

BY EMAIL

Environmental Protection Agency
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Attn: Docket ID No. EPA-HQ-OAR-2014-0831

Re: Comments of Environmental Defense Fund, Sierra Club, Clean Air Task Force, and Natural Resources Defense Council on Greenhouse Gas Reporting Rule: 2015 Revisions and Confidentiality Determinations for Petroleum and Natural Gas Systems, 79 Fed. Reg. 73,148 (Dec. 9, 2014)

Environmental Defense Fund, Sierra Club, Clean Air Task Force, and Natural Resources Defense Council appreciate the opportunity to provide these comments on EPA's proposed 2015 revisions and confidentiality determinations for the petroleum and natural gas systems component of the Greenhouse Gas Reporting Program ("Subpart W").¹ We strongly support rigorous, timely, and transparent emissions reporting for the oil and natural gas sector. We urge the agency to promptly finalize strong reporting requirements for the three emissions sources covered by this proposed rule, none of which are currently required to monitor, report, and disclose their emissions.

Rigorous reporting of greenhouse gas emissions from gathering and boosting systems, transmission pipeline blowdowns, and completions and workovers of oil wells with hydraulic fracturing will deepen understanding of emissions from these important sources,² which is especially important in light of the increasing growth of production in tight-oil formations, like the Bakken and Eagle Ford, the already significant national network of gathering and boosting infrastructure, and the potential expansion of this infrastructure. Rigorous reporting will likewise help to enhance public transparency for communities in close proximity to this development while promoting accountability among operators.

¹ Greenhouse Gas Reporting Rule: 2015 Revisions and Confidentiality Determinations for Petroleum and Natural Gas Systems, 79 Fed. Reg. 73,148 (Dec. 9, 2014).

² EPA estimates that the oil and gas sector is the largest industrial source of U.S. methane emissions. Expanding reporting to the segments included in EPA's proposal will improve understanding of the sector's overall emissions. Recent top-down studies, conducted with aircraft overflight readings, show that emissions from the oil and gas sector may be greater than estimates based on official inventories. *See, e.g.,* A.R. Brandt et al., 2014, *Methane Leaks from North American Natural Gas Systems*, 343 SCIENCE 33-35 (2014) (suggesting emissions from the oil and natural gas sector may be greater than published inventories); G. Pétron, *A new look at methane and nonmethane hydrocarbon emissions from oil and natural gas operations in the Colorado Denver-Julesberg Basin*, 119 J. GEOPHYS. RES. ATMOS. 6836 (2014) (estimating emissions from oil and gas sources in the most densely drilled area in the Denver-Julesburg Basin in Weld County, CO may be 3 times higher than estimated based on Reporting Program data).

Furthermore, transparent, accurate emissions data are important to protect public health and the environment. As EPA summarized in the 2012 New Source Performance Standards for the Oil and Natural Gas Sector,

[t]he data submitted under [Subpart W] will provide important information on the location and magnitude of GHG emissions from petroleum and natural gas systems and will allow petroleum and natural gas facilities to track their own emissions, compare them to similar facilities and aid in identifying . . . opportunities to reduce emissions in the future³

Gathering rigorous and transparent emissions information from these segments is also consistent with commitments the Obama Administration has made in its Strategy to Reduce Methane Emissions (which directs EPA to “address potential gaps in coverage” of regulatory requirements and to “ensure high quality data reporting”⁴) and in its recently-announced steps to reduce methane emissions (which commit to strengthen the Reporting Program to “require reporting in *all* segments of the industry” and to consider deploying advanced technologies to “improve the overall accuracy and transparency of reported data”⁵).

Section 114 of the Clean Air Act provides EPA with clear authority to require monitoring and reporting of emissions data from sources in the petroleum and natural gas sector. Commenters strongly support EPA’s proposed actions to improve Subpart W, and we incorporate by reference into the administrative docket for this rulemaking all studies, analyses, and other documents cited in these comments. In addition, our comments respectfully offer several specific recommendations to further strengthen the proposed rule:

- Require more granular, site-specific information for gathering and boosting facilities within basin-level reports;
- Adopt direct measurement requirements for compressor emissions in the gathering and boosting segment;
- Require direct measurement of gathering pipeline leaks; and
- Require leak reporting from transmission pipelines and coordinate with data reported to the Pipeline and Hazardous Materials Safety Administration (“PHMSA”), the Energy Information Administration (“EIA”), and the Federal Energy Regulatory Commission (“FERC”).

³ 77 Fed. Reg. 49,490, 49,513-14 (Aug. 16, 2012).

⁴ The White House, *Climate Action Plan: Strategy to Reduce Methane Emissions*, at 13 (Mar. 2014), available at http://www.whitehouse.gov/sites/default/files/strategy_to_reduce_methane_emissions_2014-03-28_final.pdf.

⁵ The White House, Fact Sheet, *Administration Takes Steps Forward on Climate Action Plan by Announcing Actions to Cut Methane Emissions* (Jan. 14, 2015), available at <http://www.whitehouse.gov/the-press-office/2015/01/14/fact-sheet-administration-takes-steps-forward-climate-action-plan-anno-1> (emphasis added) [hereinafter Methane Announcement Fact Sheet].

I. STRENGTHENING REPORTING REQUIREMENTS FOR THE GATHERING AND BOOSTING SEGMENT.

We strongly support EPA's proposal to require reporting from the gathering and boosting segment, which contains significant sources of emissions, and for which additional information concerning the number and extent of emissions sources will be helpful in further characterizing those emissions.

Analysis conducted by ICF International in March 2014 estimates that annual process emissions from the gathering and boosting segment are approximately 0.8 million metric tons (MMT) of methane, or 20 MMT of CO₂e (using a 100-year GWP of 25).⁶ Building on the ICF analysis, EPA calculates that total annual process and combustion emissions from the segment amount to approximately 43.5 MMT CO₂e.⁷ These emissions not only constitute significant greenhouse gas pollution, but also represent a loss of large quantities of valuable gas. For instance, analysis conducted by Clearstone Engineering found that gathering segment compressor stations lost an average of 97 metric tons of gas per year per facility, amounting to thousands of dollars in lost gas value from leaking components.⁸ In addition, in a recently-released study in the *Journal of Environmental Science and Technology* ("ES&T Study"), researchers measured 114 gathering facilities, finding emissions ranging from 0.6 to 600 standard cubic feet of methane leaking per minute (scf/m).⁹ On average, the methane emitted from just one such gathering facility is approximately 12,000 metric tons of CO₂e, greater than the average 2013 methane emissions from a natural gas transmission facility reporting under Subpart W (which themselves are significant).

Gathering pipelines. More accurate and comprehensive data on gathering pipelines will help to further improve understanding of emissions from these sources. The 2014 Greenhouse Gas

⁶ ICF International, *Economic Analysis of Methane Emission Reduction Opportunities in the U.S. Onshore Oil and Natural Gas Industries*, at 3-3 (Mar. 2014), available at <http://www.edf.org/energy/icf-methane-cost-curve-report> [hereinafter ICF Cost Curve Report]. This figure is a conservative estimate, as it is based on a dated 100-year global warming potential for methane of 25. We urge EPA to use the latest, most scientifically rigorous figures for the global warming potential of methane. The Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) concluded that methane is a much more potent driver of climate change than previously understood—with a global warming potential as much as 34 times greater than carbon dioxide over a 100-year time frame, and as much as 86 times greater than carbon dioxide over a 20-year time frame. Myhre, G. et al., *Anthropogenic and Natural Radiative Forcing*, in CLIMATE CHANGE 2013: THE PHYSICAL SCIENCE BASIS, CONTRIBUTION OF WORKING GROUP I TO FIFTH ASSESSMENT REPORT OF THE IPCC, 714 tbl. 8.7 (2013), available at <http://www.ipcc.ch/report/ar5/wg1/>.

⁷ EPA, Greenhouse Gas Reporting Rule: Technical Support for 2015 Revisions and Confidentiality Determinations for Petroleum and Natural Gas Systems; Proposed Rule, Doc. EPA-HQ-OAR-2014-0831-0018, at 7 (Nov. 13, 2014) [hereinafter Proposal TSD].

⁸ Clearstone Engineering, *Cost-Effective Directed Inspection and Maintenance Control Opportunities at Five Gas Processing Plants and Upstream Gathering Compressor Stations and Well Sites*, at 28 (2006); see also EDF, *Oil and Natural Gas Sector : Compressors*, Peer Review Responses of Environmental Defense Fund, at 5 (June 16, 2014) (indicating that average emissions from gathering segment compressors are larger than existing EPA estimates).

⁹ Mitchell, Austin L., et al., *Measurements of Methane Emissions from Natural Gas Gathering Facilities and Processing Plants: Measurement Results*, 49 ENVTL. SCI. & TECH., at A (2015) [hereinafter ES&T Study].

Inventory estimates that there are over 440,000 miles of gathering pipeline currently in the U.S.¹⁰ Historically, gathering pipelines were small, low-pressure lines connecting production wells with downstream facilities.¹¹ In recent years, an increase in oil and gas production has led to the construction of larger, higher-pressure gathering lines.¹² To keep pace of recent growth in production, the Interstate Natural Gas Association of America estimates that 16,500 miles per year of new gathering pipelines will be required from 2011 to 2035.¹³

Gathering pipelines in rural areas have not historically been subject to Department of Transportation (“DOT”) safety standards. In fact, DOT’s PHMSA regulations currently cover only about 10 percent of the nation’s gathering pipelines,¹⁴ and most states do not have separate requirements for this infrastructure.¹⁵ As a result, companies have not generally been required to report the location and characteristics of gathering pipelines installed in rural areas.¹⁶ A recent Government Accountability Office report recommended that the DOT and PHMSA move forward with a rulemaking to address gathering pipeline safety, concluding: “Given the lack of PHMSA regulation of rural gathering pipelines, the extent, location, and construction practices for rural gathering pipelines is largely unknown by federal, state, and local officials, and oversight to verify the construction and monitor operators’ safety practices is lacking.”¹⁷

Accordingly, strengthened reporting requirements are essential to provide transparent information concerning emissions from existing infrastructure and recently increased pipeline mileage.¹⁸

Compressors. Compressors in the gathering and boosting segment are also significant sources of emissions. According to independent analysis conducted by ICF International, which analyzed available data from five states to develop national-level estimates, there are over 13,000 reciprocating compressors in the gathering and boosting segment. Emissions from compressors, including equipment leaks, make these facilities one of the largest sources of methane emissions

¹⁰ EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2012*, Annex 3 tbl. A-125 (2014). PHMSA has estimated that there are at least approximately 230,000 miles of gas gathering lines in the U.S. Pipelines Safety: Safety of Gas Transmission Pipelines, Advance Notice of Propose Rulemaking, 76 Fed. Reg. 53,086, 53,101 (Aug. 25, 2011).

¹¹ U.S. Government Accountability Office, *Oil and Gas Transportation: Department of Transportation is Taking Actions to Address Rail Safety, but Additional Actions Are Needed to Improve Pipeline Safety*, at 22 (Aug. 2014) [hereinafter GAO Study].

¹² *Id.*

¹³ Interstate Natural Gas Association of America, *North American Natural Gas Midstream Infrastructure Through 2035: A Secure Energy Future*, at 14 (June 28, 2011), available at <http://www.ingaa.org/File.aspx?id=14911>.

¹⁴ GAO Study, *supra* note 11, at 10-11.

¹⁵ *Id.* at “What GAO Found.”

¹⁶ *Id.* at 23.

¹⁷ *Id.* at 26.

¹⁸ *Id.* at 22.

in the oil and gas sector.¹⁹ Robust reporting requirements for compressors in the gathering and boosting segment are therefore essential to providing a deeper understanding of this significant source of emissions.

Storage Tanks. The above-referenced ES&T Study also includes information concerning emissions from storage tanks at gathering facilities. In particular, the study found substantial venting from liquids storage tanks at approximately 20 percent of sampled gathering facilities. Emission rates at these facilities were on average four times higher than rates observed at other facilities.²⁰ In addition, at some of the sites with substantial tank emissions, the authors found that company representatives were able to make adjustments in response to monitoring data that resulted in immediate reductions in emissions.

a. EPA should require more granular information within each basin-wide report.

EPA proposes to define a gathering and boosting facility to include all gathering pipelines and other equipment under common ownership or control in a single hydrocarbon basin.²¹ As such, an owner or operator of multiple “gathering and boosting systems” within a single basin may report all systems as one facility.²² EPA proposes to separately define a “gathering and boosting system” as a “single network of pipelines, compressors and process equipment” with connection points to natural gas and oil production and a downstream endpoint.²³

EPA requests comment on two alternative approaches to defining gathering and boosting facilities: 1) using the facility approach described at 40 C.F.R. § 98.6, which would more narrowly define a gathering and boosting facility; or 2) separating gathering and boosting stations from pipelines, with the former reporting at a basin level and the latter at a national level.²⁴

We support EPA’s primary proposal to use a basin-level approach to reporting in the gathering and boosting segment for both stations and pipelines. This approach will facilitate straightforward implementation for reporters who can streamline reporting for all gathering and boosting pipelines and equipment in one basin and will also clearly integrate with existing standards requiring basin-level reporting from the oil and gas production segment. Because basin-level reporting incorporates broader geographic areas, it will ensure more representative emission coverage of the gathering and boosting segment as compared with other approaches EPA considered.

¹⁹ See ICF Cost Curve Report, *supra* note 6, at 3-7 tbl.3-2.

²⁰ ES&T Study, *supra* note 9, at A.

²¹ 79 Fed. Reg. at 73,188 (proposing amendment to 40 C.F.R. § 98.238).

²² *Id.* at 73,153.

²³ *Id.* at 73,188.

²⁴ *Id.* at 73,154.

While we support basin-level reporting, we urge EPA to ensure each report also includes more granular, site-specific analysis of emissions data from the gathering and boosting segment. In particular, we respectfully ask that EPA require owners and operators to report the number of gathering and boosting sites in each basin-level facility, the non-pipeline emissions attributable to each site, and the types and number of equipment in each site. Under this approach, EPA could provide further guidance on how owners and operators should delineate separate gathering and boosting systems and sites.²⁵ We also urge the agency to require reporting of more detailed information on the gathering pipelines in a system, including material, diameter, and maximum pressure if available.

A single basin-level report could then separate non-pipeline data on a site-by-site basis. To facilitate system-level reporting, owners and operators could assign system identification numbers or generic descriptions to individual gathering and boosting sites within the larger basin facility. Source emissions within the larger facility could then be grouped by site identifiers within basin reports. This would help to maximize the data collected for a single gathering and boosting facility by providing valuable site-specific information for sources within that facility.

Moreover, many owners and operators will likely collect this data at the level of the individual site (rather than for the entire basin), and providing the data in that form would enable detailed analysis and verification of the emissions from this segment. More site-specific data could also be used for comparison with basin-level data to improve and refine reporting requirements. Given the need for more detailed information about the gathering and boosting segment and its close connection with the production segment, requiring site-level information will improve the overall accuracy of emissions data.

b. EPA should strengthen proposed gathering and boosting facility data reporting requirements.

Compressor emissions. Commenters also urge EPA to strengthen reporting requirements for compressors in the gathering and boosting segment. EPA proposes to adopt the same requirements for that segment as apply to compressors in the production segment.²⁶ The agency requests comment, however, on the appropriateness of methods Subpart W currently uses for compressors in the processing segment, which rely on more direct measurement.

We recommend that EPA apply the methods for compressor emission calculations in the natural gas processing, transmission, and underground storage segments to compressors in gathering and boosting. The ES&T Study discussed earlier underscores the importance of directly measuring these emissions. Moreover, the study identifies important gaps in the protocols for compressors (notably, the failure to require emissions reporting of nonoperational pressurized mode) that

²⁵ In 40 C.F.R. § 98.6, EPA currently defines a “site” in the production segment as “any combination of one or more graded pad sites, gravel pad sites, foundations, platforms, or the immediate physical location upon which equipment is physically located.” EPA could similarly define a gathering and boosting “site” as “gathering & boosting equipment on a single property.” The ES&T Study found that gathering and boosting stations contained compression, dehydration, and treatment, or some combination thereof. ES&T Study, *supra* note 9, at C.

²⁶ 79 Fed. Reg. at 73,155.

result in underreported emissions.²⁷ Accordingly, we respectfully ask that EPA require direct measurement for gathering and boosting compressors, consistent with Subpart W's approach in the processing, transmission, and underground storage segments, and address some of the data gaps identified in the ES&T Study.²⁸

Gathering pipeline leaks. We also recommend that EPA require facilities to collect data to update the emission factor for gathering pipeline leaks and to use this data to develop facility- and material-specific pipeline emissions factors (as has been done in the distribution segment). The currently proposed per-mile emission factor could be used while this data is being collected.

The emission factors used in the GHG Inventory (from the GRI/EPA study) were based on measurements of local distribution mains, not gathering pipelines. As EPA illustrates in its Technical Support Document for the proposed rule, gathering pipelines generally differ from distribution mains in material, size, and maximum operating pressure and there is variation even within the gathering and boosting segment in material, size, and pressure.²⁹ Despite the adaptation from distribution emissions factors, the existing emissions factors may not accurately represent emissions from these sources.³⁰ We therefore urge the agency to update the emission factor based on direct measurement of gathering pipeline leaks. We also recommend that the agency investigate alternative methods such as leak detection and quantification of individual leaks.

Venting and flaring. Finally, we urge EPA to ensure that all major forms of venting and flaring that occur at gathering and boosting facilities are included in reporting requirements for this segment. Venting and flaring of associated gas may occur outside of well pads, including at central gathering points. While these emissions may be included in the reporting for storage tanks or flare stacks, a separate category for associated gas venting and flaring in gathering and boosting may be appropriate, and EPA should ensure that all such activities are accounted for.

c. EPA should require annual or more frequent leak detection surveys

EPA proposes adopting production segment methods to calculate equipment leaks in the gathering and boosting segment.³¹ Under this approach, equipment leaks would be calculated using population counts and the applicable emission factor according to the procedures set forth at 40 C.F.R. § 98.233(r). We strongly urge EPA to instead adopt the leak detection survey

²⁷ ES&T Study, *supra* note 9, at F.

²⁸ Colorado State University, Press Release, *Colorado State University Researchers Measuring Methane Emissions from Natural Gas Gathering and Processing Facilities* (Oct. 14, 2013), available at <http://www.news.colostate.edu/Release/7037>. We also recommend that EPA consider the need to update the emissions factor for reciprocating engines at Subpart C, 40 C.F.R. § 98.33. Since most gathering and boosting facilities use reciprocating engines, combustion emissions for this segment could be substantially underestimated with the use of the current emissions factor.

²⁹ Proposal TSD, *supra* note 7, at 22 tbl. 2.3.

³⁰ *Id.* at 22.

³¹ 79 Fed. Reg. at 73,155.

requirements at 40 C.F.R. § 98.233(q) for gathering and boosting facilities. Specifically, we recommend that EPA incorporate requirements for direct leak detection and monitoring surveys (using infrared cameras or similar equipment) and robust quantification of emissions at least annually, if not more frequently.

EPA explains that the population count methods at section 98.233(r) are appropriate because the gathering and boosting segment is similar to production in size and number of sources.³² Subpart W should also require at least annual direct leak detection and monitoring for well production sites for the same reasons cited here for requiring leak detection in gathering and boosting. Even so, the gathering and boosting segment is not comparable to the production segment in the way the proposal suggests. In fact, estimates suggest that the gathering and boosting segment more closely resembles other segments for which leak detection surveys are required. For instance, the Greenhouse Gas Inventory estimates that there are approximately 36,000 gathering compressors in the oil and natural gas sector.³³ This figure is well below the number of oil and gas production wells nationwide, and is even lower than the number of above grade transfer stations in the distribution segment reporting under Subpart W, which are subject to direct leak detection surveys under Subpart W.³⁴ We urge EPA to adopt a requirement for comprehensive, frequent, and direct leak detection and quantification in both the production segment and gathering and boosting segment, as direct inspection methods are low-cost and available and result in more accurate and transparent emissions data.

Direct and frequent monitoring of leaks in the gathering and boosting segment would promote transparency and accountability for existing sources. Leaks are the single largest source of fugitive methane emissions from the oil and gas sector³⁵ and are a significant source at gathering facilities, according to the ES&T Study.³⁶ Moreover, according to analysis conducted by ICF International, leaks are also the leading opportunity for cost-effective emissions reductions.³⁷ Direct leak inspection and reporting would enable facilities to identify and prioritize needed repairs and would help to support measures to protect public health and the environment. Moreover, the Administration's January methane announcement underscores the importance of shifting towards more direct measurement of leaks in the oil and natural gas sector, and this rulemaking represents an opportunity to begin realizing that commitment by establishing such requirements.³⁸

Requiring direct measurement, inspection, and reporting of leaks at sources in the gathering and boosting segment would also rely on technologies many states have already deployed to help find and fix leaks. For instance, Colorado recently finalized leak detection and repair

³² Proposal TSD, *supra* note 7, at 14.

³³ *Inventory of U.S. Greenhouse Gas Emissions and Sinks*, *supra* note 10, Annex 3 tbl. A-125.

³⁴ 40 C.F.R. §§ 98.232(i)(1), 98.233(q).

³⁵ ICF Cost Curve Report, *supra* note 6, at 3-6.

³⁶ ES&T Study, *supra* note 9, at F-G.

³⁷ ICF Cost Curve Report, *supra* note 6, at 1-2.

³⁸ Methane Announcement Fact Sheet, *supra* note 5.

requirements at compressor stations at or upstream of natural gas processing plants. Under Colorado's tiered leak detection and repair approach, the frequency of mandatory leak inspections depends on the size and emissions potential of the facility and ranges from one-time to monthly inspections. Colorado allows inspection using Method 21, infrared camera, or an equivalent instrument-based detector (which could also allow for advances in monitoring technology).³⁹ Additionally, Wyoming requires new and modified facilities located in the Upper Green River Basin Nonattainment Area that have the potential to emit at least 4 tons per year of volatile organic compounds from fugitive sources to institute quarterly leak monitoring by Method 21, infrared camera, or some combination thereof.⁴⁰ Wyoming has also proposed regulatory revisions that would apply these requirements to existing sources in the Upper Green River Basin.⁴¹

II. STRENGTHENING REPORTING REQUIREMENTS FOR THE NATURAL GAS TRANSMISSION SEGMENT.

The proposed rule contains new reporting requirements for emissions from natural gas transmission pipeline blowdowns between compressor stations.⁴² EPA proposes defining the facility for the Onshore Natural Gas Transmission Pipeline segment as an owner or operator's total mileage of natural gas transmission pipelines in the U.S.⁴³

Commenters strongly support these proposed requirements along with EPA's proposed facility definition. A national approach to reporting in this segment ensures the most robust emissions reporting and, accordingly, the most transparent data.⁴⁴ We respectfully ask that the agency also require owners and operators to include within national-level reports the total mileage of transmission pipeline in each state. Reporting of state-by-state information would maximize the granularity and usability of reported data and would comport with the state-specific information owners and operators are already reporting to the EIA.

Transmission pipeline leak reporting. We likewise support the agency's proposal to strengthen reporting standards in the transmission segment and urge EPA to require monitoring and reporting of leaks in this segment as well. As EPA notes in the proposed rule, the agency previously considered provisions addressing fugitive emissions from transmission pipelines in its

³⁹ Co. Dep't of Pub. Health & Env't Reg. No. 7 (5 CCR 1001-9), Unofficial Draft (Feb. 23, 2014) § XVII.F.

⁴⁰ Wyo. Dep't of Env'tl. Quality, Oil and Gas Production Facilities: Chapter 6 Section 2 Permitting Guidance (June 1997, Revised Sept. 2013).

⁴¹ Wyo, Dep't of Env'tl. Quality, Draft Nonattainment Area Regulations, at Ch. 8 (June 4, 2014), *available at* http://deq.state.wy.us/aqd/proposedrules_files/Chapter%208%20-%20Nonattainment%20Area%20Regulations-Oil%20and%20Gas%20draft%206-4-14.pdf.

⁴² 79 Fed. Reg. at 73,156.

⁴³ *Id.*

⁴⁴ We also support EPA's decision to create a new Onshore Natural Gas Transmission Pipeline segment rather than adding natural gas transmission lines between compressor stations to the existing Onshore Natural Gas Transmission Compressions segment.

2010 Subpart W rulemaking.⁴⁵ In that rulemaking, EPA ultimately chose not to finalize pipeline leak provisions because of (1) the dispersed nature of fugitive emissions from transmission pipelines, and (2) its assumption that once fugitives are found, leaks are usually quickly addressed for safety reasons.⁴⁶ In the proposed rule, EPA further notes that owners and operators must report larger fugitive leaks to PHMSA.⁴⁷ EPA also explains that additional data, such as the total miles of pipeline included in a facility and the quantity of gas received at custody transfer stations, to EIA or FERC, suggesting there is no need for EPA to require separate reporting.⁴⁸

On the contrary, it is critical that EPA incorporate leak reporting obligations into the Subpart W rules for the transmission segment for several reasons. First, the size and recent growth of transmission pipeline infrastructure alone underscore the need for robust reporting standards under Subpart W. The 2014 Greenhouse Gas Inventory estimates that there were over 300,000 miles of transmission pipeline in the U.S. in 2012.⁴⁹ This segment has also experienced growth as a result of increased shale gas production, with approximately 2,000 miles of new natural gas pipeline added between 2010 and 2012.⁵⁰ Accidental leaks at these facilities can be a significant source of methane emissions, and those at remote locations may not be noticed or repaired immediately. Indeed, a PHMSA-commissioned study found that the volume of natural gas released from large leaks and ruptures in transmission lines is approximately 1.3 billion standard cubic feet annually, over ten times greater than the estimated transmission pipeline leaks in the Greenhouse Gas Inventory.⁵¹ The scale of this emissions source is therefore substantial, and we urge EPA to adopt direct leak inspection and reporting requirements under Subpart W.

We also note that the Greenhouse Gas Inventory uses an emission factor of 1.55 scfd/mile for pipeline leaks in the transmission segment.⁵² This emission factor for transmission pipeline leaks is based on measurements of distribution main leaks in the EPA/GRI (1996) study and is adjusted based on specific characteristics of transmission pipelines. We urge EPA to update this emission factor based on direct measurements of transmission pipeline leaks.

The reporting required under other federal programs does not provide comprehensive data on transmission pipeline leaks. PHMSA requires incident reporting of accidental leaks resulting in the release of 3 million cubic feet or more of natural gas—leaks large enough to pose safety

⁴⁵ 79 Fed. Reg. at 73,157.

⁴⁶ *Id.*

⁴⁷ *Id.*

⁴⁸ Proposal TSD, *supra* note 7, at 30-31.

⁴⁹ EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2012*, at Annex 3 tbl. A-129.

⁵⁰ GAO Report, *supra* note 11, at 28.

⁵¹ See D. Shaw et al., *Final Report: Leak Detection Study – DTPH-11-D-000001*, at 3-27, PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION (2012), available at <http://primis.phmsa.dot.gov/meetings/FilGet.mtg?fil=430> (annualizing the emissions rate for the 30 months of PHMSA incident reporting).

⁵² *Inventory of U.S. Greenhouse Gas Emissions and Sinks*, *supra* note 10, Annex 3 tbl. A-129.

risks.⁵³ PHMSA's obligations therefore extend to only a subset of total leaks from transmission pipelines, and do not provide comprehensive and accurate information on total fugitive emissions from transmission pipelines.

Moreover, Subpart W currently requires reporting of leaks from distribution mains, and the proposed rule includes requirements for leak reporting from gathering lines, even though these facilities are also subject to PHMSA's incident reporting requirements concurrent with that agency's jurisdiction.⁵⁴ EIA and FERC reporting obligations do not cover fugitive emissions and do not address the reporting gap in the proposed rule. EPA reporting requirements could therefore play a distinct role and we encourage EPA to coordinate with the relevant federal agencies to ensure that data collection from these sources is efficient, accurate, and comprehensive.

For these reasons, it is critical that EPA establish mandatory reporting requirements under Subpart W for fugitive emissions at transmission pipelines. We respectfully recommend that EPA include these obligations in its final rule and that it coordinate with PHMSA regarding incident reporting, as well as with EIA and FERC where appropriate, to ensure that these data can be effectively cross-referenced and analyzed.

III. COMMENTS ON ALTERNATIVE MONITORING DISCUSSION PAPER.

EPA has included a discussion paper in the docket for this rulemaking on the potential implementation of advanced alternative monitoring in the Reporting Program.⁵⁵ Commenters support the agency's efforts to gather information on the use of advanced measurement and monitoring methods and technologies to improve emissions inventories, and we urge EPA to adopt provisions incentivizing the use of alternative methods subject to the agency's approval.

In its discussion paper, EPA offers three potential approaches to implementing an alternative monitoring mechanism: (1) a detailed annual request; (2) a one-time detailed request; and (3) a public list of possible alternative monitoring technologies.⁵⁶ Regardless of its form, such an approach should be consistent with the general principles of improved (real-time, transparent, and accurate) data quality, flexibility, innovation and continuous improvement.⁵⁷ An alternative monitoring program should first be based on transparent, scientific data. Secondly, the program should ensure that data is available in sufficient, standardized detail and quantifiable measures to allow other groups to independently test the accuracy of the proposed method and compare it to data obtained or generated through other means. Third, EPA must not approve any alternative method that does not generate data that is at least as accurate and comprehensive as those produced by traditional monitoring methods. We support a streamlined application process for

⁵³ 49 C.F.R. §§ 191.3, 191.15(a).

⁵⁴ *Id.* §§ 191.9, 191.15.

⁵⁵ EPA, Discussion Paper on Potential Implementation of Alternative Monitoring under the GHGRP, Doc. EPA-HQ-OAR-2014-0831-0017 (Nov. 13, 2014).

⁵⁶ *Id.* at Appendix B.

⁵⁷ *See id.* at 4.

alternative methods and offer the following specific recommendations in response to EPA's implementation-related questions in its discussion paper:

- Who can apply: Applications to demonstrate the effectiveness of an alternative method should be open to reporting entities, technology developers, academic institutions, and any other qualified groups. An open program will promote innovation by increasing market participation in emerging monitoring technologies and allow reporters and technology developers alike to demonstrate the viability of a new methodology.
- Submission period: We recommend there be a defined submission period for initial applications. Initially, the agency could request an annual call for submissions, with the option to accept bi-annual submissions depending on the resulting workload. EPA could style the initial submission period as an XPRIZE-type innovation competition to create added visibility and ensure evaluation of a rigorous pool of technologies and practices.
- Focus on high-impact solutions: To ensure data integrity, EPA could approve a discrete number of alternative monitoring method submissions each year, representing the most promising approaches.
- Phasing in alternative monitoring: Alternative monitoring should be phased into the Reporting Program so that data from these new methods and/or technologies can be compared to similar facilities using traditional monitoring techniques.
- Clarity of data: The Reporting Program should make clear which facilities are using alternative monitoring and which are not. A clear distinction will allow for comparison of emissions data and continuous improvement in data quality from both alternative and conventional methods.
- Quality of data: Only those methods that result in data that is at least as accurate and comprehensive as existing data should be approved.
- Use of alternative monitoring at multiple facilities: Once an alternative method is approved, facilities in the same sector seeking to use the method for similar sources or facilities should not be required to demonstrate the method. EPA could qualify that an alternative method is only approved for sources or facilities similar to those used to demonstrate the method and only after the agency is able to validate the reliability of the methodology against existing measures.
- Limitations on site-wide measurement methods: For alternative methods that involve facility-wide measurement, EPA could consider allowing sources to submit facility-wide emission results in addition to granular, site-specific data, allowing for important verification of the granular data.
- Public availability of alternative monitoring information: EPA should maintain a list of approved alternative monitoring methods along with approved demonstrations of those methods. Publically available information will enable outside groups to independently

analyze the approved methods and allow reporters to consider the use of other alternative methods.⁵⁸

Consistent with these suggestions and the general principles discussed above, EPA could adopt a two-step approach to alternative method application and approval. First, a reporter or other organization or individual (e.g. equipment providers, technology developers, academic institutions, NGOs) could submit an application to EPA describing the method and a proposed demonstration for the method. EPA would then approve a demonstration of the method at a facility reporting under the Reporting Program. Second, the results of the demonstration would be submitted to EPA for review and approval. The entity submitting the demonstration results should be a reporter under the Program that intends to use the method at one or more facilities. Based on the results of the demonstration, EPA would then decide whether to approve the use of the alternative monitoring method by all entities subject to Subpart W, with appropriate conditions or qualifications as necessary.

Finally, we note that EPA expressed interest in the concept of advanced alternative monitoring for a wide range of emissions sources, including those outside the oil and gas sector. We agree that this framework could help improve data and transparency across a wider range of sources covered under the Reporting Program, but respectfully suggest that the oil and natural gas sector is a good place to begin such a program. As noted above, the Administration has committed to deploy more transparent real-time monitoring tools and methods in the oil and gas sector, and innovative technology companies and federal agencies are working to develop and support the next generation of advanced monitoring technologies. In light of this dynamic landscape, advanced monitoring could play a particularly important role in improving the accuracy and transparency of data from the oil and natural gas sector. For these reasons, we urge EPA to consider deploying an advanced monitoring program for covered oil and gas sources even as the agency is working to develop a broader approach under the Reporting Program.

IV. Other Comments on Proposed Requirements and CBI Determinations.

a. Well identification number reporting requirements.

Commenters support the agency's proposal to add requirements for reporting well identification numbers from sources in the production segment.⁵⁹ This requirement is well within EPA's authority under section 114, which permits the agency to require, among other monitoring and reporting, that entities "provide such other information as the Administrator may reasonably require."⁶⁰

⁵⁸ The U.S. Green Building Council's LEED Pilot Credit Library is one potential model for a public database and open submission system designed for feedback on proposed methods and their demonstration. See USGBC, *Pilot credits are the next big thing*, <http://www.usgbc.org/leed/tools/pilot-credits>, (last visited Jan. 27, 2015). The Pilot Credit program allows Council members to submit online proposals for innovative green building technologies for potential accreditation. After evaluation of the proposal, it is placed in a public database for review and comments by other members and the public before final review and approval by the Council. *Id.*

⁵⁹ See 79 Fed. Reg. at 73,157-58.

⁶⁰ 42 U.S.C. § 7414(a)(1)(G).

Reporting well identification numbers will significantly enhance the potential uses and analysis of emissions data by facilitating cross-referencing among production segment data and will help ensure the transparency of reported data. Collected data that includes well identification numbers will also allow policymakers to understand which facilities are reporting and how the reporting threshold may be adjusted to provide the most comprehensive emissions information.⁶¹ Moreover, these numbers are readily available to reporters and could be seamlessly integrated with existing reporting requirements. Accordingly, EPA's proposal will add little burden to covered sources while permitting enhanced data analysis and transparency.

b. Well completion reporting requirements.

Commenters also support EPA's proposal to extend reporting requirements to completions and workovers of oil wells with hydraulic fracturing. Methane emissions from co-producing wells can be substantial and the agency's efforts to gather data from this significant emissions source are important.

EPA invites comment on whether to establish gas-to-oil ratio or minimum well pressure thresholds below which wells would not be subject to the monitoring and reporting requirements for emissions from well completions and workovers.⁶² We urge EPA to require monitoring and reporting for all such wells. If however, the agency chooses to establish such a threshold, it should ensure that the rules include all significant emissions sources and that sources are able to clearly determine whether they are required to report.

c. Best Available Monitoring Methods.

The proposed rule would allow new industry segments and sources included in the proposal to use best available monitoring methods ("BAMM") for the 2016 reporting year.⁶³ We recommend that EPA not extend the use of BAMM beyond that year. Extended use of BAMM would undermine the accuracy and rigor of emissions data from the oil and gas sector and would be inconsistent with the agency's recently finalized revisions to Subpart W, which remove all prior BAMM provisions but allow transitional BAMM for new reporting requirements.⁶⁴ Accordingly, we urge EPA to strictly limit the use of BAMM to the 2016 reporting year.

⁶¹ All of the undersigned organizations, along with other environmental groups, joined a comment letter to the 2009 Subpart W proposal that outlined the difficulties associated with the 25,000 MT CO₂e threshold and requested a lower threshold. Comments of Clean Air Task Force, Colorado Environmental Coalition, Environmental Defense Fund, Natural Resources Defense Council, Sierra Club, and Wilderness Workshop, Doc. EPA-HQ-OAR-2009-0923-3545.

⁶² 79 Fed. Reg. at 73,152.

⁶³ *Id.* at 73,158.

⁶⁴ Greenhouse Gas Reporting Rule: 2014 Revisions and Confidentiality Determinations for Petroleum and Natural Gas Systems, Final Rule, 79 Fed. Reg. 70,352, 70,372 (Nov. 25, 2014).

d. Publicly Available Data.

EPA is proposing 171 data elements to be reported by the gathering and boosting, transmission, and production segments.⁶⁵ Commenters support the agency's determination that these data are not confidential business information, and, accordingly, will be made publicly available. Transparency is of the utmost importance to the integrity and usefulness of Reporting Program data. It is especially important to have reliable information about facility characteristics and operations in order to understand the drivers of emissions and opportunities for reductions, as well as to verify the accuracy of emissions reporting. This information also has important market uses, allowing investors and purchasers to factor in emissions profiles when choosing among various companies or operators.⁶⁶

V. Conclusion

Emissions reporting requirements for the sources included in EPA's proposed rule will help create transparency for individuals living in close proximity to oil and gas development, protect public health and the environment, and create accountability among companies reporting emissions. We strongly support the agency's proposed actions and respectfully urge it to pursue the additional improvements we have described above to further enhance the rigor and transparency of Reporting Program data.

Respectfully submitted,

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⁶⁵ 79 Fed. Reg. at 73,159, 73,162-68 tbl. 2.

⁶⁶ See Goldman Sachs, Global Markets Institute, *Unlocking the economic potential of North America's energy resources*, at 10-11 (June 2014) (concluding that uncertainty about environmental impacts and regulatory policies has delayed much needed demand-side investment in oil and gas).