-breaking forest-fire seasons in British Columbia in both 2017 and 2018, drought on the Prairies, heat waves in central Canada, and flooding in communities almost from coast to coast. She said some people think this is a new normal – but it's not. **It's going to be worse in 10 years**." "Howard said if we don't step up our efforts, the change to the world will be massive, including more wars and migration. I'm an emergency doctor and I'm working on this because this is an emergency."

"**Both** the Canadian Medical Association and the Canadian Public Health Association say they agree with the Lancet's findings and recommendations. 'the climate always changes.' Health care professionals see first-hand the devastating health impacts of our changing climate,' said Dr. Gigi Osler, **president of the Canadian**

Medical Association, in a statement.' 'From wildfires to heat waves to new infectious diseases, we're already treating the health effects of climate change. This is the public health imperative of our time,' she said."

Specifically, **WHAT is it about** DEQ's "**leakless technology requirement**" that makes it "impossible" to implement? Leakless technology's use in petroleum production has existed for over a decade. From page 3 of the EPA's Leak Detection and Repair, A Best Practices Guide, **Oct, 2007 – twelve years ago**:

"3.1 How are emissions from equipment leaks reduced? Facilities can control emissions from equipment leaks by implementing a Leak Detection And Repair (LDAR) program or by modifying/replacing leaking equipment with "leakless" components.

• Leaks from open-ended lines, compressors and sampling connections are usually fixed by modifying the equipment or component. Emissions from pumps and valves can also be reduced through the use of "leakless" valves and "sealless" pumps. Common leakless valves include bellows valves and diaphragm valves, and common sealless pumps are diaphragm pumps, canned motor pumps, and magnetic drive pumps. Leaks from pumps can also be reduced by using dual seals with or without barrier fluid.

• Leakless valves and sealless pumps are effective at minimizing or eliminating leaks, although their use *may* be limited by materials of construction considerations and process operating conditions. Installing leakless and sealless equipment components may be a wise choice for replacing individual, chronic leaking components. " www.epa.gov/sites/production/files/2014-02/documents/ldarguide.pdf

See as an example, a two-year-old list including leakless components: **Santa Barbara County, California, Air Pollution Control District, BEST AVAILABLE CONTROL TECHNOLOGY (BACT) GUIDELINE 1.2** – Table. Equipment Category: Oil and Gas Fugitive Hydrocarbon Components, Nov 20, 2017 www.ourair.org/wp-content/uploads/BACT-Guideline-1.2.pdf All equipment shown are Achieved in Practice (AIP).

When considering the difference between **Best Available (*control*) Technology** (BA*c*T), the Lowest Achievable Emissions Rate (LAER) and Maximum Achievable Control Technology (MACT), How does a **cost-benefit analysis** compare "affordable" or "reasonably profitable" continuing "business-as-usual" private petroleum production with the deepening perils of destruction of our human-habitable planet? Aren't these externalized costs actually short-term, private pocket change versus dire near-term mass destruction and extinction?

When petroleum reached $100 a barrel, it looked like many could make big profits somewhat easily: the boom was on. Do **smaller**, independent oil producers and other service providers differ much from **prospectors** – grizzled old-timers with a mule, shovel, pickax and some supplies – hoping to strike it rich? Other than vastly advanced technology and a greater investment, including where to find their "gold," aren't they quite similar? And when many of these smaller, independent producers raise their voices to protect their interests, including decrying *any* regulation, is succumbing to that cry wise, and in the best interest of the greatest good for those protected by such regulations? Too often, those who've chosen livelihoods covered by careful, adequate regulation seem to protest the loudest, and demand the least, most lenient regulation, to make their business or occupation easier, cheaper and more profitable.

On the other hand, neither should the regulator defer to the biggest or most prominent producer, who may insist on its demands. This can promote attempting to "balance" among **false equivalency**, bowing to the voices of outside pressures with powerful economic interests.

Isn't this **really a simple business profitability decision? Would compliance with no-leak methane- release-monitoring make production "impossible" if ND light crude was selling here for $60 a barrel? $80? $100?** Why should ND have to play a reckless scoundrel's role in increasing global warming as a partner with

hydrocarbon producers to save them from implementing the best technology to prevent, monitor and control these dangerously imperiling gas releases?

The biggest worldwide leaders in petroleum don't seem to think so. No less than "**former Shell Oil President John Hofmeister**, now founder & CEO of Citizens for Affordable Energy, along with BP America *and* Exxon, all want to continue to see the federal government regulate methane emissions. They're "skeptical of the proposed federal rollback on emissions rules for two reasons. The first reason is, why waste methane? Why allow fugitive methane to go into the atmosphere when you can capture it and sell it as natural gas? Methane is money. So you capture & take to market what you've produced. The idea of having a completely closed production system to capture the methane and take it to the marketplace just makes perfect business sense." Aug 29, 2019 NPR All Things Considered www.npr.org/2019/08/29/755555482/former-shell-oil-president-john-hofmeister-weighs-in-on-rollback-of-emissions-ru

"No. 2 is, in the future, the ability to operate in the fossil fuel industry is going to demand an environmental performance where the public believes you're protecting the land, water and air. So regulations that protect the water, land and air, which enable the industry to continue to do what it does, are essential for the industry to be successful down the road. That's changed in the last 20 years. So it's necessary for the industry to recognize that this is the way it's going to be, and it's the way it *should* be."

"**The producers who do want these regulations removed are the smaller producers**. Why would they, more than the larger companies, want these regulations to go away?:

"Thousands of independent operators produce oil and gas in the U.S., and they operate with much lower volumes of oil and gas. They might have one or two drilling rigs, and a half dozen employees. So these are folks that watch where every nickel and dime is spent, and for them and their operating model, it becomes more expensive than they'd like to pay for, to have these regulations because they'd rather just emit a certain quantity of fugitive methane, give it up in the marketplace, but not have to pay the costs of engineering and putting in place a completely closed production system which captures the methane.

"So it's really a cost factor. It's like, not everybody could be a McDonald's franchise owner because there's a certain cost associated, but somebody could have a hot dog stand at the end of the street and operate with a much lower cost basis. It's that's kind of principle here.

"But long term, as a strategy, letting their operating model govern what's happening with methane emissions is not a good strategy. "It's not good for the public and the environment, and it's not good for the industry because it's really going on the cheap, and there's enough money in the industry to not have to go on the cheap. Consumers pay a good, healthy cost for the oil and gas they consume, and that money has to pay for all the bills of the producing companies. Like any other industry, if people can't afford to be in the industry, they need to go do something else. So [Hofmeister] isn't afraid of the costs of doing business under the regulatory environment we've currently had. And while *he's* in favor of regulatory rollback in [other] areas where it's *really* necessary, this isn't necessary, in his view."

"Rollback supporters say the industry can just regulate itself. Why isn't that enough? "[He] doesn't think it's enough for the industry to regulate itself because what you need to come to is an even playing field and an even level of operations. And the public has a right to expect – whether it's federal, state or local – a certain uniformity by which the industry operates. And the regulations require uniformity because the industry knows what compliance is all about, and it's basically a compliant industry. You tell them what to do; they're going to do it." Aug 29, 2019 NPR All Things Considered www.npr.org/2019/08/29/755555482/former-shell-oil-president-john-hofmeister-weighs-in-on-rollback-of-emissions-ru

Submitted by B. R. Bale, Mandan, ND

Far More Methane Leaking at Oil, Gas Sites in Pennsylvania than Reported

An EDF comparison of company-reported data and research measurements finds as much as 5 times more methane, a climate-warming greenhouse gas, is leaking.

Inside Climate News, Feb 16, 2018, by Neela Banerjee
https://insideclimatenews.org/news/16022018/methane-leaks-oil-natural-gas-data-global-warming-pennsylvania-edf-study
[*Note*: Please refer to this link, for the illustrations there: **Pennsylvania Methane Emissions – in tone, from conventional and unconventional oil & gas wells, 2015**; & **Pennsylvania's Methane Emissions Much Higher than Reported**]

Photo caption: The Environmental Defense Fund estimates that nearly $68 million worth of energy resources are wasted through methane leaks in Pennsylvania's Marcellus Shale [alone].

Leaks of methane, a powerful greenhouse gas, from oil and gas sites in Pennsylvania could be five times greater than industry reports to state regulators, according to a new analysis by the Environmental Defense Fund. Drawing from peer-reviewed research based on measurements collected downwind of oil and gas sites, along with government data, the EDF analysis estimates that the state's oil and gas wells and infrastructure leak more than 520,000 tons of methane annually, largely due to faulty equipment. "This wasted gas causes the same near-term climate pollution as 11 coal-fired power plants and results in nearly $68 million worth of wasted energy resources," the group said in its report, released Thursday.

The under-reporting of methane leaks in Pennsylvania is part of a nationwide pattern[1] that peer-reviewed studies have uncovered in recent years as scientists compare federal and state statistics to data they gather on the ground and in aircraft flyovers. 1
http://e360.yale.edu/features/on_fracking_front_a_push_to_reduce_leaks_of_methane

Please see this lead article's link, https://insideclimatenews.org/news/16022018/methane-leaks-oil-natural-gas-data-global-warming-pennsylvania-edf-study,to view the Illustration:
Pennsylvania Methane Emissions – in tone, from conventional and unconventional oil & gas wells, 2015

The disparity between what researchers find and what industry reports raises important questions about the actual level of greenhouse gas emissions in the United States and the viability of natural gas as an alternative to coal, if limits aren't placed on methane leaks from gas and oil infrastructure. Methane, the primary constituent of natural gas, is a short-lived climate pollutant that is about 30 times more potent than carbon dioxide over a century. The Trump administration has been working to roll back several policies and initiatives that were designed to rein in methane emissions, most recently to end requirements to limit leaks at oil and gas sites on federal land.

As Much as 5 Times More Methane

In the new report, EDF analyzed methane leaks from Pennsylvania's conventional oil and gas wells, mostly drilled before 2008, and from unconventional wells, those unlocked since then using hydraulic fracturing. There are far more conventional wells than unconventional ones in

the state, and because they are older they leak at a much higher rate. Twenty-three percent of methane at a conventional well leaked into the atmosphere compared to 0.3 percent at a fracked well, EDF estimated.

But the newer fracked wells produce considerably more natural gas than the older wells. As a result, even a small leakage rate of 0.3 percent led to a vast amount of methane entering the atmosphere, the analysis estimated. EDF calculated that fracked wells spewed about 253,500 tons of methane in 2015, and conventional wells, 268,900 tons. The Pennsylvania Department of Environmental Protection tracks methane only from unconventional oil and gas sites. In 2015, its data showed 112,100 tons of methane leaked.

Please see this lead article's link, https://insideclimatenews.org/news/16022018/methane-leaks-oil-natural-gas-data-global-warming-pennsylvania-edf-study,to view the Illustration:
Pennsylvania's Methane Emissions Much Higher than Reported

Industry's underestimation of methane leaks comes from outdated methodology, said David Lyon, the lead scientist for the EDF report. Much of the methodology can be traced back to standards for estimates established years ago by the Environmental Protection Agency, he said.

Pennsylvania Considers New Methane Rules
EDF chose to look at Pennsylvania's methane leaks because the state is expected to issue rules in March to reduce methane leaks from new oil and gas sites. The state Department of Environmental Protection is reviewing the EDF findings, said spokesman Neil Shader. "DEP is nearing finalization of new permits that will establish thresholds for methane for new unconventional well sites and compressor stations," he said. He did not indicate if or when Pennsylvania would move to cut emissions from existing sites. Energy In Depth, an industry advocacy group, did not respond to an email about the EDF study.

Colorado and California have adopted rules to cut methane leaks from oil and gas sites, Lyon said, which gives him hope for Pennsylvania, Texas and other oil and gas states. "I would take an optimistic message from this: There are many solutions, and emissions can be reduced if we implement comprehensive practices," Lyon said. "The main one is frequently doing leak detection and repair. Another is looking for malfunctions and site design issues, so that you're not only working on ongoing problems but predicting future issues as well."

Submitted as an attachment to my "lead" document,
by B.R. Bale, Mandan, ND

Arctic Methane Leaks Go Undetected Because Equipment Can't Handle the Cold

Equipment failures in the icy cold raise questions about how accurate emissions estimates from oil and gas wells are in a place where climate change stakes are high.

Inside Climate News, May 31, 2018, by Sabrina Shankman
https://insideclimatenews.org/news/31052018/arctic-oil-gas-methane-leak-detection-technology-reliability-problems-alaska-climate-change
[*Note*: Please refer to this link, for the three embedded infrared methane detection example videos there.]

The most widely-used technology for detecting methane leaks from oil and gas operations does not work reliably in extremely cold weather – like on Alaska's North Slope, according to recent research and the industry's own reports. When the weather hits the extreme lows common around Prudhoe Bay, when the winds whip and the sun dips below the horizon for a few months, the infrared technology required to look for methane leaks isn't always able to find them. "A lot of the equipment just doesn't function well at -40° or -50°," said James Plosay, who manages the air permits program for the Alaska Department of Environmental Conservation's Division of Air Quality.

Across the country, recent reports have found that methane leaks from oil and gas infrastructure are under-reported. One recent study by the Environmental Defense Fund (EDF) found that as much as **five times** more methane could be leaking from sites in Pennsylvania than industry reports to state regulators. But what's happening on Alaska's North Slope represents a unique problem – one of a litany of challenges facing operators in the punishing conditions there – and raises questions about how accurate estimates of fugitive emissions are in a place where the climate change stakes are among the highest.

Methane is a potent climate forcer. Though it's a short-lived climate pollutant that does not remain in the atmosphere as long as carbon dioxide, methane's impact on climate is much greater than CO2 in the short-term. In the Arctic, where temperatures are rising at least twice as fast as the rest of the world, methane alone has caused a half a degree Celsius of warming. Since 2008, the oil and gas industry in the U.S. has been required to use **Optical Gas Imaging** technology to detect methane leaks. Arvind Ravikumar, a Stanford post-doctoral fellow who studies this technology and its ability to detect leaks, described the tool as essentially a "handycam, but with infrared so the methane becomes visible."

The company that makes the most widely used cameras, FLIR Systems, Inc., said its product works in a variety of climates, including Alaska's North Slope and in Canada, with special handling procedures. It did not address the concerns raised by the recent reports when asked about them. The problem of these leaks represents a common ground between environmentalists and industry, in that both see it as a problem that should be solved. Methane leaks mean lost profits to the industry. "It's in their best interest to keep leaks down," said Plosay. "But of course, it's a huge industrial process and leaks happen."

2016 Rules Required Leak-Detection Tech

Since its introduction over a decade ago, Optical Gas Imaging technology has been in widespread use. In 2016, when the Obama Administration passed rules to reduce methane emissions, it included a requirement that operators inspect facilities twice a year using instrument-based detection. It called for the use of infrared cameras or other approved methods. In 2015, as part of the rulemaking process, Laura Perry, the air quality coordinator for ConocoPhillips Alaska, submitted a comment to the EPA[1] in which she explained the problem with the cameras. "According to FLIR Systems, Inc., the optical gas imaging cameras' operating temperature range is from -4°F to 122°F. This manufacturer does not offer any gas imaging cameras designed to operate in temperatures below -4°F."

1 www.documentcloud.org/documents/4450581-ConocoPhillips2015comment.html

On the North Slope in the winter, it is normal for temperatures to be far below -4°F, Perry wrote. She also pointed out that **the camera is designed to operate when wind speeds are less than 8 mph**, which is gentler than the ordinary winds of an Alaskan winter. In light of this – and the costs associated with the rule's requirement to shut down facilities to repair leaks, which Perry wrote would have an economic impact on Alaska's economy – Perry asked that the North Slope be exempted from the 2016 methane rules. Though the request wasn't granted in full, the final rule did exempt natural gas processing plants on the North Slope from the rule. In late February of this year, that exemption was expanded.

[*First embedded infrared methane detection example video:* Aliso Canyon methane leak, captured ... "Using a FLIR camera, EDF captured California's Aliso Canyon methane leak that started in 2015 and wasn't visible to the naked eye."]

Trump's EPA Loosened **Inspection Rules**

While the Trump administration's attempt to overturn Obama's methane rules is facing legal challenges on several fronts, the EPA issued two narrow amendments to the Fugitive Emissions Requirements of the rules.

One amendment got rid of a requirement that leaks had to be repaired during emergency shutdowns. Instead, they can now be repaired during the next planned shutdown or within two years, whichever is earlier. And on the North Slope, another amendment gives operators more time to conduct inspections to new or modified wells, so if a well is drilled in winter, instead of having to inspect it within 60 days, operators now have six months.

[*Second embedded infrared methane detection example video:* EDF captures the Aliso Canyon methane ...

"Infrared footage shot by EDF reveals the giant methane leak from Aliso Canyon."]

An EPA fact sheet explaining the changes to the rule ascribed this change to reports from industry that methane cannot be detected as well during the winter. A 2017 comment from the American Petroleum Institute had cited Perry's 2015 letter about the inability to detect leaks in extreme cold. (In its comment, API also asked that other locations that experience extreme cold, like **North Dakota** and Wyoming, be exempted. That request has not been granted.)
www.epa.gov/sites/production/files/2018-03/documents/epa_amends_certain_aspects_of_nsps.fact_sheet.2.23.18.pdf; www.documentcloud.org/documents/4450574-APIComment.html

"Both amendments are expected to result in cost savings for the oil and gas industry, as well as reductions in climate benefits that would occur from reducing methane emissions," the fact sheet says. On the North Slope, the EPA estimates the change will save the industry approximately $24,000 a year in compliance costs, and that approximately 34 tons of methane per year that would have been captured will be released into the atmosphere as a result.

Where Are the Leak Risks?

In her 2015 letter, ConocoPhillips' Perry wrote that there are certain things that operators do on the North Slope that help make up for the issues around leak detection in winter. For instance, she wrote that processing facilities are fully manned around the clock and are entirely enclosed. "Because they are all enclosed and manned, liquid and gas leaks cannot be generally tolerated so the facilities (and manifold buildings at the drill sites) contain gas detection equipment that alert operators to leaks so they may be expeditiously repaired," she wrote.

While true, Alaska EPA inspector John Pavitt said there are plenty of other opportunities for gas leak on the North Slope. "If it's a gas well, I can't think of an example where one is enclosed," said Pavitt, who has been doing inspections in Alaska for 25 years. "They're out and exposed to the weather." In fact, he said, there are ample opportunities for leaks in the equipment as the wells pull up a mixture of oil, gas and water which then has to be separated. "As you think about the infrastructure on the North Slope, a lot of the work being done is to separate those streams and to handle them and do what needs to be done," he said. "There's potential for leaks in any of the equipment handling those streams."

Ravikumar, at Stanford, said that heaters used on the North Slope during the winter are prime candidates for leaks, which are currently going undetected. "They often vent methane when they're operating," he said. "We know there are extra emissions sources because of those conditions."

FLIR Stands by Its Technology

The company behind the cameras stands by their ability to function in cold, windy, dark climates. "FLIR Optical Gas Imagers have been proven as a useful and dependable tool by customers in both the Northern Slope of Alaska and in Canada where the conditions can reach extremely cold temperatures," Craig O'Neil, the business development manager at FLIR, wrote in an email.

It's easiest for infrared cameras to detect a methane leak when there is a difference in temperature between the gas and the air at the surface. The bigger that difference (which is known as Delta T) the better. Having sunlight helps – it can warm the surface air higher than the gas – but a lack of it can be useful too, said O'Neil. "In extremely low temperature environments where there is no sunlight, FLIR's camera can possibly operate better as there is a good Delta T since the background is much lower than the escaping gas temperature which could be considerably hotter."

[*Third embedded infrared methane detection example video:* Visualizing Unseen Gases with FLIR ...]

Neither O'Neil nor other representatives from FLIR responded to questions about the concerns voiced by the industry, the EPA and Ravikumar's studies, besides stating that though the cameras might have a reduced battery life in extreme cold, "the camera would still function."

Similar Problems in Alberta's Tar Sands

It's not just the North Slope that faces challenges detecting methane leaks in the winter. The winter conditions in Alberta, Canada, home to the tar sands and a large natural gas industry, can also hamstring the leak-detecting cameras. Thomas Fox, a Ph.D. student studying methane detection in natural gas fields in Alberta, said that while the temperature there can dip well below zero, the bigger problem in Alberta is the **prairie wind**. "I've spoken informally to field workers who say if the wind is above 30 km per hour (**19 mph**), you shouldn't even go out," he said.

Canada recently released new methane regulations that aim to cut emissions by 40 to 45 percent by 2025. But Fox worries that without the widespread use of technology that is able to measure leaks year-round, that may be hard to accomplish. "The government has taken this prescriptive approach and said if we take the cameras and go out three times a year and look for leaks, we're going to assume that will lead to the targets we're looking for," Fox said. "But if you don't take into account that the cameras don't work as well in certain conditions you're maybe not going to achieve the targets that you set out to achieve."

What Happens Now?

In the U.S., the amendments to the methane rules are raising suspicion among some environmentalists. "Our concern is: What's the real intention behind the rule change?" said David Lyon, a scientist at the Environmental Defense Fund. "Was it a minor technical tweak to address a legitimate issue? Or was it a tactic to start chipping away at the rule, piece by piece?" He also questioned the knowledge gap on the North Slope and in other cold climates as methane leaks go undetected in the winter. Without functioning cameras, operators are left with audio and visual inspections as the best tool for detection. "They've shown that audio-visual inspections do not work," he said. "That's not a good alternative to finding the leaks."

EDF has partnered with Ravikumar, the Stanford researcher, to evaluate other forms of detection that could have more success in cold climates. "We're bringing a lot of new technologies together and testing them on performance," Ravikumar said. One that holds promise is a laser-based technology by California-based **Picarro.** "The temperature is not an issue for us," said product manager David Kim-Hak. "We can measure methane emission at very cold or low temperatures." But for now, the costs of Picarro's product has been prohibitively high for industry to use. At this point, it's being used more by researchers. "Our tech is extremely precise and stable. In that sense it's much better and much more advanced than any sensors that you can buy," said Kim-Hak. "Because of that the price is much higher," he said. "We are slowly moving into a solution that could be more cost-effective for the user."

Also see the embedded infrared methane detection videos & photos, *AND* right column sidebar for other stories' headlines.

Submitted as an attachment to my "lead" document,
by B R Bale, Mandan, ND

From: Jahraus, Sherri A. on behalf of DOH, Air Quality
To: Semerad, Jim L.; Thorstenson, Craig D.; Seligman, Angela N.
Subject: FW: Comment on Rule-making Petition ND Admin Code 33.1-15-07-02
Date: Friday, December 13, 2019 4:56:28 PM

From: theodora bb <tbb58763@yahoo.com>
Sent: Friday, December 13, 2019 4:30 PM
To: DEQ, DEQ <deq@nd.gov>; DOH, Air Quality <airquality@nd.gov>; Semerad, Jim L. <jsemerad@nd.gov>
Subject: Comment on Rule-making Petition ND Admin Code 33.1-15-07-02

DDecember 13, 2019

Dave Glatt, ND DEQ Director, deq@nd.gov
James L Semerad, jsemerad@nd.gov
AirQuality@nd.gov

Re: Rulemaking Petition to amend ND Admin Code 33.1-15-07-02 (1) filed by Continental Resources Inc and (2) the ND DEQ anticipated adoption of the federal new source performance standards for crude oil and natural gas, 40 CFR Part 60, Subpart 000 (Quad O) and Subpart 0000a (Quad Oa)

Mr. Glatt and Mr. Semerad:

This is in response to Questions 1, 2, 3, and 4.

We know that the ambient air quality measurement is already at 61 PPB, as measured by the Williston air quality monitor, which is also the most distant location from the center of the five (5) oil-producing counties in western North Dakota.

Further, we know that 70 PPM is the non-attainment level and requires the federal EPA involvement to protect human health in western North Dakota. We know North Dakota needs to strengthen its' air quality regulations -and not weaken existing state laws.

I recommend you keep Chapter 7's ban on emitting VOC's (volatile organic compounds) into the air in western North Dakota. Further I recommend you centralize and locate a permanent air quality monitor in the center of the five (5) oil-producing counties to get a more accurate reading of the actual volume of air pollutants that western North Dakota residents are breathing every

day, including on Fort Berthold Indian Reservation.

By weakening the state air quality regulations, you will allow the oil companies to spew unlimited tons of volatile organic compounds (VOCs) and hazardous air pollutants (HAPs) into the air that families, elderly, and children must breathe in the five oil-producing counties - if not the entire State of North Dakota and eastern Montana. In effect, you will also increase the likelihood of 70 PPB non-attainment level.

We know that VOC gases emitted into the air we breathe, specifically benzene, is a cancer-causing agent. VOCs also damage nervous systems, especially harming young children and families who have no choice but to stay in western North Dakota when one, or more, wells are put near their already-existing homes.

We also know that VOCs react with nitrogen oxides and produce ozone which has been visible in western North Dakota since the intensive oil and gas extraction started in 2006-07. Ozone reacts with the molecules in our airways and causes chronic or catastrophic health diseases. The American Lung Association recommends that the public avoid being outside for an extended period of time when air pollution levels are high. Rural residents in western North Dakota work outdoors and need to breathe safe, clean air.

Portions of at least 3 of the five (5) oil-producing counties are within the Fort Berthold Indian Reservation boundaries. I am a permanent resident of one of these oil-producing counties, within the Fort Berthold boundaries, and I will be adversely impacted if you approve this weakening of state air regulations

While the State of North Dakota had benefited and received one-third of its' oil and gas revenue from Fort Berthold Indian Reservation, ND DEQ has been well aware that Fort Berthold has not had any air quality monitoring since the oil and gas extraction started in 2007.

Saying you lack jurisdiction to enforce air quality protections on Fort Berthold does not eliminate ND DEQ's responsibility to help protect the human health of all North Dakota residents - including tribal members and residents within the Fort Berthold boundaries. Your lack of jurisdiction does not dismiss our valid concerns about ND DEQ's inability to protect air quality and human health for all residents in the oil-producing counties of western North Dakota.

Your public notice requesting public comments on this proposed matter, has failed to identify the deadline hour for public comment today, December 13, 2019. You haven't identified your COB hours. These comments are emailed to you by, or before, the estimated COB time of 4:30 PM CT today.

I am a member of Dakota Resource Council and the local DRC affiliate, or chapter, Fort Berthold POWER (Protectors of Water and Earth Rights).

Thank you for allowing me to comment.

Theodora Bird Bear
Mailing address: P.O.Box 616, New Town ND 58763

From:	Miller, Melissa K. on behalf of DEQ, DEQ
To:	Seligman, Angela N.; Semerad, Jim L.
Subject:	FW: Materials Submission for Administrative Rules Relating to Air Emissions from Oil and Gas Production Facilities
Date:	Monday, December 16, 2019 10:02:23 AM
Attachments:	ND Dept of Environmental Quality Hearing, 11-12-19, Administrative Rules Relating to Air Emissions from Oil and Gas Production Facilities, EDITED.docx Far More Methane Leaking at Oil, Gas Sites in Pennsylvania than Reported, Inside Climate News, 2-16-18.docx Arctic Methane Leaks Go Undetected Because Equipment Can't Handle the Cold, Inside Climate News, 5-31-19.docx image002.png

Hi Jim and Angie,

Sherri indicated I should forward this email to you. If you provide a response, would you please cc the DEQ inbox? Thank you.

Melissa Miller

Communications Coordinator • Office of the Director

701-328-5150 • mmiller@nd.gov • https://deq.nd.gov/

NORTH Dakota | Environmental Quality
Be Legendary.

From: Bruce <bbmandan@yahoo.com>
Sent: Friday, December 13, 2019 4:04 PM
To: DEQ, DEQ <deq@nd.gov>
Subject: Materials Submission for Administrative Rules Relating to Air Emissions from Oil and Gas Production Facilities

Please see three documents Attached.

ND Department of Environmental Quality Hearing
Administrative Rules Relating to Air Emissions from Oil and Gas Production Facilities

A dead planet can't grow crops or sustain a healthy civilization and environment. Given North Dakota's role as our nation's second largest state oil producer, and the role of increasing ozone, again, and VOCs including methane and other greenhouse gases, in further imperiling our planet's climate, it's imperative that the North Dakota Department of Environmental Quality get this right. The states are our firewall in this area against the accumulating, increasingly disastrous effects of greenhouse gases on destructive climate change.

As the North Dakota Department of Environmental Quality (DEQ) adopts Quad-O/Oa, it:

1) Should NOT amend NDAC 33.1-15-07-02.1 as requested in the Petition for Rulemaking;
2) *IF* it amends NDAC 33.1-15-07-02.1 at all, any new language should emphasize the requirements to as stringently as possible prevent or capture all possible fugitive emissions and releases to the fullest extent currently humanly possible of preventing them; otherwise, at the very least, it
3) Should NOT otherwise amend NDAC 33.1-15-07-02.1.

As currently written and enforced, NDAC 33.1-15-07 – Control of Organic Compounds Emissions (Chapter 7) Section 2, including Requirements for organic compounds gas disposal, Subsection 1 (NDAC 33.1-15-07-02.1), is working to prevent release or capture of fugitive emissions for productive use or storage of greenhouse gases released in hydrocarbon production increasingly imperiling our climate and civilization. The NDDEQ's analysis and approach is on the right track.

As a responsible, modern, industrialized and civilized society, we must insist that those who profit from producing their products openly face up to and bear the full costs of safe production, including disposal of dangerous components they produce, and not externalize inconvenient costs, or simply ignore or dump unwanted or less profitable byproducts into the environment, disregarding their effects on humanity and further jeopardizing our living world. This includes ozone (from a climate battle the world has already recognized, fought, corrected and won), VOCs including methane, and other fugitive emission releases.

In doing so, both producers and their regulators, need to forthrightly assure the public that whether self-reporting or regulatory oversight, the detection equipment used is correctly tested, fully reliable, and especially, accurately captures, records and reports all releases of emissions in the sometimes severe cold and usually windy conditions when used here. Otherwise, the entire regulation of fugitive emissions is nothing more than a facially good-looking sham.

Continental maintains that the state has imposed a "zero leaks" rule that is "impossible" to achieve with current technology, more stringent than federal rules, adding that the mere existence of a fugitive emission doesn't automatically mean that emissions control equipment is not functioning properly. Continental is asking for an exception for such leaks in state rules, as long as emission control equipment is installed and operating.

The DEQ took steps to reduce emissions in the years after state regulators found oil and gas production facilities here were emitting higher levels of organic compounds than their non-Bakken counterparts. The dispute with Continental began a few years ago, when regulators started using **optical gas imaging cameras** to inspect oil and gas production facilities – with better equipment, improved detection *should* occur. The DEQ believes that the rule interpretation hasn't changed as it now sees some things violating the rule.

The Director of the North Dakota Department of Environmental Quality (DEQ) correctly responds that fulfilling this request could affect the state's ability to ensure oil companies are maintaining their emission controls once installed. "Our concern is that there would be no incentive for industry to properly maintain their systems, which would result in increased emissions," Director Glatt said. This would leave the department

"**powerless** to act where a facility's control equipment was not working properly to control emissions," said Jim Semerad, director of the air quality division at the DEQ.

The problem here is not only insuring adequate incentive for properly maintaining producers' emission control equipment systems, but that several recent, reputable studies show that under-reporting of fugitive emissions is nearly universal in the oil industry. Adding an exception for what Continental characterizes as a "very small portion" escaping from piping components would only further exacerbate already serious problems. Lenient petroleum industry **self-regulation** hasn't seemed to work so far, why should anyone think it would going forward? *See* separate materials, attached: **Far More Methane Leaking at Oil, Gas Sites in Pennsylvania than Reported**, Inside Climate News, 2-16-18.

Also, earlier, "**EPA** estimates that leaks not found and repaired could be resulting in **additional volatile organic chemical emissions of 80 million pounds annually**." Enforcement Alert: Proper Monitoring Essential to Reducing Fugitive Emissions Under Leak Detection and Repair Programs, *in* EPA Office of Regulatory Enforcement, Vol 2 No. 9, Oct, 1999. https://nepis.epa.gov/Exe/ZyNET.exe/500003SW.txt?ZyActionD=ZyDocument&Client=EPA&Index1995%20Thru%201999&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&UseQField=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5CZYFILES%5CINDEX%20DATA%5C95THRU99%5CTXT%5C00000016%5C500003SW.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r105g16/r105g16/x150y150g16/i600&Display=hpfr&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1

Also see pg 41, **Comparative Monitoring Results** table, for 17 refineries, *esp.* comparing the large **Leak Rate**, differences between Company versus NEIC monitoring. Company versus NEIC averages 1.3 versus 5.0. *And* **Emissions Rate**: Company versus NEIC monitoring (in lb/hr) averages 1,177.0 versus 2,775.5. Enforcement Alert: Proper Monitoring Essential to Reducing Fugitive Emissions Under Leak Detection and Repair Programs, EPA Office of Regulatory Enforcement, Vol 2 No. 9 Oct 1999 https://nepis.epa.gov/Exe/ZyNET.exe/500003SW.txt?ZyActionD=ZyDocument&Client=EPA&Index=1995%20Thru%201999&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&UseQField=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A\ZYFILES\INDEX%20DATA\95THRU99\TXT\00000016\500003SW.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h|-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r105g16/r105g16/x150y150g16/i600&Display=hpfr&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=2

Further, an unsupported conclusion that complying with what Continental describes as a "zero leaks" rule is – in one word, "**impossible**" – needs adequate support. It should offer a enough analysis to enable the regulators to make an intelligent and informed decision. Merely stating that leakless technology is infeasible is only a conclusion – it doesn't present sufficient facts for an intelligent decision, or address what other leakless or low-leak technology is unavailable or insufficient, such as graphite-packed control valves, bellows-sealed valves, and hermetically sealed valves and flanges. Continental should at least attempt to explain whether such methods couldn't be used, and if not, why they're infeasible. So far, theirs isn't an "explanation," a good faith, reasoned indication of why such measures aren't feasible.

Also, why are **leakless valves** and other components for oil production even made? Who buys and uses them? Is implementing their use "**impossible**" only due to increased producer cost, including possibly increased maintenance downtime? If such valves are required, won't market incentives for their increased improvement and production, and reduced costs for production volume economies of scale, continuously make their use increasingly less expensive, therefore more practical? How would a company that couldn't comply with this

here, still do so if recovering petroleum under California's or Colorado's more restrictive regulations? If adequate controls against fugitive emissions costs more, that cost should be passed on to the products' buyers.

Continental says that its proposal is intended to ensure the state acts timely to keep its rules **consistent** with **federal** regulations. However, it's petition proposes amending the relevant DEQ rule now, **interjecting it** *while* the EPA itself is *also* currently proposing to amend Quad-Oa under one of two different possible changes. Continental's **petition** only adds an additional, short-term rush to needlessly **churn** rule provisions merely to save a producer more money, sooner, and likely vent more methane and other emissions while the regulatory framework in this area is currently undergoing potential change by the EPA. Preventing needless methane, ozone and other fugitive, toxic emissions as long as possible is the only sane choice to make for now.

Continental adds that its proposal will help ensure regulatory "**certainty**." This seems gratuitously **specious**. Not only has DEQ been uniformly applying the rule for some time, but *any* clear regulation and enforcement, including requiring zero emissions, provides "certainty" – a term often used for some time as an added throw-away adjective, to enhance the notion of murky or excessive government regulation.

Continental's view is that its proposal would **enhance** DEQ's regulatory authority to enforce proper maintenance of emissions control systems. Such authority already seems fully sufficient, without need for enhancement. As ND DEQ's own Rulemaking | Preliminary Analysis correctly notes, "For the 2008 Ozone Infrastructure SIP (ISIP) and the 2015 ISIP, NDAC 33.1-15-07 has been a vital element when demonstrating that the State has the ability to regulate ozone precursors to maintain compliance with the ozone NAAQS."

Continental adds that its proposal would ensure that North Dakota continues to enjoy the nation's "**cleanest**" air. Whether ND's air is superficially – or arguably, vaguely "clean," – misses the point; glibly gliding past and ignoring the central, critical issue today and in the future. With the increasing destruction from manmade climate change, every needless emission of ozone, VOCs like methane, or CO2 that can be prevented must be. As DEQ's own Rulemaking | Preliminary Analysis notes, if the EPA had not "disused lowering the ozone standard further in the atmosphere to 60 ppb" from 70 ppb, it could cause the entire state to be classified as a "nonattainment" area (i.e., not in compliance with the NAAQS). However that occurred, the DEQ then correctly lists some of the undesirable costs of risking designation as "nonattainment."

As DEQ correctly observes in its Preliminary Department Analysis of Effects of Petitioner's Proposed Language, beginning on page 4 of its Rulemaking | Preliminary Analysis, the consequences – intended or not – of the petitioner's proposed language would remove the language that requires organic gases and vapors to be controlled by flares or an equally effective control device, unless that control device is required under 40 CFR 60, Subpart OOOO or OOOOa. This change would limit and prevent the Department from being able to control organic compounds from sources other than those in the oil and natural gas industrial sectors covered by Quad-O/Oa, which would likely result in higher emissions of organic compounds from other industrial and agricultural sources throughout the state. The language as proposed by the petitioner could also threaten the Department's approved 2015 Ozone ISIP. Concluding that demonstrating that the changes to Chapter 7 don't interfere with attainment of the ozone NAAQS in North Dakota or in other states could be very difficult and time-consuming.

The DEQ also correctly notes, if the petitioner's language remains as proposed it would remove the federally enforceable tank limits and make every previous tank restricted under Chapter 7 now subject to Quad-O/Oa. This would have the effect of increasing the permitting and recordkeeping burden on industry *and* the Department without any appreciable environmental benefit. Further, all minor sources would need to be re-evaluated and re-permitted for VOC controls and air toxics.

Even worse is that if the petitioned language is accepted as written, the requirement that organic vapors and gases be controlled via combustion would be removed for the many wells or sources not subject to 40 CFR 60, Subpart OOOOa – pre-2015 oil wells. As the DEQ analysis states, neither NDAC 33.1-15-07 nor NDAC 33.1-

15-17 have requirements for LDAR programs for monitoring gaseous fugitive emissions. Currently, on an oil well site (upstream), organic vapors and gases are required to be routed to and combusted by a flare with a minimum of 90% destruction and removal efficiency. NDAC 33.1-15-07 requires that wellhead emissions need to be combusted. The only other requirement for the combustion of wellhead gas would be under NDAC 33.1-15-07-02.2 which requires gas that contains hydrogen sulfide (H2S) be combusted. Since Bakken is a sweet crude with very low amounts of H2S, NDAC 33.1-15-07.02.2 would not apply to Bakken wells.

Also, if DEQ has been **fining** Continental for leaks, WHY are such leaks repeatedly still occurring? The DEQ's Rulemaking | Preliminary Analysis is correct. Further, as it concludes, implementing the changes sought by Continentals' petition would incure prohibitive costs across wide sectors of the energy industry, and possibly unintended other sectors, in North Dakota.

The time is long past, when we could entertain the encouraged belief that we could accommodate unfettered emissions from oil and gas production. What were *you* doing in 1988? In a regulatory and political system properly functioning foremost on behalf of humanity, our climate, life and its environments, radical measures would have been immediately implemented with justified, now proven, alarm – at least by the time NASA climate scientist Dr. James **Hansen** testified before Congress on June 23, 1988 (and again, before a Senate transportation subcommittee on May 8, 1989) – over thirty years ago – about increasingly clear and urgent scientifically validated evidence of man made climate change. **Ex-Nasa scientist: 30 years on, world is failing 'miserably' to address climate change**. www.theguardian.com/environment/2018/jun/19/james-hansen-nasa-scientist-climate-change-warning, Jun 19, 2018.

To date, "All we've done is agree there's a problem." "[I]n 1988, he told a U.S. congressional hearing he could declare "with 99% confidence" that a recent sharp rise in temperatures [*after decades of increasing atmospheric CO2, methane and other greenhouse gases*] was a result of human activity." *Ibid*. "Since then, the world's greenhouse gas emissions have mushroomed despite repeated, increasingly frantic warnings about civilization-shaking catastrophe, from scientists amassing reams of evidence in Hansen's wake." "These findings hadn't occurred in a vacuum, of course – the Irish physicist John Tyndall confirmed that carbon dioxide is a heat-trapping gas in the 1850s. A 1985 scientific conference in Villach, Austria, concluded the temperature rise in the 21st century would be 'greater than in any man's history.'" "The changes in motion would 'affect life on Earth for centuries to come,' the New York Times warned (Jun 24, 1988) the morning after Hansen's testimony."

"His warnings have "blossomed into an **international consensus** ... that the temperature rise must be curbed to 'well below' 2°C (3.6°F) above pre-industrial times. But in this time emissions have soared (in 1988, 20 billion tons of carbon dioxide was emitted – by 2017 it was 32 billion tons) with promised cuts insufficient for the 2°C goal. *Ibid.* "'The solution isn't complicated, it's not rocket science,' Hansen said. 'Emissions aren't going to go down if the cost of fossil fuels isn't honest. Economists are very clear on this. (In arguing for a tax on carbon-producing fuels, Hansen asserts 'We need a steadily increasing fee that is then distributed to the public.')" "The dawdling global response to warming temperatures means runaway climate change now looms." *Ibid.*

"We are all raised to believe knowledge is **power** but Hansen proves the untruth of that slogan. Power is power," said Professor Dr. Naomi **Oreskes**, a Harvard academic who studies the history of science, and coauthored The Merchants of Doubt. "That power has been most aggressively wielded by fossil fuel companies such as Exxon and Shell which, despite being well aware of the dangers of climate change decades before Hansen's touchstone moment in 1988, funded a network of groups that ridiculed the science and funded sympathetic politicians. Later, they were to be joined by the bulk of *[a major political]* party, which now recoils from any action on climate change as heresy." "Obama was committed to action but couldn't do much with the Congress he had," Oreskes said. "To blame the Democrats and Obama is to misunderstand the political context. There was a huge, organized network that put forward a message of confusion and doubt." *Ibid.*

*See also "***Americans 'under siege' from climate disinformation**; Fake news spread by those with a profit motive is leaving many people oblivious to the threat of climate change" www.theguardian.com/science/2017/jun/08/americans-under-siege-from-climate-disinformation-former-nasa-chief-scientist, Jun 8, 2017. "Americans are 'under siege' from disinformation designed to confuse the public about the threat of climate change, **NASA's former chief scientist** Ellen **Stofan**, who [decided to leave] 'NASA in December, 2017' 'before the election results,' has said. She added that "a constant barrage of half-truths had left many Americans oblivious to the potentially dire consequences of continued carbon emissions, despite the science being unequivocal." "We are under siege by fake information that's being put forward by people who have a profit motive," she said, citing oil and coal companies as culprits. "Fake news is so harmful because once people take on a concept it's very hard to dislodge it." "The harder part is this active disinformation campaign. I'm always wondering if these people honestly believe the nonsense they put forward. When they say 'It could be volcanoes' or 'the climate always changes' … to obfuscate and to confuse people, it frankly makes me angry." *Ibid*.

"Throughout her career, Stofan has highlighted the role of planetary science in understanding the Earth's environment and said it provided some of the most inarguable proof that atmospheric carbon dioxide leads to a warmer climate. She draws parallels between carbon emissions on Earth and the runaway greenhouse effect on Venus, a planet which once had oceans but is now a toxic inferno with surface temperatures approaching 500°C. The Earth is not destined for such an extreme scenario – even if all the CO2 were burned its oceans would not boil off completely – but Venus demonstrates the dramatic changes that can unfold when the fine balance of a planet's atmosphere is tipped. 'We won't go all the way to Venus, but the consequences of putting more and more CO2 into the atmosphere are really dire,' she said. 'There are models that suggest if we burn off all our fossil fuels, the Earth would become uninhabitable for humans.'" *Ibid*.

Instead, we've witnessed and wasted complacent, confused, denying decades as some of the largest fossil fuel producers denied, and fund further denials and misinformation about, the clearly looming, unchecked catastrophes. We can no longer entertain cries of "excessive" regulatory costs from a relatively few eager, if hard-working, profit-motivated producers – who've been given the privilege to extract these hydrocarbons for our use – to prudently curb needless waste from hydrocarbon production.

It may be understandable that smaller, independent producers might strenuously argue for more lenient regulations over fugitive emissions, such as ozone, VOCs including methane, CO2 and HAPs. The cost of implementing such regulations may have a greater comparative impact on smaller producers, whose profit margins depend on a more fragile structure spread over fewer producing units. Larger producers have much broader economies of scale to spread such responsible compliance costs over; indeed, larger producers have come to finally publicly recognize and argue for this responsibility.

The U.S. is now again a net exporter of petroleum products, beyond our own needs. With the destruction and costs of devastating climate change rapidly bearing down upon us, we must strive to use the utmost care in safeguarding every stray molecule of ozone, methane and CO2 that until today has been wasted or vented to contribute to this destruction.

The Dept of Environmental Quality is considering a control component rule to carefully regulate the needless release and waste of valuable but otherwise harmful methane into the atmosphere. Petroleum and allied engineers are highly educated, experienced experts in hydrocarbon extraction science – it's the basis of their work and the foundation for gains they increasingly make at more efficiently extracting more hydrocarbons. So we would assume they respect and endorse their expert fellow scientists who work in climate and related areas.

Year after year average global temperature is increasing. Based on their various continuously improving, increasingly reliable climate models, climate scientists around the world expect increasing greenhouse gases to impact our weather patterns in dangerously weird ways: hot, dry areas will experience hotter, drier conditions;

and wet areas will experience more rain, including increasingly severe hurricanes and other storms, plus rising ocean levels.

We've arrived at this point from many compromises, between the more lenient rules that usually profitable, well-funded industry prefer, and the tighter rules sought by those interested foremost in keeping our environment at least not irretrievably damaged, irreparably injured or destroyed. Now this includes our entire climate. It's long been fairly common understanding, that to avoid particularly effective regulation, encourage **underfunding** and under-staffing the regulatory department, and weakening their regulations. For the most effectively lenient, real world regulation, weaken the regulations, under-fund the more powerful, centralized federal regulators, and under-staff them with inexperienced enforcement. So it's left to each state, with usually far more meager funding and manpower resources, to regulate, enforce and police the regulatory scheme as best it can. As attorney Rob Bilott, who successfully represented those harmed by dumping toxic PFOS/C8 (Teflon chemicals) observed, the EPA hasn't really been much involved, at least there, for the last thirty years. Amanpour and Company, on the movie Dark Waters, Nov 14, 2019 www.pbs.org/video/mark-ruffalo-rob-bilott-dupont-and-dark-waters-rtlhwk/ And lately, it's been headed by one or another of its strongest opponents.

Similarly, *see* **Assessment of State-Level Fugitive Emissions Programs in Comparison to EPA NSPS Reconsideration Proposal**, Dec 17, 2018. Dr. Renee McVay, PhD Research Analyst, Oil & Gas, Environmental Defense Fund 301 Congress Avenue, Suite 1300, Austin, TX 78701; Kate Roberts, MS Research Analyst, Oil & Gas, Environmental Defense Fund, 123 Mission St, 28th Floor, San Francisco, CA 94105 www.edf.org/sites/default/files/content/Appendix_A_McVay_and_Roberts_Assessment_of_State-Level_Fugitives_Emiss....pdf *which in Appendix A begins:*

This report addresses and responds to EPA's claims about the relative efficacy of state-level fugitive emissions programs in its proposed rule, EPA's NSPS, Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources Reconsideration, 83 Fed. Reg. 52056 (Oct 15, 2018) ("Proposal"), and supporting memo, Equivalency of State Fugitive Emissions Programs for Well Sites and Compressor Stations to Proposed Standards at 40 CFR Part 60, Subpart OOOOa, EPA Docket ID No. EPA-HQ-OAR-2017-0483 (Apr 12, 2018). EPA claims that: "Through this evaluation, we have identified aspects of certain existing state fugitive emissions programs that we propose to find to be at least equivalent to the proposed amendments in this action."

In the Proposal, EPA proposes to deem California, Colorado, Ohio, Pennsylvania, Texas and Utah as states that have "equivalent" fugitive emissions programs for well sites.[ii] This Proposal also claims that California, Colorado, Ohio and Pennsylvania regulate compressor stations equivalently to the Proposal's standards.

EPA's suggestion that these states' LDAR programs **are equivalent** is **devoid** of any quantitative analysis and **misrepresents** the emissions reductions achievable by each state's program, as it **ignores** many differences between the fugitive emissions programs in these states, **including** scope and coverage of facilities and segments, threshold emissions detection requirements, time-frame for repairing leaks, and other provisions of each program. **Many** of these state programs' fugitive emissions requirements are **significantly less rigorous** than the proposed standards in EPA's Proposal, and **thus achieve fewer benefits**.

In **this analysis**, we **quantitatively compare** the wells and compressor stations covered and the emissions reduced from the so-called equivalent state programs to the proposed standards in the Proposal. We also **include** a **detailed comparison** of the scope and requirements of each state program. This comparison **clearly indicates** that **many** of these programs **do not achieve** the **emissions reductions** that the Proposal does within each state. These state programs **therefore** do **not guarantee equivalency** with the Proposal.

Furthermore, because the **Proposal** is a **weakening** of **the original 2016 NSPS**,[iii] we **also compared state** LDAR standards to the **original** NSPS requirements. **When** compared to the original 2016 NSPS requirements, **the state programs achieved even fewer relative emissions reductions**.

What ARE "North Dakota values"? **Is there room enough here for all?** Is it time for ND to choose, between successful, productive agriculture and more cheaply obtainable hydrocarbon extraction? In ND over only the past three years, we've seen record-breaking exceptional and severe droughts throughout the state, followed this year by one of the wettest on record in the majority of counties. That's left many North Dakota farmers with crop losses, unable to timely harvest their crops, or some crops with higher than expected, typical moisture content. The day of the DEQ public hearing on this,Crystal Sugar announced it wouldn't harvest any more Red River Valley **sugar beets** this year, saying it's uneconomic to do so. The rest will be wasted, left lying in the fields, as parts of our **potatoes** and other crops are. **Corn moisture** was up, and "**wheat falling**" numbers were concerning. The same day, Chicago O'Hare airport canceled over 1,000 flights due to snow and record cold.

METHANE RELEASE DANGERS

The DEQ must already have ample notice, that beyond the real value of wasting otherwise usable natural gas and the related tax revenue, methane released into the atmosphere greatly contributes to our planet's increasing, destructive greenhouse effect and climate change at a rate 84 to 86 times more potent than CO2 for the first 20 years after its release. Methane, CH4, is far more potent than CO2 as a greenhouse gas, capturing more of the sun's radiative force, but it persists for less time in the atmosphere. Taking that into account, scientists calculate that over a 100-year period the "**Global-Warming Potential**" of the gas is 28 times greater than for carbon dioxide. *The Guardian, Sep 29, 2017.*

Scientists have projected that the world needs to cut its overall greenhouse gas emissions nearly in half by mid-century to avert catastrophic effects from global warming. According to the EPA, methane accounted for more than 10 percent of all U.S. greenhouse gas emissions from human activities as recently as 2017. Nearly a third of those emissions were generated by the natural gas and petroleum industry. **Trump Administration to Relax Restrictions on Methane, a Powerful Greenhouse Gas**, The Oil and Gas Industry is Split on the Rollback, Juliet Eilperin and Brady Dennis, Aug 29, 2019 www.washingtonpost.com/climate-environment/2019/08/29/trump-administration-reverse-limits-methane-powerful-greenhouse-gas/ Furthermore, "David McCabe, a senior scientist at the Clean Air Task Force, noted that **the biggest cuts in methane emissions** from the gas and oil sector have happened during exploration. **Emissions dropped sharply** in 2012 and 2016, respectively, **after new** federal **requirements for pollution controls took effect**. "The best information we have is that **the emissions dropped because of regulations**," McCabe said.

"The EPA estimates that the proposed changes ... would save the oil and natural gas industry $17 million to $19 million a year. That is **a small fraction of the industry's annual revenue, which exceeds $100 billion annually**. **Several of the world's biggest fossil-fuel companies**, including Exxon, Shell and BP, have **opposed the rollback and urged** the Trump administration to **keep the standards in place**. Collectively, these firms account for 11% of the nation's natural gas output. In a statement Thursday, Shell U.S. President Gretchen Watkins noted that the company has pledged to reduce its methane leaks from its global operations to less than 0.2 percent by 2025." *Ibid.* "Still, the **EPA acknowledged** that **its proposed rollback could have public health implications**. The fact that more volatile organic compounds could be released, the agency wrote in its proposal, "**will degrade air quality and are likely to adversely affect health and welfare**" due to more air pollution. But, the agency added, "**we are unable to quantify these effects** at this time." *Ibid.* "Ben Ratner, a senior director at the advocacy group Environmental Defense Fund, said in an interview that **rolling back the regulations could reward bad actors in the industry**[, *g*]iven that many major players had embraced limits on methane …." *Ibid.*

While methane doesn't linger as long in the atmosphere as carbon dioxide, it's initially far more devastating to the climate because of how effectively it absorbs heat. www.edf.org/climate/methane-other-important-greenhouse-gas; https://thinkprogress.org/california-just-put-serious-limits-on-methane-leaks-6392ea30289/ "A study from the California Air Resources Board released in February 2017 found naturally occurring (but usually underground) benzene is released at half the state's natural gas leaks. **Flaring** – the process of burning off gas, rather than capturing and processing it – [*also*] adds ground-level **ozone**, diminishing air quality in the

surrounding areas. The study "really demonstrates the need and value" of passing *California's* new rule, "for reducing economic waste and climate pollution – but also for protecting public health." Other studies from around the country have found a link between fracking for oil and gas and negative, localized health impacts." *Ibid.*

See also **Global Greenhouse Gas Emissions will Hit Yet Another Record High this Year, Experts Project**, "We're blowing through our carbon budget the way an addict blows through cash," said one author Chris Mooney and Brady Dennis, Dec. 3, 2019 www.washingtonpost.com/climate-environment/2019/12/03/global-greenhouse-gas-emissions-will-hit-yet-another-record-high-this-year-experts-project/. *And* **Federal Court Reinstates Key Methane Rule, Calls Zinke's Delay "Baseless**," The safeguard, which targets methane, a potent greenhouse gas, is now back in full effect. NRDC, Feb 28, 2018 www.nrdc.org/experts/nrdc/federal-court-reinstates-key-methane-rule-calls-zinkes-delay-baseless *Also* **A Changing Climate for State Policy-Making Regarding Climate Change**, *in* JDSupra, Nov 22, 2019 www.jdsupra.com/legalnews/a-changing-climate-for-state-policy-94867/ "Issued by 13 federal agencies, the 2018 **Fourth National Climate Assessment** presented a stark warning on the consequences of climate change for the U.S. The report predicts that if significant steps aren't taken to rein in global warming, the damage will reduce the U.S. economy by as much as 10% by the end of the century. The report, mandated by Congress and made public by the White House, is notable not only for the precision of its calculations and bluntness of its conclusions – the 1,656-page assessment **lays out the devastating effects of a changing climate on the economy** – but also in how it conflicts with President Donald Trump's environmental deregulation plan. U.S. policy efforts at the state and local levels are ramping up to address this complex topic. These include:" **Targeting Net-Zero Emissions**; **Reducing** greenhouse gas emissions and increasing use of **Renewable resources**; and **Cleaning Up and Conserving Energy Performance**; and more, as noted there.

"There is also an economic component to the rule. In California alone, more than $50 million worth of natural gas each year is wasted. Annually, some 75,000 tons of methane are released by leaky equipment and intentional venting." *Ibid.* And **North Dakota is the SECOND largest U.S. state petroleum producer**, ahead of California.

[As a corollary,] "If Congress [then] follow[ed] through with repealing the *BLM* rule, it [was] expected to cost taxpayers, who receive revenue for natural gas development on public land, $800 million over the next 10 years. The value of the lost gas is projected to be roughly $330 million annually – and the rule only applied to new oil and gas development.

Meanwhile, in 2017 **California** [was] not the only state taking action against leaky natural gas infrastructure. **Colorado**, whose regulations were the basis for the BLM rule, put limits on methane emissions in place back in 2014. Earlier in 2017, **Ohio** took steps to limit methane emissions from the oil and gas industry, and there was an ongoing rule-making process in **Pennsylvania** to do the same. The California PUC [would] also likely take steps later in 2017 to regulate leaks from natural gas transmission lines, which are another significant and dangerous source of methane. O'Connor pointed out, though, that "[D]espite California's comprehensive set of rules, 90% of the state's natural gas is imported from other states. "Even if we get our gas production [leaks] down to zero, we still have a significant footprint." he said.

"Ironically, studies have found that trapping otherwise lost gas is a net benefit for producers. It would cost less for oil and gas developers to fix the leaks than lose [the resource] when the gas disappears into thin air – but it takes investment. That investment is often in the form of jobs, inspectors, repairmen and the like, which is one reason that there is broad support for limiting natural gas leaks and venting. According to recent polling, **73% of voters want the federal government to require companies to reduce gas leaks. Another 61% support laws that minimize wasteful practices like venting and flaring natural gas**. www.edfaction.org/blog/2017/02/27/blm-vote-looming-new-poll-shows-americans-support-common-sense

Meanwhile, the problem might be even worse than estimated. In 2017, another report[1] found that **refineries and power plants are leaking a whole lot more natural gas than the industry is reporting. Natural gas leaks** are 21 to 120 times larger than reported at power plants and **11 to 90 times larger at refineries**, according to the study, released in 2017 by Purdue University and the Environmental Defense Fund.
1 www.purdue.edu/newsroom/releases/2017/Q1/estimates-of-emissions-from-natural-gas-fueled-plants-much-too-low,-study-finds.html "It's a better fuel all around as long as you don't spill it," Paul Shepson, Purdue's Jonathan Amy Distinguished Professor of Analytical and Atmospheric Chemistry, said in a statement. "But it doesn't take much methane leakage to ruin your whole day if you care about climate change."

Even if a more stringent regulatory system is in place, relying on producer detection and reporting of fugitive emissions is demonstrably fraught with technology limitations and failures, and prevalent underreporting. Because of discrepancies in industry reporting, it's hard to estimate exactly how much natural gas is leaking. The rates Shepson and colleagues found were "significantly higher" than estimates done with industry data and reported by the EPA in 2014. In fact, **studies have repeatedly found that the oil and natural gas industry – from fracking to transportation and storage to production and combustion – leaks far more than it reports**. "It would be informative to gather more data," *Shepson told ThinkProgress via email*.

Similarly, **Far More Methane Leaking at Oil, Gas Sites in Pennsylvania than Reported**: An EDF comparison of company-reported data and research measurements finds as much as 5 times more methane, a climate-warming greenhouse gas, is leaking. Inside Climate News, Feb 16, 2018, by Neela Banerjee https://insideclimatenews.org/news/16022018/methane-leaks-oil-natural-gas-data-global-warming-pennsylvania-edf-study *See* separate document, attached.

Additionally, Detection "[e]quipment failures in the icy cold … *or with anything above lower wind speeds* ... raise questions about how accurate emissions estimates from oil and gas wells are in place[s] where climate change stakes are high." *See* separate document, **Arctic Methane Leaks Go Undetected Because Equipment Can't Handle the Cold**, Inside Climate News, May 31, 2018, by Sabrina Shankman https://insideclimatenews.org/news/31052018/arctic-oil-gas-methane-leak-detection-technology-reliability-problems-alaska-climate-change, attached.

Of course, even if it weren't leaking at all, the boom in **natural gas** production would still be **concerning**. The natural gas boom has been lauded as a way to transition the country to a clean energy economy. Natural gas, when burned, emits a little over half as much carbon dioxide as coal, the primary source of electricity in the U.S. That benefit, though, disappears when as little as 3% of natural gas **leaks** during the fossil fuel's life cycle. And even the best case, slowing catastrophic climate change – while better than flinging humanity headlong into it – doesn't actually prevent or avoid rising sea levels, intensified storms or desertification. *Supra* – https://thinkprogress.org/california-just-put-serious-limits-on-methane-leaks-6392ea30289/

The peaks and valleys in carbon dioxide levels track the coming and going of ice ages (low carbon dioxide) and warmer interglacials (higher levels). Throughout these cycles, atmospheric carbon dioxide was never higher than 300 ppm; in 2018, it reached **407.4 ppm** *(black dot)*. Sep 19, 2019 www.climate.gov/news-features/understanding-climate/climate-change-atmospheric-carbon-dioxide While methane is a more potent greenhouse gas than CO2, over 200 times more CO2 is in the atmosphere. E.g., CO2 levels are now 407 ppm (parts per million) while methane levels are 1.75 ppm. Hence the extent of warming that methane contributes is calculated at 28% of the warming CO2 contributes. (An included graph at the link to this source shows the various forcings that influence climate (methane is CH4, right above CO2).) skepticalscience.com/methane-and-global-warming.htm

According to the EPA's overview of greenhouse gases, CO2 accounts for about 82% of all greenhouse gas emissions from human activities in the U.S. Methane, which accounts for only 14% of emissions worldwide, traps up to 100 times more heat than carbon dioxide over a 5-year period; so even though carbon dioxide molecules outnumber methane 5 to 1, this comparatively smaller quantity of methane is still **19** times **greater** a

problem for climate change **over a 5 year period**, and **4 times greater over a 100 year period**. To put it another way, any methane molecule released today is 100 times more heat-trapping than a molecule of carbon dioxide, or potentially even higher according to NASA's Goddard Institute for Space Studies. www.giss.nasa.gov/research/news/20110220/

Methane traps up to 100 times more heat in the atmosphere than carbon dioxide within a 5 year period, and 72 times more within a 20 year period. While methane also leaves the atmosphere within a decade it makes for a short-lived, but intense climate changer. So methane warms the planet rapidly, but it dissipates from the atmosphere more quickly than carbon dioxide. According the EPA, the Global Warming Potential (GWP – a measure the EPA created) of methane is 21, which indicates its effect over a 100 year period. GWP represents how well a gas absorbs heat or, in other words, how long a gas sticks around to warm the earth. It is measured relative to carbon dioxide over a particular time period, usually 100 years. A 2009 report published by The World Watch Institute, www.worldwatch.org/files/pdf/Livestock%20and%20Climate%20Change.pdf, stressed that **the more relevant GWP figure** is **72**, since it's **within the next 20 years that we desperately need to act to stop climate change before a domino effect is initiated and our imbalanced bio-systems spiral out of livable conditions**.
www.sciencedaily.com/releases/2014/03/140327111724.htm; www.onegreenplanet.org/animalsandnature/methane-vs-carbon-dioxide-a-greenhouse-gas-showdown/

Throughout at *least* central North America, many petroleum producers have recently been exceeding state-imposed methane release limits, especially from new wells, from the Texas Permian to North Dakota and on into Alberta. Moreover, ND already insisted on, and producers agreed, to tighten allowed methane and flaring releases. A couple of years ago during an "open" ND Industrial Commission "hearing," including Commission member Governor Dalrymple, the oil and gas industry operating here promised through a designated representative they could meet and produce within designated annually decreasing allowable releases. However, since then, instead of meeting those specific requirements, reported overall methane and flaring releases have been regularly increasing, without penalty, blamed largely on lack of pipeline infrastructure, since allowed production and new wells continued to exceed gas processing capacity.

Some Increasing Climate Change Effects:
The world's oceans absorb carbon dioxide that would otherwise stay in the atmosphere. Between 1994 and 2007, oceans absorbed 34 gigatons of carbon dioxide, or 31% – nearly a third – of what humans put into the atmosphere during that time, a study published in the journal Science concluded. (About 28% went to plants and roughly 46% to the atmosphere.) Mar 15, 2019 www.ecowatch.com/oceans-absorb-co2-2631712140.html?rebelltitem=1 As the oceans absorb our increasing CO2 discharges, it also increases ocean acidification – combined, these are currently leading to massive bleaching destruction of earth's coral reefs, which hug our coastlines, and where most of our oceans' species live, including the once vast array of ocean food sources for mankind. *Source:* EPA's Climate Change Indicators (2016).
https://archive.epa.gov/climatechange/kids/impacts/signs/acidity.html

This Florida Keys Neighborhood has been Flooded for Nearly 3 Months, Greg Allen, NPR Morning Edition, Nov 28, 2019 www.npr.org/2019/11/28/783349974/this-florida-keys-neighborhood-has-been-flooded-for-nearly-3-months

"The **flooding** here and elsewhere is happening during so-called **'king tides**.' Those are times, mostly in the fall, when the moon's gravitational pull means tides are higher than usual. On Key Largo, to walk to Paul Butler's house it's best to wear rubber boots. 'Did you see the 'No Wake' sign?' he asks. The recently installed 'No Wake' signs are for drivers, not boaters. There are several inches of water on his street and others in this low-lying neighborhood. Butler has lived here 25 years and seen this kind of flooding before. 'It used to happen once a year during king tide, but it would only last for like a week or 10 days,' he says. 'This year, it's been going on for about 75 days, I think.' Other neighbors put it at 80 days and counting."

Not far away, on Virginia Key, scientists are also charting the rising sea level. Brian McNoldy, with the University of Miami's Rosenstiel School of Marine and Atmospheric Science, has been monitoring a tidal gauge; **for five months running**, the average has broken tide records, he says. "Right now, we're running about 8 to 9 inches above them," McNoldy says. "**But there have been times in recent weeks when we've been up to 18 inches**. And **that definitely is impactful**."

Increased flooding from high tides is a problem not just in Florida, but also in other low-lying coastal communities around the U.S. **Boston**, **Charleston** and **Norfolk** are just three cities that have seen flooding this year during exceptionally high king tides. William Sweet, an oceanographer with NOAA, released a report earlier this year warning of the increasing threat of high-tide flooding. He says **unfortunately, the predictions are already coming true**. "Sea level rise, decades' worth of it has caught up," Sweet says. "These sort of garden variety events, you know, seasonal high tides, winds blowing offshore that used to not be a problem?" Now, he says, they are a problem, causing flooding in an increasing number of coastal areas.

A few Extremes some Good People are Going to, to Reduce Methane Releases Elsewhere; Others are implementing useful technologies and bearing the cost:

Chew On This: Farmers are Using Food Waste to Make Electricity, Allison Aubrey, Nov 30, 2019
www.npr.org/sections/thesalt/2019/11/30/783001327/chew-on-this-farmers-are-using-food-waste-to-make-electricity *The page at this link includes pictures of some of the impressive equipment involved.*

As the season of big holiday meals kicks off, it's as good a time as any to reflect on just how much food goes to waste. If you piled up all the uneaten food over a year in the U.S., it would be enough to fill a skyscraper in Chicago about 44 times, according to an estimate from the U.S. Dept. of Agriculture. And, when all this food rots in a landfill, it emits **methane**, a powerful greenhouse gas that contributes to climate change. In fact, a recent report from the United Nations from a panel of climate experts estimates that up to 10 percent of all human-made greenhouse gas emissions are linked to food waste.

So, **here's one solution** to the problem: Dairy farmers in Massachusetts are using food waste to create electricity. They feed waste into anaerobic digesters, built and operated by Vanguard Renewables, which capture the methane emissions and make renewable energy. The process begins by gathering wasted food from around the state, including from many Whole Foods locations. We visited the chain's store in Shrewsbury, Mass., which has installed a Grind2Energy system, an industrial-strength grinder that gobbles up all the food scraps the store can't sell, explains Karen Franczyk, the sustainability program manager for Whole Foods' North Atlantic region. The machine will grind up all kinds of food waste – "everything from bones, we put whole fish in here, to vegetables to dry items like rice or grains," Franczyk says as the grinder is loaded. It also takes frying fats and greases.

While Whole Foods donates a lot of surplus food to food banks, a lot of waste is left over. Much of it is generated from prepping prepared foods. Just as when you cook in your own kitchen, lots of bits remain, such as onion or carrot peel, rinds, stalks or meat scraps. The grinder turns all these bits into a slurry. "It really becomes kind of a liquefied food waste," Franczyk says.

From here, the waste is loaded into a truck and sent to an anaerobic digester. "There's no question it's better than putting it in the trash," Franczyk says. She says the chain is committed to diverting as much waste as possible and aims for zero waste. In addition to food donations, Whole Foods composts; this waste-to-energy system is yet another way to meet its goal. "We really do like the system," she says.

We visited Bar-Way Farm, Inc. in Deerfield, Mass. Owner Peter Melnik, a fourth-generation dairy **farmer**, showed us how his anaerobic digester, installed next to his dairy barn, works. "We presently take in about a 100 tons [of waste], about three tractor-trailer loads, every day." In addition to all the food waste from Whole Foods, he gets whey from a Cabot Creamery in the area, plus waste from a local brewery and a juice plant.

In the digester, he combines all of this waste with manure from his cows. The mixture cooks at about 105 degrees Fahrenheit. As the **methane** is released, it rises to the top of a large red tank with a black bubble-shaped dome. "We capture the gas in that bubble. Then we suck it into a big motor," Melnik explains. Unlike other engines that run on diesel or gasoline, this engine runs on methane. "This t**urns a big generator, which is creating one megawatt of electricity**" continuously, Melnik says – enough to power more than just his farm. "We only use about 10% of what we make, the rest is fed onto the [electricity] grid," Melnik explains. It's **enough to power about 1,500 homes**. He says times are tough for dairy farmers, so this gives him a new stream of revenue. Vanguard pays him rental fees for having the anaerobic digester on his farm. In addition, he's able to use the liquids left over from the process as fertilizer on his fields.

"The digester has been a home run for us," Melnik says. "It's made us more sustainable – environmentally [and] also economically." Vanguard Renewables hopes to expand its operations in the state and elsewhere. "There's more than enough food waste in Massachusetts to feed all of our five digesters, plus many more," says CEO John Hanselman. Massachusetts has a state law that prohibits the disposal of commercial organic waste – including food – by businesses and institutions that generate at least one ton of this waste per week. This has created an incentive for food businesses to participate in the waste-to-energy initiative. Hanselman points to **Europe, where thousands of digesters are in operation**. His hope is that the concept will spread here. "The food waste recycling through anaerobic digestion could be done in every part of the country," Hanselman says. The company is currently building an anaerobic digester on a farm in Vermont. The gas produced there will be piped to Middlebury College, which will help the college reduce its carbon footprint.

Some Climate Change Effects – On Human Health (Treat it as though your very life depended on it):

Why Climate Change Poses a Particular Threat to Child Health, Nov 14, 2019 Nurith Aizenman, www.npr.org/sections/goatsandsoda/2019/11/14/778992862/why-climate-change-poses-a-particular-threat-to-child-health:
"When it comes to global health, the world has made remarkable strides over the past two decades: ... unprecedented progress vaccinating kids, treating diseases and lifting millions out of poverty. The childhood death rate has been slashed in half since 2000. Adults are living an average 5½ years longer. Now scientists say **these successes are under serious threat from climate change**. The warning comes in a sweeping new study in the journal The Lancet. www.lancetcountdown.org/2019-report/ It's the latest in an annual – and evolving – effort by researchers from more than a dozen universities plus the World Health Organization to track the health impacts of climate change."

As climate change has also been underway – slowly pushing up the average temperatures experienced around the planet by about 1.8° F compared with preindustrial times, roughly around the mid-19th century – temperature boost has had a wide and complicated range of consequences for world health, says Dr. Nick Watts of University College London, who led the study. For instance, it has meant the **conditions** for growing all sorts of **crops** around the world have become less favorable. "Each of the major crops," Watts says. "We track maize; we track rice, soybean, and spring and winter wheat." Watts says the research team found that **the yield potential for these staple crops is now down as much as 6%**. That might not sound like much, but with reduced crop yields, "**who is going to be the most vulnerable?**" Watts asks. "**Children**."

Particularly kids in poorer countries. When fewer crops are produced, prices go up, and people get less food. That leads to malnutrition, which can be especially devastating for kids because their bodies are still growing. "They end up with these health impacts that stick with them through the rest of their life – gastrointestinal disease, cardiovascular disease, cognitive defects," Watts says. "And that has a really profound lifelong impact that is irreversible."

Another health-related effect of climate change: It's improving conditions for the spread of a **bacteria** called **Vibrio**. "It's a **nasty bug**. It causes all sorts of problems," Watts notes, including cholera, wound infections and diarrhea, which in poorer countries is an especially big killer for kids.

Here's how climate change plays a role: As the surface temperature of the ocean rises, the salinity patterns in the water shift. "And then you start to see, over time, those ideal conditions develop into algal blooms," Watts says. The blooms then produce **critical levels** of Vibrio, which make it into the water supply and can then be ingested by humans. Compared with the baseline prior to the acceleration of climate change, says Watts, "we have seen the number of days suitable around the world for the transmission of Vibrio **double**" – from 53 days to 107 days.

Even though these impacts disproportionately hit poor countries, the report's authors stress that every nation is affected. Dr. Renee Salas is an emergency room doctor and Harvard professor who authored the report's section on the U.S. "People living in the U.S. are experiencing the health harms of climate change today," she says. Salas saw the impact in her own ER at Massachusetts General Hospital during a massive heat wave in Boston last July. An elderly man was carried in. He was in a terrible state of disorientation. He was living in low-income housing, Salas says. And he had no air conditioning.

"I'll always remember the ambulance crew said that when they opened the door the amount of heat that hit them was just really striking," she says. Salas' research on climate change has sprung directly from these experiences. "As an emergency medicine doctor, I'm trained to respond to emergencies," she says. "And **I can think of no greater emergency facing the health of our country than climate change**."

Lack of Progress on Climate Change is Putting Canadians' Health at Risk, Doctors Say, Air pollution, heat waves, forest fires, flooding causing deaths, report from The Lancet finds; The Canadian Press, Posted Nov 28, 2018, Last Updated Nov 29, 2018. "Chronic exposure to air pollution from greenhouse-gas-emitting activities contributes to the deaths of more than 7,000 Canadians a year " www.cbc.ca/news/health/climate-change-canada-air-pollution-lancet-countdown-1.4924792 "A new report from one of the world's most prestigious medical journals says Canada's failure to cut greenhouse-gas emissions isn't just killing the planet; it's killing Canadians. The report on the health impacts of climate change, published Wednesday in The Lancet, concludes that successfully tackling climate change would be the single biggest thing governments can do to improve human health this century. Chronic exposure to air pollution from greenhouse-gas-emitting activities is contributing to the deaths of an estimated 7,142 Canadians a year, and 2.1 million people worldwide, the report said."

"Heat waves, forest fires, flooding and major storms are causing more deaths and long-term illnesses but little data is available on how many. The first recommendation in the report is simply to track the number of heat-related illnesses and deaths in Canada, something that isn't done at all in most provinces. … Dr. Courtney Howard, an emergency physician from Yellowknife who wrote the Canadian section of the report, said right now the world is on pace for temperature increases we can't adapt to, resulting in more deaths and disease."

Dr. Howard said "the last few summers have alerted Canadians to what climate change is going to look like, with record-breaking forest-fire seasons in British Columbia in both 2017 and 2018, drought on the Prairies, heat waves in central Canada, and flooding in communities almost from coast to coast. She said some people think this is a new normal – but it's not. **It's going to be worse in 10 years**." "Howard said if we don't step up our efforts, the change to the world will be massive, including more wars and migration. I'm an emergency doctor and I'm working on this because this is an emergency."

"**Both** the Canadian Medical Association and the Canadian Public Health Association say they agree with the Lancet's findings and recommendations. 'the climate always changes.' Health care professionals see first-hand the devastating health impacts of our changing climate,' said Dr. Gigi Osler, **president of the Canadian**

Medical Association, in a statement.' 'From wildfires to heat waves to new infectious diseases, we're already treating the health effects of climate change. This is the public health imperative of our time,' she said."

Specifically, **WHAT is it about** DEQ's "**leakless technology requirement**" that makes it "impossible" to implement? Leakless technology's use in petroleum production has existed for over a decade. From page 3 of the EPA's Leak Detection and Repair, A Best Practices Guide, **Oct, 2007 – twelve years ago**:

"3.1 How are emissions from equipment leaks reduced? Facilities can control emissions from equipment leaks by implementing a Leak Detection And Repair (LDAR) program or by modifying/replacing leaking equipment with "leakless" components.

• Leaks from open-ended lines, compressors and sampling connections are usually fixed by modifying the equipment or component. Emissions from pumps and valves can also be reduced through the use of "leakless" valves and "sealless" pumps. Common leakless valves include bellows valves and diaphragm valves, and common sealless pumps are diaphragm pumps, canned motor pumps, and magnetic drive pumps. Leaks from pumps can also be reduced by using dual seals with or without barrier fluid.

• Leakless valves and sealless pumps are effective at minimizing or eliminating leaks, although their use *may* be limited by materials of construction considerations and process operating conditions. Installing leakless and sealless equipment components may be a wise choice for replacing individual, chronic leaking components. " www.epa.gov/sites/production/files/2014-02/documents/ldarguide.pdf

See as an example, a two-year-old list including leakless components: **Santa Barbara County, California, Air Pollution Control District, BEST AVAILABLE CONTROL TECHNOLOGY (BACT) GUIDELINE 1.2** – Table. Equipment Category: Oil and Gas Fugitive Hydrocarbon Components, Nov 20, 2017 www.ourair.org/wp-content/uploads/BACT-Guideline-1.2.pdf All equipment shown are Achieved in Practice (AIP).

When considering the difference between **Best Available (*control*) Technology** (BA*c*T), the Lowest Achievable Emissions Rate (LAER) and Maximum Achievable Control Technology (MACT), How does a **cost-benefit analysis** compare "affordable" or "reasonably profitable" continuing "business-as-usual" private petroleum production with the deepening perils of destruction of our human-habitable planet? Aren't these externalized costs actually short-term, private pocket change versus dire near-term mass destruction and extinction?

When petroleum reached $100 a barrel, it looked like many could make big profits somewhat easily: the boom was on. Do **smaller**, independent oil producers and other service providers differ much from **prospectors** – grizzled old-timers with a mule, shovel, pickax and some supplies – hoping to strike it rich? Other than vastly advanced technology and a greater investment, including where to find their "gold," aren't they quite similar? And when many of these smaller, independent producers raise their voices to protect their interests, including decrying *any* regulation, is succumbing to that cry wise, and in the best interest of the greatest good for those protected by such regulations? Too often, those who've chosen livelihoods covered by careful, adequate regulation seem to protest the loudest, and demand the least, most lenient regulation, to make their business or occupation easier, cheaper and more profitable.

On the other hand, neither should the regulator defer to the biggest or most prominent producer, who may insist on its demands. This can promote attempting to "balance" among **false equivalency**, bowing to the voices of outside pressures with powerful economic interests.

Isn't this **really a simple business profitability decision? Would compliance with no-leak methane- release-monitoring make production "impossible" if ND light crude was selling here for $60 a barrel? $80? $100?** Why should ND have to play a reckless scoundrel's role in increasing global warming as a partner with

hydrocarbon producers to save them from implementing the best technology to prevent, monitor and control these dangerously imperiling gas releases?

The biggest worldwide leaders in petroleum don't seem to think so. No less than "**former Shell Oil President John Hofmeister**, now founder & CEO of Citizens for Affordable Energy, along with BP America *and* Exxon, all want to continue to see the federal government regulate methane emissions. They're "skeptical of the proposed federal rollback on emissions rules for two reasons. The first reason is, why waste methane? Why allow fugitive methane to go into the atmosphere when you can capture it and sell it as natural gas? Methane is money. So you capture & take to market what you've produced. The idea of having a completely closed production system to capture the methane and take it to the marketplace just makes perfect business sense." Aug 29, 2019 NPR All Things Considered www.npr.org/2019/08/29/755555482/former-shell-oil-president-john-hofmeister-weighs-in-on-rollback-of-emissions-ru

"No. 2 is, in the future, the ability to operate in the fossil fuel industry is going to demand an environmental performance where the public believes you're protecting the land, water and air. So regulations that protect the water, land and air, which enable the industry to continue to do what it does, are essential for the industry to be successful down the road. That's changed in the last 20 years. So it's necessary for the industry to recognize that this is the way it's going to be, and it's the way it *should* be."

"**The producers who do want these regulations removed are the smaller producers**. Why would they, more than the larger companies, want these regulations to go away?:

"Thousands of independent operators produce oil and gas in the U.S., and they operate with much lower volumes of oil and gas. They might have one or two drilling rigs, and a half dozen employees. So these are folks that watch where every nickel and dime is spent, and for them and their operating model, it becomes more expensive than they'd like to pay for, to have these regulations because they'd rather just emit a certain quantity of fugitive methane, give it up in the marketplace, but not have to pay the costs of engineering and putting in place a completely closed production system which captures the methane.

"So it's really a cost factor. It's like, not everybody could be a McDonald's franchise owner because there's a certain cost associated, but somebody could have a hot dog stand at the end of the street and operate with a much lower cost basis. It's that's kind of principle here.

"But long term, as a strategy, letting their operating model govern what's happening with methane emissions is not a good strategy. "It's not good for the public and the environment, and it's not good for the industry because it's really going on the cheap, and there's enough money in the industry to not have to go on the cheap. Consumers pay a good, healthy cost for the oil and gas they consume, and that money has to pay for all the bills of the producing companies. Like any other industry, if people can't afford to be in the industry, they need to go do something else. So [Hofmeister] isn't afraid of the costs of doing business under the regulatory environment we've currently had. And while *he's* in favor of regulatory rollback in [other] areas where it's *really* necessary, this isn't necessary, in his view."

"Rollback supporters say the industry can just regulate itself. Why isn't that enough? "[He] doesn't think it's enough for the industry to regulate itself because what you need to come to is an even playing field and an even level of operations. And the public has a right to expect – whether it's federal, state or local – a certain uniformity by which the industry operates. And the regulations require uniformity because the industry knows what compliance is all about, and it's basically a compliant industry. You tell them what to do; they're going to do it." Aug 29, 2019 NPR All Things Considered www.npr.org/2019/08/29/755555482/former-shell-oil-president-john-hofmeister-weighs-in-on-rollback-of-emissions-ru

Submitted by B. R. Bale, Mandan, ND

Far More Methane Leaking at Oil, Gas Sites in Pennsylvania than Reported

An EDF comparison of company-reported data and research measurements finds as much as 5 times more methane, a climate-warming greenhouse gas, is leaking.

Inside Climate News, Feb 16, 2018, by Neela Banerjee
https://insideclimatenews.org/news/16022018/methane-leaks-oil-natural-gas-data-global-warming-pennsylvania-edf-study
[*Note*: Please refer to this link, for the illustrations there: **Pennsylvania Methane Emissions – in tone, from conventional and unconventional oil & gas wells, 2015**; & **Pennsylvania's Methane Emissions Much Higher than Reported**]

Photo caption: The Environmental Defense Fund estimates that nearly $68 million worth of energy resources are wasted through methane leaks in Pennsylvania's Marcellus Shale [alone].

Leaks of methane, a powerful greenhouse gas, from oil and gas sites in Pennsylvania could be five times greater than industry reports to state regulators, according to a new analysis by the Environmental Defense Fund. Drawing from peer-reviewed research based on measurements collected downwind of oil and gas sites, along with government data, the EDF analysis estimates that the state's oil and gas wells and infrastructure leak more than 520,000 tons of methane annually, largely due to faulty equipment. "This wasted gas causes the same near-term climate pollution as 11 coal-fired power plants and results in nearly $68 million worth of wasted energy resources," the group said in its report, released Thursday.

The under-reporting of methane leaks in Pennsylvania is part of a nationwide pattern[1] that peer-reviewed studies have uncovered in recent years as scientists compare federal and state statistics to data they gather on the ground and in aircraft flyovers. 1
http://e360.yale.edu/features/on_fracking_front_a_push_to_reduce_leaks_of_methane

Please see this lead article's link, https://insideclimatenews.org/news/16022018/methane-leaks-oil-natural-gas-data-global-warming-pennsylvania-edf-study,to view the Illustration:
Pennsylvania Methane Emissions – in tone, from conventional and unconventional oil & gas wells, 2015

The disparity between what researchers find and what industry reports raises important questions about the actual level of greenhouse gas emissions in the United States and the viability of natural gas as an alternative to coal, if limits aren't placed on methane leaks from gas and oil infrastructure. Methane, the primary constituent of natural gas, is a short-lived climate pollutant that is about 30 times more potent than carbon dioxide over a century. The Trump administration has been working to roll back several policies and initiatives that were designed to rein in methane emissions, most recently to end requirements to limit leaks at oil and gas sites on federal land.

As Much as 5 Times More Methane

In the new report, EDF analyzed methane leaks from Pennsylvania's conventional oil and gas wells, mostly drilled before 2008, and from unconventional wells, those unlocked since then using hydraulic fracturing. There are far more conventional wells than unconventional ones in

the state, and because they are older they leak at a much higher rate. Twenty-three percent of methane at a conventional well leaked into the atmosphere compared to 0.3 percent at a fracked well, EDF estimated.

But the newer fracked wells produce considerably more natural gas than the older wells. As a result, even a small leakage rate of 0.3 percent led to a vast amount of methane entering the atmosphere, the analysis estimated. EDF calculated that fracked wells spewed about 253,500 tons of methane in 2015, and conventional wells, 268,900 tons. The Pennsylvania Department of Environmental Protection tracks methane only from unconventional oil and gas sites. In 2015, its data showed 112,100 tons of methane leaked.

Please see this lead article's link, https://insideclimatenews.org/news/16022018/methane-leaks-oil-natural-gas-data-global-warming-pennsylvania-edf-study,to view the Illustration:
Pennsylvania's Methane Emissions Much Higher than Reported

Industry's underestimation of methane leaks comes from outdated methodology, said David Lyon, the lead scientist for the EDF report. Much of the methodology can be traced back to standards for estimates established years ago by the Environmental Protection Agency, he said.

Pennsylvania Considers New Methane Rules
EDF chose to look at Pennsylvania's methane leaks because the state is expected to issue rules in March to reduce methane leaks from new oil and gas sites. The state Department of Environmental Protection is reviewing the EDF findings, said spokesman Neil Shader. "DEP is nearing finalization of new permits that will establish thresholds for methane for new unconventional well sites and compressor stations," he said. He did not indicate if or when Pennsylvania would move to cut emissions from existing sites. Energy In Depth, an industry advocacy group, did not respond to an email about the EDF study.

Colorado and California have adopted rules to cut methane leaks from oil and gas sites, Lyon said, which gives him hope for Pennsylvania, Texas and other oil and gas states. "I would take an optimistic message from this: There are many solutions, and emissions can be reduced if we implement comprehensive practices," Lyon said. "The main one is frequently doing leak detection and repair. Another is looking for malfunctions and site design issues, so that you're not only working on ongoing problems but predicting future issues as well."

Arctic Methane Leaks Go Undetected Because Equipment Can't Handle the Cold

Equipment failures in the icy cold raise questions about how accurate emissions estimates from oil and gas wells are in a place where climate change stakes are high.

Inside Climate News, May 31, 2018, by Sabrina Shankman
https://insideclimatenews.org/news/31052018/arctic-oil-gas-methane-leak-detection-technology-reliability-problems-alaska-climate-change
[*Note*: Please refer to this link, for the three embedded infrared methane detection example videos there.]

The most widely-used technology for detecting methane leaks from oil and gas operations does not work reliably in extremely cold weather – like on Alaska's North Slope, according to recent research and the industry's own reports. When the weather hits the extreme lows common around Prudhoe Bay, when the winds whip and the sun dips below the horizon for a few months, the infrared technology required to look for methane leaks isn't always able to find them. "A lot of the equipment just doesn't function well at -40° or -50°," said James Plosay, who manages the air permits program for the Alaska Department of Environmental Conservation's Division of Air Quality.

Across the country, recent reports have found that methane leaks from oil and gas infrastructure are under-reported. One recent study by the Environmental Defense Fund (EDF) found that as much as **five times** more methane could be leaking from sites in Pennsylvania than industry reports to state regulators. But what's happening on Alaska's North Slope represents a unique problem – one of a litany of challenges facing operators in the punishing conditions there – and raises questions about how accurate estimates of fugitive emissions are in a place where the climate change stakes are among the highest.

Methane is a potent climate forcer. Though it's a short-lived climate pollutant that does not remain in the atmosphere as long as carbon dioxide, methane's impact on climate is much greater than CO2 in the short-term. In the Arctic, where temperatures are rising at least twice as fast as the rest of the world, methane alone has caused a half a degree Celsius of warming. Since 2008, the oil and gas industry in the U.S. has been required to use **Optical Gas Imaging** technology to detect methane leaks. Arvind Ravikumar, a Stanford post-doctoral fellow who studies this technology and its ability to detect leaks, described the tool as essentially a "handycam, but with infrared so the methane becomes visible."

The company that makes the most widely used cameras, FLIR Systems, Inc., said its product works in a variety of climates, including Alaska's North Slope and in Canada, with special handling procedures. It did not address the concerns raised by the recent reports when asked about them. The problem of these leaks represents a common ground between environmentalists and industry, in that both see it as a problem that should be solved. Methane leaks mean lost profits to the industry. "It's in their best interest to keep leaks down," said Plosay. "But of course, it's a huge industrial process and leaks happen."

2016 Rules Required Leak-Detection Tech

Since its introduction over a decade ago, Optical Gas Imaging technology has been in widespread use. In 2016, when the Obama Administration passed rules to reduce methane emissions, it included a requirement that operators inspect facilities twice a year using instrument-based detection. It called for the use of infrared cameras or other approved methods. In 2015, as part of the rulemaking process, Laura Perry, the air quality coordinator for ConocoPhillips Alaska, submitted a comment to the EPA[1] in which she explained the problem with the cameras. "According to FLIR Systems, Inc., the optical gas imaging cameras' operating temperature range is from -4°F to 122°F. This manufacturer does not offer any gas imaging cameras designed to operate in temperatures below -4°F."

1 www.documentcloud.org/documents/4450581-ConocoPhillips2015comment.html

On the North Slope in the winter, it is normal for temperatures to be far below -4°F, Perry wrote. She also pointed out that **the camera is designed to operate when wind speeds are less than 8 mph**, which is gentler than the ordinary winds of an Alaskan winter. In light of this – and the costs associated with the rule's requirement to shut down facilities to repair leaks, which Perry wrote would have an economic impact on Alaska's economy – Perry asked that the North Slope be exempted from the 2016 methane rules. Though the request wasn't granted in full, the final rule did exempt natural gas processing plants on the North Slope from the rule. In late February of this year, that exemption was expanded.

[*First embedded infrared methane detection example video:* Aliso Canyon methane leak, captured … "Using a FLIR camera, EDF captured California's Aliso Canyon methane leak that started in 2015 and wasn't visible to the naked eye."]

Trump's EPA Loosened **Inspection Rules**

While the Trump administration's attempt to overturn Obama's methane rules is facing legal challenges on several fronts, the EPA issued two narrow amendments to the Fugitive Emissions Requirements of the rules.

One amendment got rid of a requirement that leaks had to be repaired during emergency shutdowns. Instead, they can now be repaired during the next planned shutdown or within two years, whichever is earlier. And on the North Slope, another amendment gives operators more time to conduct inspections to new or modified wells, so if a well is drilled in winter, instead of having to inspect it within 60 days, operators now have six months.

[*Second embedded infrared methane detection example video:* EDF captures the Aliso Canyon methane ...

"Infrared footage shot by EDF reveals the giant methane leak from Aliso Canyon."]

An EPA fact sheet explaining the changes to the rule ascribed this change to reports from industry that methane cannot be detected as well during the winter. A 2017 comment from the American Petroleum Institute had cited Perry's 2015 letter about the inability to detect leaks in extreme cold. (In its comment, API also asked that other locations that experience extreme cold, like **North Dakota** and Wyoming, be exempted. That request has not been granted.)
www.epa.gov/sites/production/files/2018-03/documents/epa_amends_certain_aspects_of_nsps.fact_sheet.2.23.18.pdf; www.documentcloud.org/documents/4450574-APIComment.html

“Both amendments are expected to result in cost savings for the oil and gas industry, as well as reductions in climate benefits that would occur from reducing methane emissions,” the fact sheet says. On the North Slope, the EPA estimates the change will save the industry approximately $24,000 a year in compliance costs, and that approximately 34 tons of methane per year that would have been captured will be released into the atmosphere as a result.

Where Are the Leak Risks?

In her 2015 letter, ConocoPhillips' Perry wrote that there are certain things that operators do on the North Slope that help make up for the issues around leak detection in winter. For instance, she wrote that processing facilities are fully manned around the clock and are entirely enclosed. “Because they are all enclosed and manned, liquid and gas leaks cannot be generally tolerated so the facilities (and manifold buildings at the drill sites) contain gas detection equipment that alert operators to leaks so they may be expeditiously repaired,” she wrote.

While true, Alaska EPA inspector John Pavitt said there are plenty of other opportunities for gas leak on the North Slope. “If it's a gas well, I can't think of an example where one is enclosed,” said Pavitt, who has been doing inspections in Alaska for 25 years. “They're out and exposed to the weather.” In fact, he said, there are ample opportunities for leaks in the equipment as the wells pull up a mixture of oil, gas and water which then has to be separated. “As you think about the infrastructure on the North Slope, a lot of the work being done is to separate those streams and to handle them and do what needs to be done,” he said. “There's potential for leaks in any of the equipment handling those streams.”

Ravikumar, at Stanford, said that heaters used on the North Slope during the winter are prime candidates for leaks, which are currently going undetected. “They often vent methane when they're operating,” he said. “We know there are extra emissions sources because of those conditions.”

FLIR Stands by Its Technology

The company behind the cameras stands by their ability to function in cold, windy, dark climates. “FLIR Optical Gas Imagers have been proven as a useful and dependable tool by customers in both the Northern Slope of Alaska and in Canada where the conditions can reach extremely cold temperatures,” Craig O'Neil, the business development manager at FLIR, wrote in an email.

It's easiest for infrared cameras to detect a methane leak when there is a difference in temperature between the gas and the air at the surface. The bigger that difference (which is known as Delta T) the better. Having sunlight helps – it can warm the surface air higher than the gas – but a lack of it can be useful too, said O'Neil. “In extremely low temperature environments where there is no sunlight, FLIR's camera can possibly operate better as there is a good Delta T since the background is much lower than the escaping gas temperature which could be considerably hotter.”

[*Third embedded infrared methane detection example video:* Visualizing Unseen Gases with FLIR ...]

Neither O'Neil nor other representatives from FLIR responded to questions about the concerns voiced by the industry, the EPA and Ravikumar's studies, besides stating that though the cameras might have a reduced battery life in extreme cold, “the camera would still function.”

Similar Problems in Alberta's Tar Sands

It's not just the North Slope that faces challenges detecting methane leaks in the winter. The winter conditions in Alberta, Canada, home to the tar sands and a large natural gas industry, can also hamstring the leak-detecting cameras. Thomas Fox, a Ph.D. student studying methane detection in natural gas fields in Alberta, said that while the temperature there can dip well below zero, the bigger problem in Alberta is the **prairie wind**. “I've spoken informally to field workers who say if the wind is above 30 km per hour (**19 mph**), you shouldn't even go out,” he said.

Canada recently released new methane regulations that aim to cut emissions by 40 to 45 percent by 2025. But Fox worries that without the widespread use of technology that is able to measure leaks year-round, that may be hard to accomplish. “The government has taken this prescriptive approach and said if we take the cameras and go out three times a year and look for leaks, we're going to assume that will lead to the targets we're looking for,” Fox said. “But if you don't take into account that the cameras don't work as well in certain conditions you're maybe not going to achieve the targets that you set out to achieve.”

What Happens Now?

In the U.S., the amendments to the methane rules are raising suspicion among some environmentalists. “Our concern is: What's the real intention behind the rule change?” said David Lyon, a scientist at the Environmental Defense Fund. “Was it a minor technical tweak to address a legitimate issue? Or was it a tactic to start chipping away at the rule, piece by piece?” He also questioned the knowledge gap on the North Slope and in other cold climates as methane leaks go undetected in the winter. Without functioning cameras, operators are left with audio and visual inspections as the best tool for detection. “They've shown that audio-visual inspections do not work,” he said. “That's not a good alternative to finding the leaks.”

EDF has partnered with Ravikumar, the Stanford researcher, to evaluate other forms of detection that could have more success in cold climates. “We're bringing a lot of new technologies together and testing them on performance,” Ravikumar said. One that holds promise is a laser-based technology by California-based **Picarro.** “The temperature is not an issue for us,” said product manager David Kim-Hak. “We can measure methane emission at very cold or low temperatures.” But for now, the costs of Picarro's product has been prohibitively high for industry to use. At this point, it's being used more by researchers. “Our tech is extremely precise and stable. In that sense it's much better and much more advanced than any sensors that you can buy,” said Kim-Hak. “Because of that the price is much higher,” he said. “We are slowly moving into a solution that could be more cost-effective for the user.”

Also see the embedded infrared methane detection videos & photos, *AND* right column sidebar for other stories' headlines.

Submitted as an attachment to my “lead” document,
by B R Bale, Mandan, ND

From:	Jahraus, Sherri A. on behalf of DOH, Air Quality
To:	Thorstenson, Craig D.; Seligman, Angela N.; Semerad, Jim L.
Subject:	FW: NDPC Supplemental Comments Re: Rulemaking Petition and Solicitation of Views
Date:	Friday, December 13, 2019 3:40:29 PM
Attachments:	image001.png 2020 DEQ Air Quality Rules Supplemental Comments by NDPC - FINAL Signed.pdf Appendix A - NDPC Proposal for NDAC Amends - 12.13.2019.pdf
Importance:	High

From: NDPC <ndpc@ndoil.org>
Sent: Friday, December 13, 2019 3:39 PM
To: DOH, Air Quality <airquality@nd.gov>
Cc: Ron Ness <ronness@ndoil.org>; Kari Cutting <kcutting@ndoil.org>; Brady Pelton <bpelton@ndoil.org>
Subject: NDPC Supplemental Comments Re: Rulemaking Petition and Solicitation of Views
Importance: High

Dear Director Semerad:

Please find attached supplemental comments and proposed amendments to the ND Administrative Code offered by the North Dakota Petroleum Council regarding the "Notice of Opportunity to Comment on Rulemaking Petition and Solicitation of Views on Administrative Rules Relating to Air Emissions from Oil and Gas Production Facilities" published October 11, 2019.

We look forward to your review and subsequent air emissions rulemaking.

Sincerely,

North Dakota Petroleum Council
100 W. Broadway Avenue
Suite 200
PO Box 1395
Bismarck, ND 58501
701.223.6380
ndpc@ndoil.org
www.ndoil.org

NORTH DAKOTA PETROLEUM COUNCIL

From: Jahraus, Sherri A. on behalf of DOH, Air Quality
To: Semerad, Jim L.
Subject: FW: NWLA NDDEQ Air Quality Comments
Date: Friday, December 13, 2019 3:41:04 PM
Attachments: NWLA NDDEQ Air Quality Comments.docx.pdf

I did forward this on to Craig and Angie also

From: NW Landowners Association <northwestlandownersassociation@gmail.com>
Sent: Friday, December 13, 2019 3:24 PM
To: DOH, Air Quality <airquality@nd.gov>
Cc: Bob Grant <grants@srt.com>; Bryan Ankenbauer <bryanjoy@nccray.com>; David King <kingd@restel.net>; Hal Ross <halross64@hotmail.com>; Howard Rice <howardchesterrice@gmail.com>; Kathy Johnson <kamj57@gmail.com>; Kenton Onstad <Kentononstad@gmail.com>; Larry Peterson <lap51@srt.com>; Marvin Heller <mlheller@srt.com>; Myron Hanson <mhanson@utma.com>; NWLA Galen Peterson <gpete72@gmail.com>; Pete Artz <pgartz@utma.com>; Steven & Patricia Jensen <psjensen@nccray.com>; Troy Coons <Troy.Coons22@gmail.com>
Subject: NWLA NDDEQ Air Quality Comments

Please see the attached comments of Northwest Landowners Association on Rulemaking Petition and Solicitation of Views on Administrative Rules Relating to Air Emissions from Oil and Gas Production Facilities.

Kind regards,

Amy Shelton
Executive Director
Northwest Landowners Association
northwestlandownersassociation@gmail.com
701-721-4446

NW Land Owners 2015.jpg

Northwest Landowners Association
Comments to NDDEQ Air Quality Division
December 13, 2019

North Dakota Department of Environmental Quality
Division of Air Quality
C/O Jim Semerad, Director
918 E Divide Avenue
Bismarck, ND 58501-1947

Via Email to: AirQuality@nd.gov

Re: Comments of Northwest Landowners Association on Rulemaking Petition and Solicitation of Views on Administrative Rules Relating to Air Emissions from Oil and Gas Production Facilities

Dear Mr. Semerad:

The Northwest Landowners Association (NWLA), which is an association of landowners in our state's oil-producing counties, does not support Continental Resource's petition to change N.D.A.C. § 33-15-07-2(1). We think the petition is not a reasonable request and should simply be denied.

In researching this issue, our understanding is that Continental appears to believe the rule is unclear and therefore needs to be revised. We also found that Continental has gone out of its way to try to get this rule changed. Continental filed a state court lawsuit to challenge this rule (which Continental lost). Then Continental appealed and lost the appeal too. Our state's Supreme Court explained that "Continental wants the district court to read ambiguity into the Rule where it doesn't otherwise exist." In other words, Continental's petition for rulemaking is a solution in search of a non-existent problem. The rule is perfectly fine as is. If Continental has concerns about the rule, our view is that Continental should simply comply with the rule as a good operator.

Further, the rule serves an important purpose. From our perspective, it protects landowners such as our members in North Dakota's oil-producing counties from unreasonable air emissions from oil and gas facilities. It also protects landowners statewide from unreasonable emissions from all sources (not just oil and gas). Our reading of the rule is that it if a facility emits into the air organic compounds or vapors, then the facility must install a "flare" or "equally effective control device approved by [DEQ]." That's it. In our experience, any reputable oil and gas operator should be doing this regardless of any rule. It's common sense.

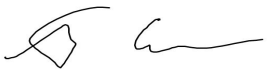
DEQ also requested feedback on NSPS Quad O and Quad Oa. We understand that DEQ is working on implementing these federal programs. We also understand, however, that these

federal programs may significantly change over the next several months. Our main comment is that we believe Quad O and Quad Oa is a separate issue from N.D.A.C. § 33-15-07-2(1), and they should be treated separately. Trying to consider these rules together is confusing and needlessly complicated, especially because it's unclear what may happen with Quad O and Quad Oa going forward. N.D.A.C. § 33-15-07-2(1) has been on the books for decades, and regardless of what happens with Quad O and Quad Oa, we believe that N.D.A.C. § 33-15-07-2(1) should remain on the books. It's a simple, easy to understand, and effective regulation. We do not believe the rules are the same.

Regarding the timing issues with Quad O and Quad Oa, we suggest that DEQ wait, if possible, to implement Quad O and Quad Oa until the rules themselves are settled. Otherwise, DEQ may end up duplicating work by implementing these programs and then having to go through the process of re-implementing these programs.

Thank you for the opportunity to comment on this issue,

Northwest Landowners Association
Troy Coons, Chairman



From:	Miller, Melissa K. on behalf of DEQ, DEQ
To:	Semerad, Jim L.; Seligman, Angela N.
Subject:	FW: Public comments ND Adminstrative Code (NDAC) 33.1-15-07 & Adoption of 40 CFR 60 Subparts 0000 & 0000a into NDAC 33.1-15-12
Date:	Monday, December 16, 2019 10:08:25 AM
Attachments:	my public comments to deq Dec 13 2019.eml.msg image003.png

For your consideration.

Melissa Miller

Communications Coordinator • Office of the Director

701-328-5150 • mmiller@nd.gov • https://deq.nd.gov/

NORTH Dakota | Environmental Quality
Be Legendary.

From: jol bird bear <jol_birdbear@yahoo.com>
Sent: Friday, December 13, 2019 4:34 PM
To: DEQ, DEQ <deq@nd.gov>
Subject: Public comments ND Adminstrative Code (NDAC) 33.1-15-07 & Adoption of 40 CFR 60 Subparts 0000 & 0000a into NDAC 33.1-15-12

deq@nd.gov attached are my comments, trying to get to you before cob. The original email would not send.
Joletta Bird Bear

TUlNRS1WZXJzaW9uOiAxLjANCkRhdGU6IEZyaSwgMTMgRGVjIDIwMTkgMTY6MjU6MTEgLTA2MDAN
ClN1YmplY3Q6IFB1YmxpYyBjb21tZW50cyBORCBBZG1pbmlzdHJhdGl2ZSBDb2RlIChOREFDKSAz
My4xLTE1LTA3ICYNCiBBZG9wdGlvbiBvZiA0MCBDRlIgNjAgU3VicGFydHMgMDAwMCAmIDAwMDBh
IGludG8gTkRBQyAzMy4xLTE1LTEyDQpUaHJlYWQtVG9waWM6IFB1YmxpYyBjb21tZW50cyBORCBB
ZG1pbmlzdHJhdGl2ZSBDb2RlIChOREFDKSAzMy4xLTE1LTA3ICYNCiBBZG9wdGlvbiBvZiA0MCBD
RlIgNjAgU3VicGFydHMgMDAwMCAmIDAwMDBhIGludG8gTkRBQyAzMy4xLTE1LTEyDQpUbzogImRl
cUBuZC5nb3YiIDxkZXFAbmQuZ292PiwgIkFpclF1YWxpdHlAbmQuZ292IiA8QWlyUXVhbGl0eUBu
ZC5nb3Y+LCANCgkiai5zZW1lcmFkQG5kIiA8ai5zZW1lcmFkQG5kPg0KQ2M6IFNjb3R0IFNrb2tv
cyA8c2NvdHRAZHJjaW5mby5jb20+DQpDb250ZW50LVRyYW5zZmVyLUVuY29kaW5nOiBxdW90ZWQt
cHJpbnRhYmxlDQpDb250ZW50LVR5cGU6IHRleHQvaHRtbDsgY2hhcnNldD0idXRmLTgiDQoNCjxo
dG1sIHhtbG5zOm89M0QidXJuOnNjaGVtYXMtbWljcm9zb2Z0LWNvbTpvZmZpY2U6b2ZmaWNlIiB4
bWxuczp3PTNEInVybjpzY2hlbWFzLW1pY3Jvc29mdC1jb206b2ZmaWNlOndvcmQiIHhtbG5z
Om09M0QiaHR0cDovL3NjaGVtYXMubWljcm9zb2Z0LmNvbS9vZj0NCmZpY2UvMjAwNC8xMi9vbW1s
IiB4bWxucz0zRCJodHRwOi8vd3d3LnczLm9yZy9UUi9SRUMtaHRtbDQwIj48aGVhZD48bWV0YSBo
dD0NCnRwLWVxdWl2PTNEQ29udGVudC1UeXBlIGNvbnRlbnQ9M0QidGV4dC9odG1sOyBjaGFyc2V0
PTNEdXRmLTgiPjxtZXRhIG5hbWU9DQo9M0RHZW5lcmF0b3IgY29udGVudD0zRCJNaWNyb3NvZnQg
V29yZCAxNSAoZmlsdGVyZWQgbWVkaXVtKSI+PHN0eWxlPjwhLS0NCi8qIEZvbnQgRGVmaW5pdGlv
bnMgKi8NCkBmb250LWZhY2UNCgl7Zm9udC1mYW1pbHk6IkNhbWJyaWEgTWF0aCI7DQoJcGFub3Nl
LTE6MiA0IDUgMyA1IDQgNiAzIDIgNDt9DQpAZm9udC1mYWNlDQoJe2ZvbnQtZmFtaWx5OkNhbGli
cmk7DQoJcGFub3NlLTE6MiAxNSA1IDIgMiAyIDQgMyAyIDQ7fQ0KLyogU3R5bGUgRGVmaW5pdGlv
bnMgKi8NCnAuTXNvTm9ybWFsLCBsaS5Nc29Ob3JtYWwsIGRpdi5Nc29Ob3JtYWwNCgl7bWFyZ2lu
OjBpbjsNCgltYXJnaW4tYm90dG9tOi4wMDAxcHQ7DQoJZm9udC1zaXplOjExLjBwdDsNCglmb250
LWZhbWlseToiQ2FsaWJyaSIsc2Fucy1zZXJpZjt9DQphOmxpbmssIHNwYW4uTXNvSHlwZXJsaW5r
DQoJe21zby1zdHlsZS1wcmlvcml0eTo5OTsNCgljb2xvcjpibHVlOw0KCXRleHQtZGVjb3JhdGlv
bjp1bmRlcmxpbmU7fQ0KLk1zb0NocERlZmF1bHQNCgl7bXNvLXN0eWxlLXR5cGU6ZXhwb3J0LW9u
bHk7fQ0KQHBhZ2UgV29yZFNlY3Rpb24xDQoJe3NpemU6OC41aW4gMTEuMGluOw0KCW1hcmdpbjox
LjBpbiAxLjBpbiAxLjBpbiAxLjBpbjt9DQpkaXYuV29yZFNlY3Rpb24xDQoJe3BhZ2U6V29yZFNl
Y3Rpb24xO30NCi0tPjwvc3R5bGU+PC9oZWFkPjxib2R5IGxhbmc9M0RFTi1VUyBsaW5rPTNEYmx1
ZSB2bGluaz0zRCIjOTU0RjcyIj48ZGl2IGNsYXNzPTNEV29yZFNlY3Rpb24xPjxwIGNsYXNz
PTNETXNvTm9ybWFsPjxzcGFuIHN0eWxlPTNEJ2ZvbnQtc2l6ZToxMi4wcHQnPkpvbD0NCmV0dGEg
QmlyZCBCZWFyIHN1Ym1pdHMgdGhlIGZvbGxvd2luZyBQdWJsaWMgQ29tbWVudHMgaW4gcmVzcG9u
c2UgdG8gcXVlc3Rpbz0NCm5zIDEsMiwzLDQgb2YgdGhlIHByb3Bvc2VkIE5EIEFkbWluaXN0cmF0
aXZlIENvZGUgKE5EQUMpIDMzLjEtMTUtMDcgJmFtcDsgQT0NCmRvcHRpb24gb2YgNDAgQ0ZSIDYw
IHN1YnBhcnRzIDAwMDAgJmFtcDsgMDAwMGEgaW50byBOREFDIDMzLjEtMTUtMTI6PG86cD48Lz0N
Cm86cD48L3NwYW4+PC9wPjxwIGNsYXNzPTNETXNvTm9ybWFsPjxzcGFuIHN0eWxlPTNEJ2ZvbnQt
c2l6ZToxMi4wcHQnPjxvOnA+Jj0NCm5ic3A7PC9vOnA+PC9zcGFuPjwvcD48cCBjbGFzcz0zRE1z
b05vcm1hbD48c3BhbiBzdHlsZT0zRCdmb250LXNpemU6MTIuMHB0Jz0NCj5JIHJlc2lkZSB3aXRo
aW4gdGhlIEZvcnQgQmVydGhvbGQgSW5kaWFuIFJlc2VydmF0aW9uIGluIHdlc3Rlcm4gTm9ydGgg
RGFrbz0NCnRhIHdoaWNoIHNvbWUgYWRtaXQgaXMgd2hlcmUgdGhlIGJsYWNrIGdvbGQgZmxvd3Mg
YW5kIHRoZSB3aWxkIHdlc3QgZW5zdWVzID0NCmJleW9uZCB0aGUgcmVndWxhdG9yeSBvaWwgYW5k
IGdhcyBmcmFtZXdvcmsuIFRoZSBORCBEZXB0IG9mIEVudmlyb25tZW50YWwgSD0NCmVhbHRoIGFu
ZCB0aGUgRGVwdCBvZiBFbnZpcm9ubWVudGFsIFF1YWxpdHkgYXJlIHJpZ2h0bHkgZmVhcmZ1bCBv
ZiB0aGUgc3RhdD0NCmUgZXhjZWVkaW5nIHRoZSBmZWRlcmFsIEFtYmllbnQgQWlyIFF1YWxpdHkg
U3RhbmRhcmRzIG9mIDcwIHBwYiAocGFydHMgcGVyID0NCmJpbGxpb24pIHdpdGggYSBkZXRlcm1p
bmF0aW9uIHRoYXQgdGhlIHN0YXRlIGhhcyByZWFjaGVkIHRoZSBOb25hdHRhaW5tZW50ID0NCmxl
dmVsIGluIHZvbGF0aWxlIG9yZ2FuaWMgY29tcG91bmRzIChWT0NzKSBlbWlzc2lvbnMgZnJvbSB0
aGUgcmFwaWQgYW5kIGRlbj0NCnNlIGh5ZHJhdWxpYyBmcmFja2luZyB3aGljaCBpcyBjb25jZW50
cmF0ZWQgcHJpbWFyaWx5IGluIHdlc3Rlcm4gTkQgb24gdGhlID0NCkJha2tlbiBhbmQgVGhyZWUg
Rm9ya3Mgb2lsIGZvcm1hdGlvbnMuIE5EIERFUT1FMj04MD05OXMgZmVhcnMgYXJlIHdhcnJhbnRl
ZD0NCiB3aGVuIHRoZSBBbWJpZW50IEFpciBRdWFsaXR5IG1lYXN1cmVzIGF0IDYxIHBwYiAocGFy
dHMgcGVyIGJpbGxpb24pIGZyb20gdD0NCmhlIGxvbmUgV2lsbGlzdG9uIGFpciBxdWFsaXR5IG1v
bml0b3IuPG86cD48L286cD48L3NwYW4+PC9wPjxwIGNsYXNzPTNETXNvTj0NCm9ybWFsPjxzcGFu
IHN0eWxlPTNEJ2ZvbnQtc2l6ZToxMi4wcHQnPldlIGtub3cgdGhhdCB0aGUgTkQgbm9ydGh3ZXN0
ZXJseSBwcj0NCmV2YWlsaW5nIHdpbmRzIGNhcnJ5IFZPQ3MsIG1ldGhhbiwgYWxsIGNvbXBvbmVu

dCBjaGVtaWNhbCBnYXNlcywgYW5kIHBhcnRpYz0NCnVsYXRlIG1hdHRlciBmcm9tIHRoZSBvaWwg
aW5kdXN0cnk9RTI9ODA9OTlzIGV4dHJhY3Rpb24gYW5kIGZyYWNraW5nIGZyb20gdD0NCmhlIG5v
cnRod2VzdCB0byB0aGUgc291dGh3ZXN0IG9mIE5ELiBXZSBrbm93IGZ1cnRoZXIgdGhhdCB0aGUg
b25seSBORCBzdGF0ZT0NCiBhaXIgcXVhbGl0eSBtb25pdG9yaW5nIGluc3RydW1lbnQgaXMgbG9j
YXRlZCBpbiB0aGUgZXh0cmVtZSBub3J0aHdlc3QgZWRnZT0NCiBvZiBvaWwgcHJvZHVjdGlvbiBp
biBORCwgbG9jYXRlZCBhYm92ZSB0aGUgaW50ZW5zZSBhbmQgZGVuc2VseSBwb3B1bGF0ZWQgbT0N
CnVsdGktcGFkIGZyYWNrIHdlbGxzLiBUaGUgcnVzaCB0byBoeWRyYXVsaWMgZnJhY2sgZHJpbGxp
bmcgc3RhcnRlZCBpbiB0aGUgZT0NCmFybHkgdG8gbWlkIDIwMDA9RTI9ODA9OTlzIGFuZCB0aGUg
c3RhdGUgaGFzIGhhZCBhbG1vc3QgMiBkZWNhZGVzIHRvIHJlZ3VsYT0NCnRlIHRoZSBwcm9mdXNl
IFZPQyBlbWlzc2lvbnMuPG86cD48L286cD48L3NwYW4+PC9wPjxwIGNsYXNzPTNETXNvTm9ybWFs
PjxzcD0NCmFuIHN0eWxlPTNEJ2ZvbnQtc2l6ZToxMi4wcHQnPkkgd291bGQgc3VybWlzZSB0aGF0
IGlmIHRoZSBUaHJlZSBBZmZpbGlhdGVkID0NClRyaWJlcyBjYWxsZWQgZm9yIGFuIEFtYmllbnQg
QWlyIFF1YWxpdHkgYWlyIHRlc3Qgb24gRm9ydCBCZXJ0aG9sZCwgdGhlIDcwID0NCnBwYiB3b3Vs
ZCBiZSBzdXJwYXNzZWQuIFRoZSBORCBERVEgYW5kIE5EIERlcHQgb2YgSGVhbHRoIG1heSBzYXkg
dGhleSBkbyBubz0NCnQgaGF2ZSBqdXJpc2RpY3Rpb24gb24gRm9ydCBCZXJ0aG9sZCBidXQgdGhh
dCBoYXMgbm90IGRldGVycmVkIHRoZSBzdGF0ZSBmcj0NCm9tIGR1bXBpbmcgVk9DcyBpbnRvIHRo
ZSBGb3J0IEJlcnRob2xkIGFpcnNoZWQgYW5kIG1vcmUgc3BlY2lmaWNhbGx5IG15IGFpcj0NCnNo
ZWQgb3ZlciBteSBsYW5kcyBpbiBEdW5uIENvdW50eS4gT25jZSBORCBhY2hpZXZlcyBOb24tQXR0
YWlubWVudCB0aGVuIE5EID0NCndvdWxkIGhhdmUgdG8gY29vcGVyYXRlIHdpdGggdGhlIEVQQSB0
byBkZXZlbG9wIGEgcmVnaW9uYWwgbWl0aWdhdGVkIE5vbi1BdD0NCnRhaW5tZW50IFN0YXRlIFdp
ZGUgUGxhbiB0byBjdXJ0YWlsIHRoZSBvdXQgb2YgY29udHJvbCBWT0NzLjxvOnA+PC9vOnA+PC9z
cD0NCmFuPjwvcD48cCBjbGFzcz0zRE1zb05vcm1hbD48c3BhbiBzdHlsZT0zRCdmb250LXNpemU6
MTIuMHB0Jz5JdCBpcyBtb3N0IHVuZj0NCm9ydHVuYXRlIGZvciB0aGUgTkQgREVRIGFuZCBORCBI
ZWFsdGggRGVwdCB0byBmaW5kIGl0c2VsZiBvbiB0aGUgZG9vcnN0ZXBzID0NCm9uIE5vbi1BdHRh
aW5tZW50IG9mIEFtYmllbnQgQWlyIFF1YWxpdHkgdGhyZXNob2xkLCBoYWQgTkQgZW5mb3JjZWQg
aXRzIGV4aT0NCnN0aW5nIHJlZ3VsYXRpb25zIGdvdmVybmluZyB0aGUgZmVkZXJhbCBBbWJpZW50
IEFpciBTdGFuZGFyZHMgb3ZlciB0aGUgbGFzdD0NCiAyIGRlY2FkZXMgdGhpcyBwcm9wb3NhbCB3
b3VsZCBoYXZlIGJlZW4gYXZlcnRlZC48bzpwPjwvbzpwPjwvc3Bhbj48L3A+PHAgYz0NCmxhc3M9
M0RNc29Ob3JtYWw+PHNwYW4gc3R5bGU9M0QnZm9udC1zaXplOjEyLjBwdCc+V2Uga25vdyB0aGF0
IHRoZSBWb2xhdGlsZT0NCiBPcmdhbmljIENvbXBvdW5kcyAoVk9Dcykgc3VjaCBhcyBiZW56ZW5l
LCB0b2x1ZW5lLCBldGh5bGJlbnplbmUsIGFuZCB4eWxlbj0NCmUgYXJlIGNhbmNlciBjYXVzaW5n
IGdhc2VzIGFuZCB0b3hpYyB0byBodW1hbiBoZWFsdGggYW5kIGFyZSBwcm9kdWNlZCBhbmQgZT0N
Cm1pdHRlZCBmcm9tIG9pbCBpbmR1c3RyeSBmcmFja2luZyBpbiB3ZXN0ZXJuIE5ELjxvOnA+PC9v
OnA+PC9zcGFuPjwvcD48cCBjbD0NCmFzcz0zRE1zb05vcm1hbD48c3BhbiBzdHlsZT0zRCdmb250
LXNpemU6MTIuMHB0Jz5PbyBwb3NzaWJsZSBsYW5ndWFnZSBleGlzdD0NCnMgdGhhdCBDb250aW5l
bnRhbCBPaWwgQ29tcGFueSBjb3VsZCBwcm9wb3NlIGJlZm9yZSB0aGUgTkQgREVRIGFuZCBORCBE
ZXB0ID0NCm9mIEhlYWx0aCB3aGljaCB3b3VsZCBzdXBwb3J0IENvbnRpbmVudGFscyBhdHRlbXB0
IHRvIG9idGFpbiBwZXJtaXNzaW9uIHRvID0NCmxlZ2FsbHkgZHVtcCBtb3JlIFZPQ3MgaW4gbXkg
YWlyc2hlZCBvbiB0aGUgRm9ydCBCZXJ0aG9sZCBJbmRpYW4gUmVzZXJ2YXRpbz0NCm4uPG86cD48
L286cD48L3NwYW4+PC9wPjxwIGNsYXNzPTNETXNvTm9ybWFsPjxzcGFuIHN0eWxlPTNEJ2ZvbnQt
c2l6ZToxMi4wcD0NCnQnPlRyaWJhbCBwYXJlbnRzIGFuZCBncmFuZHBhcmVudHMgb2YgY2hpbGRy
ZW4gYW5kIGdyYW5kY2hpbGQgYXJlIHB1YmxpY2FsbD0NCnkgc2hhcmluZyB0aGVpciBkZWVwIGNv
bmNlcm4gd2hlbiB0aGVpciB5b3VuZyBvbmVzIGFyZSBub3cgZXhwZXJpZW5jaW5nIHBybz0NCmZ1
c2UgcmVvY2N1cnJpbmcgbm9zZSBibGVlZHMgaW4gdGhlaXIgaG9tZXMgb24gRm9ydCBCZXJ0aG9s
ZC4gPG86cD48L286cD48Lz0NCnNwYW4+PC9wPjxwIGNsYXNzPTNETXNvTm9ybWFsPjxzcGFuIHN0
eWxlPTNEJ2ZvbnQtc2l6ZToxMi4wcHQnPldldlIGtub3cgdGhhdD0NCiBWT0NzIGFyZSBsaXN0ZWQg
aW4gdGhlIEFnZW5jeSBmb3IgVG94aWMgU3Vic3RhbmNlcyBhbmQgRGlzZWFzZSBSZWdpc3RyeSBi
dT0NCnQgdGhhdCB0aGUgY3VycmVudCBhZG1pbmlzdHJhdGlvbiBoYXMgbm93IGVsaW1pbmF0ZSB0
aGF0IGFnZW5jeSBtdWNoIHRvIHRoZT0NCiBiZW5lZml0IG9mIG9pbCBjb21wYW5pZXMgc3VjaCBh
cyBDb250aW5lbnRhbCBhbmQgdG8gdGhlIGRldHJpbWVudCBvZiBteSBncj0NCmFuZHNvbiBhbmQg
bXlzZWxmIGFuZCBhbGwgbXkgcmVsYXRpdmVzIHJlc2lkaW5nIGluIHRoZSBwYXRod2F5IG9mIHRo
ZSBvaWwgaT0NCm5kdXN0cnkgVk9DcywgYSBwYXRod2F5IHRoYXQgZXh0ZW5kcyB0byB0aGUgY2Fw
aXRhbCBjaXR5IG9mIEJpc21hcmNrIGFuZCBNYT0NCm5kYW4sIGFzIHdlbGwuPG86cD48L286cD48
L3NwYW4+PC9wPjxwIGNsYXNzPTNETXNvTm9ybWFsPjxzcGFuIHN0eWxlPTNEJ2Zvbj0NCnQtc2l6
ZToxMi4wcHQnPlZvY3MgaW4gY2hlbWljYWwgcmVhY3Rpb24gd2l0aCBvdGhlciBnYXNlcyBoYXMg
bm93IHJlc3VsdGVkID0NCmluIGxvY2FsIG96b25lIGluIHdlc3Rlcm4gTkQgYW5kIG1vcmUgc3Bl
Y2lmaWNhbGx5IG9uIHRoZSBGb3J0IEJlcnRob2xkIEluZD0NCmlhbiBSZXNlcnZhdGlvbi4gVGhl

IHRvcG9ncmFwaHkgaXMgcHJldHR5IGZsYXQgaW4gTkQgYW5kIHRoZSB3aW5kIGRvZXMgYmxvdz0N
CiBidXQgaWYgdGhlIFdpbGxpc3RvbiBhaXIgbW9uaXRvciBpcyByZWdpc3RlcmluZyBhIGhpZ2gg
NjEgcHBiIHRoYW4gd2Uga25vdz0NCiB0aGUgbGV2ZWxzIGhlcmUgaW4gdGhlIGNvbmNlbnRyYXRl
ZCBmcmFjayB3ZXN0ZXJuIE5EIGFyZSBleHRyZW1lbHkgaGlnaCBhbj0NCmQgbW9zdCBsaWtlbHkg
ZXhjZWVkIHRoZSA3MCBwcGIgb2YgTm9uLUF0dGFpbm1lbnQuIFdlIGNhbiBzZWUgb3VyIGFpciBh
bmQgaT0NCnQgaXMgZGlydHkuIDxvOnA+PC9vOnA+PC9zcGFuPjwvcD48cCBjbGFzcz0zRE1zb05v
cm1hbD48c3BhbiBzdHlsZT0zRCdmb250LT0NCnNpemU6MTIuMHB0Jz5NeSByZXNwb25zZSByZWNv
bW1lbmRhdGlvbiBpZiBmb3IgdGhlIE5EIERFUSBhbmQgTkQgRGVwdCBvZiBIZT0NCmFsdGggdG8g
a2VlcCB0aGUgYmFuIG9uIFZPQ3MgYXQgdGhlIGN1cnJlbnQgbGV2ZWwgPUUyPTgwPTkzIGRvIG5v
dCBiYWNrIGRvdz0NCm4gdG8gYWxsb3cgb2lsIGluZHVzdHJ5IHRvIHNldCBvdXIgYWlyIHF1YWxp
dHkgc3RhbmRhcmRzLiBEbyBub3QgcmVkdWNlIHRoZT0NCiBsZXZlbCBqdXN0IHNvIHRoZSBDb250
aW5lbnRhbCBPaWwgY29tcGFueSBjYW4gZHVtcCBtb3JlIFZPQ3MgaW50byBteSBhaXJzaD0NCmVk
IHdpdGhvdXQgbGltaXRhdGlvbiBhbmQgd2l0aG91dCBmaW5lIGRldGVybWluYXRpb25zLiBGdXJ0
aGVyLCBJIHJlY29tbWVuZD0NCiB0aGF0IHRoZSBORCBERVEgaW1wbGVtZW50IHRoZSAyMDE2IE1l
dGhhbmUgTmV3IFNvdXJjZSBTdGFuZGFyZHMgUmVndWxhdGlvbj0NCi4gSW5jaGluZyB0b3dhcmRz
IHRoZSBOb24tQXR0YWlubWVudCBsZXZlbCBzaG91bGQgaGVscCB5b3UgcmVkaXNjb3ZlciB5b3Vy
ID0NCnByaW9yaXR5IHRvIHRoZSBjaXRpemVucyBvZiBORCBhbmQgdGhlaXIgcHVibGljIGhlYWx0
aCBtZWRpY2FsIGlzc3VlcyBmcm9tID0NCmluZ2VzdGluZz1DMj1BMCB1bmxpbWl0ZWQgVk9Dcy48
bzpwPjwvbzpwPjwvc3Bhbj48L3A+PHAgY2xhc3M9M0RNc29Ob3JtYWw+PD0NCnNwYW4gc3R5bGU9
M0QnZm9udC1zaXplOjEyLjBwdCc+SSBjYWxsZWQgdGhlIE5EIERFUSB0byBpbnF1aXJlIGFzIHRv
IHRoZSBjdT0NCnQgb2ZmIHRpbWUgZGVhZGxpbmUgZm9yIHN1Ym1pdHRpbmcgZW1haWwgcHVibGlj
IGNvbW1lbnRzLCBJIHdhcyB0b2xkIHR3byB0aD0NCmluZ3M6IHRoYXQgdGhlcmUgbm8gZGVmaW5l
ZCBwdWJsaXNoZWQgY3V0IG9mZiB0aW1lIGFuZCBjb21tZW50cyB3b3VsZCBiZSBhYz0NCmNlcHRl
ZCB1bnRpbCAxMjowMCBwbSBEZWMgMTMsIDIwMTk7IGhvd2V2ZXIsIGlmIGxlZ2FsbHkgY2hhbGxl
bmdlZCBjb21tZW50cz0NCiBzdWJtaXR0ZWQgYWZ0ZXIgQ09CIGNvdWxkIGJlIGluIHVuY2VydGFp
biBsZWdhbCBzdGF0dXMuIFNvIEkgc3VibWl0IG15IHB1Yj0NCmxpYyBjb21tZW50cyBhdCAzOjI1
IHBtIGJlZm9yZSBhbnkgQ09CIG9uIERlYyAxMywgMjAxOS48bzpwPjwvbzpwPjwvc3Bhbj48Lz0N
CnA+PHAgY2xhc3M9M0RNc29Ob3JtYWw+PHNwYW4gc3R5bGU9M0QnZm9udC1zaXplOjEyLjBwdCc+
SSBhbSBhbiBlbnJvbGxlZD1DMj0NCj1BMCBNYW5kYW4gYW5kIEhpZGF0c2EgbWVtYmVyIG9mIHRo
ZSBUaHJlZSBBZmZpbGlhdGVkIFRyaWJlcywgYSB0cnVzdCBsYW5kID0NCmFuZCBtaW5lcmFsIG93
bmVyLCBhbmQgYSBtZW1iZXIgb2YgRm9ydCBCZXJ0aG9sZCBQcm90ZWN0b3JzIG9mIFdhdGVyIGFu
ZCBFYT0NCnJ0aCBSaWdodHMgYW5kIGFqIG1lbWJlciBvZiBEYWtvdGEgUmVzb3VyY2UgQ291bmNp
bC4gPG86cD48L286cD48L3NwYW4+PC9wPj0NCjxwIGNsYXNzPTNETXNvTm9ybWFsPjxzcGFuIHN0
eWxlPTNEJ2ZvbnQtc2l6ZToxMi4wcHQnPlRoYW5rIHlvdS4gPG86cD48L286cD0NCj48L3NwYW4+
PC9wPjxwIGNsYXNzPTNETXNvTm9ybWFsPjxvOnA+Jm5ic3A7PC9vOnA+PC9wPjxwIGNsYXNzPTNE
TXNvTm9ybWFsPj0NClNlbnQgZnJvbSA8YSBocmVmPTNEImh0dHBzOi8vZ28ubWljcm9zb2Z0LmNv
bS9md2xpbmsvP0xpbmtJZD0zRDU1MDk4NiI+TWFpbD0NCjwvYT4gZm9yIFdpbmRvd3MgMTA8L3A+
PHAgY2xhc3M9M0RNc29Ob3JtYWw+PG86cD4mbmJzcDs8L286cD48L3A+PC9kaXY+PC9ibz0NCmR5
PjwvaHRtbD49DQo=

From: Jahraus, Sherri A. on behalf of DOH, Air Quality
To: Semerad, Jim L.; Thorstenson, Craig D.; Seligman, Angela N.
Subject: FW: Response to Notice of Opportunity to Comment
Date: Friday, December 13, 2019 4:56:16 PM
Attachments: image001.png
image002.png
image003.png
image004.png
image005.png
image006.png
image007.png
Joint Comments Re NDDEQ Notice.pdf
Cover Letter.pdf

From: harrison.reback@bakerbotts.com <harrison.reback@bakerbotts.com>
Sent: Friday, December 13, 2019 4:48 PM
To: DOH, Air Quality <airquality@nd.gov>
Cc: Scott.Janoe@BakerBotts.com
Subject: Response to Notice of Opportunity to Comment

To Whom it May Concern,

Attached to this email is a cover letter and joint comments from Hess Corporation, Marathon Oil Company, and Hunt Oil Company in response to the Notice of Opportunity to Comment on Rulemaking Petition and Solicitation of Views on Administrative Rules Relating to Air Emissions from Oil and Gas Production Facilities. We appreciate your consideration.

These comments are also being mailed to NDDEQ's office at 918 E Divide Avenue.

Best,

Harrison Reback

Harrison Reback
Associate

Baker Botts L.L.P.
harrison.reback@bakerbotts.com
T +1.713.229.1567
F +1.713.229.76967
M +1.832.316.2478

910 Louisiana Street
Houston, Texas 77002
USA

BAKER BOTTS

BAKER BOTTS L.L.P.

910 LOUISIANA
HOUSTON, TEXAS
77002-4995

TEL +1 713.229.1234
FAX +1 713.229.1522
BakerBotts.com

AUSTIN
BEIJING
BRUSSELS
DALLAS
DUBAI
HONG KONG
HOUSTON
LONDON
MOSCOW
NEW YORK
PALO ALTO
RIYADH
SAN FRANCISCO
WASHINGTON

December 13, 2019

Harrison F. Reback
TEL: 7132291567
FAX: 7132297967
harrison.reback@bakerbotts.com

VIA E-MAIL (AIRQUALITY@ND.GOV)

Jim Semerad
North Dakota Department of Environmental Quality
Division of Air Quality
918 E Divide Avenue
Bismarck, ND 58501-1947

Re: **Comments on Notice of Opportunity to Comment on Rulemaking Petition and Solicitation of Views on Administrative Rules Relating to Air Emissions from Oil and Gas Production Facilities**

Dear Mr. Semerad,

Attached with this letter please find the joint comments from Hess Corporation, Marathon Oil Company, and Hunt Oil Company in response to the Notice of Opportunity to Comment on Rulemaking Petition and Solicitation of Views on Administrative Rules Relating to Air Emissions from Oil and Gas Production Facilities. We appreciate your consideration.

Respectfully,

Harrison Reback

Harrison Reback

Attachments

Jim Semerad
North Dakota Department of Environmental Quality
Division of Air Quality
918 E Divide Avenue
Bismarck, ND 58501-1947

Submitted electronically via AirQuality@nd.gov

Re: **Comments on Notice of Opportunity to Comment on Rulemaking Petition and Solicitation of Views on Administrative Rules Relating to Air Emissions from Oil and Gas Production Facilities**

Dear Mr. Semerad,

Hess Corporation ("Hess"), Marathon Oil Company ("Marathon"), and Hunt Oil Company ("Hunt") (collectively, the "Commenters") respectfully submit these joint comments for consideration by the North Dakota Department of Environmental Quality ("DEQ"). The Commenters submit these comments in response to the October 11, 2019 Notice of Opportunity to Comment on Rulemaking Petition and Solicitation of Views on Administrative Rules Relating to Air Emissions from Oil and Gas Production Facilities ("Notice") issued by DEQ. The Notice requested comment regarding 1) the pending Rulemaking Petition to amend N.D. Admin. Code § 33.1-15-07-02(1) filed by Continental Resources, Inc., and 2) DEQ's anticipated adoption of the federal new source performance standards for crude oil and natural gas, 40 C.F.R. Part 60, Subpart OOOO ("Quad O") and Subpart OOOOa ("Quad Oa").[1] Given the Commenters' large presence in North Dakota's Bakken oilfield, they are well-situated to offer these comments to DEQ as it considers these issues.

[1] *See* Notice, page 1.

Hess is a global independent energy company engaged in domestic exploration and production of crude oil and natural gas in North Dakota and the U.S. Gulf of Mexico.[2] Hess operates six rigs and approximately 1,500 producing wells across an area of roughly 550,000 acres in the Bakken oilfield.

Marathon is an independent E&P company focused on U.S. resource plays. Marathon currently operates five drilling rigs and 735 producing wells across an area of approximately 250,000 acres in the Bakken oilfield.

Hunt is one of the world's leading independent energy companies, with operations in North America, South America, Europe, Africa and the Middle East. Hunt holds approximately 95,000 acres across four counties in the Williston Basin.

The Commenters' efforts contribute to America's energy renaissance and provide high quality jobs for American workers.

These comments are organized as responses to each of the three discrete questions posed in the Notice, followed by a response to additional concerns raised in DEQ's Rulemaking Preliminary Analysis ("Preliminary Analysis"). In addition to the comments set forth herein, the Commenters generally support the comments filed by the North Dakota Petroleum Council, but offer a different approach to amending N.D. Admin. Code §33.1-15-07-02.

[2] Hess also has international oil and gas production operations in Malaysia and Denmark.

I. DEQ Should Proceed with Adoption of Quad O and Quad Oa

DEQ's Notice asked: "[h]ow do recent EPA rulemakings involving Quad O and Quad Oa impact DEQ's anticipated adoption of these rules?"[3]

DEQ should adopt Quad O and Quad Oa as expeditiously as possible. Recent EPA rulemakings should not impact DEQ's adoption of the rules. As it has done in the past with other federal standards, DEQ can incorporate Quad O and Quad Oa by reference in Chapter 12 of DEQ's regulations. If EPA makes subsequent changes to Quad O and Quad Oa, DEQ can update its regulations to incorporate the modified versions of Quad O and Quad Oa.

II. DEQ Should Amend N.D. Admin. § 33.1-15-07-02

DEQ's Notice also asked: "[a]nticipating that DEQ adopts Quad O and Quad Oa, should it: 1) amend N.D. Admin. Code §33.1-15-07-02(1) as requested in the Petition for Rulemaking, 2) amend N.D. Admin. § 33.1-15-07-02(1) in a different way, or 3) not amend N.D. Admin Code §33.1-15-07-02(1)?"[4]

The Commenters believe it is necessary to amend N.D. Admin. § 33.1-15-07-02 to provide regulatory certainty and ensure consistent protection of the environment. However, DEQ should take a different approach than the one proposed in the Petition for Rulemaking. Rather than altering § 33.1-15-07-02(1), the Commenters recommend that DEQ add a new subsection § 33.1-15-07-02(4). This addition would clarify that compliance with the monitoring and repair

---

[3] *Id.*

[4] *Id.*

requirements of Quad O or Quad Oa or another monitoring and repair program equally effective in minimizing emissions constitutes compliance with § 33.1-15-07-02(4) for fugitive emissions from oil and gas facilities. Specifically, the Commenters offer the following proposed language:

> 33.1-15-07-02(4): For fugitive emissions from oil and gas facilities subject to the monitoring and repair requirements set forth in sections 5416 and 5417 of 40 CFR, part 60, subpart OOOO, or sections 5397a and/or 5416a and 5417a of 40 CFR, part 60, subpart OOOOa (as applicable), the operator's compliance with such provisions shall constitute compliance with section 33.1-15-07-02(1) and section 33.1-15-17-01(2) (if applicable). For fugitive emissions not subject to 40 CFR, part 60, subpart OOOO, sections 5416 and 5417, or subpart OOOOa, sections 5397a and/or 5416a and 5417a, the operator may demonstrate compliance with section 33.1-15-07-02(1) and section 33.1-15-17-01(2) (if applicable) by:
>
> a. complying with the monitoring and repair requirements in section 5397a of subpart OOOOa; or
>
> b. implementing and documenting compliance with a monitoring and repair program in which the operator conducts routine inspections and repairs as necessary tanks, hatches, compressors, vent lines, pressure relief valves, packing elements, and couplings to minimize fugitive emissions from equipment used for gas containing organic compounds. As part of the program: (i) tank hatches must hold a positive working pressure or must be repaired or replaced; and (ii) any identified source of fugitive emissions shall be repaired or replaced as soon as practicable, but no later than 30

calendar days after detection of the fugitive emissions, unless a written notice has been provided to the Department with an explanation why a longer period is necessary; or

c. implementing and documenting compliance with an alternative program that is equally effective in minimizing emissions as that prescribed in subsections a or b, above.

The language proposed above resolves each of the concerns raised by DEQ in its Preliminary Analysis response to petitioner's proposed language. First, the Commenters' language is limited to oil and gas facilities. Accordingly, DEQ may continue to use chapter 33-15-07 to control organic compound emissions from all other sources in addition to oil and gas facilities subject to subparts OOOO or OOOOa. The proposed language also resolves DEQ's concerns with i) potential removal of the transmission and storage sections from OOOOa and ii) removal of federally enforceable tank limits. The Commenters' proposed language provides clarification for fugitive emissions and avenues to demonstrate compliance as to fugitive emissions – it does not change the section 33.1-15-07-02(1) requirement to control organic compound emissions with a flare or equally effective control device. Accordingly, even if transmission and storage segments were removed from Quad Oa, DEQ could continue to control VOCs from these sources. Similarly, midstream sources will continue to determine Quad O and Quad Oa applicability after implementing the required Chapter 7 controls. Further, Quad O and Quad Oa both provide bases to exclude controlled vapors from applicability determinations for storage vessels not subject to a legally and practically enforceable limit.[5] As a result, even if a change in language impacted

[5] *See* 40 CFR §§ 60.5365(e)(3), 60.5365a(e)(3).

federally enforceable tank limits, fugitive emissions would not necessarily cause tanks that were previously excluded to become subject to Quad O and Quad Oa.

With regard to the Ozone Infrastructure State Implementation Plan, the proposed 33.1-15-07-02(4) merely clarifies the requirements for demonstrating compliance with fugitive emissions and provides options for monitoring and repair programs. In other words, this change does not relax any requirements for emissions controls or result in an increase in emissions that could interfere with attainment and reasonable further progress.

III. DEQ Should Undertake Simultaneous Rulemakings

Finally, DEQ's Notice asked: "[i]f DEQ decides to undertake rulemaking to both adopt Quad O and Quad Oa and amend N.D. Admin. § 33.1-15-07-02(1), should the DEQ conduct one proceeding, or should it first adopt Quad O and Quad Oa and obtain EPA's approval for implementing those rules before proposing any amendments to N.D. Admin. Code § 33.1-15-07-02(1)?"[6]

DEQ should conduct two separate rulemakings and proceed with both in parallel. The Commenters understand that amending N.D. Admin. Code § 33.1-15-07-02 may take more time to complete than incorporation by reference of Quad O and Quad Oa. However, the two rulemakings do not need to be finalized at the same time. Because the incorporation of Quad O and Quad Oa will likely be completed first, DEQ can finish the incorporation by reference, begin implementing Quad O and Quad Oa, and make any necessary preparations prior to completing the amendment to N.D. Admin. Code § 33.1-15-07-02. Waiting until EPA has approved the delegation

[6] *Id.*

would unnecessarily delay the amendment to N.D. Admin. Code § 33.1-15-07-02, thereby prolonging regulatory uncertainty.

IV. Conclusion

As operators in North Dakota's Bakken oilfield, the Commenters place the utmost importance on environmental compliance. To ease regulatory uncertainty and ensure environmental compliance, DEQ should incorporate Quad O and Quad Oa by reference. DEQ should also simultaneously undertake the process for amending N.D. Admin. Code § 33.1-15-07-02, albeit with a different approach than that presented in the Petition for Rulemaking. The Commenters believe the language proposed in these comments address DEQ's concerns with the Petition for Rulemaking and provide a foundation for DEQ to proceed with the rulemaking.

Sincerely,

HESS CORPORATION

By: /s/Brent Lohnes

Brent Lohnes

General Manager – North Dakota

MARATHON OIL COMPANY

By: Jeffrey R. Burro /s/

Jeffrey R. Burro

HES Manager, Bakken

HUNT OIL COMPANY

By: Dr Laine Fletcher MD

DeLaine Fletcher

Director – Environment, Health and Safety

From: Claryca Mandan
To: Semerad, Jim L.
Subject: Ft Berthold Air Quality
Date: Friday, December 13, 2019 11:49:08 PM

Comment. Would you sacrifice the health and lives of your own grandchildren in your own backyard in your home for the greater benefit of the economy of ND and the oil companies. Why are you asking those of us residing on the reservation and in these counties to do just that. The huge glow in the sky from the oil flares raining down VOCs on our residents exists no where else in ND but in and around the reservation
Apparently our citizens are not entitled to the same environmental protections as citizens in the rest of the state and nation. We live in what looks like Armageddon now. Does the State of ND know the secret fracking recipes of these oil companies? Does the state know what VOC s and heavy metals or other dangerous agents are raining down on us.? Remember way back when in the 70s how concerned ND environmental officials were concerned about the potential for acid rain from coal fired plants? That issue pales in comparison to the VOCs and toxins pumped into the air in the Bskken. Our grandchildren deserve better than to be part of a future cancer cluster.SHAME on you ND.

Sent from my Verizon, Samsung Galaxy smartphone

From: Scott Skokos
To: Semerad, Jim L.; Glatt, Dave D.
Subject: Fwd: DRC comments re: Continental Resources Air Quality Petition
Date: Friday, December 13, 2019 5:41:57 PM
Attachments: DRC Comments re- Cont Petition 0000 & 0000a.pdf

Jim and Dave,

I just wanted to share with you both DRC's public comment on the Continental Petition for Rule-making. It was great meeting with you both earlier this week! Have a great weekend.

Scott

---------- Forwarded message ---------
From: **Scott Skokos** <scott@drcinfo.com>
Date: Thu, Dec 12, 2019 at 12:53 PM
Subject: DRC comments re: Continental Resources Air Quality Petition
To: <airquality@nd.gov>

Attached are Dakota Resource Council's comments. Let me know if you would like me to submit anything else, or if you have any questions. Thank you for the opportunity to comment.

Best Regards,

Scott Skokos

--
Scott Skokos
Executive Director
701-224-8587
scott@drcinfo.com

--
Scott Skokos
Executive Director
701-224-8587
scott@drcinfo.com

December 13, 2019

David Glatt
North Dakota Department of Environmental Quality, Division of Air Quality
918 E. Divide Avenue
Bismarck, ND 58501-1947

Filed via email: AirQuality@nd.gov

Re: Comments of Dakota Resource Council re: 1) the pending Rulemaking Petition to amend N.D. Admin Code § 33.1-15-07-02 (1) filed by Continental Resources, Inc.; and 2) the DEQ's anticipated adoption of the federal new source performance standards for crude oil and natural gas, 40 C.F.R. Part 60, Subpart 0000 (Quad 0) and Subpart 0000a (Quad 0a).

The following comments are submitted by the Dakota Resource Council ("DRC"). DRC is a North Dakota not-for-profit organization dedicated to empowering individuals and communities within the state of North Dakota to address issues that their daily lives. One of DRC's main program areas is ensuring that oil and gas activity in North Dakota is conducted safely, lawfully, and in a way that minimizes pollution – especially air pollution. Below we will address the four questions raised by the Department.

Question 1: How do recent EPA rulemakings involving Quad 0 and Quad 0a impact DEQ's anticipated adoption of these rules?

There is regulatory uncertainty regarding the final Quad 0 and Quad 0a that will be adopted by EPA. At present the EPA is in the process of amending the 2016 NSPS rule, which will change Quad 0 and Quad 0a. In addition, once the new Quad 0 and Quad 0a are finalized, there is a high likelihood that a legal challenge will follow. Lastly, it is also possible that a new Presidential Administration could propose and finalize a more stringent Quad 0 and Quad 0a. So, by plainly adopting Quad 0 and Quad 0a, the DEQ is subjecting itself and industry to regulatory uncertainty.

Question 2: Anticipating the DEQ adopts both Quad 0 and Quad 0a, should it: 1) amend N.D. Admin Code § 33.1-15-07-02(1) as requested in the Petition for Rulemaking, 2) amend N.D. Admin. § 33.1-15-07-02(1) in a different way, or 3) not amend N.D. Admin. Code § 33.1-15-07-02(1)?

We think the DEQ should follow option 2. DEQ should not amend N.D. Admin. Code § 33.1-15-07-02(1). In addition, we also urge the DEQ adopt the EPA NSPS Standards (Quad 0 and Quad 0a), following the current ongoing rulemaking process. By keeping N.D. Admin. Code § 33.1-15-07-02(1) and adopting Quad 0 and Quad 0a (specifically following the ongoing

rulemaking process), North Dakota will have a suite of air protections that better protect the state from reaching nonattainment. This is because having both rules will cover all sources of VOC emissions. Specifically, N.D. Admin. Code § 33.1-15-07-02(1) will address existing sources (wells drilled prior to the effective date of Quad 0 and Quad 0a) and Quad 0 and Quad 0a will address new sources (wells drilled after the effective date of Quad 0 and Quad 0a). Lastly, we suggest that DEQ be more aggressive in its enforcement of Admin. Code § 33.1-15-07-02(1) due to the high likelihood that the state will go into ozone nonattainment without significant efforts to mitigate VOC emissions.

Dakota Resource Council recently commented on the DEQ's latest State Implementation Plan submittal laying out our concerns. The central concern we raised was that based on current emissions data, without more aggressive efforts to mitigate emissions the state could very easily go into ozone non-compliance as development grows. Those comments are attached as Exhibit 1 to our comments.

Questions 3: If the DEQ decides to undertake rulemaking to both adopt Quad 0 and Quad 0a and amend N.D. Admin. § 33.1-15-07-02(1), should the DEQ conduct one proceeding, or should it first adopt Quad 0 and Quad 0a and obtain EPA's approval for implementing those rules before proposing any amendments to N.D. Admin. Code § 33.1-15-07-02(1)?

NSPS OOOO and OOOOa are in a state of flux right now. Why adopt something that might quickly be changed? If DEQ decides to implement OOOO and OOOOa and then EPA changes those rules, DEQ is going to have to adopt them *again*. It's just a waste of agency resources to do this twice. North Dakota laws cannot incorporate by reference standards from elsewhere (e.g., the CFR) that might change. For reference here is some additional authority on this point, which was argued to the ND Supreme Court last year:

> "[A] statute that attempts to incorporate future changes of another statute, code, regulation, standard, or guideline is an unconstitutional delegation of legislative power."3 McCabe v. N.D. Workers Comp. Bureau, 1997 ND 145, ¶ 13, 567 N.W.2d 201. This rule also applies to regulations because "[t]he authority of an administrative agency to adopt administrative rules is authority delegated by the legislative assembly." N.D.C.C. § 28-32-02.

In our view, DEQ should wait and see how the fight over the NSPS plays out, while continuing to enforce its current air quality laws, including N.D. Admin. § 33.1-15-07-02(1). Further, DEQ should do nothing with its current state rule because DEQ has an independent obligation to use its SIP-approved rules to comply with the NAAQs.

Question 4: Any other relevant questions technical issues that we want to be addressed?

We are really unsure why Continental brought this petition for rulemaking in the first place. In our view the DEQ's rules are, in practice, intended to prevent the state from going into ozone nonattainment. In our view, the DEQ should be doing more, not less to mitigate VOC emissions, especially with thousands of new VOC emitting oil and gas wells being proposed. In our view, Continental's petition, if granted, could very well cause the state to go into ozone nonattainment in the future. That would cause much more serious regulatory problems for *everybody* in North Dakota due to mandatory EPA requirements that would kick in, and it would be Continental's fault for filing this clearly self-interested petition.

Thank you for this opportunity to comment on this very important matter.

Best Regards,

Scott Skokos
Executive Director
Dakota Resource Council

Enclosures:

1. Comment letter re: ND SIP Application

EXHIBIT 1

August 28, 2019

Air and Radiation Division, U.S. EPA, Region 8,
Mail-code 8ARD–QP, 1595 Wynkoop Street
Denver, Colorado 80202–1129

Filed via Regulations.gov

Re: Comments of Dakota Resource Council on "Air Quality State Implementation Plans; Approvals and Promulgations: Infrastructure Requirements for the 2015 Ozone National Ambient Air Quality Standards; Colorado and North Dakota" – EPA-R08-OAR-2019-0140-0001

The following comments are submitted by the Dakota Resource Council ("DRC"). DRC is a North Dakota not-for-profit organization dedicated to empowering individuals and communities within the state of North Dakota to address issues that their daily lives. One of DRC's main program areas is ensuring that oil and gas activity in North Dakota is conducted safely, lawfully, and in a way that minimizes pollution – especially air pollution. DRC's comments on this docket are only on North Dakota's ozone infrastructure SIP submittal. DRC is not commenting on the submittal from Colorado.

North Dakota's proposed ozone infrastructure SIP is deficient and does not comply with the requirements of Section 110 of the Clean Air Act. Specifically, the plan is deficient because it lacks a meaningful and enforceable plan to control emissions from upstream oil and gas facilities, which emit hundreds of thousands of tons of VOCs every year to North Dakota's air. The significance of this issue is difficult to understate—the lack of a meaningful plan to address these oil and gas production emissions risks putting North Dakota into nonattainment status for ozone. Notably, the SIP includes a major source permitting program and a minor source permitting program to control ozone. On the basis of those programs, EPA states in its proposed action approving North Dakota's infrastructure SIP that:

> The State and the EPA have relied on the State's existing minor NSR program to assure that new and modified sources not captured by the major NSR permitting program do not interfere with attainment and maintenance of the NAAQS. We propose to determine that this program regulates construction of new and modified minor sources of ozone precursors for purposes of the 2015 ozone NAAQS, thereby meeting the second sub-element for regulation of minor sources and minor modifications for 110(a)(2)(C).

EPA's statement completely omits that upstream oil and gas activities are not covered by North Dakota's minor source permitting program.

In fact, all that is required under North Dakota's existing and proposed SIP is for an oil and gas production facility to provide a registration notice to DEQ that calculates the facility's potential to emit ("PTE"). *See* N.D.A.C. ch, 33-15-20 (current) and N.D.A.C. ch. 33.1-15-20 (proposed). If the PTE is below PSD and Title V thresholds (250 tons per year and 100 tons per year, respectively), then the state takes no further action other than to "register" the well. Examples of these registration notices are attached to this comment letter as Exhibit A. North Dakota's current ozone SIP and DEQ's proposed SIP to EPA do not require DEQ to even organize these notices to determine if oil and gas activity has become so extensive that it threatens to put the state into NAAQS nonattainment. In other words, even though North Dakota has thousands upon thousands of such registrations, North Dakota has never attempted to even add the emissions from these registrations together. DRC's understanding is that North Dakota has not done so due to lack of personnel and funding. Section 110 of the Clean Air Act requires the state to "have adequate personnel, funding, and other authority" to carry out the implementation plan. CAA Section 110(a)(2)(E).

Regardless, though, the critical underlying issue is that North Dakota's proposed SIP does not include upstream oil and gas facilities in its minor source permitting program at all.[1] DEQ's proposed SIP does not require requires mandatory emission limits, monitoring, and recordkeeping for upstream facilities that would otherwise be required through a permitting program. Nor is the public notified through a public comment period that a new source of air emissions is being constructed. Nor does the state have a general permit for these facilities – let alone one that ensures NAAQS and PSD attainment.

This is not a minor issue. It is an extremely concerning deficiency in North Dakota's SIP proposal that, if left uncorrected, would allow North Dakota to effectively allow every oil well in the state to escape air quality permitting and is likely to put North Dakota into ozone nonattainment if left uncorrected. Put another way, failing to include upstream oil and gas facilities in North Dakota's permitting programs would allow North Dakota to continue to ignore the extraordinarily high emissions from these facilities.

The scale of this issue is documented in EPA's own records. In EPA's 2014 National Emissions Inventory ("NEI"), EPA lists a total of 504,202.120 tons per year of VOCs emitted in North Dakota from stationary sources. *See* Exhibit B hereto. Of those emissions, the NEI states that 474,556.671 tons per year of VOCs are emitted in North Dakota from "Oil and Gas

[1] If North Dakota included upstream oil and gas production facilities in its permitting program, they would be identifiable in a publicly available database operated by DEQ, and any member of the public could review those permits online. *See* "Permit Portal," *available at* https://deq.nd.gov/aq/permitting/permitportal.aspx (online database of North Dakota preconstruction and operating permits). Upstream oil and gas production facilities are not in these DEQ databases because they are not issued permits unless they are a "major source" of air pollution under the PSD and/or Title V programs.

Production." *See* Exhibit C hereto. From a geographic perspective, the NEI lists a staggering 163,950.416 tons per year of VOCs from McKenzie County alone. *See* Exhibit D hereto. McKenzie County is in the heart of North Dakota's Bakken oil fields. For perspective, EPA is certainly well-aware that a major source of air pollution under the Title V permitting program is any stationary source that emits at least 100 tpy of VOCs (or other pollutants). North Dakota's oil and gas VOC emissions exceed this major source threshold by a factor of almost 5,000, and yet none of these permits are subject to any permit at all. Even more problematic from an air pollution perspective is that North Dakota's government expects that the number of oil and gas wells in the state will double over the coming 10-15 years, which strongly suggests that North Dakota's air emissions from these facilities will continue to increase significantly. Indeed, North Dakota's oil and gas production has increased significantly even since the 2014 NEI referenced in this paragraph.[2] In February of 2010, North Dakota had 4,655 producing oil wells.[3] In June of 2019, North Dakota had 15,741 producing oil wells.[4] In other words, North Dakota's oil production (and the VOC emissions from this oil production) is growing rapidly.

It is a dereliction of North Dakota's and EPA's mandatory duties to completely ignore oil and gas production in North Dakota's ozone infrastructure SIP. EPA's response to North Dakota's submittal does not mention the word "oil" even once, even though it is by far North Dakota's primary source of VOC emissions and ozone pollution as shown in EPA's own records. Likewise, DEQ provides no explanation at all regarding regulation of oil and gas upstream emissions in its SIP proposal other than to provide a generic citation to N.D.A.C. ch. 33.1-15-20.

There are other issues with North Dakota's submittal as well. North Dakota has attached ozone monitoring to its SIP submittal, but the data provided by the state masks rising ozone pollution in North Dakota. For example, North Dakota's submittal describes ozone emissions data at the state's Williston monitoring as below 60 ppb for 2014, 2015, 2016, and 2017 (the threshold for ozone NAAQS nonattainment is 70 ppb).

Data from the Williston monitor is transmitted to EPA and is available at EPA's Data Mart.[5] According to information from the Data Mart, DRC calculates the fourth highest daily 8-hour ozone from the Williston monitoring station as follows:

Monitoring Year	Date of 4th highest daily maximum 8 hour average for this year	Time	8 hour average ozone levels recorded (in parts per billion)
2018	May 30, 2018	20:00	61.000

[2] *See, e.g.*, New All-Time High – Oil Production Tops 1.4 million bpd in December, 2018. https://www.ndoil.org/new-all-time-high-oil-production-tops-1-4-million-bpd-in-december-2018/

[3] *See* NDIC "Director's Cut," April, 2010, *available at* https://www.dmr.nd.gov/oilgas/directorscut/directorscut-2010-04-14.pdf.

[4] *See* NDIC "Director's Cut," August, 2019, *available at* https://www.dmr.nd.gov/oilgas/directorscut/directorscut-2019-08-15.pdf.

[5] *See* https://aqs.epa.gov/api/?user.

Exhibit B (Screenshot of NEI 8/28/2019)
Exhibit C (Screenshot of NEI taken 8/28/2019)
Exhibit D (Screenshot of NEI 8/28/2019)
Exhibit E (Excel Spreadsheet of air monitoring data)

2017	June 9, 2017	18:00	61.125
2016	June 21, 2016	18:00	53.125
2015	May 26, 2015	18:00	59.875
2014	April 20, 2014	19:00	56.375

Detailed information regarding how DRC calculated these numbers is attached hereto as Exhibit E. That exhibit contains an Excel Spreadsheet with two worksheets. The first worksheet contains raw data from the Data Mart (with equations added to calculate eight-hour averages), and the second worksheet lists the first, second, third, and fourth highest daily maximums for each year.

Two pieces of information are important about the above data. First, North Dakota's oil economy experienced a "bust" in 2016, and North Dakota's ozone data directly reflects that reduction in oil production activity. In other words, oil and gas activity has a significant effect on the state's ozone levels. Second, the ozone NAAQS is a three-year average. DRC expects that when the 2016 data falls away and is replaced by the 2019 data from this year, that North Dakota's 3-year average ozone emissions in western North Dakota will increase significantly. This is important to keep in mind because it underscores the importance of ensuring that North Dakota's ozone infrastructure SIP includes an adequate plan to control and regulate emissions from upstream oil and gas production facilities. The above monitoring data is from just one monitoring location, and DRC has not conducted a detailed survey of all of the state's monitoring data. However, DRC intends to keep close track of this data going forward because North Dakota is clearly edging closer to ozone nonattainment each year. It is also important for EPA to object to North Dakota's plan now, because this SIP is intended to carry North Dakota well into the future and the plan does not provide a meaningful plan to control the state's primary source of VOCs.

In summary, because North Dakota's SIP lacks a meaningful plan to ensure that upstream oil and gas production facilities will not cause North Dakota to violate the ozone NAAQS, EPA has a mandatory duty to reject North Dakota's SIP and to issue a SIP call for a revised plan. DRC requests that EPA reject the plan because it is deficient as a matter of law under Section 110 of the Clean Air Act, including Section 110(a)(2)(C).

Respectfully submitted,

/s/ Scott Skokos

Scott Skokos
Executive Director
Dakota Resource Council

Enclosures: Exhibit A (Samples of oil and gas registration notices)

From:	LINDA WEISS Owner
To:	DOH, Air Quality
Cc:	LINDA WEISS Owner
Subject:	Public Comment Re: Notice of Opportunity to Comment on Rulemaking Petition and Solicitation of Views on Administrative Rules Relating to Air Emissions from Oil and Gas Production Facilities
Date:	Friday, December 13, 2019 2:12:40 PM

David Glatt
ND Department of Environmental Quality, Division of Air Quality
918 E Divide Avenue
Bismarck, ND 58501

I am writing to ask that the ND DEQ reject Continental Resources, Inc's rulemaking petition. I would ask that the department keep its no venting law (ND Admin Code 33.1-15-07-02(1) in place. I want to know that old oil and gas wells prior to 2017 would be covered by the state regulation of VOCs. Then also adopt the Quad 0 and Quad 0a (the EPA Methane Rule) to cover the new wells.

With these regulations in place, North Dakota would be less likely to exceed ozone limits. I do recall at the public hearing on November 12, 2019 that the department would be hiring eight more inspectors in the biennium. That has been problematic to check on the VOC emissions in the field. The public really wants clean air not sort of clean air. Not everyone has access to a FLIR device to measure the invisible emissions in the air. Public health above industry profits is the goal. Learning that children in a very active area of oil and gas activity are experiencing more nosebleeds is concerning. Keeping the current rules in place and also adopting the new rules is a positive move. We need more of this.

Linda Weiss
PO Box 906
Belfield, ND 58622

From:	Roger Ashley
To:	DOH, Air Quality
Subject:	Public Comment Re: Notice of Opportunity to Comment on Rulemaking Petition and Solicitation of Views on Administrative Rules Relating to Air Emissions from Oil and Gas Production Facilities
Date:	Thursday, December 12, 2019 1:27:45 PM

Please reject Continental Resources' rulemaking petition. Instead keep the no venting law (ND Admin Code 33.1-15-07-02(1)) in place while also adopting Quad 0 and Quad 0a. This way old oil and gas wells (prior to 2017) will be covered by the state regulation of VOCs and new wells will be covered by Quad 0 and Quad 0a. The two regulatory tools would make it less likely that North Dakota will go into nonattainment for ozone.

I live here in rural western North Dakota and have experienced air pollution in rural western North Dakota. DEQ needs to protect people not corporations. These two regulations will help mitigate the problem. Thank you.

Roger Ashley
11720 30th Street SW
Dickinson, ND 58601

From: Margaret Mayer
To: DOH, Air Quality
Subject: Public Comments re: Admin Rules Relating to Air Emissions from Oil and Gas Production Facilities
Date: Monday, December 9, 2019 10:31:29 AM

Good morning,

Let's not put legislation in place that will deregulate ND oil and gas well emissions. Why, if you are at all concerned with air quality, would you do that? (Other than placating Continental Oil, for profit, I mean). To only regulate sites that came online in 2017 is unwise, at best.

As you are tasked with ensuring N.D.'s quality of air, let's keep in place, and even add regulation that would enhance and ensure the health of the state's population.

Thank you for your time.

Margaret Mayer
Minot, ND

NORTH DAKOTA
PETROLEUM
COUNCIL

100 West Broadway, Ste. 200 | P.O. Box 1395 | Bismarck, ND 58501-1395
701.223.6380 | ndpc@ndoil.org | www.NDOil.org

November 12, 2019

James Semerad, Director
Division of Air Quality
North Dakota Department of Environmental Quality
918 East Divide Avenue
Bismarck, ND 58501-1947

RE: Comments on Administrative Rules Relating to Air Emissions from Oil and Gas Production Facilities

Dear Mr. Semerad:

Thank you for the opportunity to provide comments on the administrative rules relating to air emissions from oil and gas producing facilities. The North Dakota Petroleum Council (NDPC) is a trade association that represents more than 650 companies involved in all aspects of the oil and gas industry, including oil and gas production, refining, pipeline, transportation, mineral leasing, consulting, legal work, and oil field service activities in North Dakota, South Dakota, and the Rocky Mountain Region.

To formulate comments on behalf of the industry, NDPC solicited input from our member companies and formed a technical committee to develop the comments below. The committee has met to study, review, and adopt these initial comments that reflect the opinions of our 650 member companies, and they should be viewed as comment from the regulated community and not as from one single entity.

We appreciate the time and effort the consideration of adopting the federal new source performance standards for crude oil and natural gas, 40 C.F.R. Part 60, Subpart OOOO (Quad O) and Subpart OOOOa (Quad Oa), have required of the Department of Environmental Quality (DEQ). The state adoption of these federal new source performance standards is a transition of more regulatory authority from the federal government to the State of North Dakota. The North Dakota Petroleum Council believes the DEQ is well positioned to assume such primacy over federal regulatory issues relating to the North Dakota energy sector.

During the North Dakota 2019 legislative session, members of the North Dakota State Legislature shared this optimism when it approved appropriations for ten additional Full-Time Equivalent (FTE) positions within the DEQ to provide the expertise and personnel resources required by the Department to develop, implement, and enforce federal air emissions standards. Two of these FTEs were appropriated for the first year of the 2019-21 biennium in order to properly develop the program and gain primacy approval over federal air emissions standards from the Environmental Protection Agency (EPA). In making the large-scale appropriation for additional personnel

dedicated to Quad O and Quad Oa primacy, the legislative directive toward primacy over these federal regulations through state adoption of Quad O and Quad Oa standards is clear.

Through examination of committee and conference committee testimony and discussion, it is also clear to see the importance of air emission regulatory primacy to the oil and gas industry and the state as a whole. Current requirements of the subparts include substantial monitoring, recordkeeping, and reporting to the EPA. The subparts also apply to several source types, including upstream oil and gas wells, midstream compressor stations, gas plants, and crude oil storage and transmission systems. Because of the scale currently involved in compliance with the subparts and the size of the EPA organization, a more localized and responsive regulating body for industry members within North Dakota is an advantage to the industry, the state, and the federal government. NDPC and North Dakota's lawmakers agree that the DEQ has the ability, the expertise, and soon the enforcement tools necessary to implement Quad O and Quad Oa standards on the local level. The efficiencies of local implementation of federal air emissions standards are also recognized by the EPA itself, which has extended the opportunity to North Dakota to do just that.

NDPC believes DEQ should incorporate Subparts Quad O and Quad Oa into its regulations by reference. Incorporation by reference will meet the legislative mandate, avoid the potential for inadvertent departure from these subparts that could jeopardize the validity and/or clarity of the state's regulations, and provide greater regulatory certainty for industry. Incorporation by reference also qualifies the State to receive automatic full delegation of Quad O and Quad Oa under Section 111 of the Clean Air Act. NDPC respectfully suggests DEQ incorporate Quad O and Quad Oa by reference through N.D. Admin. Code Chapter 12, where other New Source Performance Standards (NSPS) subparts have been incorporated.

If DEQ incorporates Quad O and Quad Oa by reference, then NDPC believes the EPA's ongoing rulemaking involving those subparts will have no impact on DEQ's adoption of those subparts. As with other federal subparts incorporated by reference in Chapter 12 of DEQ's regulations, subsequent changes to the incorporated federal regulations can be incorporated through a rulemaking by DEQ at a later date. However, NDPC believes it is important that whatever version of the federal rule is in effect after a federal rulemaking, DEQ's regulations should be updated efficiently to fully integrate the requirements as they exist at the conclusion of the federal rulemaking process.

If DEQ incorporates Quad O and Quad Oa by reference, NDPC believes DEQ should also simultaneously amend its rules to ensure that N.D. Admin. Code § 33.1-15-07 (Chapter 7) remains consistent with Quad O and Quad Oa requirements to provide needed clarity and regulatory certainty. NDPC will submit its recommended changes to this section either in supplemental written comments within the current comment period ending December 13, 2019 or in response to a DEQ-proposed rulemaking in relation to Chapter 7.

We thank you again for the opportunity to provide comments on North Dakota air emissions administrative rules. Having the certainty of federally prescribed standards will enhance efficiencies for both the oil and gas industry in complying with those standards and the DEQ in fulfilling its mission of environmental protection. Adopting the federal Quad O and Quad Oa standards and having the ability to implement those standards on the state level are in the best interests of the oil and gas industry, the State of North Dakota, and the nation.

Sincerely,

Ron Ness, President
North Dakota Petroleum Council

From: Stewart Herman
To: DOH, Air Quality
Subject: no venting
Date: Sunday, December 8, 2019 9:03:54 PM

To whom it may concern:

As a resident of ND for twenty five years, who made a couple very fine cycling trips down the Mah Dah Hey trail and is a firm believer in the scenic beauty of the ND badlands, let me voice my strong feeling that the no-venting law needs to stay in place. I have seen the degrading of the atmosphere in the western side of the state, and it is sickening.

I also recommend that the ND Dept of Environmental Quality reject Continental's petition (to replace the no venting law with Quad 0 and Quad 0a).

What ND needs to avoid is a problem with its ozone. I will not be directly affected (Fargo), but for the sake of the recreation industry, the air needs to be pure and clean in western ND.

Thank you for considering these comments.

Stewart W. Herman

From: Dorothy
To: DOH, Air Quality
Subject: leak rules
Date: Monday, December 2, 2019 8:40:37 AM

I surely hope you will consider the health of everyone in western ND and please do not make any rule more lax. It is so bad here when the heavy clouds produce an air inversion and all the noxious fumes from the always flaring oil sites are pushed down into Alexander. Oct 5 period we had heavy clouds and of course I am very intolerant to any of these fumes. The result is that the benzene involved either in the pure gas form as is usually let escape, or as the result of the benzene being burned, or as is well known anything that burns creates benzene. This is a powerful carcinogenic and over the years I am completely intolerant to this chemical, gas, and flaring. My result is I get anemic. If you read anything about benzene you will find it enters the body and eats the blood cells, sometimes destroying the bone marrow where cells are made.

Of course without a good supply of the red cells one does not have anything to carry the iron that carries the oxygen to all parts of the body. This results in the inability to do your work. Having to do a little , sit and breathe, and do a bit more makes a long day of getting very little done. It is a hardship I have put up with since in 2010 when all this flaring began to overcome us. You know there is a huge problem just by

looking over the countryside and seeing nothing but a blue haze. And you are also aware if you go to the hill where you see the blue haze and look back to your starting point it will also be blue. You just can't see that around you as you stand at any point.

Of course the medical community can't bring itself to note the oil wastes are causing humans sickness because they don't want to put a stop to all those nice million dollar donations they get from oil and probably also pharma and chem companies.

But I am at the point where I can't tolerate any type of infiltration of benzene. And it is used in all the drugs produced because it is a great bonder. It has been known for about 200 years that benzene is a carcinogenic and yet here it is in use in every product we use. For that reason I can no longer enjoy bread or pasta, must be very careful of any vegetable or fruit because of the inundation of pesticides used. Because OH YES, pesticides contain benzene too. I recently discovered by accident that coffee was causing me to have a hive reaction around my neck. I wondered, then I thought the new thing I have started is a new brand of coffee. So I quit coffee and then after a week or so the hive like reaction had gone but also a sore I'd had for several years healed up. A little research showed the increased use of pesticides on the coffee plantations, and of course there is not training for those folks to be careful of what is sprayed. Big

Chem just has to sell their product somewhere in third world areas if they are outlawed in our world.

So I am writing you today to beg you not to relax any rules. Just why Big Oil thinks they can pollute to the max degree is beyond me, unless it means another billion or two in their hind pockets if they can get away with the laxness they've been allowed over the last ten or more years.

Thank you for your attention. I hope I can make a difference.

Dorothy Reil PO Box 22 Alexander ND 58831 701 828 3157
I live at 509 Buffalo in Alexander. Apparently it is a low spot in town as I always seem to freeze last in the spring and first in the fall, and of course the gases settle in here too.