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US EPA Office of Air Quality
Planning and Standards (OAQPS)
Raleigh, NC
By email: oilandgas.whitepapers@epa.gov

**Re: IPANM comments to OAQPS Oil and Natural Gas Sector liquids unloading
Whitepaper**

Dear Sir or Madam;

The Independent Petroleum Association of New Mexico ('IPANM') appreciates this opportunity to comment to the EPA Office of Air Quality Planning & Standards (hereinafter 'EPA') whitepaper on Oil and Gas Sector liquids unloading of April 2014.

Preliminary matters:

Without adequate research and an expert understanding of the issues, it would be unethical for the EPA to move forward with promulgating methane reductions policy or rules at this time. The whitepapers and studies cited therein do not appreciate that the issues around methane reductions are complex and very dynamic. In fact, since the introduction of the First Assessment Report (FAR) of the Intergovernmental Panel of Climate Change (IPCC 1990), there has been vigorous discussion about whether global warming potential (GWP) to compare different gases on a CO2 equivalent scale should be

the accepted methodology to understand the true impacts of methane.^{1 2} As recently as last month, MIT researchers published a letter, titled, "*Climate impacts of energy technologies depend on emissions timing*" in *Nature Climate Change* stating that the static nature of GWP to compare gases with differing radiative efficiencies and atmospheric lifetimes has led to 'major shortcomings' in understanding energy technology valuations³. However, in the urgency to complete methane reductions regulations by the end of 2016, the Whitehouse has directed the EPA draft whitepapers and convene peer review panels to give the agency a 'robust understanding' of the issues. IPANM would contend that these whitepapers were obviously rushed, had a limited and biased selection of studies and we question the efficacy of the peer review process. We hope that the agency would proceed with this process in a manner that allows for true stakeholder involvement and opportunity for comment as required in the federal Administrative Procedures Act. Finally, we would urge the agency to use the resources and expertise available at the New Mexico Petroleum Recovery Research Center to learn about the unique characteristics of oil and gas operations in the San Juan and Permian basins. Within the PRRC is the Research Partnership to Secure Energy for America (RPSEA), Small Producer Program which is a public/private partnership funded by the U.S. DOE through the National Energy Technology Laboratory. The Small Producer Program aims to develop and apply technology that enhances small producer production, and thereby contributes to the nation's energy supply. The PRRC/New Mexico Tech was

¹ Shine, K. "*The global warming potential – the need for an interdisciplinary retrieval*" *Climatic Change Journal*, Oct. 2009, vol. 96, issue 4, p. 467-472.

² Even as one of the lead authors of one of the chapters of the first IPCC report, Dr. Shine questions whether using the 'simple approach' of global warming potential metrics improperly influenced a 'major piece of environmental legislation' (Kyoto Protocol) that could impact 'big investment and policy.'

³ Edwards, M. & Trancik, J., "*Climate Change of energy technologies depend on emissions timing*", *Nature Clim. Change Letter*, May 2014,

chosen to lead the SP program because of their track record of research and actions on behalf of small oil and gas producers, for whose benefit our organization was established. IPANM would also be happy to provide additional input to the EPA in the development of policy, rules and regulation on methane reduction strategies.

Who is IPANM:

The Independent Petroleum Association of New Mexico, IPANM, represents several hundred independent oil and gas producers who live, work and employ New Mexicans. We are small, with, on average, 25 employees who often wear multiple proverbial hats, but we provide enough revenue to the State of New Mexico to support 31% of the General Fund⁴. We strive to be stewards of the land in a state where nearly 41.8% of the land is federally owned. The Bureau of Land Management New Mexico office manages one of the largest oil and gas programs in the agency controlling 13.4 million acres of public lands and 26 million subsurface acres of federal oil, natural gas, and minerals. There are currently 30,561 active wells on federal lands⁵ ranking New Mexico sixth in crude oil production in the nation in 2013⁶. New Mexico's marketed production of natural gas accounted for 4.8% of U.S. marketed natural gas production in 2012, despite a decline in production of 20% between 2007 and 2012⁷. According to the Office of Natural Resources Revenue, in FY 2013 the Federal Government disbursed \$478,732,193.90 in revenues to New Mexico⁸, which is only 48% of the total royalty revenues collected for oil and gas operations on NM federal lands.

⁴ "Fiscal Impacts of Oil and Natural Gas Production in New Mexico: Preliminary report", New Mexico Tax Research Institute, Jan 2014.

⁵ <http://www.emnrd.state.nm.us/OCD/documents/OCD%20Well%20Statistics03272014.pdf>

⁶ <http://www.eia.gov/state/?sid=NM>

⁷ Id.

⁸ <http://statistics.onrr.gov/ReportTool.aspx>

The process by which these whitepapers were developed was flawed and requires more study and expert understanding of the issues.

Regulation in the air quality arena is not new, however, IPANM would contend that the process by which the Whitehouse, through the EPA and the BLM, is seeking to implement new or substantially expanded methane reduction strategies, is not tenable⁹. Note that IPANM does not contest the authority of the EPA to regulate Greenhouse Gas emissions¹⁰, of which methane is a part of those emissions¹¹. The authority under the Clean Air Act and a growing body of case law, grants the complex balancing of “national and international policy against environmental benefit, our nation’s energy needs and the possibility of economic disruption” solely on the Environmental Protection Agency. *See, American Electric Power v. Connecticut*, 131 S.Ct. 2527, 564 U.S. ____ ,slip op. 10-174 at 13 (2011). Indeed, through out the *American Electric* decision, the US Supreme Court justices refer to the EPA as the “experts”¹² in greenhouse gas and air quality matters. In the Administration’s “2014 Climate Action Plan: Strategy to reduce methane emissions¹³”, the President orders the BLM, the EPA, USDA, DOE and even international agencies to target key sources including landfills, coalmines, agriculture and the oil and gas sector and to

⁹ IPANM does contend that the statutory jurisdiction to regulate methane reductions lies exclusively with the EPA and not the BLM which is attempting to regulate methane emissions under the guise of a prevention of waste legal theory.

¹⁰ In *Massachusetts v. EPA*, 549 U. S. 497 (2007), the US Supreme Court held that the Clean Air Act, 42 U. S. C. §7401 et seq., authorizes federal regulation of emissions of carbon dioxide and other greenhouse gases, including methane.

¹¹ IPANM does, however, contest the science behind the policy for reducing human caused methane sources. Several of our members pointed out in response to this exercise that the science of global warming and impacts of human activities have not been settled yet. In 2012, CH₄ accounted for about 9% of all U.S. greenhouse gas emissions from human activities. But water vapor in the atmosphere is responsible for 95 percent of the greenhouse effect and CO₂ is responsible for 3.6 percent. A study from MIT reported on 5/30/07 said that 97% of all greenhouse gases are naturally occurring, and the remaining 3% are caused by man. So methane is only 3% of the 9%. Insignificant.

¹² *American Electric Power v. Connecticut*, 563 US ____, slip op. at p. 3, 16,17,18

¹³ March 2014 Climate Change Strategy: Reduction of Methane Emissions, found at http://www.whitehouse.gov/sites/default/files/strategy_to_reduce_methane_emissions_2014-03-28_final.pdf,

promulgate rules to reduce methane emissions. The White House specifically directs¹⁴ the BLM to propose updated standards to reduce venting and flaring¹⁵, and mandated the EPA to draft white papers focusing on technical issues relating to methane emissions from “oil and co-producing wells, liquids unloading, leaks, pneumatic devices and compressors” to “solicit input from independent experts¹⁶” (hereinafter referred to as the EPA methane papers). The EPA was further ordered to use these documents to “solidify its understanding of these potentially significant sources of methane.”

The EPA methane papers came out for peer review and comment one month after the release of the Whitehouse report with only 60 days¹⁷ to comment on nearly 300 pages of technical data. The Whitehouse report also directed the agency to convene peer review panels, which was done, but those panels only consist of 5 persons per panel, and not one single small independent was included on any panel. It is interesting to note that the Environmental Defense Fund, however, was included on every panel thereby giving that group a significant voice in this process.

From a detailed review of the EPA methane papers, it is obvious that the authors were clearly limited, probably due to time constraints, to a small subset of studies that were often out of date, had poor sampling criteria, had wildly inaccurate extrapolation factors or cite to each other as ‘science’. Of the few studies the EPA relied upon, every

¹⁴ President’s Methane Reduction Strategy, page 2, 9.

¹⁵ The BLM Venting and Flaring public outreach sessions were conducted in North Dakota, New Mexico and Washington DC. IPANM has submitted substantive comments to the BLM on their May 2014 Venting & Flaring proposal and would urge both the BLM and this agency to include IPANM, PRRC or RPSEA (see discussion above) in future stakeholder discussions.

¹⁶ Id. at 8 par. 2.

¹⁷ 60 days to read and digest nearly 300 pages of technical information was very difficult. To require industry to commission, prepare and present data to augment the very weak studies relied upon by the EPA was impossible. In addition, the timeframe set did not avail IPANM the ability to structure studies with the New Mexico Petroleum Recovery Research Center or RPSEA who are the entities often commissioned for such work.

whitepaper referenced a study commissioned by the Environmental Defense Fund that reviewed only 22 sources of emissions. IPANM strongly contests the use of this paper as the assumptions used are wildly inaccurate. First, the average \$4mcf value is high, particularly for smaller operators who received much less on average during most of 2012 and 2013¹⁸. Second, the base assumption that the cost of flaring is only \$3523 per well ignores the true costs which, by IPANM member review, were well in excess of \$10,000 per well because of the equipment rental, mileage, time and personnel time to operate the equipment. As noted earlier in this comment, the small producer has significantly different economics than major companies who employ personnel versus hiring consultants or contractors at market rate to conduct a test or an emergency procedure such as a flare or venting during liquids offloading. The misuse of the cost figures which ICF then extrapolated to estimate savings on a nationwide basis renders the EDF study close to meaningless as a foundation for a Whitehouse methane reduction strategy. Clearly, the manner in which the EPA researched the issues raised in the whitepapers was nothing more than a 'data dump' that could not be considered an adequate learning process to establish expertise on these very complex matters. IPANM contends that based on the inadequate information reviewed, that the EPA does not have any sort of a 'robust understanding'¹⁹ of these sources of methane thus, moving forward with policy or rule promulgation is premature at this time.

¹⁸ http://gotech.nmt.edu/gotech/Marketplace/year_prices.aspx?year=2013

¹⁹ In the President's Climate report ordering EPA to complete the whitepapers, the Whitehouse assumes that completion of the papers would result in 'robust technical understanding' of the issues. IPANM contends that in every instance that the studies used and the lack of data does not give EPA regulators the required understanding of the issues to establish policy.

In addition, IPANM would urge the EPA to review and completely understand the information included in the National emissions inventory and information submitted pursuant to the recently promulgated NSPS SubPart 0000 amendments²⁰. This data will provide a large amount of information about emissions at oil and natural gas facilities but experts who understand industry must study and understand the information prior to establishing policy.²¹ NSPS SubPart 0000 requires federal air standards for new natural gas wells that are hydraulically fractured, along with requirements for several other sources of volatile organic compound (VOC) emissions from new storage vessels, newly installed compressors, pneumatic controllers and equipment leaks at natural gas facilities. Although the New Source Performance Standards directly regulate VOC emissions, in a Government Accounting Office report issued May 16, 2014, the EPA reports that the control requirements of NSPS SubPart 0000 substantially reduces methane emissions²². Concurrent with the NSPS, in April 2012, EPA published final National Emission Standards for Hazardous Air Pollutants, updating its air toxics standards for oil and natural gas²³. These standards cover hazardous air pollutants emitted from glycol dehydrators—used to remove water from gas—and storage vessels, and equipment leaks at natural gas processing plants. Use of actual measurement from locations is obviously better towards

²⁰ U.S. EPA, Oil and Natural Gas Sector: New Source Performance Standards and National Emission Standards for Hazardous Air Pollutants Reviews Final Rule, 77 Fed.Reg. 49490 (Aug. 16, 2012) (codified at 40 C.F.R. Parts 60 and 63).

²¹ IPANM would urge the reviewers to look at the UT study that clearly explains differences in modeling based numbers used in the National Emissions Inventory versus actual measurements on location. We would caution against exclusive use of this study, however, since the measurements used were from shale formations only. See, Proceeding of the National Academy of Sciences of the United States of America (PNAS). 2013. Measurement of Methane Emissions at Natural Gas Production Sites in the United States. August 19, 2013. Available at <http://www.pnas.org/content/early/2013/09/10/1304880110.abstract>.

²² GAO-14-238; Oil and Gas, Updated Guidance, Increased Coordination, and Comprehensive Data Could Improve BLM's Management and Oversight, page 23

²³ 77 Fed. Reg. 49490 (Aug. 16, 2012) (codified at 40 C.F.R. Parts 60 and 63).

building an understanding of the issue of methane emissions, which is what we believe the agency is attempting with the recent implementation of the NSPS regulations. We would urge the EPA not to rush to creating regulations for all new and existing oil and gas locations to reduce methane emissions without a solid understanding of the actual impacts²⁴ of methane emissions on human health and the environment or the actual levels emitted from all types of oil and gas sources.

Specific Comments BY IPANM Members to April 2014 Whitepaper, “Oil and Natural Gas Sector liquids unloading processes”

General Comment – The oil and gas industry does not vent gas if there is an economic way to capture and sell the gas. We are in the business of selling gas, so it is not in our best interest to allow gas to vent to the atmosphere if we can economically sell the gas.

5.0 Charge Questions for Reviewers

1. *Please comment on the national estimates of methane emissions and methane emission factors for liquids unloading presented in this paper.*

The emissions reported in the EPA’s Greenhouse Gas Reporting Program for plunger lift venting are significantly higher than actuals due to the required calculation method. The calculation method required in Subpart W incorrectly assumes that the entire volume of the tubing is vented every time a well on plunger lift vents to atmosphere. The plunger may travel most of the way up the tubing against line pressure, but can’t make it all the way to

²⁴ Edwards, M. & Trancik, J., “*Climate Change of energy technologies depend on emissions timing*”, Nature Clim. Change Letter, May 2014. The actual impact of methane from different energy sources is substantially different than previously believed using the very simplistic GWP modeling. The MIT researchers advocate the use of dynamic modeling that better accounts for the differing radiative efficiencies and atmospheric lifetimes of different gases. In essence, the comparison of gases must be dependent on the timing of the emissions. The researchers note that while it might be in vogue to tout the disastrous health effects of emissions from coal-fired plants as a policy determination to support natural gas plants, three decades from now, the emissions advantages of natural gas as compared to coal would be half of the levels claimed in the GWP modeling.

surface due to inadequate reservoir pressure. Many of our plunger wells only vent for a very short time to bring the plunger the rest of the way to the surface. But the required calculation method assumes the entire tubing volume was vented whether it only vented for 15 seconds or 20 minutes. *What factors influence frequency and duration of liquids unloading (e.g., regional geology)?* Every well is different. Yes, a high reservoir pressure is beneficial, but there are many other factors that can have an impact on liquids unloading. These factors include: line pressure, consistency of the line pressure, well depth, amount of liquids, kind of liquid, volume of gas, and tubing size.

3. Is this only a problem for wells further down their decline curve or can wells develop liquids loading problems relatively quickly under certain situations?

Many new wells in lower pressure or depleted reservoirs require liquids unloading from the very beginning. Lower volume gas wells may require liquids unloading from the beginning. *Are certain wells more prone to developing liquids loading problems, such as hydraulically fractured wells versus conventional wells or horizontal wells versus vertical wells?* There is no difference in liquids unloading between fractured wells and non-fractured wells, except the fractured wells generally produce at a higher rate allowing produced liquids to be carried up in the gas stream. The same can be said for horizontal wells. The higher production rates may have enough velocity to carry produced liquids out in the gas stream, thus postponing liquids loading problems until later in the well's life. Once liquid unloading is required, horizontal wells usually do not use plunger lift, because the plunger will not fall past about 65 degrees. Non venting artificial lift such as rod pumps, electric submersible pumps or hydraulic pumps are normally used on our horizontal wells.

4. *Please comment on the costs of these technologies.*

If a gas well will not free flow, the liquids unloading technology used is based upon the well's parameters and economics. There are many variables, but average costs for wells in the San Juan Basin range from \$20,000 for a plunger lift and \$120,000 for a Rod Pump versus \$170,000 for an electric submersible.

6. *Are there situations where plunger lifts have to vent to the atmosphere?*

Depending on the well's characteristics and line pressures, a plunger lift may require venting to the atmosphere. It is obviously in industry's best interest to operate the plunger lift to minimize or eliminate this venting, but it is not always possible. Low bottom hole pressure and high line pressure is not a good combination. Our operators make adjustments to cycle times, shut in times, etc. attempting to maximize production and eliminate or reduce any venting to the atmosphere, but there are situations that require venting.

9. *Comment on the pros and cons of installing a "smart" automation system as part of a plunger lift system.*

A "smart" automation system is not a cure-all on venting if the reservoir does not have the pressure to bring up the plunger/water against line pressure, plus they are not economic on all wells.

13. *Why do owners and operators of wells choose to perform blowdowns instead of employing one of these techniques?*

Many times periodically blowing down a well to remove liquids is the only economic way to produce a low volume well. These wells would not economically support the costs to install and maintain other forms of artificial lift. If not blowdown, the well would

eventually log off due to liquid buildup, and then would be prematurely plugged and abandoned due to it not being

IPANM thanks the EPA for the opportunity to comment on the Oil and gas Sector Hydraulically Fractured Oil Well Completions and Associated Gas during Ongoing Operations whitepaper. We would be interested in participating in any stakeholder/taskforce/peer review groups convened for the purpose of addressing these policy proposals. We look forward to providing additional comments as the agency drafts of these proposed regulations materialize. Please feel free to contact me at Karin@ipanm.org or at (505) 238-8385 if you have any questions regarding the issues.

Respectfully submitted,

INDEPENDENT PETROLEUM ASSOCIATION OF NEW MEXICO



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