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September 30, 2023

ENVIRONMENTAL PROTECTION AGENCY  
40 CFR Part 98  
[EPA-HQ-OAR-2023-0234; FRL-10246-01-OAR]  
RIN 2060-AV83

Re: Greenhouse Gas Reporting Rule: Revisions and Confidentiality Determinations for  
Petroleum and Natural Gas Systems

These comments are filed on behalf of the Independent Petroleum Association of America (IPAA). IPAA represents the thousands of independent oil and natural gas explorers and producers, as well as the service and supply industries that support their efforts, that will be significantly affected by the actions resulting from this regulatory proposal. Independent producers drill about 91 percent of American oil and natural gas wells, produce 83 percent of American oil and produce 90 percent of American natural gas.

In addition to the specific comments made herein, IPAA has joined comments submitted separately by the American Petroleum Institute (API).

These comments address proposals by the Environmental Protection Agency (EPA) to revise reporting requirements for Petroleum and Natural Gas Systems for the Greenhouse Gas Reporting Program (GHGRP) under Subpart W.

#### *Subpart W Mandate*

Initial efforts to revise Subpart W were included in 2022 as a part of a similarly titled proposal – Revisions and Confidentiality Determinations for Data Elements under the Greenhouse Gas Reporting Rule; Docket No. EPA-HQ-OAR-2019-0424. However, enactment of the Inflation Reduction Act (IRA) mandated that EPA revise Subpart W because of its use as the emissions basis for inclusion in and the calculation of the Methane Emissions Reduction Program (MERP) methane tax. In fact, no action taken now to revise Subpart W cannot be evaluated without considering and understanding its implications under the methane tax.

The mandate to revise Subpart W is no small task. The history of Subpart W demonstrates that its accuracy was never intended to be the basis for use as a taxing mechanism. Generally, its emissions factors were developed from limited emissions studies that were never structured to develop precise emissions estimates. The Inflation Reduction Act mandate requires EPA to:

Not later than 2 years after August 16, 2022, the Administrator shall revise the requirements of subpart W of part 98 of title 40, Code of Federal Regulations, to ensure the reporting under such subpart, and calculation of charges under

subsections (e)<sup>1</sup> and (f)<sup>2</sup> of this section, are based on empirical data, including data collected pursuant to subsection (a)(4)<sup>3</sup>, accurately reflect the total methane emissions and waste emissions from the applicable facilities, and allow owners and operators of applicable facilities to submit empirical emissions data, in a manner to be prescribed by the Administrator, to demonstrate the extent to which a charge under subsection (c)<sup>4</sup> is owed.

The current proposal fails to remotely meet this mandate regarding either time or substance.

One obvious element of the MERP is that its timelines for action are completely inconsistent with reality. It initiates the methane tax in 2025 based on 2024 emissions reporting while falsely promising that compliance with federal Subpart OOOO, OOOOa, OOOOb, and OOOOc regulations and emissions guidelines will void the tax when these regulations will not be fully implemented until at least 2028. Regarding the Subpart W revisions, it requires EPA to finish its revisions by August 2024. The scope of actions that must be undertaken for the full revision of Subpart W, as described in the Inflation Reduction Act, cannot be completed in a two-year window. However, rather than execute its mandated task, EPA proposes a thinly disguised cosmetic rework of the same material that has existed for years with little or no validation by EPA – and, even then, EPA does not apply its changes for a year after its mandated deadline.

If Congress intends to impose millions of dollars of taxes on methane emissions from the petroleum and natural gas industries, potentially crippling the production of millions of barrels and cubic feet of these American products, its mandate to EPA to revise the appallingly inaccurate emissions tools of Subpart W must be read as a serious and thorough methodological effort.

Such an effort would have several key elements. First, it must recognize the nature of emissions particularly from petroleum and natural gas production and production related emissions. Second, it must recognize that some emissions can be measured and others will continue to need emissions estimates from factors; these decisions will be particularly influenced by the economic status of the facility operator. Third, it must recognize that EPA will need to validate these measurement tools and the emissions factors.

Emissions from petroleum and natural gas systems are characterized by leaks from pieces of equipment that cannot be readily or continuously measured. They differ by an array of numerous factors – crude oil versus natural gas, associated gas or low volatility crude, wet or dry gas wells. All wells decline as they produce, changing the volume and composition of their production. Studies have shown that low production wells differ from high volume wells. The economics of production differs between high and low production wells, frequently an indication of the capitalization of the operations. The amount of active equipment at a facility changes with production. Some facilities have gathering and compression equipment on site; others do not. Many low production wells do not operate daily. Many small natural gas wells have booster compressors to suck natural gas from the well bore. Emissions analyses show that 90 percent of

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<sup>1</sup> Emissions charge amount

<sup>2</sup> Waste emissions threshold

<sup>3</sup> Direct and indirect costs required to administer this section, prepare inventories, gather empirical data, and track emissions

<sup>4</sup> Waste emissions charge

emissions come from about 10 percent of facilities, with storage tanks and some pneumatic controllers accounting for the predominant percentage of these emissions.

Because so many of the potential emissions sources from petroleum and natural gas production facilities are diverse components like valves, flanges, storage tanks, connectors, and controllers that are individually small, there are not straightforward methods to routinely monitor these emissions. Studies that have been conducted have used methods like bagging equipment to collect emissions for a short period of time. This technique is infeasible for routine operations. Newer facilities with higher volumes of production and more equipment at a site have been able to collect emissions from equipment like pneumatic controllers and pneumatic pumps and route them to vapor capture or combustion. However, such technology is limited if not impossible for older, low production facilities. Consequently, while EPA has been directed to expand the use of actual facility-based emissions data to quantify emissions, there will continue to be a certain need for emissions factors for emissions that are too difficult to measure or too expensive to collect for low production operations.

Perhaps most importantly for EPA and where EPA has failed most clearly in this proposal is the need to produce validated emissions calculations and validated emissions factors for Subpart W. Subpart W presents a long history of relying on limited studies from the 1990s appended using questionable analyses by environmental lobbyists to produce reports on petroleum and natural gas production facilities. Many of these same analyses have been used for the development of EPA methane regulations in Subpart OOOO, OOOOa, OOOOb and OOOOc. Missing from all these EPA actions is careful, thorough validation of the analyses by EPA and replication of these analyses. Many of these studies have been based on a small number of facilities, based on drive-by analysis with no information on facilities' operation, based on recalibrating data in different ways without any new information, based on applying statistical manipulation to produce headline grabbing allegations. Congress' mandate to EPA is connected to very real methane tax consequences. EPA cannot meet this mandate without collecting and analyzing its own data to develop sound, robust emissions calculation methods and emissions factors. This proposal fails completely to meet this essential test.

These challenges for EPA to meet its Subpart W mandate demonstrate clearly that it cannot be done properly in the two-year window of the MERP timeline. For EPA to do its job right, it needs to get changes made to the Inflation Reduction Act to make its timelines for both Subpart W and the completion and implementation of the Subpart OOOOb regulations and OOOOc emissions guidelines to complete these actions before collecting methane taxes from American producers.

#### *New Implications of Subpart W*

When Subpart W was solely related to filing under the GHGRP, determining whether a facility needed to file and the accuracy of submitted information carried limited further scrutiny. However, because the MERP imposes a methane tax, all filing decisions now become auditable and subject to penalties under the enforcement provisions of the Clean Air Act (CAA). These new burdens compel EPA to address them in Subpart W, but it does not.

Both the MERP and Subpart W establish a filing threshold of 25,000 mt/year of CO<sub>2</sub>eq. This threshold was set initially by EPA when it initiated Subpart W reporting to limit the burden on small businesses while maintaining reporting by the preponderance of emissions sources. It was specifically retained in the MERP legislation. At issue then is the challenge to small producers to determine whether they are subject to the Subpart W filing requirements without compelling

them to complete a costly full-blown inventory that is unnecessary. EPA provides no simple estimating procedure to determine whether small producers are near the 25,000 mt/year threshold. Both EPA and Congress have shown that small producers are not the target of the methane tax; however, EPA must now provide a mechanism to easily exclude them without the threat of audit and enforcement by the Office of Enforcement and Compliance Assurance (OECA).

A different, but similar, issue arises for all reporting entities. With Subpart W becoming the basis for the methane tax, any and all information submitted become the subject of audit and enforcement under the CAA. This creates the potential for frivolous and harassing actions by OECA. The history of OECA interaction with American petroleum and natural gas producers has been characterized by OECA actions to target smaller producers with fine threats that would bankrupt them. These actions have included interpretations of regulations by OECA that differed from the interpretation and guidance from the regulatory authors within EPA. Filing under Subpart W creates hundreds of thousands of opportunities to challenge any submitted information. Since EPA has proposed numerous different approaches to submitting information and creates the opportunity for reporters to submit facility specific information, EPA must now assure that good faith actions by reporters are not windows of opportunity for OECA to pursue harassing actions. However, EPA has not provided clear and straightforward guidance in this Subpart W proposal. Nor has it shown that OECA will use such guidance.

#### *Property Transfer*

When property transfers, the reporting of emissions takes on a different context because of the introduction of the methane tax. Previously, these issues have been largely related to assuring that there was a source responsible for assuring emissions were reported. The methane tax changes the process because substantial amounts of money are involved and there are equities that need addressed. Essentially, no new owner should be responsible for the methane taxes generated by the prior owner. This EPA proposal regarding the transfer of property fails to set forth clear delineations to create the equity that is essential.

#### *Facility Definition*

When EPA set its facility definition for the GHGRP, it was based on the 25,000 mt/year on information indicating that it would exclude small wells and producers. However, experience is showing that the current structure of the definition is capturing facilities comprised of low production wells and gathering and boosting facilities (that were not part of the original threshold selection). EPA is now proposing that emissions calculations be made at the well pad level. It should also revise the facility definition to exclude low production wells and to alter the gathering and boosting calculation to limit the use of arbitrary emissions estimates based on pipeline mileage.

#### *Specific Proposals*

EPA actions to revise component emissions factors raise serious questions about both the approach and the proposal. As discussed above, the Inflation Reduction Act mandate to revise Subpart W requires EPA to conduct thorough analyses of the numerous emissions factors and either independently validate them or develop its own valid factors. It failed to do either.

Instead, it turned to three reports as the basis for new emissions factors. These reports are generally referenced as Zimmerle<sup>5</sup>, Pacsi<sup>6</sup> and Rutherford<sup>7</sup>.

However, EPA's use of these materials demonstrates a callous disregard for the mandate EPA must meet in revising Subpart W. The Zimmerle report addresses emissions from gathering compressor stations; the Pacsi report addresses emissions from oil and natural gas production equipment leaks. Each of these studies conclude that the current emissions factor calculation process under Subpart W overstates emissions that they studied. The Zimmerle report states:

Combining study emission data with 2017 GHGRP activity data, the study indicated statistically lower national emissions of ... 66% ... of current GHGI estimates, despite estimating 17% ... more stations than the 2017 GHGI ....

The Pacsi report states:

The most common EPA estimation method for greenhouse gas emission reporting for equipment leaks, which is based on major site equipment counts and population-average component emission factors, would have overestimated equipment leak emissions by 22% to 36% for the sites surveyed in this study as compared to direct measurements of leaking components because of a lower frequency of leaking components in this work than during the field surveys conducted more than 20 years ago to develop the current EPA factors.

To show the EPA lack of regard for its mandate, EPA ignores these conclusions and cherry picks elements of the reports to increase the component emissions factors in Subpart W. The Rutherford study takes a different approach. It makes the assumption that component based emissions estimates understate actual emissions because it believes that ambient monitoring presents more accurate results. Consequently, it surveys a variety of component based emissions studies to create emissions factors higher than those in the current Subpart W and adopts them as more accurate.

Critically, EPA embraces all these various changes that increase the Subpart W emissions factors, but it never attempts to independently validate them. The effect of this action is increases in virtually every component emissions factor, some of which would yield emissions estimates 5 times or more than the current Subpart W calculations. Not only is this approach a clear dereliction of EPA's responsibilities, but it also has the effect (along with changing the GWP for methane) of de facto lowering the 25,000 mt/year threshold and raising the emissions subject to methane tax. Enverus Intelligence Research, a subsidiary of the energy-focused Software as a Service firm Enverus, has found the proposed regulations would more than double 2021 reported methane and increase overall carbon dioxide-equivalent emissions by 41%. If EPA is intentionally revising the Congressionally enacted methane tax through its rulemaking actions, it should be held to a standard that requires it prove that its revisions are valid.

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<sup>5</sup> Zimmerle, D., *et al.* "Methane Emissions from Gathering Compressor stations in the U.S." *Environmental Science & Technology* 2020, 54(12), 7552-7561, available at <https://doi.org/10.1021/acs.est.0c00516>.

<sup>6</sup> Pacsi, A. P., *et al.* "Equipment leak detection and quantification at 67 oil and gas sites in the Western United States." *Elem Sci Anth*, 7: 29, available at <https://doi.org/10.1525/elementa.368>. 2019

<sup>7</sup> Rutherford, J.S., Sherwin, E.D., Ravikumar, A.P. *et al.* *Closing the methane gap in US oil and natural gas production inventories*. *Nat Commun* 12, 4715 (2021). <https://doi.org/10.1038/s41467-021-25017-4>

### *Intermittent Pneumatic Controllers*

EPA is proposing a series of different emissions calculations for intermittent pneumatic controllers – one of the largest emissions sources at production facilities based on the current EF. While using more accurate analysis is highly desirable, these proposals have not been independently verified by EPA. Additionally, this approach requires much higher data acquisition for each controller which could be burdensome for smaller companies. At the same time EPA eliminates the EF for intermittent pneumatic controller rather than modify what has clearly been a flawed EF.

Each EF carries with it a history of its development and evolution. Intermittent pneumatic controllers used in oil and natural gas production have been an example of the challenge of developing accurate information. Intermittent pneumatic controllers operate only when they activate. Correspondingly, they emit when they activate unless they are failing for some reason. Intermittent pneumatic controllers are one of the most pervasive pieces of equipment at oil and natural gas production facilities. Consequently, they are one of the largest emissions sources for these operations. At issue is the validity of the EF and the proposed revisions for this equipment.

To illustrate the issue, EPA need look no farther than its own proposed GHGRP revisions for calculating emissions associated with intermittent-bleed pneumatic devices, both those from the 2022 proposed rule (Docket ID No. EPA-HQ-OAR-2019-0424) and those from the 2023 proposed rule that is the focus of these comments (Docket ID No. EPA-HQ-OAR-2023-0234; FRL-10246-01-OAR). The first obvious observation is that the EPA cannot itself decide how to accurately calculate emissions from pneumatic devices, as evidenced by the widely varying proposed revisions.

The current GHGRP - Subpart W rules require reporters to calculate emissions from intermittent-bleed pneumatic devices by:

Utilizing Equation “W-1”, where

- $EF_t = 13.5$  scf/hr/component for intermittent-bleed pneumatic device vents (from Table W-1A), and
- $T_t$  = Average estimated number of hours in the operating year the devices, of each type “t”, were operational using engineering estimates based on best available data. Default is 8,760 hours. (every hour of every day in a year)

In the 2022 Proposed GHGRP – Subpart W revisions for calculating emissions from intermittent-bleed pneumatic devices, the EPA proposal allowed one of two calculation methods:

- Utilize Equation “W-1A”, where
- $EF_t = 8.8$  scf/hr/component for intermittent-bleed pneumatic device vents (from Table W-1A), and
- $T_t$  = Average estimated number of hours in the operating year the devices, of each type “t”, were in service (i.e., supplied with natural gas) using engineering estimates based on best available data. Default is 8,760 hours (every hour of every day in a year). **This represents a nearly 35% reduction compared to the current emissions factor,**

**OR**

- Utilize Equation “W-1B”, which contemplates an entirely new proposed alternative calculation methodology allowing reporters that perform approved leak surveys (i.e. LDAR surveys with OGI cameras) to identify properly operating v. malfunctioning intermittent-bleed pneumatic devices, and
- Proposes an EF of 24.1 scf/hr/component for malfunctioning/leaking devices and specifies the method for determining the amount of time a device was assumed to be leaking, and
- Proposes an EF of 0.30 scf/hr/component for properly operating devices and specifies the method for determining the amount of time a device was assumed to be leaking. **This represents a nearly 98% reduction from the current required EF for intermittent-bleed pneumatic devices.**

And, now in its latest proposed GHGRP – Subpart W revisions for calculating emissions from intermittent-bleed pneumatic devices, the EPA proposal allows one of three calculation methods. Proposed “Calculation Method 3” is most analogous to the alternative method from the 2022 Proposed Rule and allows for the following:

- Utilize Equation “W-1C”, which, similar to the method described above, allows reporters that perform approved leak surveys (i.e., LDAR surveys with OGI cameras) to identify properly operating v. malfunctioning intermittent-bleed pneumatic devices, and
- Proposes an EF of 16.1 scf/hr/component for malfunctioning/leaking devices and specifies the method for determining the amount of time a device was assumed to be leaking, and
- Proposes an EF of 2.82 scf/hr/component for properly operating devices and specifies the method for determining the amount of time a device was assumed to be leaking. **This represents a nearly 80% reduction from the current required EF for intermittent-bleed pneumatic devices.**

Although many Subpart W reporters currently perform OOOOa compliant LDAR surveys utilizing OGI cameras, in-line with the proposed GHGRP revisions, and are able to identify properly operating devices versus malfunctioning devices, the current rules do not allow the data to be used. And, as such, significantly overstates GHG emissions from intermittent-bleed pneumatic devices.

To demonstrate how GHG emissions from intermittent-bleed pneumatic devices are significantly overstated by the current GHGRP Subpart W rules versus EPA’s proposed revisions from both 2022 and 2023, see the hypothetical scenario below:

<b>Comparison of Methane Emissions Associated with Intermittent-Bleed Pneumatic Devices as Determined by Current GHGRP “Eq. W-1” v. 2022 Proposed GHGRP “Eq. W-1A” AND “Eq. W-1B” v. 2023 Proposed GHGRP “Eq. W-1C” (aka “Calculation Method 3”)</b>	
<b>Assumptions:</b> <ul style="list-style-type: none"> <li>- One Subpart W Reporter</li> <li>- 100 Intermittent-bleed Pneumatic Devices @ 20 Locations</li> <li>- Performs compliant OGI leak surveys at all 20 locations one-time per annum</li> <li>- Identifies 10 malfunctioning (i.e. leaking) Devices (10% leak rate)</li> <li>- Remaining 90 Devices, verified to be operating normally</li> <li>- Uses default of 8760 hours for device “operating” (current rule) and “In-service” (proposed rule) times</li> <li>- Produces dry gas with a 98% CH4 Fraction</li> </ul>	
<b>Current – “Eq. W-1”</b>	$E_{s,j} = \sum_{i=1}^3 Count_i * EF_i * GHG_i * T_i \quad (\text{Eq. W-1})$ <p>100 devices x 13.5 scf/hr/device x 0.98 CH4 % x 8760 hours = 11,589,480 scf CH4 emissions</p>
<b>2022 Proposed – “Eq. W-1A”</b>	$E_{s,j} = \sum_{i=1}^3 Count_i * EF_i * GHG_i * T_i \quad (\text{Eq. W-1A})$ <p>100 devices x 8.8 scf/hr/device x 0.98 CH4 % x 8760 hours = 7,554,624 scf CH4 emissions</p>
<b>2022 Proposed – “Eq. W-1B”</b>	$E_i = GHG_i * \left[ \left( 24.1 * \sum_{j=1}^x T_{Lj} \right) + (0.3 * Count * T_{avg}) \right] \quad (\text{Eq. W-1B})$ <p>0.98 CH4 % x [(24.1 scf/hr/device x 10 leaking devices x 8760 hours) + (0.3 scf/hr/device x 90 non-leaking devices x 8760 hours)] = 2,300,726 scf CH4 emissions</p>
<b>2023 Proposed – “Eq. W-1C”</b>	$E_i = GHG_i * \left[ \sum_{j=1}^x \{ 16.1 * T_{mal,j} + 2.82 * (T_{Lj} - T_{mal,j}) \} + (2.82 * Count * T_{avg}) \right] \quad (\text{Eq. W-1C})$ <p>0.98 CH4 % x [10 leaking devices ((16.1 scf/hr/device x 8760 hours) + (2.82 scf/hr/device (8760 hours – 8760 hours))) + (2.82 scf/hr/device x 90 non-leaking devices x 8760 hours)] = 3,560,975 scf CH4 emissions</p>
<p><b>Summary – In the scenario above, current GHGRP requirements (“Eq. W-1”) overstate methane emissions associated with intermittent-bleed pneumatic devices by approx. 35% compared to 2022 proposed GHGRP alternative 1 (“Eq. W-1A”), by approx. 80% compared to 2022 proposed GHGRP alternative 2 (“Eq. W-1B”) and by approx. 69% compared to 2023 proposed GHGRP Calculation Method 3 (“Eq. W-1C”).</b></p>	

This example demonstrates that the agency is well aware that current GHGRP rules and associated mandated calculation methodologies significantly overstate emissions for intermittent-bleed pneumatic devices.

IPAA generally supports EPA’s proposal to allow multiple calculation methods for determining emissions from natural gas driven intermittent-bleed pneumatic devices. However, there are concerns with each proposed method as described below:

Calculation Method 1 – Direct measurement with flow monitoring device

This calculation method as an alternative for reporters that have or can cost-effectively install flow monitoring devices to directly measure fuel gas supplied to intermittent-bleed pneumatic



devices. For many, if not most, reporters that do not already have flow monitoring devices installed, it will be cost prohibitive to install these devices and currently this is the only proposed method that fully allows the use of “empirical data” as mandated by the IRA. Consequently, EPA should amend calculation Methods 2 & 3 as described below.

Calculation Method 2 – Direct measurement of device vent rates and use of “In-service” times

This proposed calculation method allows reporters to use empirical data in the form of direct measurement to determine vent rates from intermittent-bleed pneumatic devices. Unfortunately, this method, as proposed, is only a half-solution, in-terms of allowing empirical data, because it still requires reporters to use the non-empirical factor of “in-service (i.e., supplied with natural gas)” hours to calculate emissions.

Under proposed Calculation Method 2, reporters are required to determine emissions using the actual “number of hours the pneumatic device was in-service (i.e., supplied with natural gas) in the calendar year” for devices where vent rates were measured AND to use proposed “Eq. W-1B” for devices that did not have vent rates directly measured during the calendar year. Variable “ $T_i$ ” in proposed Eq. W-1B, requires reporters to determine the “Average estimated number of hours in the operating year the devices of each type “t”, were in-service (i.e., supplied with natural gas) using engineering estimates based on best available data. Default is 8,760 hours.” In both instances the requirement to determine emissions based on the concept of “in-service” hours completely contradicts the IRA mandate to allow the use of “empirical data.”

Interestingly, EPA proposes that, absent any measured volume during a 5-minute or 15-minute sampling period, as applicable, reporters can use “company records or engineering estimates” to estimate per actuation emissions and actuation cycle counts to estimate emissions. See the proposed rule excerpt below:

For intermittent bleed devices, the lack of any emissions during a 5-minute or 15-minute period, as applicable, would indicate that the device did not actuate and that the device is seating correctly when not actuating. As such, we are proposing that engineering calculations would be made to estimate emissions per activation and that company records or engineering estimates would be used to assess the number of actuations per year to calculate the emissions from that device for the reporting year.” (FR p. 50311)

This approach represents “empirical data” consistent with the IRA mandate and would yield more accurate emissions estimates for intermittent-bleed pneumatic devices. As such, EPA should amend the Calculation Methods 2 & 3 to allow the use of this approach more broadly, in lieu of the “In-service” hours concept and not only when there is a lack of emissions measured during a sampling period, but in all cases.

Under proposed Calculation Method 2, EPA proposes to require the vent rate for every pneumatic device to be directly measured every 5 years. This measurement frequency is overly burdensome and unnecessary to determine a statistically representative average vent rate for devices of the same type (i.e., intermittent bleed). EPA should amend the proposed rule to only require 10% of devices to be surveyed each year.

Further, under proposed Calculation Method 2, EPA proposes to require a 15-minute vent rate sampling period for each pneumatic device, except isolation valve actuators, which would only be required to be sampled for a minimum of 5 minutes. See excerpt below:

We are proposing a reduced monitoring duration for isolation valve actuators specifically because these devices actuate very infrequently, and the monitoring is targeted to confirm the valve actuators are not malfunctioning (i.e., emitting when not actuating) rather than to develop an average emission rate considering some limited number of actuations.” (FR p. 50311)

A reduced monitoring frequency of only 5 minutes is adequate to confirm a pneumatic device is not malfunctioning. It is not only true for isolation valve actuators, but for all intermittent bleed pneumatic devices. Accordingly, EPA should amend the proposed rule to only require a 5-minute sampling period for all devices. The currently proposed 15-minute sampling period is overly burdensome and unnecessary to accurately estimate emissions.

### Calculation Method 3 – Intermittent-bleed Pneumatic Device Surveys

As EPA acknowledges in its proposed revisions to the GHGRP rule, it is possible to identify and distinguish malfunctioning or “leaking” intermittent-bleed pneumatic devices from properly operating intermittent-bleed pneumatic devices via leak surveys (see below).

As part of our review to characterize pneumatic device emissions, we found a significant difference in the emissions from intermittent bleed pneumatic devices that appeared to be functioning as intended (short, small releases during device actuation) and those that appeared to be malfunctioning (continuously emitting or exhibiting large or prolonged releases upon actuation). For natural gas intermittent bleed pneumatic devices, it is possible to identify malfunctioning devices through routine monitoring using optical gas imaging (OGI) or other technologies. (FR 50312)

This alternative method for calculating emissions from intermittent bleed pneumatic devices should be included for reporters that are unable to justify the costs associated with proposed calculation Methods 1 & 2, even though it does not allow the use of empirical data.

However, proposed calculation Method 3, in its current form, like the current Subpart W rules, will still likely overstate emissions from intermittent bleed pneumatic devices significantly, because it continues to rely upon the use of one-size fits all leaker emissions factors and a determination of “in-service” hours based on a default of 8760 hours (every hour of every day in a reporting year). This approach, even though properly operating devices are confirmed via approved leak surveys, requires reporters to assume properly operating intermittent bleed pneumatic devices are leaking continuously or nearly continuously.

Properly operating intermittent bleed pneumatic devices, as acknowledged by the agency, do not vent continuously. By design and definition, intermittent-bleed pneumatic devices only vent (“process emissions”) when they actuate. Therefore, EPA should amend Calculation Methods 3 to allow reporters to use “company records or engineering estimates” to determine actuation cycle counts, when the data is available, in lieu of the “In-service” hours concept. This approach would allow the use of “empirical data” and yield more accurate emissions estimates.

The currently proposed EFs for Calculation Method 3 vary significantly from the 2022 proposed rule, see table below, without sufficient basis. From available information, it appears that EPA

used the Zimmerle study to develop its 2023 proposal. However, these values are based on controllers under very different operating conditions than those in the oil and natural gas production component of the industry. Experts who have evaluated the 2023 proposal conclude that the 2022 factors are more appropriate. EPA should amend the proposed leaker factors to align with the 2022 proposed rule, which was consistent with the “API Field Measurement Study: Pneumatic Controllers” (Tupper 2019)

	Whole Gas EF – Properly Operating Intermittent Bleed Pneumatic Device	Whole Gas EF – Malfunctioning Intermittent Bleed Pneumatic Device
2022 Proposed Rule	0.03 scf/hr/device	24.1 scf/hr/device
2023 Proposed Rule	2.82 scf/hr/device	16.1 scf/hr/device

#### Retain a Calculation Method Similar to the Current Subpart W Regulations

EPA should allow a fourth calculation method similar to the method in the current Subpart W rules and that which was included in the 2022 proposed rule, that allows small operators to use a single whole gas emissions factor-based approach for calculating emissions from intermittent-bleed pneumatic devices. EPA suggests that such an alternative is unnecessary because of the Subpart OOOOb and OOOOc proposals. However, neither of those are finalized and alternative approaches to managing emissions have been proposed. In particular, the Subpart OOOOc Emissions Guidelines are not binding on states and state regulations may continue to allow natural gas driven pneumatic controllers.

The current EF for intermittent pneumatic controllers is 13.5 scf/hour/component. This EF was developed in the mid-1990s based on data collected from 19 controllers. It is hardly an example of robust data acquisition. Since then, the validity of this EF has been consistently questioned. It has become a higher profile issue as various environmental lobbying groups have produced reports based on the GHGI that is largely developed using the GHGRP.

Over the years other studies have been done to address this EF. However, the quality of EPA’s 2022 analysis of this EF that has been such a target is wanting. In general, EPA discusses six studies that have been done with information on intermittent pneumatic controllers for production operations (GRI/EPA 1996, Allen, Thoma, Prasino, OIPA and API 2019). Additionally, EPA assessed a Department of Energy study on Gathering and Boosting operations (DOE G&B). In each case EPA discusses the limitations of the studies – short sampling times with assumptions about the activation period for intermittent controllers, emissions that are calculated rather than measured, and classification issues. Then, EPA eliminates two studies (Thoma, OIPA) apparently because of their use calculated emissions (which were far lower than some of the other studies). Subsequently, it produced the following summary table:

**Table 2-9. Comparison of Population Emission Factors for Natural Gas Pneumatic Device Venting for Production and G&B Industry Segments**

Device Type	Whole Gas Emission Factor (scf/hr/device)					
	Subpart W <sup>a</sup>	GRI/EPA (1996e) <sup>b</sup>	Allen <i>et al.</i> (2015)	Prasino Group (2013a) <sup>c</sup>	DOE G&B Study (2019)	API Field Study (2019)
Low continuous bleed pneumatic devices	1.39	27.3 <sup>b</sup>	13.6 <sup>d</sup>	6.1	7.6	2.6
High continuous bleed pneumatic devices	37.3		22.8	10.4	19.3	16.4
Intermittent bleed pneumatic devices	13.5	13.5	6.0 <sup>d</sup>	4.2	11.1	9.2

Next, EPA averaged the intermittent factors for these studies to produce a new EF of 8.8 scf/hr. However, this appears to include the EF from the DOE G&B study; if it had not, the EF would appear to be 8.2 scf/hr. If EPA had included the Thoma and OIPA studies instead of the DOE G&B study, the EF would be 6.8 scf/hr. None of these calculations appear to be weighted based on the number of controllers tested. Consequently, for example, the 19 controllers in the GRI/EPA 1996 study are treated equally with the 128 controllers in the Prasino report. If EPA had weighted the data and used the Thoma and the OIPA studies, the EF would be closer to 3.7 scf/hr/device.

EPA should include a fourth calculation option that provides a single EF and that EF should be 3.7 scf/hr/device.

#### *Gathering and Boosting/Centralized Production Facilities*

The Gathering and Boosting category in the methane tax has an inordinately low threshold for its tax basis without any apparent justification. EPA needs to explain the source of the excess emissions fee threshold for gathering and boosting facilities and why it is appropriate. Clearly though only truly separate gathering and boosting operations should be included in it. The current Subpart W proposal creates a critical issue in this regard. The types of equipment used for gathering and boosting of natural gas can be used independently to move natural gas from production facilities to natural gas processing facilities, but it can also be used at oil and natural gas production operations as an integral part of those operations. The proposed Subpart W creates a designation of upstream operators' centralized tank batteries. "Centralized oil production sites" are defined as sites collecting oil from multiple well pads without compressors "that are part of the onshore petroleum and natural gas gathering and boosting facility that gathers hydrocarbon liquids from multiple well pads". In the proposed rule, EPA has classified centralized oil production sites under the Gathering and Boosting segment. Subpart W needs to be clarified to assure that those centralized oil production operations are included within the reporting for the production facility.

#### *Centralized Oil Production Facility Issues*

EPA has recognized centralized production sites as a facility type in the proposed rule and required its emissions to be reported at the site-level, rather than per well ID, which streamlines the reporting for tank batteries. However, there are challenges with including "centralized oil production sites" in the Gathering and Boosting segment.

First, EPA included “production” clearly in the name and it is nonsensical that centralized production sites would be considered part of the Gathering and Boosting segment.

Second, these sites are considered by many operators as part of the upstream production process as these tank batteries are likened to “production supportive facilities.” Facility design efficiency gains over the years have led to centralization of production surface equipment. The centralization of surface equipment generally results in emissions reductions relative to dispersed facilities (separation and tanks installed at each well pad) because the total equipment counts are significantly reduced (fewer emission points), there is a reduction of tank batteries/spill risk, increased operational efficiencies, and better ability to site major facilities away from sensitive areas/populations. This segment classification is contradictory to previous interpretations and may have unintended consequences such as companies electing not to centralize such operations (even though consolidation serves to minimize environmental footprint) due to the more burdensome methane fee implications. Facilities comprised of centralized surface equipment are owned and operated by producers, supportive of production, and may or may not include a well head or pump jack collocated on a single pad.

However, because EPA re-defined the production segment in 2016 as “associated with a single well pad”, this has created reporting confusion and centralized tank batteries have been categorized differently both by individual owners/operators, as well as other federal rules (NSPS OOOOb). For example, under the proposed OOOOb regulations, the “centralized oil production facilities” (referred to in NSPS OOOOb as “centralized production facility”) are grouped under the production segment by definition rather than as Gathering and Boosting as explained below.

Currently Subpart W calls and defines the subject facility as:

“**Centralized oil production site** means any permanent combination of one or more hydrocarbon liquids storage tanks located on one or more contiguous or adjacent properties that does not also contain a permanent combination of one or more compressors that are part of the onshore petroleum and natural gas gathering and boosting facility that gathers hydrocarbon liquids from multiple well-pads. A centralized oil production site is a type of gathering and boosting site for purposes of reporting under §98.236.”

Meanwhile NSPS OOOOb/OOOOc calls and defines it as:

“**Centralized production facility** means one or more storage vessels and all equipment at a single surface site used to gather, for the purpose of sale or processing to sell, crude oil, condensate, produced water, or intermediate hydrocarbon liquid from one or more offsite natural gas or oil production wells. This equipment includes, but is not limited to, equipment used for storage, separation, treating, dehydration, artificial lift, combustion, compression, pumping, metering, monitoring, and flowline. Process vessels and process tanks are not considered storage vessels or storage tanks. A centralized production facility is located upstream of the natural gas processing plant or the crude oil pipeline breakout station and is a part of producing operations.”

In addition, in the Pipeline and Hazardous Material Safety Administration’s (“PHMSA”) proposed Gas Pipeline Leak Detection and Repair rule, PHMSA does not define or regulate *any* production facilities as “gathering and boosting”. Specifically, as defined in API’s

Recommended Practice-80 and incorporated in 49 CFR 192: “The production function, in most cases, extends well downstream of the wellhead and may include several processes required to prepare the gas for transportation. In this context:

‘Production Operation’ means piping and equipment used for production and preparation for transportation or delivery of hydrocarbon gas and/or liquids and includes the following processes: (a) extraction and recovery, lifting, stabilization, treatment, separation, production processing, storage, and measurement of hydrocarbon gas and/or liquids; and (b) associated production compression, gas lift, gas injection, or fuel gas supply.”

Both the NSPS OOOOb/OOOOc and PHMSA’s name and definition of what are essentially tank batteries are much more consistent with how these facilities operate and are managed in the field. In an effort to mitigate confusion and create more rule alignment, EPA should align the name and definition of the subject facility type between Subpart W and NSPS OOOOb/OOOOc.

In this proposal, EPA claims to be striving for consistency when EPA states, on page 50288 of the proposal, “as in the 2016 rule, the proposed amendments would also allow facilities to use a consistent method to demonstrate compliance with multiple EPA programs.” Also, even though EPA uses the word “gather” in the definition in OOOOb/OOOOc, these sites are still properly defined as “part of the producing operations.”

Further, the fact that EPA has proposed the definition of “centralized production sites” as sites that do not include compressors that are part of the Gathering and Boosting segment is puzzling. If these sites are part of the Gathering and Boosting segment as EPA has proposed, why would these sites not be allowed to have compressors that are part of the Gathering and Boosting segment on them? This demonstrates that EPA *does* understand the distinction between gathering and boosting compressors that should appropriately be included in the Gathering and Boosting segment and centralized tank batteries that clearly should not.

As such, EPA should change both the name and definition of “centralized oil production site” in the Subpart W rule to match NSPS OOOOb/OOOOc, to align with other federal programs for consistency, and to reflect how the industry owns and operates these facilities. EPA should delete “associated with a single well pad” from the Onshore Petroleum and Natural Gas Production definition in Subpart W in order to clear up the confusion and properly have centralized production sites in the production segment where they belong.

Further, and most importantly, EPA’s proposed definitions are contrary to the MERP waste emissions thresholds, where gathering and boosting sites are considered “non-production”. In this language on the Waste Emission Threshold, Congress created two categories for applicability of the threshold: “Production” and “Non-Production”. The Gathering and Boosting segment (segment #8) is listed under “Non-Production”. Clearly, Congress did not intend for sites associated with production, such as “centralized **production** sites” to be considered gathering and boosting. EPA may have been able to impose reporting obligations for emissions from centralized tank batteries under the Gathering and Boosting segment in the past but for application of the tax, these sites should be considered production. Doing otherwise would result in an inequitable application of the tax that would most likely not be applied uniformly by all upstream operators. If EPA does not wish to clear up the confusion and include centralized production sites in the Production segment, EPA should carve out these sites for threshold

determination and make these sites subject to the 0.2% threshold as Congress has clearly mandated in the law.

In addition, the categorization of a centralized production site into Gathering and Boosting could result in a backslide from the progress industry has made in minimizing its overall footprint and emission sources. Due to the higher methane taxes that may accompany categorizing production sites as Gathering and Boosting (subjecting these facilities to the 0.05% threshold instead of the 0.2% threshold) operators may be economically incentivized to migrate back to individual well pad installations, dramatically increasing the amount of equipment in the field and increasing GHG emissions.

#### Gathering and Boosting Emissions Factor Issues

A consistent criticism of the current emissions estimation process for gathering and boosting operations relates to its use of emissions factors based on the mileage of pipelines. These factors cannot be altered based on any operational actions other than changing the nature of the pipeline material or structure. These factors from 1996 are unchanged in this proposal despite studies showing that pipeline emissions are overestimated. The consequence of this failure will be to impose the harshest excess emissions tax on this essential component of the natural gas value chain without providing any plausible recourse to alter the emissions calculations. This inaction by EPA flies in the face of its mandate to make the Subpart W emissions estimate more accurate, more reflective of actual operations.

Pipelines are inspected routinely, leaks are fixed, and emissions are eliminated. Only actual emissions should be reported under Subpart W and used for any excess emissions tax calculation; not simply based upon miles of pipeline for which the vast majority are not leaking. There should be an option to demonstrate that emissions are being managed, to show that there are no leaks, or, where leaks are identified, the emissions be based on the leaks found

Pipeline leaks are easily detected through regular inspection using airborne overflights, easement riding and operator inspections. Arguably, these have lower detection limits based on the type of technology used. Larger leaks can easily and quickly be determined by sudden drops in production. The pipeline can be isolated, and the volume of gas lost can easily be determined with great accuracy. Following are some options to determine pipeline factors and credit for inspection:

Pipeline flyovers have a lower detection limit but do detect methane. If no leaks are found, then no emissions factor should be used for that segment and there should be no excess emissions tax or emissions calculated.

Similarly, when laser-based and acoustic based technology is employed while riding the pipeline easement, leaks are detected. If no leak is detected, then no excess emissions tax or emission factor should be used. If a leak is found, then the actual leak can be measured or an emission factor should be developed. This is currently allowed in the detection of fugitives and a comparable approach for pipelines can be developed.

#### *Use of Advanced Monitoring and Measurement Technologies*

For many source categories under Subpart W, EPA has included several options for operators to be able to provide empirical data, such as measurement with metering or using updated emissions factors based on recent field measurement studies. However, under this proposed rule,

EPA has not included a pathway for using the results of advanced methane detection and measurement surveys as a source of empirical data for key source categories, like tanks, flares, and compressors.

Methane detection and measurement technologies have advanced in the last few years due to early-phase research efforts, including from the Department of Energy, to develop technologies that have now become commercially available. Some operators have included these technologies in their voluntary methane management programs. Including a pathway for utilization of these technologies for emissions reporting would improve the quality of data submitted under Subpart W while supporting a growing methane detection and measurement industry. A final rule for changes to Subpart W should include a pathway for utilizing survey results from technologies, particularly those approved for use under NSPS OOOOb and OOOOc, for emissions reporting.

#### *Large emissions events*

The comments filed by API extensively address the complexity and flaws in the EPA Subpart W proposal on large emissions events. IPAA commends these comments, which it joined in submitting, as a detailed assessment of the issues that need to be resolved.

#### *Flares*

The comments filed by API extensively address the complexity and flaws in the EPA Subpart W proposal on emissions issues related to oil and natural gas production flaring. IPAA commends these comments, which it joined in submitting, as a detailed assessment of the issues that need to be resolved.

#### *Environmentalists' Recommendations Inappropriate and Unworkable*

As a component of its efforts to suppress American oil and natural gas production, professional environmental lobbying organizations have orchestrated initiatives to press for additions to the Subpart W reporting regulations that are either inappropriate or unworkable. This effort was evident during the August 2023 EPA public hearing on its current Subpart W proposal where about 40 testifiers used exactly the same terms to demand changes to the Subpart W proposal. These demands reflect comments made by the Environmental Defense Fund in several forums regarding Subpart W and the methane tax.

Following is a list of the key demands:

- Integrating top-down, basin-level data alongside site- and equipment-level measurement data. Top-down, basin-level data provides a full picture of total emissions in a region, while site-level, population-based measurement data can provide insights of emissions at a finer resolution, all of which strengthen the accuracy of reported emissions.
- Building in appropriate statistical analysis of measurement data to provide a representative assessment of pollution at the facility and basin levels. Measurement data requires statistical analysis to account for intermittent emission events that may be missed by individual, one-time measurements.
- Defining guardrails and requiring independent verification for self-reported measurements from companies to ensure any company reported data accurately represents operations and is not limited to unrepresentative sites or equipment known to have lower emissions.



One of the key issues here is the relationship between these recommendations and Subpart W. Everyone would like to have the relationship between top-down basin-level data and site- and equipment-level measurement data better understood to resolve the recurring contentious debates regarding these issues. However, such an analysis is well outside the scope of facility reporting under Subpart W. Subpart W is predicated on individual companies reporting emissions estimates based on artificially contrived facilities, e.g., all their operations in an APGA basin. Even if EPA alters the reporting structure to require reporting by well pad, the reporting remains a company-based report. Conversely, basin level data is just that – basin level. It contains information that reflects emissions from numerous well pads, owned and operated by different companies. Moreover, Subpart W information reports annual emissions; top-down basin-level data is temporal in nature perhaps hours, perhaps days, perhaps minutes. No analysis that compares the top-down data and equipment-level measurement data can realistically use Subpart W reporting. These analyses must have a coordinated effort to assess data from both components simultaneously.

Similarly, while statistical analysis can be valuable, it is not in the purview of Subpart W reporting. If EPA wants to conduct appropriate statistical analysis, it must design a more rigorous direct sampling or estimating strategy. Such an effort could be valuable if developed by and validated by EPA. To date, the analyses that have been generated have been thinly veiled advocacy efforts designed to press for regulations so quickly that EPA has never developed a full and accurate understand of the emissions profiles of oil and natural gas production operations.

The final recommendation reflects the environmental lobbying position that only it can be trusted; everyone else must be put to a higher level of scrutiny. The American oil and natural gas production industry is committed to managing its emissions, including methane emissions. It has invested millions of dollars in meeting its requirements and will continue to make necessary investments. While differences may exist regarding the best, most cost-effective actions that should be taken, producers will continue their commitment to protect the environment. Certainly, the idea of having independent verification of self-reported emissions data is appealing. Presently, many of the Subpart W reports are prepared by independent consultants because of the complexity of the current requirements, particularly for smaller producers. The larger issue may well be whether the restructuring of Subpart W reporting in the context of the methane tax will adversely affect access to independent consultants. This issue has arisen in previous EPA NSPS regulations where EPA required professional engineers (PE) to certify information. Two issues arose. First, there were not enough PEs with expertise to undertake the tasks. Second, the license risks for the PE in undertaking the task were too great to bring more into the arena. A similar dynamic may occur in the methane tax context. Because OECA can challenge any reported information and because OECA has a history of using its enforcement power in this industry to target smaller producers, independent contractors may conclude that the risks to their businesses are too high to participate given the magnitude of penalties under the CAA.

Taken as a whole, these environmental lobbying organizations' recommendations are either inappropriate in the context of Subpart W or unworkable or both.

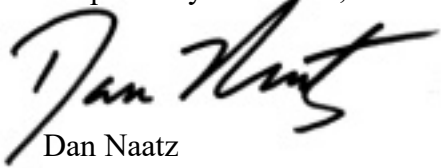
### *Conclusion*

The task mandated to EPA by Congress requires the agency to comprehensively review, revise and validate its Subpart W regulations to make them accurate and reliable because of the role

their implementation will play in the MERP, defining exposure and calculating its methane tax. Congress' deadline of EPA's action failed to reflect the reality of the task. EPA, faced with the choice of meeting a deadline or meeting its mandate to comprehensively revise Subpart W, chose the deadline and produced a wholly inadequate compendium of emissions calculations. At its best, the Subpart W proposal collects revisions to the current calculation process that EPA failed to validate as either accurate or appropriate. At its worst, the Subpart W proposal is a thinly disguised effort to raise the MERP methane tax rates through careful selection of higher emissions factors and unworkable calculation procedures. EPA should withdraw the current Subpart W proposal and execute its mandate to make it accurate, including taking the necessary steps to validate the emissions factors or emissions calculation procedures that it ultimately puts in place.

If there are questions or if EPA needs additional information on these comments, please contact Dan Naatz at 202-857-4722 or [dnaatz@ipaa.org](mailto:dnaatz@ipaa.org).

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Dan Naatz", written in a cursive style.

Dan Naatz  
Chief Operating Officer  
and Executive Vice President