

Final Report

of the

Small Business Advocacy Review Panel on

EPA's Planned Proposed Rule

Emission Standards for New and Modified Sources in the

Oil and Natural Gas Sector

August 2015

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1. INTRODUCTION

This report is presented by the Small Business Advocacy Review Panel (SBAR Panel or Panel) convened to review the planned proposed rulemaking on the Emission Standards for New and Modified Sources in the Oil and Natural Gas Sector. Under section 609(b) of the Regulatory Flexibility Act (RFA) as amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), a Panel is required to be convened prior to publication of the initial regulatory flexibility analysis (IRFA) that an agency may be required to prepare under the RFA. In addition to EPA's Small Business Advocacy Chairperson, the Panel will consist of the Director of the Sector Policies & Programs Division of the EPA Office of Air Quality Planning & Standards, the Administrator of the Office of Information and Regulatory Affairs within the Office of Management and Budget, and the Chief Counsel for Advocacy of the Small Business Administration.

This report includes the following:

- Background information on the proposed rule being developed;
- Information on the types of small entities that may be subject to the proposed rule;
- A description of efforts made to obtain the advice and recommendations of representatives of those small entities; and
- A summary of the comments that have been received to date from those representatives.

Section 609(b) of the RFA directs the Panel to consult with and report on the comments of small entity representatives (SERs) and make findings on issues related to elements of an IRFA under section 603 of the RFA. Those elements of an IRFA are:

- A description of, and where feasible, an estimate of the number of small entities to which the proposed rule will apply;
- A description of projected reporting, record keeping, and other compliance requirements of the proposed rule, including an estimate of the classes of small entities which will be subject to the requirement and the type of professional skills necessary for preparation of the report or record;
- An identification, to the extent practicable, of all relevant Federal rules which may duplicate, overlap, or conflict with the proposed rule; A description of any significant alternatives to the proposed rule which accomplish the stated objectives of applicable statutes and which minimize any significant economic impact of the proposed rule on small entities. This analysis shall discuss any significant alternatives such as:
 - the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities;
 - the clarification, consolidation, or simplification of compliance and reporting requirements under the rule for such small entities;
 - the use of performance rather than design standards; and
 - an exemption from coverage of the rule, or any part thereof, for such small entities.

Once completed, the Panel Report is provided to the agency issuing the proposed rule and is included in the rulemaking record. The agency is to consider the Panel's findings when completing the draft of the proposed rule. In light of the Panel Report, and where appropriate, the

agency is also to consider whether changes are needed to the IRFA for the proposed rule or the decision on whether an IRFA is required.

The Panel's findings and discussion will be based on the information available at the time the final Panel Report is drafted. EPA will continue to conduct analyses relevant to the proposed rule, and additional information may be developed or obtained during the remainder of the rule development process.

Any options identified by the Panel for reducing the rule's regulatory impact on small entities may require further analysis and/or data collection to ensure that the options are practicable, enforceable, environmentally sound, and consistent with the Clean Air Act and its amendments.

2. BACKGROUND AND DESCRIPTION OF RULEMAKING

2.1 Regulatory History

Section 111 of the Clean Air Act (CAA) requires the EPA Administrator to list categories of stationary sources, if such sources cause or contribute significantly to air pollution that may reasonably be anticipated to endanger public health or welfare. The EPA must then issue performance standards for such source categories. These standards are referred to as new source performance standards (NSPS). The EPA has the authority to define the source categories, determine the pollutants for which standards should be developed, identify the facilities within each source category to be covered, and set the emission level of the standards.

2.2 Description and Scope of Existing Rule

The U.S. Environmental Protection Agency (EPA) is developing a rule that proposes to reduce emissions of greenhouse gases, including methane, and volatile organic compounds (VOCs) under its New Source Performance Standards (NSPS) for the oil and natural gas industry. Those cost-effective standards, issued in 2012, currently are reducing VOC emissions from several sources in the oil and natural gas industry. EPA is considering adding equipment and processes to those sources currently covered by the standards. Equipment and processes the agency is considering adding to the NSPS include hydraulically fractured oil wells, pneumatic controllers and pumps, leaks from new and modified sites, and compressor stations.

On Jan. 14, 2015, the Obama Administration announced its next steps to cut methane emissions under the March 2014 Strategy to Reduce Methane Emissions. That strategy, part of the Administration's Climate Action Plan, identified the oil and gas industry as a key source of methane emissions and set out a series of steps to reduce those emissions while allowing continued responsible growth in U.S. oil and natural gas production.

As part of that strategy, on April 15, 2014, EPA released for external peer review and public input five technical white papers on potentially significant sources of emissions in the oil and gas

sector. The white papers set out data and information available to us at that time on potentially significant sources of emissions in the oil and gas sector and options for reducing those emissions. EPA used the papers, along with the input received from the peer reviewers and the public, to identify potential commonsense, cost-effective approaches to achieve emission reduction from these sources. Peer reviewers' comments, and instructions for reading input from the public are available at on EPA's website <http://www.epa.gov/airquality/oilandgas/whitepapers.html>.

Additional information about EPA's strategy for reducing air pollution from the oil and gas industry can be found at <http://www.epa.gov/airquality/oilandgas/pdfs/20150114fs.pdf>.

2.3 Regulatory Options Likely to be Proposed

Through Agency review of data available in the Greenhouse Gas Inventory and stakeholder input, a broad range of program improvements and opportunities for significant cost-effective reductions of VOCs and methane have been suggested across the oil and natural gas sector. From these, EPA identified those which could only be addressed through regulation change, and further limited to those which would provide the most protective impact. The following is a listing of regulatory revisions currently being considered and evaluated by EPA, and is not final at this time. The options being considered include requirements across the oil and natural gas sector for:

- Work practices for completions of hydraulically fractured oil wells;
- Requirements for monitoring and repair of fugitive emissions from new and modified sites;
- Emission standards for pneumatic pumps;
- Emission standards for pneumatic controllers;
- Emission standards for centrifugal compressors; and
- Work practices for reciprocating compressors.

Potential control strategies that the Agency may consider are summarized in the technical white papers described above.

2.4 Related Federal Rules

In addition to the 2012 NSPS, there are two National Emission Standards for Hazardous Air Pollutants (NESHAP) rules that apply to certain equipment and processes in the oil and natural gas sector. These rules, listed below, address air toxics, primarily benzene, toluene, ethylbenzene and xylenes (collectively referred to as BTEX) and n-hexane. These two rules, which were updated concurrently with the 2012 NSPS, were promulgated under section 112 of the Clean Air Act and are codified in 40 CFR Part 63:

- Subpart HH – Crude Oil and Natural Gas Production (including processing); and
- Subpart HHH – Natural Gas Transmission and Storage.

Additionally, 40 CFR Part 98 Subpart W is a greenhouse gas reporting requirement that applies to petroleum and natural gas systems. Owners or operators of facilities that contain petroleum

and natural gas systems and emit 25,000 metric tons or more of GHGs per year from process operations, stationary combustion, miscellaneous use of carbonates, and other source categories are required to report emissions from all source categories located at the facility for which emission calculation methods are defined in the rule. Owners or operators are required to collect emission data; calculate GHG emissions; and follow the specified procedures for quality assurance, missing data, recordkeeping, and reporting.

3. APPLICABLE SMALL ENTITY DEFINITIONS

The proposed rule may affect entities in the following segments of the oil and natural gas sector:

2012 NAICS Code	NAICS Description	Small Business Threshold	Estimated Number of Small Entities
211111	Crude Petroleum and Natural Gas Extraction	500 employees	6,444
211112	Natural Gas Liquid Extraction	500 employees	107
213111	Drilling Oil and Gas Wells	500 employees	2,085
213112	Support Activities for Oil and Gas Operations	\$38.5 million in receipts	8,561
486110	Pipeline Transportation of Crude Oil	1,500 employees	28
486210	Pipeline Transportation of Natural Gas	\$27.5 million in receipts	80
486910	Pipeline Transportation of Refined Petroleum Products	1,500 employees	28
486990	All Other Pipeline Transportation	\$37.5 million in receipts	6

Source: U.S. Census Bureau, Statistics of U.S. Businesses, 2012. <http://www.census.gov/econ/susb/>
SBA Size Standards, 13 CFR 121. 201

This listing is not intended to be exhaustive, but rather provides a guide regarding entities likely to be affected by this action. Other types of entities not listed here could also be affected.

The potential new standards may affect numerous entities engaged in a variety of activities related to the oil and natural gas industry. As the NSPS affect new sources in the future, there is uncertainty about which entities may be specifically affected by these potential standards. To inform the assessment of potential costs and identify entities that may be affected under the potential NSPS additions, the Agency evaluated a variety of data sources, ranging from oil and natural gas production data to information in trade media.

4. LIST OF SMALL ENTITY REPRESENTATIVES

EPA consulted with Advocacy to develop the list of small entity representatives (SERs) in the table below. EPA issued a press release inviting self-nominations by affected small entities to serve as potential SERs. The press release directed interested small entities to a web page where they could indicate their interest in serving as a SER. EPA launched the website January 28,

2015 and accepted self-nominations until February 11, 2015. EPA sent Advocacy a Formal Notification with the suggested list of potential SERs on March 24, 2015 and Advocacy responded on April 9, 2015.

Table 1. Potential Small Entity Representatives¹

Name	Affiliation	Contact Information
Tom Murphy ² Manager, Environmental Compliance	Unitil Service Corp New Hampshire	murphyt@unitil.com 603-379-3829
Michalene Reilly Executive Director	Hoosier Energy REC, Inc Indiana	mreilly@hepn.com 812-935-4711
David Stewart Corporate Director, EHS & Regulatory Compliance	Bonanza Creek Energy, Inc Colorado	dstewart@bonanzacrk.com 720-225-6696
Julie Lang Director of Regulatory Affairs	Prism Midstream LLC Texas	jlang@prism-midstream.com 817-803-5265
Chuck Cornell Senior Regulatory Lead	Jonah Energy LLC Colorado	chuck.cornell@jonahenergy.com 720-577-1251
Rudy F. Vogt, III Geologist/Partner AND Current President of the KY Oil & Gas Association	Cumberland Valley Resources LLC Kentucky	rvogt@cvresources.com 502-479-9056
Doug Mehan Director of Health, Environmental & Safety	PennEnergy Resources LLC Pennsylvania	dgmehan@pennenergyresources.com 412-275-3209
Robert Mitchell Vice President	Carrera Gas Companies LLC Oklahoma	rmitchell@carreragas.com 918-710-4128
Arthur Stewart President	Cameron Energy Company Pennsylvania	camelot1@atlanticbb.net 814-968-3337
Jerry James President	Artex Oil Company Ohio	jjames@artexoil.com 740-373-3313

¹ Gas Processors Association, represented by Matt Hite and Mark Sutton; and Independent Petroleum Association of America, represented by Matt Kellogg will serve as Helpers.

² Pam Lacey from American Gas Association will serve as Tom's helper

Name	Affiliation	Contact Information
Doug Jones Vice President, Catalyst Energy	Pennsylvania Grade Crude Oil Coalition (PGCC)	dj@catalystenergyinc.com 412-325-4350
Shane Kriebel ³ Production Business Manager, Kriebel Companies	Pennsylvania Independent Oil & Gas Association (PIOGA)	SCKriebel@kriebelgas.com 814-226-4160
Kathleen M. Sgamma Vice President of Government & Public Affairs	Western Energy Alliance Colorado	ksgamma@westernenergyalliance.org 303-501-1059
Mari Ruckel Vice President, Government and Regulatory Affairs	Texas Oil and Gas Association	mruckel@toga.org 512-478-6631
Sarah Bartlett Lead Air Quality EHS Professional	PDC Energy, Inc. Colorado	Sarah.Bartlett@PDCE.com 303-831-3969
James Elliot Counsel, Spillman, Thomas & Battle	Independent Petroleum Association of America (IPAA)	jelliott@spilmanlaw.com 717-791-2012

5. SUMMARY OF SMALL ENTITY OUTREACH

The EPA conducted a meeting/teleconference with potential small entity representatives (SERs) on May 19, 2015. To help SERs prepare for the meeting/teleconference, EPA sent initial materials to each of the potential SERs via email on May 11, 2015, and additional materials on May 18, 2015. A list of the materials shared with the potential SERs during the pre-Panel outreach meeting is contained in Appendix A. For the May 19, 2015 pre-Panel outreach meeting with the potential SERs, the EPA also invited representatives from the Office of Advocacy of the Small Business Administration and the Office of Information and Regulatory Affairs within the Office of Management and Budget. A total of 11 potential SERs participated in the meeting. The EPA presented an overview of the SBREFA process, an explanation of the planned rulemaking, and technical background.

The EPA conducted a Panel outreach meeting/teleconference with the SERs on June 18, 2015. A total of 11 SERs participated in the meeting. Appendix A lists materials shared with the SERs prior to the outreach meeting. Comments raised during the May 19, 2015 pre-Panel outreach meeting, the June 18, 2015 Panel outreach meeting and written comments submitted by the potential SERs are summarized in Section 6 of this document.

³Dave Ochs and Roy Rakiewicz will serve as helpers.

6. SUMMARY OF COMMENTS FROM SMALL ENTITY REPRESENTATIVES

6.1 Summary of May 19, 2015 Pre-Panel Outreach Meeting

The Pre-Panel Outreach Meeting was conducted as follows:

- Welcome and Introductions (Nicole Owens, EPA Office of Policy)
- SBAR Panel Process Overview (Nicole Owens, EPA Office of Policy)
- Presentation on the Proposed Emission Standards for New and Modified Sources in the Oil and Natural Gas Sector (Bruce Moore, EPA Office of Air Quality Planning and Standards)
- Questions and Discussion (All Participants)
- Summary and Closing (Nicole Owens, EPA Office of Policy)

Pre-Panel Outreach Meeting attendance:

- Nicole Owens, EPA Office of Policy
- Bruce Moore, EPA Office of Air Quality Planning and Standards
- Amy Branning, EPA Office of General Counsel
- David Rostker, Small Business Administration Office of Advocacy
- Pat Delehanty, Small Business Administration Office of Advocacy
- Jan Gilbreath, EPA Office of Policy
- Nathan Frey, Office of Management and Budget
- Aaron Szabo, Office of Management and Budget
- Suzie Waltzer, EPA Office of Atmospheric Programs
- David Cozzie, EPA Office of Air Quality Planning and Standards (phone)
- Alex MacPherson, EPA Office of Air Quality Planning and Standards (phone)
- Lisa Thompson, EPA Office of Air Quality Planning and Standards (phone)
- Douglas Jones, Pennsylvania Grade Crude Oil Coalition
- Pam Lacey, American Gas Association, serving as a helper (phone)
- Jim McCarthy, Innovative Environmental Solutions, Inc., serving as a helper (phone)
- Julie Lang, Prism Midstream LLC (phone)
- Chuck Cornell, Jonah Energy LLC (phone)
- Rudy Vogt, Cumberland Valley Resources LLC (phone)
- Doug Mehan, PennEnergy Resources LLC (phone)
- Robert Mitchell, Carrera Gas Companies LLC (phone)
- Matt Hite, Gas Processors Association, serving as a helper (phone)
- Mark Sutton, Gas Processors Association, serving as a helper (phone)
- Jerry James, Artex Oil Company (phone)
- Shane Kriebel, Pennsylvania Independent Oil & Gas Association (phone)
- Dave Ochs, Kriebel, serving as a helper (phone)
- Roy Rakiewicz, All4 Inc, serving as a helper (phone)
- Ryan Streams, Western Energy Alliance (phone)

- Sarah Bartlett, PDC Energy, Inc (phone)
- Jim Elliott, Independent Petroleum Association of America (IPAA), PLLC (phone)

Pre-Panel Outreach Meeting Summary

- Nicole Owens (EPA Office of Policy) asked if any participants had questions about the process or the presentation they were provided in advance of the meeting, “An Overview of the Small Business Advocacy Review Panel Process”.
 - The presentation addressed what an SBAR Panel is, how it fits into the rulemaking process, how Small Entity Representatives (SERs) participate in the Panel process, what the Panel does with SER recommendations, and what to expect in future Panel meetings.
- David Rostker (SBA Office of Advocacy)
 - Emphasized the goal of the Panel is to develop regulatory alternatives that minimize the burden on small entities while allowing EPA to fulfill its statutory obligations.
- Bruce Moore (EPA Office of Air Quality Planning and Standards) delivered “Pre-Panel Outreach Briefing: Emissions Standards for New and Modified Sources in the Oil and Natural Gas Sector”
 - The presentation offered a description of the oil and natural gas sector, an overview of New Source Performance Standards, the Obama Administration’s Methane Strategy, and descriptions of emissions sources covered in EPA’s White Papers, including:
 - Hydraulically Fractured Oil Well Completions,
 - Fugitive Emissions at Well Sites, Gathering and Boosting Stations, and Compressor Stations,
 - Pneumatic Pumps,
 - Pneumatic Controllers,
 - Compressors, and
 - Liquids Unloading
 - The presentation also addressed the potential impacts small entities could expect to experience through the proposed rulemaking, and requested input on:
 - The number of small entities that could be impacted by this action,
 - Recommendations for reducing recordkeeping and reporting burdens of small businesses,
 - Overlapping federal rules that apply to small businesses, and
 - Recommendations for reducing the burden on small businesses while reducing emissions from the white paper sources.
- Questions/Comments
 - A potential SER asked if coverage under the rule was based on emissions per operator or emissions per well. Another SER asked if there was a production threshold per well for being covered by this rule, or if low producing wells would be exempted.
 - EPA Response: EPA is considering ways to avoid undue burden on small operators and will consider suggestions from the SERs on appropriate thresholds.

- A potential SER asked if EPA was considering different control mechanisms for controlling methane emissions versus VOC emissions.
 - EPA Response: The existing NSPS contains BSERs for VOC emissions, and noted that these controls also reduce methane emissions.
- One potential SER asked if rules for compressors would be different for the production, processing, and transmission segments, and if compressors used for storage of LNG will be covered.
 - EPA Response: The proposed rule covered compressors throughout the production, processing, and transmission sectors. Compressors used in LNG storage in these segments will be covered.
- One potential SER stated that the cost of converting a wet seal to a dry seal is \$100,000 plus \$500,000 in labor.
 - EPA Response: Converting to a dry seal was ruled out as a BSER for retrofits.
- A potential SER asked EPA to consider market constraints in providing control equipment in the given timeframe to avoid equipment shortages.
 - EPA Response: Availability of control equipment will be considered in the rule.
- Several potential SERs asked EPA to evaluate the burden of overlapping state and local rules which complicate compliance, including Pennsylvania Exemption 38, and rules in Ohio and Colorado.
 - EPA Response: Asked the SERs to notify the Panel on overlapping regulations and recommend ways to reduce the burden on small businesses while reducing emissions from the white paper sources.

6.2 Summary of Written Comments and Questions from Potential SERs

At the conclusion of the Pre-Panel Outreach Meeting, potential SERs were asked to submit written questions and comments to EPA. Seven entities submitted written materials to EPA. The following subsections summarize these submissions.

6.2.1 Summary of Comments on Hydraulically Fractured Oil Well Completions

Cumberland Valley Resources, LLC noted that the amount of gas produced per barrel of oil is less than 1Mcf/day per barrel, and decreases quickly with production, and without the ability to vent or flare the gas produced, oil development would come to an end.

Cumberland Valley Resources, LLC noted that the cost to install and maintain a continuously burning pilot flame for a well that pumps for only a few hours a day would be an expensive burden on the operator.

Cumberland Valley Resources, LLC asked what volume of natural gas vented from an individual well is acceptable to EPA.

PDC Energy, Inc asked EPA to explain the difference between existing gas well completion requirements and new oil well completion requirements.

PennEnergy Resources, LLC stated that increasing flare efficiencies of the flare stack could result in unintended consequences including triggering local nuisance noise issues, and noted that this equipment is not readily available.

PIOGA stated EPA must evaluate complications caused by low pressure wells and separation from energized wells.

PIOGA stated EPA's emission standards for conventional operations are not appropriate because they appear to be based on modern unconventional shale plays. PIOGA stated that it's not clear if EPA's data includes representative data in the Appalachian basin from both historic stripper well fields and modern shale plays.

6.2.2 Summary of Comments on Fugitive Emissions

Cumberland Valley Resources, LLC stated the cost to the small operator to find and repair very small leaks on an old gathering system could be quite high.

Cumberland Valley Resources, LLC asked if adding a new well to an old system would make it an effected facility, and stated that, if so, that would preclude any further development and effectively shut down new drilling and gas production.

Gas Processors Association (GPA) noted that gas processing accounts for less than 10% of the emissions EPA is trying to control. GPA asked how EPA will ensure a cost-effective fugitive emission reduction program for processing plants. GPA further asked how EPA will ensure that compliance cost will not negatively impact small businesses.

GPA stated that an LDAR program for a small plant can run anywhere from \$15,000 to \$30,000 per year, a significant cost for small businesses.

PDC Energy, Inc asked for additional information on the scope of LDAR requirements to the upstream oil and gas sector.

PennEnergy Resources, LLC stated that any enhanced leak detection program should build in flexibility by providing multiple ways to demonstrate compliance.

PIOGA urged EPA to retain the options to demonstrate compliance in Subpart OOOO.

Western Energy Alliance urged EPA to avoid the Colorado Regulation 7 LDAR program as a national model, as it would be extremely burdensome for small operators. The frequency of inspections and reporting requirements are costly, especially for operators with remote operation that require extensive travel time. The Colorado LDAR program suffers from a lack of air quality modeling to verify program benefits, and it renders many marginally economic wells uneconomic. Losing marginal wells could risk putting many small operators out of business.

6.2.3 Summary of Comments on Pneumatic Pumps

GPA stated that gas processing plants have a very small number of pneumatic pumps and noted that there is little benefit in trying to control pneumatic pump emissions from gas processing plants. GPA said it would be very beneficial to know if EPA plans to focus on pneumatic pumps.

PDC Energy, Inc asked EPA to describe the changes to the existing pneumatic requirements.

6.2.4 Summary of Comments on Pneumatic Controllers

GPA asked if EPA is proposing switching to or requiring an instrument air system for pneumatic controllers, as these systems are extremely costly and could be cost prohibitive for small gas processing operations.

6.2.5 Summary of Comments on Compressors

GPA stated that vapor recovery systems are costly and problematic for small entities. GPA noted that a number of these facilities are in remote locations and are only used if they are absolutely necessary. GPA stated it would be helpful to know if EPA is considering vapor recovery systems as an option.

PDC Energy, Inc asked if the small compressors at wellsites will be subject to the requirements discussed in the white papers. PDC Energy, Inc asked if there are any differences between the current requirements and those for small, remote compressors.

PIOGA stated that the compressor standards discussed in the white papers are concerning because they imply that the proposed standards will be derived from larger compressors, which won't be applicable to the small reciprocating compressors some small entity producers use at their wells.

Western Energy Alliance stated that a methane control strategy for upstream oil and natural gas operations skews economic hardship towards small upstream operators. Western Energy Alliance stated that upstream compressor controls would be extremely burdensome to small operators.

6.2.6 Summary of Comments on Liquids Unloading

PDC Energy, Inc asked EPA to describe the requirements for well liquids unloading, including applicability to gas and/or oil wells and reporting and recordkeeping requirements.

6.2.7 Summary of Comments on Reporting and Recordkeeping Requirements

GPA stated that EPA's paperwork requirements should be minimal and simple as small companies do not have the extra staff to monitor complicated regulatory systems nor the budget to purchase such systems. GPA noted that most small businesses track all record keeping and compliance documents in excel spreadsheets. GPA asked what steps EPA is considering to

lessen the potential burdens (time, labor, costs) of recordkeeping and reporting to small businesses.

PennEnergy Resources, LLC stated that Pennsylvania's reporting and recordkeeping requirements are extensive, and additional requirements from the EPA are redundant, and time and resource consuming.

PennEnergy Resources, LLC asked EPA to clearly define reporting requirements.

6.2.8 Summary of Comments on Compliance

GPA stated that EPA should not charge excessive fines and should provide a way to resolve compliance issues for small businesses in a non-punitive/financial way.

PIOGA urged EPA to consider the availability of consultants and equipment to come into compliance in a timely manner.

6.2.9 Summary of Comments on Scope of the Rulemaking

Jonah Energy, LLC asked if EPA's proposal focuses on tightening standards on emission source categories that are already regulated, or categories that aren't currently covered by existing regulations. Jonah Energy, LLC asked if emission source categories that are not covered in EPA's five white papers being considered.

PennEnergy Resources, LLC and PIOGA described Pennsylvania's Exemption 38 and expressed concern about double coverage or redundant requirements. PIOGA stated that, to avoid overlap and ambiguity, the EPA needs to review and consider the requirements of each SIP to determine if additional and redundant air quality regulations at the federal level are truly required for small entity operators.

PIOGA stated that creating a new set of methane NSPS for the exploration and production segment of the industry is unnecessary and will disproportionately affect small entities, and recommended keeping the next set of regulations limited to additional VOC regulations.

PIOGA requested that EPA survey existing state requirements and minimize duplication of requirements, and allow consistency between state and federal requirements where possible.

PIOGA stated stripper wells should be categorically exempt from the proposed regulations.

PIOGA stated that the additional environmental benefit of additional regulations on small entity operators is unlikely to outweigh the economic impact on their operations.

PIOGA stated that EPA's cost/benefit analysis should use actual local prices of natural gas to determine the economic impact of new regulations on small entity operators.

Western Energy Alliance stated regulating upstream source categories at natural gas production sites will provide very little methane reduction.

6.2.10 Summary of Comments on Rulemaking Timeline

Jonah Energy, LLC asked if EPA is considering lengthening the current rulemaking timeline, noting that small businesses need ample time to budget for potential regulatory impacts.

Western Energy Alliance stated that EPA's rulemaking timeline appears overly aggressive and may not provide EPA adequate time to review SBAR input and incorporate meaningful changes into the draft rulemaking.

6.2.11 Summary of Comments on Regulatory Flexibility

Jonah Energy, LLC asked if EPA is considering off-ramp provisions for various emissions source categories to allow for less regulatory burden as well production declines.

PennEnergy Resources, LLC and PIOGA stated that a minimum threshold, such as the GHG reporting threshold, should be considered for inclusion in the rule.

6.3 Summary of June 18, 2015 Panel Outreach Meeting

The Panel Outreach Meeting was conducted as follows:

- Welcome and Introductions (Nicole Owens, EPA Office of Policy)
- Panel Process Questions (Nicole Owens, EPA Office of Policy)
- Presentation on the Proposed Emission Standards for New and Modified Sources in the Oil and Natural Gas Sector (Bruce Moore, EPA Office of Air Quality Planning and Standards)
- Questions and Discussion (All Participants)
- Summary and Closing (Nicole Owens, EPA Office of Policy)

Panel Outreach Meeting attendance:

- Alexander Cristofao, EPA Office of Policy
- Nicole Owens, EPA Office of Policy
- Jan Gilbreath, EPA Office of Policy
- Bruce Moore, EPA Office of Air Quality Planning and Standards
- Jameel Alsalam, EPA Office of Atmospheric Programs
- Lilian Harris, EPA Office of Small Business Programs
- Kevin Bromberg, Small Business Administration Office of Advocacy
- Nick Mastron, Small Business Administration Office of Advocacy
- Aaron Szabo, Office of Management and Budget
- Andrea Grossman, Office of Management and Budget
- Jim Elliott, Independent Petroleum Association of America (IPAA), PLLC
- Matt Hite, Gas Processors Association, serving as a helper
- Roy Rakiewicz, All4 Inc, serving as a helper
- Pam Lacey, American Gas Association, serving as a helper

- David Cozzie, EPA Office of Air Quality Planning and Standards (phone)
- Lisa Thompson, EPA Office of Air Quality Planning and Standards (phone)
- Tom Murphy, Unifit Service Corp. (phone)
- Julie Lang, Prism Midstream LLC (phone)
- Chuck Cornell, Jonah Energy LLC (phone)
- Rudy Vogt, Cumberland Valley Resources LLC (phone)
- Doug Mehan, PennEnergy Resources LLC (phone)
- Robert Mitchell, Carrera Gas Companies LLC (phone)
- Douglas Jones, Pennsylvania Grade Crude Oil Coalition (phone)
- Shane Kriebel, Pennsylvania Independent Oil & Gas Association (phone)
- Ryan Streams, Western Energy Alliance (phone)
- Tom Monahan, Texas Oil and Gas Association (phone)
- Doug Mehan, PennEnergy Resources LLC (phone)
- Dave Ochs, Kriebel, serving as a helper (phone)
- Jim McCarthy, Innovative Environmental Solutions, Inc., serving as a helper (phone)

Panel Outreach Meeting Summary

- Nicole Owens (EPA Office of Policy) asked if any participants had questions about the process or the presentation they were provided in advance of the meeting, “An Overview of the Small Business Advocacy Review Panel Process”.
- Bruce Moore (EPA Office of Air Quality Planning and Standards) delivered “Panel Outreach Briefing: Emissions Standards for New and Modified Sources in the Oil and Natural Gas Sector”
 - The presentation offered a description of the oil and natural gas sector, and descriptions of emissions sources in the Oil and Gas Industry, including control options, SER comments and requested input from SERs on the following EPA White Paper sources:
 - Hydraulically Fractured Oil Well Completions,
 - Fugitive Emissions at Well Sites, Gathering and Boosting Stations, and Compressor Stations,
 - Pneumatic Pumps,
 - Pneumatic Controllers, and
 - Compressors.
 - The presentation also addressed unit costs and emission reduction potential from the control options discussed.
- Questions/Comments
 - General:
 - A SER asked when the SBAR Panel was convened.
 - EPA Response: June 16, 2015
 - Hydraulically Fractured Oil Well Completions:
 - A SER expressed concern that they may experience difficulty getting equipment and consultants needed as large entities buy up equipment and consultants.

- A SER asked EPA to clarify the average duration of an oil well completion.
 - EPA Response: 3 days
 - A SER stated that they won't know the production or pressure from an oil well until they drilled, so it's hard to provide input on what an appropriate production or pressure threshold would be.
 - A SER stated they couldn't provide comment on how long a REC takes to perform because they haven't done these before.
 - Fugitive Emissions
 - Several SERs stated that EPA should consider other technologies for detecting fugitive emissions or not be prescriptive in setting regulations in order to allow flexibility as lower cost and innovative technologies become available. Further, the SERs requested flexibility in demonstrating repairs have taken place.
 - A SER stated that the cost of repairing a leak has not be adequately accounted for.
 - A SER stated that annual emissions monitoring is most beneficial as there won't be many leaks after initial survey.
 - A SER stated that the existing reporting requirements are already burdensome.
 - A SER recommended using the 6 tons per year threshold from OOOO, and another SER stated that 150 psi is a good threshold to use as no LDAR works for lines.
 - A SER stated that linking thresholds to throughput or pressure would make compliance easier.
 - Regarding reporting requirements, a SER recommended keeping data on site and not necessarily reporting, or that EPA accept the reporting already required by the State.
 - Pneumatic Pumps
 - A SER stated that there are not a lot of pneumatic pumps in the transmission segment.
 - A SER stated that there are very few emissions from pneumatic pumps as compared to other sources.
 - A SER noted that instrument air may not be available in every location.
 - Several SERs noted that they do not have existing controls (e.g., flares, combustors) at their facilities, but did have storage tanks with controls.
 - Pneumatic Controllers
 - A SER asked if the capital costs for pneumatic controller control options included the cost of retraining personnel.
 - A SER asked for clarification if the city gate transfer was included in transmission or not.
 - A SER stated that there are very few emissions from pneumatic controllers as compared to other sources.
 - Compressors
 - A SER noted that well site compressors are not permanent units, they are usually rented.

- A SER stated that a set schedule for rod-packing replacement doesn't work and condition based maintenance is more effective.
- Liquids Unloading
 - A SER stated that thief hatches are for safety and emissions cannot be safely controlled as a well is unloaded.
- Unit Reductions and Costs from Potential Control Options
 - A SER noted that most upstream compressors are reciprocating.
 - A SER stated that they may not own the gas so annualized costs that include gas savings may not be appropriate.

6.4 Summary of Written Comments and Questions from SERs

At the conclusion of the Panel Outreach Meeting, SERs were asked to submit written questions and comments to EPA. Seven entities submitted written materials to EPA. The following subsections summarize these submissions.

6.4.1 Summary of Comments on Hydraulically Fractured Oil Well Completions

IPAA stated that EPA's natural gas recovery estimate of 800-900 Mcf/year is difficult to evaluate as small entities are not required to report emissions. IPAA stated that it is unclear if emissions calculations take into account that the actual venting of gas only takes place for a fraction of the completion time. If it is not accounted for, then the reported benefit in recovered product is overstated.

IPAA stated that all vertical oil wells should be exempt from RECs because there is insufficient wellhead pressure to operate a two or three phase gas/liquid separator. These wells require and artificial lift in order to flowback the completion fluids. IPAA stated that any well that requires an artificial lift should also be exempt because there is not enough gas and sufficient pressure to operate a separator.

IPAA stated that low pressure wells should be categorically exempt and could be based on a threshold sales line/gathering line of approximately 250 psi or a simple water gradient formula of 0.465 psi/foot. The emissions associated with these types of wells are so low that even if a separator can be operated for some short period of time, the value of gas does not exceed the cost associated with bringing equipment to the site. IPAA stated that basing an exemption on volume or GOR can be more complicated because these parameters cannot be known with absolute certainty prior to drilling. Sufficiently conservative thresholds such as 15 bbl per day or a GOR of 500 scf/bbl would provide small entities some relief without risking the release of significant emissions.

PIOGA stated that stripper wells should be categorically exempted from proposed regulations. PIOGA stated that operators are able to gauge whether a given well will be a stripper well prior to drilling.

PIOGA stated that the costs for RECs on stripper wells is prohibitively expensive. PIOGA stated that in Pennsylvania, the duration of flowback where the flow is gas or oil dominant is very short (a few hours), making it nearly impossible for an operator to recoup the cost of a REC through gas sales. PIOGA stated that it will cost an operator of a stripper well \$5,000 to \$7,000 per day to effectively separate and flare gas or feed gas to a sales line.

PIOGA recommended EPA establish an overall applicability threshold based on production, emissions, well depth, formation, or revenue to limit potential impact of future regulations on small entities.

PIOGA stated that for a combustion device to work properly, the well must be equipped with much of the same equipment during completion that is required for a REC, meaning significant costs are still incurred without any benefit in terms of product preserved for sale. This equipment includes: chokes, sand traps, separators, flare units with auto ignition, pressure test and certified iron to plumb the system together, and personnel.

PIOGA stated that much of the flowback associated with stripper wells is dominated by liquid flow, making combustion generally technically infeasible.

PIOGA stated that production volume associated with unconventional shale wells are over 11 times greater than stripper wells, and so a one-size-fits-all approach is unreasonable and results in a disproportionate technical, resource, and financial burden on small operators.

PIOGA stated that stripper wells that produce less than 15 barrels of oil or 90 MCF per day should not be subject to additional regulation.

PIOGA stated that the use of RECs on stripper wells could impact their productivity. After a stripper well is hydraulically fractured, the water used to fracture the well must efficiently flow from the well at the time of flowback. Restricting the flowback through the use of a choke system will likely result in an increased amount of trapped fluid left in the reservoir. In addition, the permeability of the reservoir can be altered due to the effects of the fracturing fluids left behind in reservoirs, hindering the flow of oil and gas. If excessive amounts of fracturing fluids are trapped in the stimulated formations, it could have an adverse effect on the well's ability to produce oil and gas efficiently.

WEA recommended that EPA not use GOR for exemptions from oil well requirements because this information is not available at the pre-fracturing stage. WEA stated that it would be more effective to base exemptions on field-wide production in barrels per field or company size in revenue or number of employees, rather than GOR or well production thresholds.

WEA stated that EPA's estimate that methane is 46% of the volume of gas produced during an oil well completion is high inaccurate. WEA stated a more accurate number would be between 40-80%, with many basins producing gas that is over 60% methane. WEA stated that the remaining volume of gas is not entirely VOCs; VOC emissions are likely 10-30% of total volume.

WEA stated that small operators tend to be on the high end of completion costs, and typically conduction completions less frequently than larger operators. WEA stated a one-size-fits-all cost estimate would likely not adequately represent the cost burden faced by small operators.

6.4.2 Summary of Comments on Fugitive Emissions

Carrera Gas Companies, LLC stated that their experience is that cameras can cost more than \$80,000 per unit, and contractors charge over \$6,000 per day and are not always available. Carrera Gas Companies, LLC stated that cameras are cost prohibitive and other methods such as Method 10 or soap testing should be included as acceptable leak detection methods.

Carrera Gas Companies, LLC stated that frequency of testing should be no more than once per year.

Carrera Gas Companies, LLC stated that there should be a "standard exemption" from LDAR for small facilities, and recommend a 6 tpy fugitives threshold for inclusion in an LDAR program.

Carrera Gas Companies, LLC recommended a compliance allowance of 5 missed sources or 5% of total sources before fines are issued.

IPAA stated that LDAR does not require a quantification of the amount of natural gas leaked, so it is difficult to assess if EPA's estimate of 30-160 Mcf/year for well pads is accurate.

IPAA stated that averaging of the costs and benefits for all well pads may be misleading as a small percentage of the overall well pads may be responsible for a disproportionate share of emissions. Consequently, small entities may be expending large sums of money to meet the LDAR requirements without seeing any of the benefits.

IPAA stated that Colorado's Regulation 7 (particularly Table 20 on page 15) misses important costs including: 1) camera – the table does not include costs to train inspectors to use the camera (~\$2000) or maintenance of the camera (~\$2500 to \$3000), 2) Vehicle – the table does not include the costs of operating or maintaining the vehicle, 3) recordkeeping – the table does not include the capital costs to develop a software program to manage this recordkeeping or the costs to maintain it, 4) repair – the table does not include the costs of repairs, including additional time/labor, and 5) re-monitoring – the table does not include the cost for time and labor to fulfil the re-monitoring requirements after a repair. IPAA further noted that Colorado's Regulation 7 does not include the costs for AVO labor and time, and does not offer an exit ramp for this

requirement. IPAA strongly stated that EPA should not use Colorado's Regulation 7 as a model for its LDAR program.

IPAA stated that EPA should not be prescriptive and dictate the technology for identifying leaks. Allowing a variety of technologies spurs innovation and reduces costs.

IPAA stated that LDAR requirements are particularly burdensome to small entities as they are time consuming and may require travel to diverse geographic locations. IPAA recommended three tiers of LDAR requirements. For certain sources, there should be no LDAR requirements if there isn't a significant emission source, such as a simple well pad with no combustion devices and a storage vessel not subject to Subpart OOOO. Similarly, well pads with gathering lines or well head pressure less than 150 psi should not be subject to LDAR requirements. Similarly, a second tier should be established which applies to small entities above the 150 psi but below a daily production level.

IPAA stated that small entities should be given 180 days or more from the start of production to conduct the initial survey. Thereafter, the survey frequency should be no more than annually.

PRISM stated that EPA should consider options for Method 21 and Soap Test in addition to the IR Camera for leak detection. Providing no alternative to the IR Camera puts the small business at a disadvantage when the demand is high and supply is limited.

PRISM stated that if IR Cameras are required there should be an extension of the deadline, or a rolling grace period to allow small businesses to acquire the necessary contract services.

PRISM stated that leak detection survey frequency should be no more than once per year, with an exemption or a different monitoring frequency for remote locations and low emitting sources, much like the tank exemptions in a previous NSPS OOOO rulemaking.

TXOGA recommended that soap bubbles should be considered a viable technology for leak detection, particularly for small entities unable to bear the cost of an IR camera.

TXOGA stated that EPA should seek additional input on a comprehensive list of cost items that would be incurred by small entities when repairing a leak.

TXOGA stated that EPA should seek input on cases where cost for repair is unreasonably high and consider establishing exemptions for such cases.

TXOGA stated that EPA should seek input of establishing criteria for exempting small leaks from repair requirements.

TXOGA stated that EPA should provide flexibility for operators to make a site-specific determination if a repair is or is not appropriate.

WEA stated that EPA should not use Colorado's Regulation 7 as a national model. WEA referred to a study that determined that Colorado's LDAR program has high compliance costs that would make many marginal wells un-economic.

WEA stated that after initial leaks are found and fixed, the rate of leak frequencies drop dramatically, and so the benefits of subsequent rounds of inspection diminish greatly over time.

WEA stated that additional costs must be accounted for in an LDAR program, including reporting, cost of repair parts, cost of time to repair leaks, cost of time to resurvey leaks, cost of IR cameras and maintenance, vehicle maintenance, and cost of identifying accurate component counts.

WEA recommended EPA avoid overly-prescriptive inspection requirements and instead allow monthly or quarterly AVO inspections.

WEA recommended that EPA provide regulatory flexibility to allow for operational considerations such as waiting to repair a leak for safety or operational concerns.

6.4.3 Summary of Comments on Pneumatic Pumps

Carrera Gas Companies, LLC stated that all their piston type pneumatic pumps are used for compressor dehydration and are located in remote facilities that have unreliable or no electricity, and recommended EPA not regulate any pneumatically driven piston pumps.

Carrera Gas Companies, LLC stated that diaphragm pumps used for chemical transfer and chemical injection are used intermittently in remote locations and moved frequently. Carrera Gas Companies, LLC stated that it is virtually impossible for a small business to keep up with the hours and locations these pumps are in service, and the paperwork burden would have a large negative impact on small businesses. Carrera Gas Companies, LLC recommended that EPA not regulate any pneumatically driven diaphragm pumps.

PRISM stated that gas processing plants have a very small number of pneumatic pumps, and they are often used on an intermittent basis at remote locations, and there is very little benefit in trying to control these emissions.

PRISM stated that pneumatic pumps are also used for chemical injection, and these pumps are very low volume. PRISM stated that EPA should consider an exemption for pneumatic pumps used periodically or are low volume pumps.

PRISM stated that pneumatic pumps are often used in a remote location with no existing infrastructure so an exemption for remote location would be appropriate.

PRISM stated that combustion controls should only be required if a control is required for another source. Emissions from pneumatic pumps alone cannot justify the installation of a flare.

TXOGA stated that gas driven pneumatic diaphragm pumps are used on an intermittent basis in remote locations, and recommended EPA request comment on an exemption for pumps used only periodically.

TXOGA recommended that EPA should not propose to regulate low volume chemical injection pumps but should instead solicit comment on control options and cost effectiveness that apply to low volume chemical injection pumps versus larger diaphragm pumps. TXOGA stated that EPA would receive data showing it would not be practical to route chemical injection pumps to a control device and perhaps costly to potentially require a solar option for a large diaphragm pumps.

TXOGA stated that combustion controls should only be required if a control is required for another source.

TXOGA stated that glycol recirculation pumps for glycol dehydrators should be exempted from any pneumatic pump requirements, as emissions route through the still vent which is regulated under Subpart HH.

WEA stated that EPA's costs do not account for the cost of time to repair. WEA stated that controls for gas pneumatics would not be cost-effective based on the volumes of emissions recovered.

WEA stated instrument air is not a practical substitute for gas pneumatics because of remote locations and lack of power at many upstream locations.

6.4.4 Summary of Comments on Pneumatic Controllers

Unitil stated that EPA should not add requirements for low bleed pneumatic controllers for the transmission and storage segments because emissions from this source are over estimated.

6.4.5 Summary of Comments on Compressors

PIOGA stated that EPA should maintain the exemptions for wellsite compressors.

TXOGA stated that many well site compressors are rental units and have irregular service time. Managing rod packing replacement schedules will be complicated as maintenance is usually done by the rental vendor and not the operator. It will be difficult to track operating hours between rod packing replacement as compressors move site to site. TXOGA recommends EPA exempt well site compressors that are on site less than 12 months.

TXOGA stated that EPA should not regulate reciprocating compressors at well sites as it would be cost prohibitive.

TXOGA and Unitil stated that a 'small compressor' might be defined as a small engine threshold of <500 hp for engines in Subpart ZZZZ.

TXOGA stated that not all engines have compressor packing, and thus those engines cannot comply with Subpart OOOO. TXOGA recommended that EPA request comment on appropriate exemptions for certain compressor designs.

Unitil stated that EPA should consider ‘condition based maintenance’ since other compressor cylinder issues could be responsible for an excessive leak. Flexibility to use condition based maintenance is warranted because rod packing performance may be acceptable when the prescribed time interval elapses. This approach avoids unnecessary costs and down time to replace packing that is still functional. A condition based maintenance program allows operators to address underlying causes in a cost-effective manner. Unitil stated that EPA could also include incentives to use low emission rod packing.

Unitil stated that replacing wet seals with dry seals is cost prohibitive, and recovering and reusing or flaring the vent stream would also add significant costs. Unitil stated that EPA should analyze the implications for an existing centrifugal compressor with wet seals that triggers Subpart OOOO applicability through a modification or reconstruction.

Unitil stated that EPA should be aware that gas recovery could create safety concerns.

WEA recommended that the exemption for wellsite compressors remain unchanged.

6.4.6 Summary of Comments on Reporting and Recordkeeping Requirements

Carrera Gas Companies, LLC stated that small businesses do not have the ability to economically maintain a large amount of records.

IPAA stated that the recordkeeping should be limited to relevant information such as the site location, type of component, date of repair and method of repair. Tagging should be limited to only those leaking components not repaired during the survey. As indicated the reporting should be limited to annual reporting and should not duplicate state level reporting requirements and every effort should be made to deem state level reporting sufficient. Whenever possible, sources should simply be required to keep the necessary documents and be able to produce them upon request. In many instances, annual reporting is unnecessary and simply adds to the regulatory burden. To the extent annual reporting is deemed necessary, it should be limited in nature and simplified, e.g., number of new sites initially monitored within reporting period; total number of sites monitored; number of leaks repaired (excluding those repaired during survey); and number of leaks not repaired and the reason for the delay.

PRISM stated that EPA should keep recordkeeping and reporting associated with the fugitives program as straightforward and brief as possible, particularly because small entities have limited personnel with multiple responsibilities.

6.4.7 Summary of Comments on Compliance

PIOGA stated that it was difficult for small entities to comply or even to determine if they were in compliance with OOOO. Shortages of equipment and consultants to come into compliance in a timely manner disproportionately affected small entities.

6.4.8 Summary of Comments on Scope of the Rulemaking

IPAA recommended that the EPA regulate VOCs from the exploration and production segment and claim methane reductions as co-benefit. The technologies that reduce VOCs are the same for methane.

IPAA stated that EPA has not considered the cost associated with the inevitable regulation of existing oil and natural gas exploration and production sources under 111(d). IPAA stated that it is not a question of “if” but “when” and ignoring the cost to small entities is inappropriate.

PIOGA stated that creating an entirely new set of methane NSPS for the exploration and production segment is unnecessary and will disproportionately affect small entities.

PIOGA recommended that the cost/benefit analysis of any proposed new regulations take the actual local prices of natural gas into account in the analyses when determining the economic impact and environmental benefit of such rules on small entity operators.

PIOGA recommended that EPA review and consider the requirements of each SIP to determine if additional and redundant air quality regulations at the federal level are truly required for small business operators.

TXOGA stated that EPA must make a source category specific endangerment finding prior to regulating a given source category under Section 111 for each pollutant.

TXOGA stated that the scope of the current source category does not include natural gas transmission and storage sources. The original source category in 1979 was ‘crude oil and natural gas production’, and EPA only analyzed contribution and endangerment of human health and the environment from production and gas processing facilities. EPA did not make a determination on natural gas transmission in the initial source category listing or subsequent standards, so it should be a separate source category.

TXOGA stated that transmission has a fundamentally different profile of potential emissions and controls than oil and gas production and processing.

Unitil stated that they are pleased to see that the EPA is not proposing standards on natural gas distribution systems. Unitil stated that there is a downward trend in methane emissions from the distribution sector based on voluntary process improvements and pipe replacement programs.

WEA stated that upstream methane control strategies are not cost-effective, and skews the economic hardship toward small upstream operators. WEA cited a UT Austin study that says

methane emitted from all upstream source categories at natural gas production sites represents just 0.42% of gross natural gas production volumes.

6.4.9 Summary of Comments on Rulemaking Timeline

Several SERs expressed concern that the rulemaking timeline allowed EPA to sufficiently consider SERs comments on the proposed rule.

TXOGA stated that a 60 day comment period is insufficient for small entities to review and comment on complex environmental regulations, particularly if more than one rule is being simultaneously proposed. TXOGA stated that 90-120 days would be a far more reasonable comment period.

7. PANEL FINDINGS AND DISCUSSIONS⁴

7.1 Number and Types of Entities Affected

For a complete description of the small entities to which the proposed rules may apply, see Sections 3 and 4 of this document.

7.2 Potential Reporting, Recordkeeping, and Compliance Requirements

The potential reporting, recordkeeping, and compliance requirements are still under development. However, the Panel anticipates that the requirements will be the minimum required by the statute to ensure compliance with the new source performance standards. Compliance testing should be in accordance with EPA or other approved methods. Reporting and recordkeeping requirements should be streamlined if practicable.

7.3 Related Federal Rules

See Section 2.4 of this document for a discussion of related federal rules.

7.4 Regulatory Flexibility Alternatives

The Panel agrees that the EPA should explore regulatory alternatives and provide flexibility where appropriate. This flexibility can lessen impacts to small entities as well as entities not classified as small.

⁴ The Panel members and this Panel Report are informed by the materials prepared for the SERs, the SER oral and written comments, and materials provided by EPA in the Executive Order review of the draft proposed NSPS rule.

7.4.1 Oil Well Exemptions

SERs encouraged the EPA to exempt stripper wells, low pressure oil wells, and any well that requires artificial lift. SERs recommended that the EPA establish an overall applicability threshold based on production, emissions, well depth, well type (horizontal), well pressure, formation, or revenue to limit potential impact of future regulations on small entities.

The SERs offered several threshold alternatives to be applied to the oil well completion requirements which would significantly reduce compliance costs and burden to small entities that the SERs asserted would not affect gas recovery benefits. Some of these comments are described below. Advocacy believes the EPA had a greater opportunity to advance the discussion by evaluating these alternatives through analysis of the available data. Advocacy further believes that there is enough information to conduct analysis of alternatives now. Advocacy notes that there are several types of thresholds that could be explored by the EPA, such as average production of nearby wells (by oil field, reservoir, or basin), well length or depth, and gas and water pressure characteristics. Advocacy encourages the EPA to do so in the future, in advance of proposal, to facilitate more informed and productive comments from the public which will lead to a better rulemaking.

The EPA has production and well characteristic data on thousands of oil wells through DrillingInfo, which aggregates all well data in the U.S. reported by operators to state agencies. In this database, the EPA could develop thresholds to target geographical areas or well characteristics with greater gas recovery potential than areas or characteristics where costs imposed would achieve little to no benefit. Advocacy believes the EPA should examine the data in DrillingInfo and the studies identified in the White paper for potential alternatives that minimize small entity costs, while achieving significant methane emission benefits. For example, Advocacy performed its own preliminary analysis of the DrillingInfo data, which led us to recommend a production threshold (see below). Advocacy believes the EPA also should consider the peer review and public comments on the white paper and reassess the size and diversity of the oil well completions in a more comprehensive fashion. Advocacy believes the EPA should have provided additional analysis since the publication of the white paper.

The EPA believes that it has reasonably analyzed the available data for this draft proposed rule, and sufficiently documented this analysis through the rule, the technical support document (TSD), and the SBREFA process. However, the EPA notes information gaps and has requested additional data and information through the public comment process.

Gas to Oil Ratio

Advocacy is concerned that the EPA estimate of ten tons of methane reduction per event for oil well completions may be significantly overestimated, based on its analysis of the 2012 Drilling Info database and SER comments. The 2012 analysis includes hydraulically fractured oil well completions with GORs between 300 and 100,000, whereas the 2011 analysis was limited to GORs up to 12,500.

The Panel recommends that the EPA continue analyzing current data, and assess the alternatives mentioned by SERs. In an effort to contribute to the panel process, Advocacy analyzed the EPA

data provided. Advocacy found that geographical patterns and well characteristics exist in the data to suggest common sense thresholds. While a 300 gas to oil ratio (GOR) threshold provides some relief for small entities, it is problematic because GOR is not known at time of fracturing when a completion takes place. Advocacy further recommends that the EPA develop a scheme based on the well characteristics of nearby wells in the basin or reservoir to provide an estimate for the GOR parameter. However, the location of the well, and the drill direction are known parameters that could be used. In concert with these other considerations, Advocacy recommends the EPA consider a GOR cutoff closer to 900, as one SER suggested.

The EPA believes that a gas-to-oil ratio (GOR) of 300 scf of gas per barrel of oil produced is an appropriate threshold for facilities to be subject to the well completion provisions of the NSPS. The reason for the proposed threshold GOR of 300 is that separators typically do not operate at a GOR less than 300, which is based on industry experience rather than a vetted technical specification for separator performance⁵. Though, in theory, any amount of free gas could be separated from the liquid, the reality is that this is not practical given the design and operating parameters of separation units operating in the field. The EPA is soliciting comment on whether a GOR of 300 is the appropriate applicability threshold. Additionally, the EPA understands that GOR is not known at the time of well completion, and is soliciting comment on whether the GOR of nearby wells would be a reliable indicator in determining the GOR of a new or modified well.

Low Production Wells

When mapping average daily associated gas of 90 Mcf or above (isolating stripper wells) using county level data, Advocacy found that most (85%) of these greater gas recovery oil well completions occur in about a third of the counties analyzed. Advocacy contends that there are potentially large areas that could be exempted from this requirement without forgoing significant methane emission reduction, or at least phased in to allow time to design proper data collection. For example, PIOGA comments report an average gas volume of only 74 MCFD in Pennsylvania stripper oil wells in contrast to Pennsylvania stripper gas wells averaging 532 MCFD.

The EPA understands that low production wells have inherently low emissions from well completions and many are owned and operated by small businesses. However, the EPA recognizes that identification of these wells prior to completion events is difficult, especially considering that drilling of a low production well may be unintentional and may be infrequent, but production may nevertheless proceed due to economic reasons. The EPA is soliciting comment and information on emissions associated with low production wells, characteristics of these wells and supporting information that would help owners/operators and enforcement personnel identify these wells prior to completion.

Because of these preliminary findings about low production and a lack of evidence that there will be sufficient gas recovery, the Panel recommends that the EPA further analyze and consider

⁵ On February 24, 2015, API submitted a comment to the EPA stating that oil wells with GOR values less than 300 do not have sufficient gas to operate a separator.

exempting low production wells (with an average daily production of less than 15 barrel equivalents) from a REC or combustion requirement during oil well completions.

Vertical Wells

According to a SER comment, vertical wells lack sufficient wellhead pressure or quantity of gas to be separated during completion. Advocacy recommends that since the white papers laid the foundation to the materials prepared for the Panel, the EPA should revisit the information learned through this process, especially as it relates to the specific characteristics of vertical wells. Therefore, as a regulatory alternative, Advocacy recommends the EPA consider exempting vertical wells from oil well completion requirements. .

The EPA clarifies that both the 2014 white paper analysis of oil well completions and DrillingInfo data analysis include vertical wells that are hydraulically fractured. However, the EPA understands that there are certain physical well characteristics that may inhibit the operation of a separator, and notes that the rule does not require RECs where their use is not feasible. However, the EPA has not seen sufficient data to support the characterization that a separator will not be able to function for all or the majority of vertical wells that are hydraulically fractured. However, the EPA recommends soliciting comment on the types of oil wells that will not be capable of performing a REC or combusting completion emissions due to technical considerations such as low pressure or low gas content, or other physical characteristics such as location, well depth, length of hydraulic fracturing, or drilling direction (e.g., horizontal, vertical, directional).

Low Pressure Oil Wells

Advocacy recommends that “low pressure wells” should be categorically exempt and could be based on a threshold sales line/gathering line of approximately 250 psi or a simple water gradient formula of 0.465 psi/foot. The emissions associated with these types of wells are so low that even if a separator can be operated for some short period of time, the value of gas does not exceed the cost associated with bringing equipment to the site. As the SERs indicated, these oil completion requirements can be very costly on small firms, particularly with respect to small production wells. The expected gas recovery benefits from oil well completions are expected to be a small fraction of the benefits obtained by the gas wells under the current version of the NSPS rule.

The EPA is aware that oil wells cannot perform a REC if there is not sufficient well pressure or gas content during the well completion to operate the surface equipment required for a REC. In the 2012 NSPS the EPA did not require low pressure gas wells to perform REC, but operators were required to control those well completions using combustion. However, the EPA recommends soliciting comment on the types of oil wells that will not be capable of performing a REC or combusting completion emissions due to technical considerations such as low pressure or low gas content, or other physical characteristics such as location, well depth, length of hydraulic fracturing, or drilling direction (e.g., horizontal, vertical, directional). The EPA defines low pressure wells as a well with reservoir pressure and true vertical well depth such that $0.445 \times \text{reservoir pressure (in psia)} - 0.038 \times \text{vertical well depth (in feet)} - 67.578 \text{ psia}$ is less than the flow line pressure at the sales meter. The EPA recommends soliciting comment on whether this definition is appropriate for low pressure oil wells.

Substitution of Combustion over Green Completion / REC Requirements

Advocacy recommends that the EPA substitute flaring for the green completion requirement (REC), in addition to the consideration of thresholds. This alternative is much more cost-effective, and particularly important for small firms to have a lower cost alternative that achieves a 95% reduction. The PIOGA comments also stated that the use of RECs would adversely impact the productivity and longevity of the stripper oil wells. Alternatively, the EPA could require larger firms to perform the RECs, while allowing smaller firms (using a firm revenue cutoff or other small business size indicator) to combust the remaining gas.

The EPA recommends that RECs be implemented on oil wells, except where their use is not feasible (e.g., technically infeasible for a separator to function, availability of gathering lines). Compared to combustion alone, the EPA believes that the combination of REC and combustion will maximize the recovery of natural resources and minimize venting to the atmosphere. However, the EPA notes that although the flaring in lieu of RECs may be less costly, flaring contributes secondary environmental impacts, nuisance impacts to nearby communities and complicates compliance for owners/operators.

Phase – In for Oil Well Completion Requirements

The Panel recommends that the EPA consider phasing in the well completion requirement over a period of years. The Panel agrees that the EPA solicit comment on whether the well completion provisions of the proposed rule can be implemented on the effective date of the rule in the event of potential shortage of REC equipment and, if not, how a phase in could be structured. The Panel agrees that a phased in approach could be structured to provide for control of the potentially highest emitting wells first, with other wells being included at a later date. The Panel recommends that the EPA solicit comment on whether GOR of the well and production level of the well should be bases for the phasing of requirements for RECs, and if so, what an appropriate threshold for phase-in should be.

7.4.2 Fugitives - Leak Detection Methods

SERs encouraged the EPA to allow a variety of leak detection technologies, including Method 21, AVO, and soap testing. The EPA asserts that use of OGI can reduce the amount of time necessary to conduct fugitive emissions monitoring since multiple fugitive emissions components can be surveyed simultaneously, reducing the cost of identifying fugitive emissions compared to alternative leak detection technologies that require a manual screening of each fugitive emissions component. Advocacy recommends the EPA propose Method 21 or OGI as allowable alternatives. The EPA contends that while Method 21 is lacking because it does not allow the detection of malfunctioning equipment that may not be the focus of the survey, and it is not as cost-effective as OGI, the Panel recommends the EPA solicits comment on whether to allow EPA Method 21 as an alternative to OGI for monitoring, including the appropriate EPA Method 21 level repair threshold. The EPA notes that the proposed rule would allow the use

either OGI or Method 21 for resurvey because the resurvey would focus solely on ensuring repairs resolved the leak at the individual component.

7.4.3 Fugitives – Survey Frequency

SERs recommended leak surveys be conducted no more than once per year. Advocacy has questions about the costs of repair and the emission reductions that be achieved through increased survey frequency which Advocacy believes the EPA was unable to address satisfactorily. Advocacy urges the EPA to improve the record basis for its emission reduction estimates and the cost of repairs for Method 21 and OGI, in order to permit more informed comment on the alternatives. Advocacy believes the EPA was unable to adequately explain the basis for the different repair costs vs. frequency for Method 21 and OGI⁶, or the basis for the 40/60/80% emission reductions based on increasing survey frequency from annual to quarterly.⁷

The EPA determined that semiannual monitoring will result in identification and repair of significant fugitive emissions from components, and that using OGI, an operator can survey multiple fugitive emissions components simultaneously reducing the cost of identifying fugitive emissions. Additionally, if fugitive emissions are detected at less than one percent of the fugitive emission components at a well site during two consecutive semiannual monitoring surveys, the proposed rule allows for the monitoring survey frequency for that well site to be reduced to annually. Advocacy had no information upon which to base a recommendation related to the proportion of leaking components, but supports analysis of such an approach. Advocacy also recommends that the EPA provide more analysis and factual foundation for the record to allow commenters to provide more informed advice.

The Panel agrees that the EPA should solicit comment on an alternate proposal option based on an initial annual survey frequency. The Panel recommends the EPA solicit comment on the appropriateness of semiannual monitoring frequency and the proposed provisions for increasing and decreasing the monitoring frequency.

7.4.4 – Fugitive Emissions at Well Sites

The Panel recommends not requiring fugitive emission surveys at well production sites, unless there are potentially significant sources of emissions, such as storage tanks. The Panel further

⁶At this time, the EPA shows annual repair costs that increase linearly with survey frequency for OGI, but are static for Method 21. For Method 21, the EPA applied the same repair costs whether the frequency was annual, semiannual or quarterly. For OGI, EPA used double the repair costs for semiannual, and four times the repair costs for quarterly. Advocacy believes this could lead to a bias in an evaluation of one method vs. the other.

⁷Advocacy was also disappointed that EPA was unable to share with the SERs more information that would have help the SERs formulate their recommendations (including some of the issues addressed above). The EPA believes the background documents created for the SERs were thorough and accurate, and transparently presented the data and data sources used in the analysis for the proposed rule. The documents are additionally available for public review in the docket for the proposed rule.

agrees that well sites with low production wells (i.e., a well with an average daily production of 15 barrel equivalents or less) should not require fugitive emission surveys.

7.4.5 Fugitive Emissions at Production and Processing Sites, and Compressor Stations at Transmission and Storage Sites

Under Subpart W, gas production and processing sites and compressor stations at transmission and storage sites are required to annually monitor for fugitive emissions and to quantify such emissions. The only missing regulatory component to be considered is to add a requirement to repair detected leaks as appropriate. This is already covered by the May 2015 INGAA Directed Inspection and Maintenance voluntary Program for Transmission and Storage Compressor Stations. The EPA is already considering this program⁸ in its recent request for comment on the voluntary methane reduction program for the oil and gas sector. Advocacy recommends that the EPA retain the annual requirement, as Advocacy believes this requirement is entirely duplicative of a fugitives survey requirement, and consider the specific repair requirements for repair identification and repair delay in the DI&M voluntary program as the components of a mandatory program. Furthermore, the EPA's most recent evaluation of the survey cost-effectiveness shows that annual surveys are more cost-effective than semi-annual surveys. Therefore, the Panel recommends the EPA propose options based on semi-annual and annual monitoring. Advocacy recommends that the EPA should also consider allowing each facility to tailor the specific program to site-specific considerations, rather than apply the same requirements uniformly to each plant. The EPA recognizes that Subpart W serves as an emissions inventory, while this rule's intent is to minimize pollution. The EPA believes that the additional survey with semiannual OGI monitoring provides additional leak detection, and cost-effective emission reductions. The EPA recognizes that fugitive emissions may be underestimated based on emerging studies and will continue to evaluate these studies. The Panel recommends the EPA propose an alternate option based on an initial annual frequency for well sites. The Panel recommends that the EPA continue to consider the INGAA DI&M recommendations for leak repairs in the rulemaking.

7.4.6 Well Site Compressors

SERs encouraged the EPA to exempt well site compressors as they are typically rental units and have irregular service time, and regulation could be cost prohibitive. The Panel agrees that emissions from well site compressors were extremely low and that cost of control of these compressors would not be reasonable. The Panel recommends that the EPA maintain the exemption for well site compressors.

⁸ US EPA. Natural Gas STAR Methane Challenge Program: Proposed Framework, slide 17 states, "EPA has received, and is considering, a proposal to structure BMP coverage of natural gas transmission and storage compressor stations as a Directed Inspection and Maintenance Program."

7.4.7 Pneumatic Pumps

SERs encouraged the EPA to exempt pneumatic pumps if controls were not already in place. The Panel agrees that combustion controls should only be required if a control is required for another source. The Panel recommends the EPA exempt pneumatic pumps without a control device already located on site.

7.4.8 Reciprocating Compressors

The Panel supports the EPA proposal to require replacement of rod packing every 26,000 hours or 3 years in lieu of monitoring hours. The Panel also supports the further consideration of the alternative developed in the Natural Gas Star Program for condition-based maintenance. Advocacy recommends the EPA should carefully study the INGAA recommendations for condition-based maintenance for rod packing as an alternative to maintaining or replacing rod packing on a prescribed schedule.⁹

The EPA recommends that the draft proposed rule retain the rod packing replacement options and the option to route the rod packing emissions to a process through a closed vent system under negative pressure.

7.4.9 Centrifugal Compressors

Advocacy recommends that the EPA reconsider the requirement of requiring capture and combustion of gas emissions from wet seal compressors whose emissions don't differ that much from dry seal compressors, according to INGAA. Advocacy is concerned that requiring combustion at compressor stations would prove to be unpopular with the surrounding neighborhood. This requirement would convert an otherwise unobtrusive structure in the neighborhood into a constant source of combustion and a source of air pollution.

The EPA recommends retaining the requirement for a 95% emissions reduction from wet seal compressors, which can be achieved by capturing and routing the emissions utilizing a cover and closed vent system to a control device, or routing the captured emissions to a process. The EPA notes that dry seal compressors are not affected facilities in the draft proposed rule because of their inherently low emissions. The EPA also notes that many of these combustors are enclosed and will be innocuous to the surrounding neighborhood. In addition, the gas liberated from the barrier fluid during degassing is very clean natural gas, and the combustor is required under the NSPS to burn cleanly with no visible emissions.

7.4.10 Pneumatic Controllers

The Panel agrees with the EPA's recommendation that low-bleed pneumatic controllers be required in place of high-bleed controllers (i.e., natural gas bleed rate not to exceed 6 scfh). The Panel recommends the rule continue to treat low-bleed pneumatic controllers as not affected

⁹ See INGAA comment on 40 CFR 60 Part OOOO. EPA-HQ-OAR-2010-0505-4104

facilities except at natural gas processing plants, where zero bleed pneumatic controllers are considered BSER.

7.4.11 Recordkeeping and Reporting for High Bleed Controllers

The EPA recommends that owners and operators continue to be permitted to use high bleed controllers needed for specific functional purposes, but require recordkeeping to document the justification. The Panel agrees that recordkeeping and reporting requirements should be minimized wherever possible. However, the Panel notes that a recordkeeping and reporting requirement that asks companies to justify and document their need for continuous high bleed devices has caused many companies to reevaluate their need for and change out unnecessary high bleed pneumatic controllers.

7.4.12 Liquids Unloading

Based on the information and data available to the EPA during development of the 2012 NSPS, the Panel agrees that control of liquids unloading emissions is not appropriate at this time. However, the EPA believes that the emissions from liquids unloading operations are significant, and so the Panel recommends that the EPA continue to study this issue and solicit information and data supporting demonstrated control technologies or management practices for reducing these emissions.

APPENDIX A: List of Materials EPA shared with Small Entity Representatives

For Outreach held May 19, 2015

- Pre-Panel Outreach Meeting Agenda
- Slideshow: “An Overview of the Small Business Advocacy Review Panel Process”
- Slideshow: “Pre-Panel Outreach Briefing: Emissions Standards for New and Modified Sources in the Oil and Natural Gas Sector”
- List of Potential Small Entity Representatives - Emission Standards for New and Modified Sources in the Oil and Natural Gas Sector
- EPA Oil and Natural Gas White Papers Abridged Summary

For Outreach held June 18, 2015

- Panel Outreach Meeting Agenda
- Slideshow: “A Refresher on the Small Business Advocacy Review Panel Process”
- Slideshow: “Panel Outreach Briefing: Emissions Standards for New and Modified Sources in the Oil and Natural Gas Sector”
- EPA Emission Standards for New and Modified Sources in the Oil and Natural Gas Sector Supplemental Information

Supplemental Information provided on June 24, 2015

- EPA Emission Standards for New and Modified Sources in the Oil and Natural Gas Sector Supplemental Information – Slide 20 Data and Assumptions

APPENDIX B: Written Comments Submitted by Small Entity Representatives

Appendix B is a compilation of documents containing all written comments received from SERs.