Texas Independent Producers and Royalty Owners Association
919 Congress, Suite 1000, Austin, Texas 78701, (512) 477-4452, fax (512) 476-8070

December 17, 2018

The Honorable Andrew Wheeler, Acting Administrator
US Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

VIA E-MAIL AND E-FILING

Re: Environmental Protection Agency's Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources Reconsideration at 83 Federal Register 52056 (October 15, 2018)

Docket ID No. EPA-HQ-OAR-2017-0483

Dear Administrator Wheeler:

The Texas Independent Producers & Royalty Owners Association ("TIPRO") submits the following comments on the above-referenced proposed reconsideration rule ("Proposed Revisions") to 40 Code of Federal Regulations part 60, subpart OOOOa ("Subpart OOOOa") which were promulgated in 2016.

Founded in 1946, TIPRO is one of the oldest and largest oil and natural gas advocacy non-profits in Texas. TIPRO's nearly 3,000 members include small family owned companies, the largest publicly traded independents, and large and small mineral estates and trusts. TIPRO collectively represents operators that produce approximately 90 percent of the oil and natural in Texas. There are currently more than 6,000 oil and natural gas operators in the state of Texas, the majority of which are considered small businesses under the Small Business Regulatory Enforcement Fairness Act of 1996. From the beginning of these rulemakings, TIPRO has tried to illustrate to the EPA that their "one-size-fits-all" approach to regulating this industry is a) inappropriate and b) disproportionally impacts conventional operations and small businesses.

With that background in mind, TIPRO appreciates the opportunity to provide written comments regarding EPA's Proposed Revisions, which will put an emphasis on comments related to low production wells and storage vessels. TIPRO is also a signatory on comments filed from our larger coalition of industry trade associations that will go into greater detail on these and other items of relevance to the Texas oil and natural gas industry. TIPRO has been an active participant directly and via our industry coalition in the rulemakings and associated litigation since the Environmental Protection Agency ("EPA" or "Agency") proposed to revise the New Source Performance Standards ("NSPS") for the Oil and Natural Gas Sector in August 2011. 76 Fed. Reg. 52,738 (Aug. 23, 2011). TIPRO provided written public comments on September 4, 2015 and provided oral testimony during EPA's public hearing on September 23, 2015 in Dallas, Texas.

Texas Independent Producers and Royalty Owners Association
919 Congress, Suite 1000, Austin, Texas 78701, (512) 477-4452, fax (512) 476-8070

I. EXECUTIVE SUMMARY

In terms of understanding the operations associated with oil and natural gas drilling, to borrow an often used phrase, this is not TIPRO's first rodeo. We know the unique aspects of our industry and how most efficiently to capture our product, which the U.S. Environmental Protection Agency ("EPA") and others characterize as a pollutant. As everyone understands at this point, the production of oil and natural wells decline over time. Traditionally, when a well's production reduces to a certain point, we refer to them as a marginal well or stripper well. TIPRO appreciates that EPA has attempted to revise their regulations to reflect the unique attributes of these wells, which thet EPA has characterized as "low production wells." Respectfully, EPA's Proposed Revisions a) do not go far enough to reflect the emissions' characteristics and economics associated with low production wells; and b) demonstrate a fundamental misunderstanding of how storage vessels or tanks are utilized in the industry and the emissions associated with their use. While TIPRO is in full agreement with the comments made jointly with several other trade groups and industry stakeholders, we also wanted to specifically highlight a few areas of great importance to our members; these issues are discussed in greater detail on the pages that follow.

1. EPA is wrongly focused on characterizing a well based on its first thirty days of production, as if the first thirty days of production are representative of its emissions profile for the life of the well. Nothing could be farther from the truth.
2. The production of a well declines overtime - that is not disputed. That also means that its ability to produce emissions decreases overtime. EPA's cost effectiveness analysis for its regulations, even as presented in the Proposed Revisions, fails to account for this fact.
3. EPA should respect and comply with the cooperative federalism design of our government and the Clean Air Act (CAA) and respect how states calculate emissions from storage vessels or tanks.
4. Similarly, consistent with cooperative federalism principles, duplicative regulations should be minimized, and EPA should defer to state regulators whenever possible to ensure that regulatory oversight is effectively managed by those who understand the industry's unique characteristics in each state.

II. LOW PRODUCTION WELLS

A. The EPA Should Provide for a Low Production Well Distinction within Subpart OOOOa.

In its initial Subpart OOOOa regulatory proposal, the EPA chose to exclude low production oil and natural gas wells. TIPRO supported this concept because low production wells are an insignificant contribution to national methane emissions and, additionally, they cannot absorb the costs of the EPA fugitive emissions programs designed for large production wells. The economic viability of most of these wells is tenuous, at best. However, in finalizing Subpart OOOOa, the EPA removed the low production exclusion. This was an error.

The EPA has now proposed to reinstate a low production well distinction but has not gone far enough. The proposed biennial fugitive emissions surveying for low production wells is helpful but is insufficient for two critical reasons: 1) TIPRO believes that with the proper studies, sampling, and testing, even on a biennial basis, the fugitive emissions survey requirements are not cost effective; and 2) as long as the NSPS are based on methane emissions versus emissions of VOCs, hundreds of thousands of existing wells will be exposed to unnecessary controls and costs.

1. **<u>The EPA's proposed low production well provisions are inappropriate</u>.**

   a. ***The EPA fails to recognize that wells ultimately become low production wells and many wells begin as low production wells. This changes the cost effectiveness of its regulations.***

While Subpart OOOOa primarily addresses new sources, it fails to recognize the preeminent reality of oil and natural gas production – all wells deplete and decline in production over time. The reality of oil and natural gas well depletion has been well recognized since oil and natural gas production began.

   b. ***The EPA needs to provide an alternative approach for low production wells rather than a one time, ineffective assessment of a low production well.***

In the Reconsideration Rulemaking, the EPA defines a low production well as:

> well sites with average combined oil and natural gas production for the wells at the site less than 15 boe per day averaged over the first 30 days of production ("low production well sites")[1]

As stated previously, oil and natural gas wells ultimately become low production wells. And, as low production wells, they have contributed or will continue to contribute to the nation's energy supply for decades. Currently, low production oil wells account for about 10 percent of American oil production, and low production natural gas wells account for 11 percent of American natural gas production. As a result of the additional cost associated with the fugitive emission surveying requirements in the Reconsideration Rulemaking, low production wells will be prematurely shut in and plugged. The nation will lose this reliable production.

The Reconsideration Rulemaking creates two pools of fugitive emissions requirements – one annual program for large production wells and one biennial program for low production wells. Setting aside for a moment the issues of the cost effectiveness of these programs, the approach creates some absurd results. In the approach taken by the EPA in the Reconsideration Rulemaking, a well with production of 15 B/D after 30 days of production would be subjected to the biennial fugitive emissions program. However, a well with 18 B/D of production after 30

[1] 83 Fed. Reg. 52,062.

days would be perpetually in the annual fugitive emissions program even though it will clearly be below the 15 B/D threshold soon after its production starts.

Instead of this unworkable and unfair system, the EPA needs to craft an approach that allows wells when they begin producing less than 15 barrels of oil equivalent ("BOE") to shift to an alternative fugitive emissions program – a program based on the emissions pattern of low production wells. Such an approach would encourage the continued operation of wells as they decline but collectively provide an important component of the American oil and natural gas resource base.

Such an approach would not pose any adverse impact on the environment. First, the pool of wells producing American oil and natural gas is constantly changing. As it changes, older wells are being replaced with: 1) wells that meet the requirements of Subpart OOOO; and 2) many wells that used those technologies before Subpart OOOO as a part of the Natural Gas STAR program. Second, assuming the alternative as described above is created, a substantial portion of new wells are drilled on sites with multiple wells. Those well sites would continue to be subjected to the Subpart OOOOa fugitive emissions requirements until all of the wells became low production wells. Third, as discussed *infra*, the DOE is initiating a research program to define the emissions profile of low production wells. The EPA should use the results of that research to design an appropriate low production fugitive emissions program rather than try to shoehorn these wells into a program that was never designed for these operations.

Until then, the EPA should choose to act as it has in the October 2016 Control Techniques Guidelines ("CTG") for VOC emissions from existing oil and natural gas production facilities in ozone nonattainment regions and defer action on a low production well fugitive emissions program.

c. A Low production well is a low production well – regardless of when the well is drilled.

Characterizing wells in perpetuity based on the wells' first 30 days of production is arbitrary and unnecessary. The term "low production well" is a construct of these NSPS rulemakings but the concept or characterization of this category of wells is not new to the industry. The most recent characterization of "low production well" largely tracks commonly used approaches to defining smaller wells whether using the term low production well or marginal well or stripper well. These terms spring from the stripper well definition in the tax code. The use of the tax code definition should serve well as a definition for a "low production well" in any revisions to Subpart OOOOa that provide for regulatory actions regarding these wells. A principal issue in developing the low production well concept will be its application to each well. Inevitably, there will be challenges. Use of the tax code stripper well definition provides a long history of such determinations. It also provides a framework that is well understood by the regulated industry.

For example, one of the key issues in understanding the definition a low production well will be addressing production of both oil and natural gas which are common elements of these

wells. That is, most oil wells will have associated gas and most natural gas wells will have natural gas liquids. These issues have arisen in the determination of stripper wells, and the process to determine their status has been refined over the years.

The essence of the stripper well provisions is found in Section 613A of the Tax Code. A stripper well is defined in Subsection (c)(6)(E):

> For purposes of this paragraph, the term "stripper well property" means, with respect to any calendar year, any property with respect to which the amount determined by dividing—
>
> > (i) the average daily production of domestic crude oil and domestic natural gas from producing wells on such property for such calendar year, by
> >
> > (ii) the number of such wells,
>
> is 15 barrel equivalents or less.

The calculation process to make this determination is straightforward. All production is converted to oil equivalents. To convert gas production to oil equivalents, a ratio of 6,000 cubic feet equals one barrel of oil[2]. Consequently, 90,000 cubic feet equals 15 barrels; this is the source in the low production definition that uses 15 B/D or 90 mcfd as its basis. However, the reality of the calculation revolves around putting all production on a common basis – oil. Thus, if a well produces 10 barrels of crude oil and 12,000 cubic feet of natural gas, its equivalent barrels produced would equal 12 (*i.e.*, 10 + (12,000 / 6,000)). This approach then resolves questions regarding how to evaluate wells with both oil and gas production.

Clearly, another issue that arises will be the application of the stripper well definition in the context of compliance assurance with Subpart OOOOa. Compliance assurance is always a significant question. But, using a known and understood criteria provides industry with a clearer standard. Most of the instances where the issue would arise is when a well declines, and this is the normal circumstance under which a well is assessed as a stripper well. The other instance that arises relates to the initial application of the regulatory requirements – in this instance the fugitive emissions monitoring program. The issue here involves the current requirements in Subpart OOOOa that the initial fugitive emissions monitoring occurs within 60 days of the startup of production, the determination of the well's status 30 days after its initial operation, and the tax code stripper well calculation that uses annual information. However, this issue could be

[2] Section 613A (c)(4) Daily depletable natural gas quantity.

> For purposes of paragraph (1), the depletable natural gas quantity of any taxpayer for any taxable year shall be equal to 6,000 cubic feet multiplied by the number of barrels of the taxpayer's depletable oil quantity to which the taxpayer elects to have this paragraph apply. The taxpayer's depletable oil quantity for any taxable year shall be reduced by the number of barrels with respect to which an election under this paragraph applies. Such election shall be made at such time and in such manner as the Secretary shall by regulations prescribe.

resolved by creating some type of initial production threshold – *e.g.*, 250 B/D – that would suggest the likelihood that the well would decline to a low production well soon after its initial operation. Wells meeting this threshold would have the initial fugitive emissions monitoring program delayed for one year. If the well did not fall below the low production well threshold by that time, the initial fugitive emissions monitoring could be required 60 days later.

Once revised Subpart OOOOa regulations address the pressing issue of providing an exclusion for low production wells and an offramp from the application of the Subpart OOOOa requirements when wells inevitably decline below the low production well threshold, the issue of interpreting the definition will clearly arise. Using the stripper well definition from the tax code brings with it a clear and certain process for determining its application. While the previously used EPA definitions of low production wells parallel the intent of the stripper well tax code definition, a new definition will lead to interpretation challenges that could be avoided.

B. The EPA's Information on Low Production Wells is Inadequate to Develop Regulations.

1. There are approximately 771,000 low production wells in the United States; the EPA is basing its model plant and emissions assessment on about 25 low production wells in one basin.

Perhaps the most significant aspect of Subpart OOOOa versus Subpart OOOO is that it is based on the regulation of methane instead of VOCs. A methane-based regulation not only addresses new and modified sources under Section 111(b), it opens the pathway to a nationwide existing source regulatory scheme under Section 111(d) of the CCA. Consequently, the scope of possible sources expands from the roughly 20,000 wells drilled annually to the 770,000 existing operating oil and natural gas wells. This is a vastly different regulatory expanse.

The EPA's approach to developing its low production well model plant ("Model Low Production Well") in the Technical Support Document ("TSD") and thereby its assessment of the effectiveness of a fugitive emissions program — returns to a fundamental question of the EPA's responsibility and obligation to develop its own data needed for regulatory actions. The data relied upon in the Reconsideration Rulemaking is wholly inadequate.

There are approximately 771,000 low production (marginal) wells in the United States — 394,000 oil wells, 377,000 natural gas wells. These wells are spread across over 30 states. The EPA's reliance on approximately 25 potentially low production wells in one play— the Barnett Shale in Texas — to define its Model Low Production Well is inadequate. This action is flawed for several reasons. First, there is no reason to believe that the Barnett Shale is representative of all low production wells in various plays across the country. Second, the data that was collected in the Fort Worth Study was not intended to address low production wells specifically and is simply a subset of wells incidental to a larger study. Third, even this well selection appears flawed; some wells do not appear to be low production wells. Fourth, and perhaps most importantly, trying to establish a Model Low Production Well on the basis of 25 single basin wells will lead to misleading results.

The same issue arises in the emissions analyses by various "Keep It in the Ground" environmental groups. The most prominent of these efforts relies on results from one or two basins, and the low production well data is an unintended subset of the larger study. That is, when the studies are made, there is no understanding of the production from the well. Afterwards, the analyses sort the data based on production, and some subset is low production wells. Even the larger compilations of these studies will include an accidental collection of less than 200 low production wells from one or two basins which is not the appropriate basis for developing national regulatory requirements impacting hundreds of thousands of wells.

2. The EPA's source documents on low production wells are critically flawed.

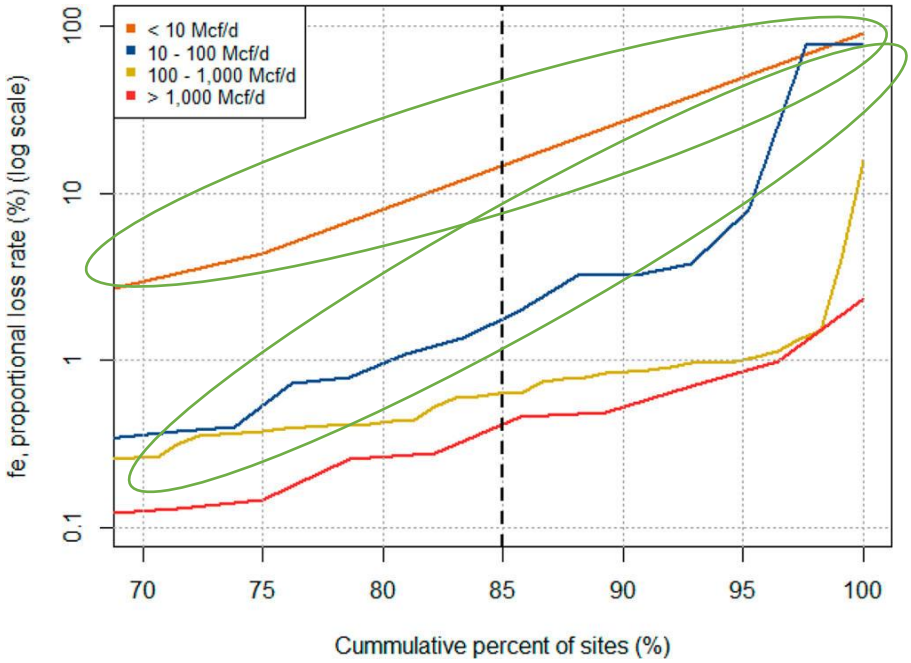
The flaws in the analyses by the EPA and Keep It in the Ground environmental groups that want to influence the EPA's decisions can be seen in a number of actions.

a. The Environmental Defend Fund's Super-Emitters Study is specious.

The Environmental Defense Fund's data manipulation in the study it submitted to the 2015 Subpart OOOOa rulemaking proposal distorts the role of low producing wells regarding methane emissions ("2015 EDF Study"). This study was then characterized as the basis for removing the low producing well exclusion for the Subpart OOOOa fugitive emissions program initially proposed by the EPA.

It is important to understand that the 2015 EDF Study used data from a number of different studies to create its arguments. All of the underlying studies generated their data by driving vehicles with samplers downwind of production sites, hunting for methane plumes. None of them used samples taken on the production site. This creates two issues. First, it measures everything emitted at the site – fugitive emissions and permitted vents. Second, the data are collected over minutes – maybe over an hour – but not over a day. The data in the study are presented as if they were daily emissions, but the studies merely scale up hourly estimates. Consequently, emissions that might occur for several hours, but not the full day, would be overstated.

With the presentation of the same material in the study demonstrates how it was manipulated. Below is the graphic used to present the data. It would suggest that the worst emitting operations – the "super-emitters" – are the smallest wells (the orange line and the blue line, circled in green). Having directly plotted this data, the obvious issue is how such a result can occur.



It is a busy and confusing graph – it is intended to be. The study uses data analysis tricks to create the appearance that low production wells are "super-emitters."

First, it shows emissions as a percentage of production rather than actual emissions. Thus, one mcf emitted out of ten mcf produced is 10 percent, but 50 mcf emitted out of 1,000 mcf produced is five percent. As a result, it skews the perception of the data to imply that low production wells are large emitters when they are not.

Second, its production volumes are really sales volumes, not the amount extracted from the wellhead. Consequently, a "proportional loss rate" of 50 percent would be the calculated loss divided by the volume sold. If the percentage of loss was calculated based on extracted volumes, the 50 percent "proportional loss rate" would drop to 33 percent because the loss would be added to the sales volume to obtain the extracted volume.

Third, it only shows data from the 70th percentile of information. This excludes all of the virtually zero emissions that dominate the data.

Fourth, it uses a logarithmic scale to present the data. One of the reasons to use logarithmic scales is to flatten curves to make them look more like straight lines.

The EPA should not have relied on such a specious report to make a regulatory decision with profound effects on the future of American oil and natural gas production.

b. The EDF 5-Study report is equally flawed.

The EDF developed no new data; it used data from other studies. These included some of the same data from the EDF's earlier specious "Super Emitters" report. Unsurprisingly, plotting the data from this study follows the same pattern as other studies, including low production wells having a much lower final emissions point than larger wells. But, this reality does not prevent EDF from casting unwarranted allegations about low production wells.

Correspondingly, the EDF report builds its conclusions on the same flawed underlying information. Because the collected data on emissions comes from short-term, remote monitoring (drive by monitoring), it inherently means that (1) the emissions information cannot distinguish between permitted emissions like storage tank vents and equipment leaks, (2) it cannot distinguish daily emissions from short-term sporadic emissions due to maintenance activities, and (3) it is skewed toward overestimating emissions by converting these short-term measurements into daily emissions rates. The 2018 EDF Study is inaccurate and unreliable.

The EDF's biases are reflected in other aspects of its report. For example, in the report, the authors make the following observations related to "top down" data collections:

> Notably, the two largest sources of aggregate emissions in the EPA GHGI – pneumatic controllers and equipment leaks – were never observed from these aerial surveys.

A true analyst might have assessed this information and asked some probing questions. For example, if these sources were not shown as substantial emissions, could that mean that the EPA Inventory of U.S. Greenhouse Gas Emissions and Sinks ("GHGI") emissions factors were overstating the emissions? Other studies have suggested that the EPA emissions factors for certain types of pneumatic controllers that are widely used at production sites are overestimating emissions by a factor of 100[3,4]. Various studies evaluating fugitive emissions programs have suggested that the expectations of reductions from these programs are significantly overstated[5].

[3] Whitehead, Sean, New EPA Study Indicates Agency Is Greatly Exaggerating Methane Emissions, Energy In Depth (May 8, 2017), https://www.energyindepth.org/new-epa-study-indicates-agency-greatly-exaggerating-methane-emissions/

[4] Oklahoma Independent Petroleum Association, Pneumatic Controller Emissions from a Sample of 172 Production Facilities (November 2014), https://www.oipa.com/page_images/1418911081.pdf

[5] Whitehead, Seth, New Study Challenges Claim That Methane Emissions From Oil and Gas Are Higher Than EPA Estimates, Energy In Depth Climate & Environment (October 29, 2018), https://eidclimate.org/study-challenges-methane-oil-gas-epa/

Did these analysts consider the import of these data? Of course not. They noted it in passing and used the EPA GHGI emissions factors in calculating their "bottom up" site-based emissions estimates.

It is somewhat difficult to follow the convoluted path that the EDF takes to generate its excessively high emissions estimates. What is clear is that the EDF devises a series of assumptions to argue that emissions are related directly to natural gas production. At least for oil and natural gas production, this conclusion runs directly contrary to all other assessments that have shown methane emissions falling as production increases — results that are in part due to voluntary actions and in part to regulatory requirements such as Subpart OOOO.

This approach yields some specific, highly questionable results, including a conclusion that 26 to 30 percent of methane emissions result from natural gas and oil wells with production rates at or below 10 mcfd. This includes calculated emissions estimates derived from the mathematical assumptions in the studies for wells where no data existed. For these small wells with emissions, the EDF bases its determinations on escalating short-term data – emissions during an hour or less – into daily rates from less than 30 natural gas wells.

This EDF Study, like its predecessors, suffers from the same underlying intent. Its purpose is to distort the perception of success in understanding methane emissions and the efforts to reduce them. Its purpose is to drive new regulations — particularly regulations of low production wells, new, modified and existing. The EPA should not accept or rely upon such flawed data for making regulatory decisions.

c. Fort Worth Study data is highly questionable.

The EPA relies heavily on data from a study in Fort Worth, Texas, on wells in the Barnett Shale formation. Unlike most studies, this one was conducted with the cooperation of natural gas producers and included facility information. While the emissions data was taken by offsite mobile sampling for short time periods like the other emissions data referenced in the EDF studies, detailed production site information was provided. The EPA relies on this information to develop its Model Low Production Well. However, like all other studies, the Fort Worth study collected data broadly, capturing both low production wells and large wells. Low production wells were not specifically targeted or defined at the time of the data collection.

The EPA has now apparently extracted from the larger data base those wells with production at or below its 90 mcfd low production well threshold. It includes 25 dry gas wells and two wet gas wells. However, a closer examination of this data demonstrates key flaws. These flaws are important because the selected wells then shape the model facility. The model facility then becomes the basis for the low production well emissions estimates that then justify the requirements for the fugitive emissions program.

For example, of the 25 dry gas wells, eleven wells show no production at the time that the emissions data was taken. The consequence of including the wells with zero or less than one mcfd is the impact on the number of pieces of equipment at a site that then becomes the basis of

the model facility and the basis for emissions estimates from these wells. For example, the number of valves at a site drives valve emissions which are a significant factor in the total low production model facility emissions calculations. With all 25 sites in the calculation, the EPA generates an average valve number of 108. However, if the zero and less than one mcfd wells are removed, the average valve number drops to 75. Similarly, the number of tanks per well site drops from two to one.

Better information on the nature of low production well sites is needed to assess an appropriate model well facility if a model facility is even appropriate given the diversity of production across basins.

d. Use of 1995 emissions factors raises issues of accuracy.

The EPA's use of 1995 emissions factors to develop its Model Low Production Well emissions estimates must be tested for accuracy. The 1995 effort for oil and natural gas production facilities is primarily based on an American Petroleum Institute ("API") document – API 4615 – that was prepared for generally predicting emissions levels. This is a different purpose than creating emissions factors for the purpose of regulations.

Among the key issues that bear here is whether that 1995 analysis attempted to determine distinctions between large production facilities and low production facilities. In the instant case, that distinction is significantly important because the EPA is using these factors for exactly the purpose of regulating low production wells and determining the effectiveness of its proposed program.

To present the issue in the context of its uncertainty, the emissions factor for valves – the largest component of emissions in the EPA's natural gas Model Low Production Well – is 4.5E-03 or 0.0045 kg/hr/component. The API analyzed the effectiveness of LDAR programs and compared them to EPA's assumptions in designing its LDAR program. It found that the EPA's assumptions regarding initial failure rates and the time before further maintenance or repair of equipment was necessary were inaccurate. The API data demonstrated that the EPA's assumptions overstated initial failure rates and predicted the need for further maintenance too soon. Consequently, the combination of these assumption overstates the benefits of the EPA LDAR and its cost-effectiveness. Additionally, the API's letter to the EPA submitting its information on February 22, 2018, includes updated emissions factors for component leaks at oil and natural gas production facilities. In the case of valves, the new emissions factor is 1.1E-03 or 0.0011 kg/hr/component. This factor that is 25 percent of the factor used by EPA in its Model Low Production Well.

The point here is that there are key assumptions that are highly questionable and more accurate information is essential.

e. The EPA needs to generate emissions factors for values and components based on liquid versus vapor product.

As discussed above, the EPA utilized emissions factors. More importantly, the EPA fails to make a distinction for emissions from components transporting gas versus liquids. Common sense dictates that the emission factors will be dramatically different based on what is passing through the equipment - with oil wells having little to no emissions. TIPRO was unable to determine if the EPA made any adjustment for such an important parameter. This is simply another example of where the EPA is rushing to judgment to regulate sources that it has inadequate information on in order regulate at this time.

3. The EPA's Model Low Production Well needs improvement.

The EPA creates a Model Low Production Well to define and determine the emissions and the effectiveness of its proposed low production well fugitive emissions program. TIPRO continues to evaluate and have certain concerns with the approach that the EPA takes in developing low production well emissions. The EPA appears to be fixated on the use of component counts to define emissions. While it is reasonable to associate the number of connections and the potential for leaks, we continue to believe that emissions from low production wells are inherently different from large production wells because of the basic physics of production and how operators change the physical equipment as production warrants.

When oil and natural gas wells are initially produced, the geologic forces that are released through the well bore drive initially higher production rates. Like releasing air from an inflated balloon, high pressure from the formation pushes flow of oil and natural gas through the well. These higher pressures and strong volumes of fluids define the design parameters for the well and the surface support equipment when the well is first drilled.

However, as wells age and production declines, conditions change. Pump jacks, if not used from the onset of production, are required to pull oil from the formation; compressors may be needed to suck natural gas from wells, while other equipment is removed or downsized. Secondary and tertiary recovery methods are used to produce more oil and natural gas from conventional formations.

These changes have consequences on the nature of emissions, particularly fugitive emissions. Like the challenge of getting the last air out of a balloon, the movement of gas molecules will follow the path of least resistance. Movement from the process equipment to the atmosphere is harder than moving to the production vessel where the flow is designed to go.

For these reasons, TIPRO's object to relying upon component counts as the primary if not sole basis for estimating low production well emissions. Nevertheless, if the EPA intends to use component counts, we must assure that its assumptions are accurate. Based on a review of the TSD associated with the Reconsideration Rulemaking and data collection from many individual companies from various plays across the country, TIPRO believes the EPA continues to overestimate emissions from low producing wells.

a. The model plant is dominated by two elements – valves and storage vessels.

Because the EPA relies on component counts for its emissions estimates, it is essential to look at the mix of components and the application of emissions factors to them. The EPA divides its model facility by different types of equipment – wellheads, separators, headers, heater treaters, glycol dehydrators and storage vessels. For each type of equipment, it counts the following components – the number of specific equipment types on site, valves, connectors, open ended lines ("OELs") and pressure relief valves ("PRVs"). In reviewing the TSD, the dominant components driving the model facility plane are the number of valves and the number of storages vessels per facility. Following are the tables from the TSD for the Model Low Production Well.

Table 2-2. Average Fugitive Emissions Component Count for Low Production Well Site Model Plants

Production Equipment	Model Plant Equipment Counts	Average Component Count Per Unit of Model Plant[a]				
		Valves	Connectors	OELs	PRVs	Thief Hatches
Low Production Natural Gas Well Site Model Plant						
Wellheads	2	19.0	74.0	2.0	0.0	--
Separators	2	43.0	137.0	8.0	3.0	--
Meters/Piping	1	13.0	48.0	1.0	0.5	--
In-Line Heaters	0	0.0	0.0	0.0	0.0	--
Dehydrators	1	24.0	90.0	2.0	2.0	--
Storage Vessels	1	--	--	--	--	1.0
	Rounded Total	100.0	349.0	12.0	5.0	1.0
Low Production Oil Well Site (<300 GOR) Model Plant						
Wellheads	2	8.0	6.0	0.0	2.0	--
Separators	1	5.0	8.0	0.0	0.0	--
Headers	1	4.0	3.0	0.0	0.0	--
Heater/Treaters	1	6.0	15.0	0.0	0.0	--
Storage Vessels	1	--	--	--	--	1.0
	Rounded Total	23.0	32.0	0.0	2.0	1.0
Low Production Oil with Associated Gas Well Site (>300 GOR) Model Plant						
Wellheads	2	8.0	6.0	0.0	1.0	--
Separators	1	5.0	8.0	0.0	0.0	--
Meters/Piping	2	20.0	72.0	1.0	1.0	--
Headers	1	4.0	3.0	0.0	0.0	--
Heater/Treaters	1	6.0	15.0	0.0	0.0	--
Storage Vessels	1	--	--	--	--	1.0
	Rounded Total	44.0	105.0	1.0	3.0	1.0

a. Data Source for average component count per equipment type: EPA/GRI, CH_4 Emissions from the Natural Gas Industry, Volume 8: Equipment Leaks, Table 4-4 and 4-7, June 1996. (EPA-600/R-96-080h). Values were multiplied by the rounded equipment count for model plant component counts.

In the most notable example above, the EPA's use of the 25 gas production facilities, with its high count for valves, drives an emission estimate that the EPA then uses to justify its formulation of a low production well fugitive emissions program. These estimates are shown below:

Model Plant Component Type	Model Plant Component Count	Uncontrolled Emissions Factor[a] (kg/hr/component)	Uncontrolled Emissions (tpy)	
			Methane[b]	VOC[c]
Low Production Gas Well Site				
Valves	100	4.5E-03	3.01	0.84
Flanges	0	3.9E-04	0.00	0.0
Connectors	349	2.0E-04	0.47	0.13
OEL	12	2.0E-03	0.16	0.05
PRV	5	8.8E-03	0.30	0.08
Thief Hatch	1	0.1296	0.87	0.24
		Total	4.80	1.34

Low Production Oil Well Site				
Valves	23	4.5E-03	0.69	0.19
Flanges	41	3.9E-04	0.11	0.03
Connectors	32	2.0E-04	0.04	0.01
OEL	0	2.0E-03	0.00	0.00
PRV	2	8.8E-03	0.12	0.03
Thief Hatch	1	0.1296	0.87	0.24
		Total	1.83	0.51

Low Production Oil Well Site w/Associated Gas				
Valves	44	4.5E-03	1.33	0.37
Control Valves	41	3.9E-04	0.11	0.03
Connectors	105	2.0E-04	0.14	0.04
OEL	1	2.0E-03	0.01	0.00
PRV	3	8.8E-03	0.18	0.05
Thief Hatch	1	0.1296	0.87	0.24
		Total	2.63	0.73

In each of these cases, the primary factors in the emissions profile are valves and thief hatches on storage vessels. If either of these factors is overstated, the impact on the cost effectiveness of the fugitive emissions regulations can be significant. As we presented above, the emissions factor for valves comes from general information on oil and natural gas production operations in the mid-1990s. Among the questions it raises are:

- Is the emission factor accurate for low production wells?

- Would the emission factor be the same for oil service and gas service?

- Do emissions vary with valve activity?

The second key component in the calculation involves an accurate assessment of the number of valves at a low production well facility. There are many factors that define the number of valves at a particular facility, obviously one being the amount of equipment at the site. Equipment changes over time as facilities respond to declining production. Different parts of the country need different equipment. For these reasons, the EPA's use of a limited number of wells – 25 to 27 wells in the Barnett Shale for natural gas production raises clear questions about whether this limited selection of wells is reflective of low production wells nationally. It creates an even more significant question in the context of a possible nationwide existing source regulatory initiative under Section 111(d) which would bring in 770,000 wells with life spans coveringdecades of production.

For this reason, we solicited information from oil and natural gas producers from across the nation regarding the structure of their low production facilities. This effort presents in clearer focus that attempting to use a model well facility to justify regulations falls short of the regulatory burden that EPA should bear in understanding the consequences of its actions.

b. Industry information from within Texas, let alone across the country, shows different equipment counts that dispute the model well which is primarily based on the Fort Worth Study.

In response to these Comments, TIPRO solicited available information on component counts from low production wells in Texas. The only trend in the data we could decipher is there is no trend - not with the limited data set we were able to gather. It was certainly not "consistent" with the limited data set from the Fort Worth Study. While TIPRO appreciates the EPA's effort to acknowledge that low production wells have a dramatically different emissions profile than non-low production wells, more information is need to accurately characterize emissions from low production wells. The obligation is on EPA to justify the controls proposed on industry, not for industry to disprove their proposed controls.

c. EPA model plant calculations attribute 80 percent of low production natural gas wells to valves (63 percent) and thief hatches (18 percent) and 85 percent of low production oil wells to valves (38 percent) and thief hatches (48 percent). These calculations are based on questionable emissions factors.

Deconstructing the EPA's Model Low Production Well reveals that the primary factors in defining emissions are valves and thief hatches. This holds true for both natural gas and oil wells although valves are far more of a factor in the Model Low Production Well. TIPRO believe this calculation is highly questionable.

The valve emissions factor hinges on assumptions of the initial levels of emissions prior to the LDAR program and the recurrence of those emissions levels. Yet, the API analysis

submitted to the EPA in February 2018 provides demonstrable data to produce an emissions factor approximately 25 percent of the factor the EPA used in its estimate.

Regarding the number of valves, the EPA's determination in its model facility that a low production wellsite includes 100 valves does not reflect all areas in the country that would be affected by these regulations, particularly as existing sources are affected in future regulatory actions.

i. If these assumptions are incorrect, it significantly changes the cost-effectiveness assumptions of the EPA fugitive emissions program.

Without addressing all of the assumptions in the EPA Model Low Production Well plant that are called into question by the additional information in the material that TIPRO acquired from the 13 states where we were able to get limited information, the information above on valves and the questionable emissions factor alone change the nature of the EPA's cost-effectiveness analysis.

For example, if the number of valves used for the natural gas Model Low Production Well plant is changed to 20 and the API emissions factor for valves is used to calculate the fugitive emissions program's cost-effectiveness using the EPA spreadsheet provided in the Docket[6], cost per ton of recovered methane increases by a factor of about 2.5. More tellingly, the amount of recovered methane would be estimated at 0.092 mcfd. It is hard to imagine that this miniscule amount of methane would even be detectable; it is unlikely to even be measurable as additional product.

Moreover, these calculations do not address the cost of the EPA proposed program. As we have shown earlier, past history with OGI programs has demonstrated these programs to have been far costlier than the EPA presumed. To put an additional point on it, for the Pennsylvania wells that were identified in this inventory, the operator estimates that the cost of the biennial EPA OGI fugitive emissions program would exceed $800,000 – or $400,000 per year. The average production of those wells is about 6 mcfd.

d. Assessing the cost impact on low production wells needs to look beyond the common tests of cost effectiveness in a cost per ton of reduced emissions to address the cost impact in the profitability of these small wells.

In the context of low production wells, the EPA's analysis of the cost effectiveness of its regulations, as flawed as it may be, also fails – like most cost-effectiveness analyses to address a more critical issue. Cost-effectiveness analyses typically look at the cost per unit of pollutant recovered. For low production wells, wells generally operated by small businesses, there is a remaining significant issue – whether the absolute cost can be absorbed by the operations that are regularly economically challenged.

[6] Proposed_Rule_OOOOa_TSD_Section_2_-_OGI_Compressor_Model_Plant_Costs

Not surprisingly, the impact of a fugitive emissions program is significantly different between small and large wells. For the past several years, the EDF has polluted the air with an analysis that it developed showing that a variety of methane controls are cost effective when that is not the case. The EDF states these controls only cost a few cents.

The problem is that the EDF's analysis is flawed and, when the average low producing well produces 22 mcf per day, a few cents per mcf is highly significant. Moreover, the economic assumptions can be as significant as the emissions assumptions. In the Reconsideration Rulemaking, the EPA indicates that it uses a natural gas value of $3.42/mcf. This amount may reflect current natural gas prices at a time where storage limitations and high demand have driven prices higher. However, it fails to reflect that prices in the past several years have been well below this level. In fact, in the past two years, national natural gas prices have triggered the Marginal Well Tax Credit with the Internal Revenue Service calculating that the average price in 2016 was $2.38/mcf and in 2017 was $2.17/mcf. Moreover, producers do not receive the full value of the sales price; they must pay royalties and taxes that reduce the amount received by about 25 percent. Using the IRS average value for those two years ($2.22/mcf), the producer would then receive about $1.67/mcf for any recovered gas.

The EPA's Model Low Production Well analysis calculates that about 280 mcf/yr are emitted and 30 percent is recovered by its LDAR program – 84 mcf/yr. We believe this determination is too high, that API's emission factor is more accurate. Using the high valve count that the EPA assumes for its model well and the API emissions factor yields a recovery amount of 44 mcf/yr. It should be noted that this amount is about 0.12 mcfd and one has to raise a question of whether this amount can even be found or will show up in the daily production measurements.

Using the more realistic product prices, this presumed recovery adds about $73.50 to the annual income of the Model Low Production Well or about $36.75 to the income of a well. It is noteworthy to point out that even this small recovery may overstate the amount since it is highly dependent on the number of valves at a facility.

The larger question is what impact does this have on a low producing well. Using the cost information above, the average low producing well (22 mcfd) would receive daily income of $36.75 ($13,400 per year).

It is difficult to determine operating costs but the EIA released a report in March 2016, *Trends in U.S. Oil and Natural Gas Upstream Costs*, which assessed a wide range of costs and looked at several production areas. One of its evaluations addressed operating costs in the Marcellus play – the world-scale natural gas play in the northeastern states. The report estimated that Marcellus operating costs range from $12.36/BOE to $29.60/BOE. Using the standard 1 BOE = 6 mcf conversion, it produces operating costs ranging from $2.06/mcf to $4.93/mcf. Applying these costs to the average low producing well results in a daily cost range of $45.32 to $108.46.

Consequently, the average low producing well would have to have a natural gas price in the range of $2.06/mcf to $4.93/mcf to break even. In Pennsylvania, where the average low production natural gas well produces closer to 6.0 mcfd and the typical wellsite is one well rather than two, the challenge is even greater. Income would be about $10.00/day with operating costs in the range of $12.00 to $29.00 daily. In this difficult financial situation, the application of the EPA LDAR program is a far more significant factor than the EPA has presumed in its analysis, given that the amount is essentially unmeasurable.

Clearly, there are many factors that come into play in this analysis – price of natural gas, cost of the LDAR program, operating costs. The fundamental point is that an LDAR program that *may* be justified for large producing wells will have a very different impact on small ones. The EPA should develop a methodology that reflects these differences and it has not.

4. The DOE has announced a research program to determine more accurate assessments of low production well emissions.

On October 23, 2018, the DOE, Office of Fossil Energy ("FE"), announced a research program to address low production (marginal) well methane emissions. The announcement stated:

> The U.S. Department of Energy's (DOE) Office of Fossil Energy (FE) has approved an unsolicited proposal, titled *Quantification of Methane Emissions from Marginal (Small Producing) Oil and Gas Wells,* received from GSI Environmental Inc. (GSI). The data collected from well sites in basins across the United States will help address critical knowledge gaps and support best management practices that are appropriate for marginal wells.
>
> This effort complements related DOE research and analysis projects conducted by the National Energy Technology Laboratory (NETL) to improve understanding of methane emissions and identify potential reduction strategies that can improve the operational efficiency of the Nation's natural gas production and delivery systems.
>
> In June 2016, the U.S. Environmental Protection Agency (EPA) published a final rule in the Code of Federal Regulations to amend the New Source Performance Standards at subpart OOOO, and finalize new standards at subpart OOOOa to reduce methane emissions from new and modified oil and gas facilities. The updated standards included requirements for marginal well sources—oil wells that produce less than 15 barrels per day or gas wells that produce less than 90,000 cubic feet per day—which were not previously addressed.
>
> EPA's decision was based on limited data. The Agency had presumed emissions from marginal and non-marginal well sites were comparable, but that conclusion was derived from data amassed from studies employing a wide variety of technical approaches, none of which were designed to assess emissions specifically from representative populations of marginal well sites.

As part of an ongoing regulatory review and reconsideration process, on September 11, 2018, EPA issued proposed targeted improvements to the 2016 standards that aim to streamline implementation, reduce duplicative EPA and state requirements, and decrease unnecessary burdens on domestic energy producers. The Agency continues to review other aspects of the 2016 rule that could be the subject of future rulemaking.

While the costs of regulatory compliance impact all producers, small independent oil and gas producers who operate many of the over 700,000 marginal wells that dot the United States could be disproportionately impacted, with associated economic impacts to energy production, states, and communities.

Recognizing these challenges, GSI proposed to collect and evaluate representative, defensible, and repeatable data from each type of well (marginal vs. non-marginal, oil vs. natural gas). This data, together with data from existing sources, will be compiled, evaluated for usability and representativeness, and analyzed to answer two key questions:

- What conclusions can be reliably drawn regarding the relative methane emissions among significant marginal and non-marginal well site populations based on existing available information?
- What are the key gaps in understanding the relative frequency and magnitude of emissions from marginal vs. non-marginal well sites?

Once these questions are addressed, GSI will develop a focused and detailed scope of subsequent field investigations, as appropriate, to address critical data gaps. Study conclusions will also focus on identification and implementation of appropriate best management practices, so that the United States can continue to rely on traditional oil and natural gas resources for clean, secure, and affordable energy while enhancing environmental protection.[7]

This DOE study provides the EPA the opportunity to do what it should have done as it initially developed Subpart OOOOa – collect direct emissions data on low production wells. This data would allow the EPA a baseline that shows the distinctions between large wells and low production wells and the differences that may exist between types of wells and between production regions.

The EPA should embrace this DOE action.

5. <u>The EPA should make the following changes to the low production well regulations.</u>

[7] https://www.netl.doe.gov/node/5775

First, the EPA should retain a low production well distinction in the regulations. Regulations designed for large high production wells do not function appropriately for low production wells averaging 2.6 B/D of oil or 22 mcfd of natural gas.

Second, the EPA should restructure the regulation to provide that as wells decline to the low production well threshold, these wells would move into the low production well requirements.

Third, the EPA should use the U.S. Tax Code definition of stripper wells as the low production well definition. Both the Tax Code definition and the proposed Subpart OOOOa definition use the same 15 B/D BOE basis. However, the Tax Code interpretation is well understood by both producers and federal regulators. Its use would prevent litigation over interpretation of the new Subpart OOOOa language. The EPA can address enforcement and compliance concerns by establishing an initial production threshold that would trigger a one-year period to determine whether a well is a low production well or not. The current proposal using production after 30 days does not reflect the realities of natural production declines.

Fourth, the EPA should await the results of the recently announced Department of Energy *Quantification of Methane Emissions from Marginal (Small Producing) Oil and Gas Wells* project to develop low production well regulations, if any are cost -effective or appropriate given the low emissions from low production wells. The EPA's current use of available data that was never taken with the intent of being used for low production well regulation is inappropriate. The database is too small and, more importantly, too anecdotal to be used for nationwide regulations of the diverse population of low production wells. The EPA should follow the path that it took with regard to a fugitive emissions program in the October 2016 CTG for existing oil and natural gas production facilities in ozone nonattainment areas. In that action, the EPA deferred the institution of a fugitive emissions program until an undefined future date. Given that the results of the DOE project are essential to developing sound regulations, if any are justified, this approach would be consistent with the CTG decision.

III. SUBPART OOOOa STORAGE TANK COMMENTS

A. Background/Proposal

In the reconsideration amendments, the EPA has proposed to change how operators calculate potential emissions and applicability of the storage vessel requirements under the rule. The EPA also proposes to impose additional recordkeeping and reporting requirements related to the applicability determination for both affected and non-affected storage vessels. Specifically, the EPA proposes to:

- Limit the circumstances and operational configurations operators may use to average potential emissions across a tank battery for purposes of determining applicability of a particular storage vessel.

- Revise the definition of "maximum average daily throughput" to require that operators use only the days that production is actually sent to a particular storage vessel during the 30-day evaluation period to calculate maximum average daily throughput for the storage vessel.

- Impose additional limits and criteria on what constitutes a "legally and practically enforceable limit" for purposes of determining storage vessel potential to emit ("PTE").

- Require additional recordkeeping for both affected and non-affected facilities related to storage-vessel applicability determinations.

The EPA's proposed reconsideration amendments present a number of technical and practical concerns. While the EPA claims that some of these changes are mere "clarifications," TIPRO has significant concerns because the EPA's proposals represent a departure from the prior EPA statements and practice and raise concerns related to retroactive application and enforcement. Accordingly, TIPRO provides these specific comments and suggestions on each of the above-described topics.

B. Maximum Average Daily Throughput and Averaging Emissions Across Tank Batteries.

In the proposed reconsideration amendments, the EPA expresses concern that operators have been "incorrectly averaging emissions across storage tanks in tank batteries when determining the potential for VOC emissions."[8] The EPA states that "[d]ividing an entire battery's throughput by the number of storage vessels in the battery would greatly underestimate flash emissions from the first storage vessel connected in series, which is where liquid pressure drops from separator pressure to atmospheric pressure."[9] To attempt to extend regulatory controls over these tank batteries, the EPA proposes to "clarify" how PTE is calculated for different storage-tank configurations and operations. This includes defining when it is appropriate to divide a tank battery's throughput across an entire tank battery to determine PTE for individual storage tanks for Subpart OOOOa applicability purposes. For example, the EPA states that averaging "could be appropriate" where a tank system is configured in parallel with a "splitter system" and all liquids "initially flow in equal amounts" to individual tanks, but it would not be appropriate when tanks are configured and operated with liquid product flowing in series. As a consequence, the EPA proposes including a revised definition of "maximum average daily throughput" that would specify the exact method of calculation required to determine "daily throughput for an *individual* storage vessel over the days that production is routed to that storage vessel during the 30-day evaluation period." Despite the language in the preamble to the proposal, the EPA's proposed definition appears to prohibit averaging of tank emissions in all situations, including those under which the EPA suggests averaging may be appropriate (*e.g.*, tanks configured in parallel).

[8] 83 Fed. Reg. at 52,084.

[9] *Id*. at 52,085.

TIPRO disagrees with the EPA's contention that under Subpart OOOOa (or its predecessor, Subpart OOOO) operators have been "incorrectly" averaging emissions across tank batteries. Subpart OOOOa currently provides that storage tank PTE "must be calculated using a generally accepted model or calculation methodology."[10] Averaging has historically been and continues to be an acceptable methodology for estimating emissions from storage tanks – particularly from tanks that are part of a controlled tank battery. TIPRO also disagree with the technical premise relied upon by the EPA to support its assertion that averaging is categorically inappropriate for certain tank configurations. And finally, TIPRO has concerns with the EPA's proposed definition of "maximum average daily throughout" as it appears to categorically prohibit averaging storage tank emissions across a tank battery and also overestimates potential emissions by relying only on the days during which throughput is actually sent to a specific storage vessel. Each of these changes directly conflict with Executive Order 13783, issued by President Trump, which directs the heads of all federal agencies to "review all existing regulations, orders, guidance documents, policies, and any other similar agency actions . . . that potentially burden the development or use of domestically produced energy resources, with particular attention to oil, natural gas, coal, and nuclear energy resources."[11] Here, the EPA proposes revisions that would significantly increase the burden on domestic producers of oil and gas.

1. **The EPA's proposal to prohibit averaging of throughput across tank batteries inappropriately ignores fundamental operational processes.**

The EPA's expressed concerns about averaging ignore that many new and modified tank batteries not subject to Subpart OOOOa are either: (1) already controlled pursuant to a state requirement; or (2) if uncontrolled, have a system that allows for the build-up of pressure across the head space of the entire tank battery and collection system. Though TIPRO believes that there is a technical basis for the EPA to allow averaging in both of these scenarios, TIPRO understands the EPA's concern that averaging across multiple tanks in a battery may allow certain storage tank emissions to remain uncontrolled. As a result, TIPRO proposes that in order to alleviate the EPA's concern regarding uncontrolled storage tanks, while still acknowledging the technical reality of how tanks' vapors equalize across a tank battery, the EPA allow averaging (regardless of tank configuration) for all storage vessels that share a common vapor space within a controlled tank battery. TIPRO believes that such averaging methodologies should be allowed both for initial applicability determinations and for determinations as to whether tank vessels meet the thresholds below which the storage tank requirements in Subpart OOOOa (or Subpart OOOO) apply.

TIPRO wishes to put a fine point on why the EPA's proposal is not technically valid, why averaging has a sound basis in engineering, and importantly, why averaging actually addresses the EPA's concern about flash emissions. Tank batteries, controlled by a common flare or

[10] 40 C.F.R. § 60.5365a(e); *id.* § 60.5430a ("*Maximum average daily throughput* means the earliest calculation of daily average throughput during the 30-day PTE evaluation period employing generally accepted methods.").

[11] 82 Fed. Reg. 16,093 (Mar. 28, 2017).

combustor system or vented through one common pressure relief valve ("PRV") typically share vapor space (the tank volume above the liquid) and joint piping used to collect generated vapors and convey them to the control device. Because the vapor collection piping is typically free of restrictions, vapors flow both into and out of each tank within the battery and into overflow piping on a continuous basis, and vapors will always flow from high pressure areas to low pressure areas when flow is mechanically unrestricted. In this configuration, the flash emissions from the first tank will not be immediately emitted, but will flow into the other tanks and vent line space associated with the battery as a whole until the total pressure in the system exceeds the back-pressure of the flares, control device, or in systems without controls, the pressure relief valve. Only then will the emissions be released from either the pressure relief valve or combusted by the control equipment.

Given that gas is allowed to equalize among the tank vessels in a manifolded system, there is no technical basis for the EPA's concern about emissions from the first storage vessel in the series being underestimated. The EPA inappropriately assumes that emissions in a manifolded system are individually emitted from each tank and that they result only from the oil being produced into that given tank. In reality, for the reasons described above, the vapors being emitted from the tank battery at any point in time may have originated from any tank in the battery.

Based upon the EPA's technical approach in these proposed reconsideration amendments it may be that the EPA misunderstands how these systems typically work. For example, in the preamble to the proposed Subpart OOOO, the EPA stated: "[d]uring times of flash emissions, tanks are designed such that the flash emissions are released through a vent on the fixed roof of the tank when pressure reaches just a few ounces to prevent pressure buildup and resulting tank damage."[12] However, for facilities under the configuration described above, this individual emitting from tank thief hatches does not occur in the manner described by the EPA. Rather, vapor pressure equalizes across the system and emissions are released only when the pressure in the battery as a whole exceeds the backpressure of the PRV or the emissions proceed through the combustion device: whether emissions will or will not occur is dependent on the capacity of the entire vapor control system, not the individual storage tank. Thus, contrary to the EPA's suggestion in the proposed reconsideration amendments, dividing an entire tank battery's throughput by the number of storage vessels in the battery would be an appropriate and acceptable methodology in cases where all vessels in the tank battery share vapor space, emissions generated in one vessel equalize into the other vessels in the tank battery, and emissions are eventually controlled by the same control device or released through common PRVs. In this context, it is irrelevant whether the tanks are operated in series or in parallel, because it is not the throughput of the liquids through any single vessel within the system that determines potential emissions, but a number of other factors, including the operation of the combined vapor control system for the integrated tank battery. Accordingly, the determinant factor for allowed averaging across multiple storage vessels within a system is shared vapor space, rather than the EPA's proposed focus of liquid filling configuration.

[12] 76 Fed. Reg. 52,738, 52,764 (Aug. 23, 2011).

2. <u>The EPA's proposal to eliminate averaging is inconsistent with recent consent decrees related to the design and operation of vapor control systems on storage tanks.</u>

TIPRO's technical explanation on how emissions are released from storage tank batteries comports with the EPA's interpretation in recent enforcement cases. In the past several years, the EPA has entered into a number of consent decrees related to the design, and operation and maintenance of vapor control systems on storage tanks. In each of those consent decrees, the EPA acknowledges (and in fact demands) that the operator consider the vapor control system as a whole in determining how to design to avoid emissions from storage tanks. Specifically, the consent decrees typically define a vapor control system in the following manner: the system used to contain, convey, and control vapors from one or more storage tank(s) (including flashing, working, breathing, and standing losses), as well as any natural gas carry-through to storage tanks. A vapor control system includes a tank system, piping to convey vapors from a tank system to a combustion device and/or vapor recovery unit, fittings, connectors, liquid knockout vessels or vapor control piping, openings on storage tanks (such as thief hatches and any other pressure relief devices, and emission control devices). Through this definition, the EPA makes clear that it treats the vapor control system as one system, specifically a system that includes all storage vessels sharing a common vapor manifold. The EPA's proposal that prevents averaging across individual tanks even for controlled tanks and instead requires a theoretical assessment of emissions from individual tanks, even where they share a common vapor space, is entirely inconsistent with the underlying theory of the EPA's consent decrees and their treatment of vapor control systems – particularly for facilities with existing control requirements under state or permit requirements.

C. The EPA's Proposal to Calculate Individual Tank Emissions Based Upon Throughput to Each Individual Tank is Technically Flawed and Overly Burdensome.

Instead of averaging throughput and emissions across a tank battery, the EPA now contends that operators should be determining throughput for each individual storage vessel. The EPA proposes two separate methods for accomplishing this feat: (1) actively measure daily throughput to each individual tank via auto-gauging or manual gauging;[13] or (2) determine for each loadout period, the highest average daily throughput for each storage vessel.[14] For the second method, where tank throughput is not monitored daily, the EPA suggests the following procedure for determining individual tank throughput: (1) measure the liquid height in the storage vessel at the start and completion of loadout of liquids from the storage vessel; and (2) divide the volumetric throughput calculated from the change in liquid height over the number

[13] As to this first method, TIPRO also wants to clarify that the EPA's proposed language in the preamble that refers only to "automated gauging" generally, should be more specifically limited to scenarios where operators employ *daily* gauging (whether manual or automated). TIPRO stresses, however, that regardless of the type of gauging employed this should not be required on a per-tank basis.

[14] *See* 83 Fed. Reg. at 52,084.

of days in the production period.[15] The EPA defines a "production period" as the date "production begins to be routed to a storage vessel" until the date "throughput is routed away from that storage vessel or when a loadout occurs from that storage vessel."[16] If a tank system undergoes multiple loadouts during the thirty-day evaluation period, operators must use the maximum of the production period average daily throughput values to calculate the potential emissions from the individual storage vessel.[17]

The EPA's proposal is overly burdensome, contradicts "generally accepted" methods to calculate emissions, and ignores the technical complexity and feasibility of such an assessment. First, the EPA assumes that many operators have a readily available mechanism for determining the production within each tank on a daily basis. Equipment for determining the throughput of individual tanks is not available in all or even most instances and does not reflect a generally accepted method for evaluating production to or emissions from individual storage vessels. Whether a mechanism for determining daily production from each tank exists depends upon a number of factors, including operational configuration and commercial considerations. In most instances, there is no need to assess the production in any individual tank as liquids are not removed until the capacity of the tank battery as a whole reaches certain levels. This is particularly true at facilities that utilize lease automated control technology ("LACT") systems that automatically release liquids into a gathering pipeline upon reaching certain thresholds in the storage vessel connected to the LACT unit. Even at facilities that are loaded out by truck, there is no operational basis for allocating production from the entire battery to individual tanks. Requiring operators to undertake such granular and nuanced information for tank batteries with existing controls already in operation provides no environmental benefit and does not comport with generally accepted methods for operating these systems.

Finally, the EPA appears to assume that the emission factor will be the same for all of the production in a storage tank battery – regardless of whether the production is contained in the first tank in a series or the last. Such an assumption is inconsistent with the EPA's own statements in the preamble that the majority of flash emission potential is created due to the initial pressure drop when production is dumped from the separator to the first tank. It is also inconsistent with the technical reality that applies to these systems. Tank battery vapors are generated in three ways: thermodynamic flashing when the liquids change from higher to lower pressure; working loss when liquids flow into the storage vessel displacing vapors within the vessel; and breathing loss due to heating and cooling cycles. Under the EPA's theory, the remaining tanks in a tank battery are limited to working and breathing loss as production is transferred from one atmospheric tank to another. The reality, however, as described above, is that when tank batteries share a common vapory recovery system and control, the vapors generated by the initial pressure differential equalize across the connected vessels because the low restriction allows the vapor to flow more easily to the nearby tanks than to the distant flare(s) or combustor(s). Thus, the vapors – and emission potential – equalize throughout the

[15] *Id.*

[16] *Id.*

[17] *Id.*

entire tank battery despite being generated in the first tank receiving liquids. Accordingly, under this type of configuration, the most accurate way to determine each individual tank's PTE is to average throughput and PTE across the tank battery.

D. The EPA's Proposal to Only Include Days in Which Tanks Received Production Would Overstate Potential Emissions and Would Create an Unnecessary and Overly Burdensome Recordkeeping Requirement.

The EPA proposes that "production to a single storage vessel must be averaged over the number of days production was actually sent to that storage vessel, rather than over the entire 30 days."[18] For example, the EPA states that "if a storage vessel receives production on 22 of the 30 days in the evaluation then the maximum average daily throughput is calculated by averaging the daily throughput that was calculated for each of those 22 days."[19] The EPA suggests that it understands this approach would not produce a true average, but that it accurately represents *potential emissions*.[20] This is inaccurate. The EPA's proposed approach fails to account for the fact that maximum well production has a limit based on what the wells can produce, and ignores the fact that the same well production will be routed to different tanks in the battery throughout the thirty-day period. In this manner, the EPA's proposal requires operators to count the same throughput multiple times for different tanks, resulting in a value greater than the actual possible total production from the wells. Thus, averaging daily throughput for each individual tank based only on the days the tank actually receives production during the thirty-day evaluation period would over estimate the total amount of production that each tank could receive over a thirty-day window. And when compounded across multiple tanks and extrapolated across an entire year, this approach would significantly over estimate the volume of flow to the tanks as a whole.

D. Proposed Recordkeeping Requirements for Storage Vessels.

1. <u>The EPA's enhanced recordkeeping requirements for affected facilities are unduly burdensome and unnecessary</u>.

The EPA proposes a significant number of new recordkeeping requirements – mainly to correspond with the methodology that the EPA now proposes operators utilize in calculating emissions from individual storage vessels.[21] As noted, the EPA proposes a methodology of estimating emissions and assessing throughput to individual tanks that is inconsistent with many operators' current practices or have any technical basis. Because each of these recordkeeping requirements implicates operators' ability to generate the information required, TIPRO has significant concerns with the records proposed to be maintained.

[18] 83 Fed. Reg. at 52,084.

[19] *Id.*

[20] *Id.* (emphasis added)

[21] *See* 83 Fed. Reg. at 52,085.

Of particular note, the EPA proposes that operators document the operational configuration of the tank, including recordkeeping of the specific storage vessel that production was routed to for each day in the 30-day production period. Such a requirement indicates that the EPA fundamentally misunderstands how tank systems function and creates an overly burdensome new record requirement that operators neither maintain nor see any value in maintaining. Importantly, operational configurations of tank batteries are not static and can change (even on a day-to-day basis). The tank that first receives production one day may be the second tank to receive production the next day. Thus, it is not feasible to maintain or track each different configuration or track the days on which a specific configuration was in operation. And there is no value to doing so for controlled tanks that are manifolded together as described above.

Accordingly, consistent with TIPRO's Comments throughout, TIPRO suggests that the EPA remove the proposed recordkeeping requirements to the extent they would require operators to document the operational configuration of the tank or document throughput to individual vessels in a tank battery.

2. <u>The EPA should not impose recordkeeping requirements on facilities not subject to the rule</u>.

In the Reconsideration Rulemaking, the EPA is also soliciting Comments "on specific recordkeeping requirements that would support the applicability determination for each individual storage vessel *regardless of whether that storage vessel is determined to be an affected facility*."[22] According to the EPA, "[t]his is because recordkeeping is necessary to be able to verify that rule applicability was appropriately determined in accordance with the regulatory requirements."[23] Such an approach is entirely inconsistent with traditional NSPS requirements. Operators are required to determine compliance with an NSPS. Operators, upon request and in certain circumstances, may be required to demonstrate the basis for their conclusion that a facility is not subject to an NSPS. Operators perform this assessment in some way, shape, or form for every NSPS. However, the NSPS itself – which is only applicable to affected facilities – should not in this one case have an independent recordkeeping requirement applicable to non-affected facilities.[24]

The EPA's proposed amendment could create confusion and raises significant enforcement concerns. Operators will typically look first to the applicability section of an NSPS, and if it is determined that a specific facility is not subject to the rule, they look no further (*e.g.*, into the recordkeeping sections applicable only to affected facilities).

Finally, the EPA's proposal raises concerns about the potential for retroactive application (as discussed in further detail above). The EPA says that it is clarifying a rule that has been in

[22] 83 Fed. Reg. at 52,085 (emphasis added).

[23] *Id.*

[24] *See* 40 C.F.R. § 60.1(a) ("[T]he provisions of this part apply to the owner or operator of any stationary source which contains an affected facility.").

existence for years, but is apparently expecting operators to have records that would demonstrate compliance now with the EPA's new interpretation. At a minimum, if the EPA includes recordkeeping for non-affected facilities (which TIPRO believes it should not), then the EPA should clarify in the final rule that this new recordkeeping requirement will apply only on a prospective basis.

IV. COOPERATIVE FEDERALISM

A. The EPA Should Recognize the Approved State Programs as Wholly Equivalent to Subpart OOOOa LDAR Program and Fully Delegate the Implementation of the LDAR Monitoring Provisions to These Respective States.

Based on the EPA's state LDAR program equivalency guidance document provided with this rulemaking, the EPA explained that they analyzed the sensitivity thresholds and monitoring frequencies of approved technologies in a number of state programs, as well as other program requirements and, based on all of these variables combined, deemed these various state programs equivalent to Subpart OOOOa LDAR program.[25] However, the EPA is requiring operators to use the fugitive emission component definition from Subpart OOOOa, in addition to the reporting and monitoring plan. Many TIPRO members are required to comply with state permit requirements and therefore, are currently implementing both the state and federal LDAR programs concurrently and the differing required recordkeeping and reporting requirements, as well as Subpart OOOOa's monitoring plan. This is a very burdensome duplicative administrative burden with no added benefit for the environment.

Under the well-established premise of cooperative federalism, the EPA should recognize these programs in full, including the states' recordkeeping and reporting requirements. The states have recordkeeping and reporting to ensure compliance with their programs and the EPA should give proper deference to states for compliance assurance for their state program. If the state program is not adequate in the EPA's opinion, then the EPA needs to address this issue with the states.

Complying with two different recordkeeping and reporting schemes on the same site(s) is an enormous administrative burden with no added environmental benefit. And requiring the federal reporting (which would require some Subpart OOOOa recordkeeping requirements to be met in order to comply with the federal reporting), and monitoring plan defeats the purpose and any benefit from the EPA approving these state programs in the first place.

Cooperative federalism is a central tenet of the CAA. Over the course of its fifty year history, the Act has evolved first from a set of general principles intended to guide States as they undertook regulation of air pollution sources, to an extensive number of more targeted standards often prescribed by the federal government in the first instance and then implemented by the states. The principle that the States and the federal government will work in tandem to protect

[25] EPA's Memo. *Equivalency of State Fugitive Emissions Program for Well Sites and Compressor Stations to Proposed Standards at 40 CRF Part 60, Subpart OOOOa* (April 12, 2018).

the nation's air resources is embodied throughout the Act. Congress, in Section 101(a)(3) of the Act, declared air pollution control to be "the primary responsibility of States and local governments,"[26] with the federal government providing "financial assistance and leadership."[27]

For example, pursuant to Section 110 of the CAA, while the EPA develops the national ambient air quality standards,[28] states develop plans, called state implementation plans, to meet those standards. In that context, the U.S. Supreme Court has made clear that "[t]he Act gives the Agency no authority to question the wisdom of a State's choices of emission limitations if they are part of a plan which satisfies the standards."[29] Similarly, under the CAA's visibility provisions, states have broad leeway to develop plans to combat regional haze that the EPA cannot second-guess if the states have considered the statutory factors.[30]

Section 111, the provision at issue here, fits squarely within the cooperative federalism tradition, with section 111(c) expressly calling on states to develop "a procedure for implementing and enforcing standards of performance for new sources" and calling on the Administrator to delegate "any authority he has … to implement and enforce such standards."[31] The Supreme Court has affirmed that these cooperative principles are the heart of the CAA again and again.[32]

State LDAR programs are precisely the sort of regulation over which states have special expertise, and they are proper subjects of state control.

III. CONCLUSION

TIPRO sincerely appreciates the opportunity to submit these public comments. Please do not hesitate to contact me at the address shown in the letterhead, or by e-mail at elonganecker@tipro.org. Thank you for your time and attention.

Sincerely,

Ed Longanecker
President, TIPRO

[26] 42 U.S.C. § 7401(a)(3),

[27] i*d*. § 7401(a)(4).

[28] *see* 42 U.S.C. §§ 7408, 7409,

[29] *Train v. Natural Res. Def. Council, Inc.*, 421 U.S. 60, 79 (1975).

[30] *Am. Corn Growers Ass'n v. EPA*, 291 F.3d 1, 8 (D.C. Cir. 2002).

[31] 42 U.S.C. § 7411(c)(1).

[32] *See, e.g., Whitman v. Am. Trucking Ass'ns*, 531 U.S. 457, 470 (2001) ("It is to the States that the CAA assigns initial and primary responsibility for deciding what emissions reductions will be required from which sources."); *Union Elec. Co. v. EPA*, 427 U.S. 246, 269 (1976) ("Congress plainly left with the States, so long as the [NAAQS] were met, the power to determine which sources would be burdened by regulation and to what extent.").