Message

From: Mike Sommers [registrar@api.org]
Sent: 12/13/2018 3:42:51 PM
To: Bolen, Brittany [bolen.brittany@epa.gov]
Subject: You're Invited to API's State of American Energy 2019

The American Petroleum Institute invites you to

The 2019 State of American Energy luncheon – celebrating Generation Energy

We are in the midst of Generation Energy. More natural gas and oil is produced in the United States than any other country in the world. At the same time, U.S. carbon dioxide emissions are at their lowest levels in a generation, largely because of the growing role played by clean natural gas. Our industry is an economic engine, supporting 10.3 million jobs – to produce, deliver and refine natural gas and oil – as well as jobs associated with energy development and the personal spending of our workers.

Guided by smart policies and regulations that unleash innovation and progress, natural gas and oil are playing a powerful role in America's economic progress and will for generations to come.

Join me and industry leaders from coast to coast at the 2019 State of American Energy luncheon.

Sincerely,

MIKE SOMMERS
President and CEO, API

RSVP

BY DECEMBER 31st
This invitation is non-transferable.

WHEN

TUESDAY, JANUARY 8, 2019
11:30 A.M.– 1:30 P.M.

WHERE

RONALD REAGAN BUILDING AND INTERNATIONAL TRADE CENTER
ATRIUM BALLROOM
1300 PENNSYLVANIA AVENUE, NW
WASHINGTON, DC 20004
Please use entrance on 14th Street

This event has been designed to comply with the gifts and ethics rules of the U.S. Senate and House of Representatives as a "widely attended event." Employees of the executive branch may wish to consult their Designated Agency Ethics Official about any rules that may apply to their attendance at this event.

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Message

From: Mike Sommers [registrar@api.org]
Sent: 12/3/2018 3:47:04 PM
To: Bolen, Brittany [bolen.brittany@epa.gov]
Subject: You're Invited to API's State of American Energy 2019

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Message

From: Mike Sommers [registrar@api.org]
Sent: 1/8/2019 5:03:20 PM
To: Bolen, Brittany [bolen.brittany@epa.gov]
Subject: Live Now: 2019 State of American Energy

Watch Live: The State of American Energy

If you were unable to attend API's State of American Energy 2019 event today, you don't have to miss it! Simply watch the event live.

We encourage you to join the conversation on Twitter using #SOAE2019.

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Message

From: Mike Sommers [registrar@api.org]
Sent: 12/19/2018 3:29:04 PM
To: Bolen, Brittany [bolen.brittany@epa.gov]
Subject: You're Invited to API's State of American Energy 2019

The American Petroleum Institute invites you to

The 2019 State of American Energy luncheon – celebrating Generation Energy

We are in the midst of Generation Energy. More natural gas and oil is produced in the United States than any other country in the world. At the same time, U.S. carbon dioxide emissions are at their lowest levels in a generation, largely because of the growing role played by clean natural gas. Our industry is an economic engine, supporting 10.3 million jobs – to produce, deliver and refine natural gas and oil – as well as jobs associated with energy development and the personal spending of our workers.

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WHERE

RONALD REAGAN BUILDING AND INTERNATIONAL TRADE CENTER
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WASHINGTON, DC 20004
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energy API | POWER PAST IMPOSSIBLE.ORG

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Message

From: Mike Sommers [registrar@api.org]
Sent: 11/27/2018 4:11:47 PM
To: Bolen, Brittany [bolen.brittany@epa.gov]
Subject: You're Invited to API's State of American Energy 2019

The American Petroleum Institute invites you to

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President and CEO, API

RSVP

BY DECEMBER 31st
This invitation is non-transferable.

RSVP HERE

REGISTRAR@API.ORG

WHEN

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11:30 A.M.– 1:30 P.M.

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Message

From: Mike Sommers [registrar@api.org]
Sent: 12/10/2018 2:43:22 PM
To: Bolen, Brittany [bolen.brittany@epa.gov]
Subject: You're Invited to API's State of American Energy 2019

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WASHINGTON, DC 20004
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Message

From: Mike Sommers [registrar@api.org]
Sent: 12/17/2018 3:40:06 PM
To: Bolen, Brittany [bolen.brittany@epa.gov]
Subject: You're Invited to API's State of American Energy 2019

The American Petroleum Institute invites you to

The 2019 State of American Energy luncheon – celebrating Generation Energy

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Message

From: Mike Sommers [registrar@api.org]
Sent: 12/27/2018 3:32:29 PM
To: Bolen, Brittany [bolen.brittany@epa.gov]
Subject: Last Chance to Register for The State of American Energy

The American Petroleum Institute invites you to
The 2019 State of American Energy luncheon – a celebration of Generation Energy

December 31, 2018 is the last chance to register for API's 2019 State of American Energy luncheon on **Tuesday, January 8, 2019** from 11:30 A.M.-1:30 P.M. Please RSVP at Registrar@api.org if you have any questions.

Sincerely,

MIKE SOMMERS,
President and CEO, API

This event has been designed to comply with the gifts and ethics rules of the U.S. Senate and House of Representatives as a "widely attended event." Employees of the executive branch may wish to consult their Designated Agency Ethics Official about any rules that may apply to their attendance at this event.

If you do not want to receive future emails from Mike Sommers, go to: Opt-Out

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Appointment

From: Dravis, Samantha [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=ECE53F0610054E669D9DFFE0B3A842DF-DRAVIS, SAM]
Sent: 1/15/2018 9:14:04 PM
To: 'moffetth@api.org' [moffetth@api.org]; Jackson, Ryan [jackson.ryan@epa.gov]; Brown, Byron [brown.byron@epa.gov]; Willis, Sharnett [Willis.Sharnett@epa.gov]
CC: Inge, Carolyn [Inge.Carolyn@epa.gov]; Irving, Verna [Irving.Verna@epa.gov]; Kime, Robin [Kime.Robin@epa.gov]; Germann, Sandy [Germann.Sandy@epa.gov]
BCC: DCRoomARN3500/OPEI [DCRoomARN3500@epa.gov]

Subject: Meeting with API
Location: 3530 WJCN

Start: 3/7/2017 4:00:00 PM
End: 3/7/2017 4:45:00 PM
Show Time As: Tentative

Message

From: Jack Gerard [registrar@api.org]
Sent: 12/14/2017 4:02:13 PM
To: Dravis, Samantha [dravis.samantha@epa.gov]
Subject: You're Invited to API's State of American Energy 2018

STATE OF AMERICAN ENERGY 2018 | HOW NATURAL GAS & OIL ARE POWERING PAST IMPOSSIBLE

Please join us for the American Petroleum Institute's 2018 State of American Energy luncheon. As the midterm election year begins we will remind lawmakers, policymakers and the public that America's domestic energy abundance is helping to meet the ever-growing demand for energy, but also how those same resources are the building blocks for many of the products that make our modern society safer, advance the medical arts, and spur creativity and scientific innovation through our Power Past Impossible advertising campaign.

From energy that keeps our homes, offices, and schools lit and warm, to the modern fuels that not only power our vehicles but also help to improve our environment, to the modern pharmaceuticals that improve the health and well-being of millions. Power Past Impossible makes the connection between natural gas, oil and their derived products and their fundamental role in our society, which is essential to positively advance the national energy policy discussion.

Sincerely,

RSVP
BY DECEMBER 22ND

This invitation is non-transferable.

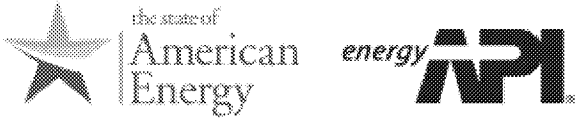
YES | NO

When
TUESDAY, JANUARY 9, 2018
11:30 A.M.-1:00 P.M.

Where
Ronald Reagan Building and
International Trade Center
Atrium Ballroom
1300 Pennsylvania Avenue, NW
Washington, DC 20004

Please use entrance on 14th Street

JACK N. GERARD
President and CEO, API



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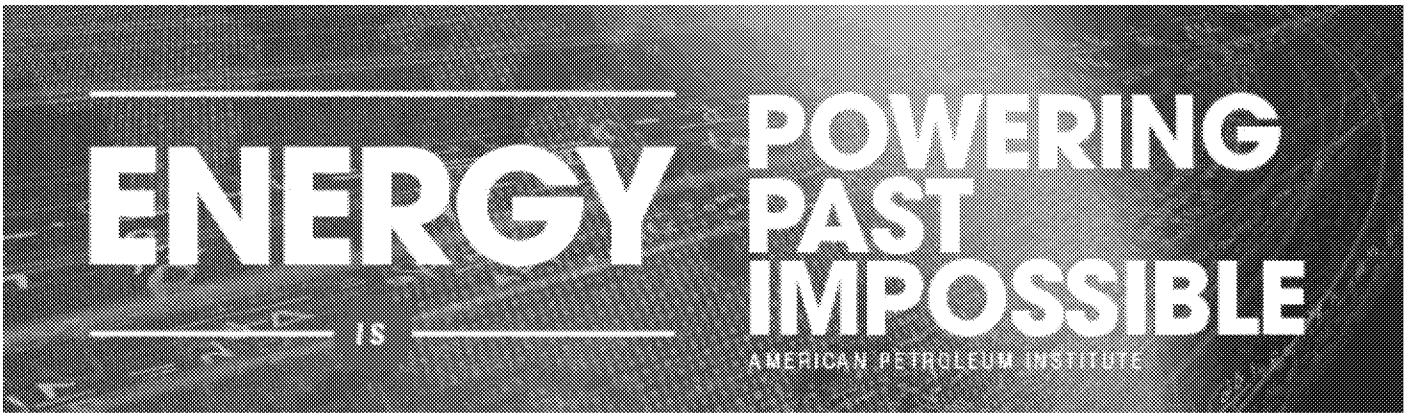
cvent

Message

From: Jack Gerard [registrar@api.org]
Sent: 12/11/2017 4:02:15 PM
To: Dravis, Samantha [dravis.samantha@epa.gov]
Subject: You're Invited to API's State of American Energy 2018



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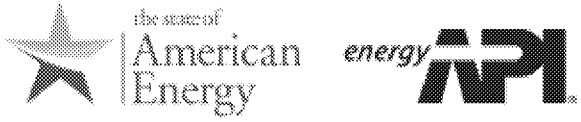
JACK N. GERARD
President and CEO, API



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Message

From: Brent Fewell [brent.fewell@earthandwatergroup.com]
Sent: 7/1/2018 1:30:37 PM
To: 'Adam Kieper [akeiper@thenewatlantis.com]; Adam Kolton (adam@alaskawild.org) [adam@alaskawild.org]; 'Adam Krantz [akrantz@nacwa.org]; Adam Kushner (adam.kushner@hoganlovells.com) [adam.kushner@hoganlovells.com]; 'Adam White [ajwhite@stanford.edu]; 'Alex A. Beehler [Ex. 6 Personal Privacy (PP)]; 'Alex Echols [echols@conrod.com]; 'Alex Hanafi [ahanafi@edf.org]; Allen Freemyer (afreemyer@leesmithpc.com) [afreemyer@leesmithpc.com]; 'Andrew R. Wheeler Esq. [andrew.wheeler@FaegreBD.com]; 'Angela Logomasini [alogomasini@cei.org]; aschulman@thenewatlantis.com; Avi Garbow [Ex. 6 Personal Privacy (PP)] [Ex. 6 Personal Privacy (PP)]; 'bbarnes@tnc.org'; 'Becky Norton Dunlop [becky.norton.dunlop@heritage.org]; 'Benjamin H. Grumbles [Ex. 6 Personal Privacy (PP)]; Bert Pena (hrp@hrpenalaw.com) [hrp@hrpenalaw.com]; 'Bill Briggs [Ex. 6 Personal Privacy (PP)]; Bob Meyers [Ex. 6 Personal Privacy (PP)]; 'Brent M. Haglund PhD [Ex. 6 Personal Privacy (PP)]; 'Brian Mannix [Ex. 6 Personal Privacy (PP)]; 'Brian McCormack [Ex. 6 Personal Privacy (PP)]; 'Brian Yablonski [Ex. 6 Personal Privacy (PP)]; Brown, Byron [brown.byron@epa.gov]; 'Bruce I. Knight [bknight@stratconserve.com]; 'Bryan Hannegan [Ex. 6 Personal Privacy (PP)]; 'Bryan Hannegan [Bryan.Hannegan@nrel.gov]; 'bshireman@future500.org'; [Ex. 6 Personal Privacy (PP)]; 'Carl Artman [Ex. 6 Personal Privacy (PP)]; 'carljc@stanford.edu'; cransom@gloverparkgroup.com; Catrina Rorke [Ex. 6 Personal Privacy (PP)]; grizzle@grizzleco.com; Charles Hernick [Ex. 6 Personal Privacy (PP)] Charles Ingebretson [Ex. 6 Personal Privacy (PP)]; Charlie Evans [Ex. 6 Personal Privacy (PP)]; Chet Thompson [Cthompson@afpm.org]; Charles Smith [charles.r.smith567.civ@mail.mil]; 'Chris Wood [cwood@tu.org]; 'Christian Berle [cberle@edf.org]; 'Christy Plumer [cplumer@tnc.org]; 'ckearney@tfgnet.com'; [Ex. 6 Personal Privacy (PP)] [Ex. 6 Personal Privacy (PP)] Craig Montesano [Ex. 6 Personal Privacy (PP)] 'Dan Nees [dnees@umd.edu]; 'Daniel Botkin [mailing@danielbbotkin.com]; 'Daren Bakst [Daren.Bakst@heritage.org]; 'Dave White [dave@ecoexch.com]; 'David Gagner [Dave.Gagner@nfwf.org]; David Jenkins (djenkins@conservativestewards.org) [djenkins@conservativestewards.org]; David Quam (david.quam@nelsonmullins.com) [david.quam@nelsonmullins.com]; 'David R. Anderson [Danderson@naturalresourceresults.com]; 'David Schoenbrod [dschoenbrod@nyls.edu]; 'David Tenny [dtenny@nafoalliance.org]; David Trimble [Ex. 6 Personal Privacy (PP)]; Dimitri Karakitsos [Ex. 6 Personal Privacy (PP)] Don Clay [Ex. 6 Personal Privacy (PP)] [Ex. 6 Personal Privacy (PP)] 'Doug Domenech [Ex. 6 Personal Privacy (PP)]; 'Doug Siglin [DSiglin@federalcitycouncil.org]; Dravis, Samantha [dravis.samantha@epa.gov]; Dunlap, David [david.dunlap@kochps.com]; Ed Krenik (edward.krenik@bgllp.com) [edward.krenik@bgllp.com]; 'Eli Lehrer [elehrer@rstreet.org]; Elizabeth Stolpe [Ex. 6 Personal Privacy (PP)]; Ellen Gilinsky [Ex. 6 Personal Privacy (PP)] [Ex. 6 Personal Privacy (PP)]; Eric Schwaab [Ex. 6 Personal Privacy (PP)]; 'Erik J. Meyers [emeyers@conservationfund.org]; Forsgren, Lee [Forsgren.Lee@epa.gov]; Frank Fannon [Ex. 6 Personal Privacy (PP)] [Ex. 6 Personal Privacy (PP)]; Fred Eames (feames@hunton.com) [feames@hunton.com]; Gary Belan (garybelan@gmail.com) [garybelan@gmail.com]; George Cooper (gcooper@forbes-tate.com) [gcooper@forbes-tate.com]; 'Gerhard Kuska [Gerhard.Kuska@OceanStrategies.net]; 'gordon.binder@wwfus.org'; 'Greg Schildwachter [Ex. 6 Personal Privacy (PP)] 'Hal Herring [Ex. 6 Personal Privacy (PP)] 'hank@suntowater.com'; Darwin, Henry [darwin.henry@epa.gov]; Henry Darwin [Ex. 6 Personal Privacy (PP)] [Ex. 6 Personal Privacy (PP)]; Holmes, Chris [Holmes.Chris@advisor.bcg.com]; James Bank (james.banks@hoganlovells.com) [james.banks@hoganlovells.com]; 'James Gulliford [Ex. 6 Personal Privacy (PP)]; 'James L Connaughton [jim@jamesconnaughton.com]; 'James M. Strock [jms@jamesstrock.com]; 'James S. Burling Esq. [jsb@pacificlegal.org]; Jan Goldman-Carter [goldmancarterj@nwf.org]; Jeff Clark (jeffrey.clark@kirkland.com) [jeffrey.clark@kirkland.com]; jeff.holmstead@bgllp.com; Jeff Kupfer [Ex. 6 Personal Privacy (PP)]; Jessica L. Furey [jessica.furey@whitmanstrategygroup.com]; Jim Gulliford [jim.gulliford@swcs.org]; Jim Lyon (LYON@nwf.org) [LYON@nwf.org]; Jim Mosher [Ex. 6 Personal Privacy (PP)]; Jim Presswood [jpresswood@esalliance.org]; Jim Roewer (jim.roewer@uswag.org) [jim.roewer@uswag.org]; Joe Cascio Esq. [cascio@gwu.edu]; Joel Beauvais (joel.beauvais@lw.com) [joel.beauvais@lw.com]; John L. Howard [John_L_Howard@DELL.com]; John Paul Woodley Jr. [jpwoodley@advantusstrategies.com]; John Reeder (reeder@american.edu) [reeder@american.edu]; John Sheehan (jasheehan@michaelbest.com) [jasheehan@michaelbest.com]; Jonathan Deason (jdeason@gwu.edu) [jdeason@gwu.edu]; Jonathan Gledhill (jgledhill@policynavigation.com) [jgledhill@policynavigation.com]; Jonathan H. Adler [jha5@case.edu]; Jud Hill [Ex. 6 Personal Privacy (PP)]; Kai Anderson (kanderson@cassidy.com) [kanderson@cassidy.com]; Kameran Onley [konley@tnc.org]; Katherine English [Ex. 6 Personal Privacy (PP)]; Keith Hennessey [keith@keithhennessey.com]; Kenneth von Schaumburg - Clark Hill PLC [kvonschaumburg@clarkhill.com]; Kevin Neyland [Ex. 6 Personal Privacy (PP)] [Ex. 6 Personal Privacy (PP)]; Khary Cauthen [cauthenk@api.org]; Kinnan Golemon [kg@kgstrategies.com]; Leonard

A. Leo Esq. [LLeo@fed-soc.org]; Louise Wise [Ex. 6 Personal Privacy (PP)]; Lynn Broadus [Lbroaddus@BroadviewCollaborative.com]; Lynn Scarlett [lscarlett@TNC.ORG]; 'lynn.buhl@maryland.gov'; Lyons, Troy [lyons.troy@epa.gov]; Marc Himmelstein (marc_himmelstein@nes-dc.com) [marc_himmelstein@nes-dc.com]; Marcus Peacock [Ex. 6 Personal Privacy (PP)]; Marianne Horinko [mhorinko@thehorinkogroup.org]; Mark Rey [Ex. 6 Personal Privacy (PP)]; Mark van Putten [mvanputten@wegefoundation.org]; Marlo Lewis Jr. [marlo.lewis@cei.org]; Mary_B._Newmayr@[Ex. 6 Personal Privacy (PP)] Matthew Z. Leopold [mleopold@cfjblaw.com]; Michael Cromartie [crom@eppc.org]; Michael Deane [michael@nawc.com]; Michael J. Catanzaro [Ex. 6 Personal Privacy (PP)]; Shapiro, Mike [Shapiro.Mike@epa.gov]; Mitchell J. Butler [mitchbutler@naturalresourceresults.com]; Myron Ebell (mebell@cei.org) [mebell@cei.org]; Nancy Stoner [nstoner@piscesfoundation.org]; 'powell@clearpath.org'; '[Ex. 6 Personal Privacy (PP)] Richard Ambrow [Ex. 6 Personal Privacy (PP)] Rick Otis [Ex. 6 Personal Privacy (PP)]; 'rod@amconmag.com'; Roger Scruton [Ex. 6 Personal Privacy (PP)]; Roy A. Hoagland Esq. [royhoagland@hopeimpacts.com]; 'rsisson@conservamerica.org'; Sara Tucker [sara@naturalresourceresults.com]; Scott Segal (scott.segal@bgllp.com) [scott.segal@bgllp.com]; [Ex. 6 Personal Privacy (PP)] 'sean.mcginnis@thehorinkogroup.org'; Seth A. Davis [sdavis@eliasgroup.com]; solandfs@gmail.com; Steve Hayward [Ex. 6 Personal Privacy (PP)]; Steve Moyer [smoyer@tu.org]; Steven Black [Ex. 6 Personal Privacy (PP)] Susan Dudley [sdudley@email.gwu.edu]; Susan Mulvaney (susan.mulvaney@whitmanstrategygroup.com) [susan.mulvaney@whitmanstrategygroup.com]; [Ex. 6 Personal Privacy (PP)]; Ted Boling [Ex. 6 Personal Privacy (PP)] Thomas J. Gibson - American Iron & Steel Institute [tgibson@steel.org]; 'tmale@policyinnovation.org'; Tom Sadler [tsadler@owaa.org]; 'tsadler@middlerivergroup.com'; Wagner, Kenneth [wagner.kenneth@epa.gov]; Wehrum, Bill [Wehrum.Bill@epa.gov]; Whit Fosburgh (wfosburgh@trcp.org) [wfosburgh@trcp.org]; William Robert Irvin [birvin@americanrivers.org]

CC: Brent Fewell [brent.fewell@earthandwatergroup.com]

Subject: Sabin Op-Ed - Republicans must return to their conservation roots

Attachments: ATT00001.txt

https://www.washingtonexaminer.com/opinion/op-eds/republicans-must-return-to-their-conservation-roots

Republicans must return to their conservation roots

by Andy Sabin
July 01, 2018 08:20 AM

Environmental protection is a great American success story.
(AP Photo/Anna Johnson)

Ads by Revcontent

The nation's economy is humming along nicely with unemployment at an all-time low. Now President Trump and Congress must unite for a clean and healthy environment, and Republicans must reclaim leadership on this critical issue.

Republicans have rightfully opposed misguided policies such as President Obama's Clean Power Plan and the Waters of the United States rule. But for far too long, we have done little to proactively shape policy solutions, leaving a vacuum that liberal interest groups have filled with big-government solutions.

It's high time the party of Teddy Roosevelt reclaims the environment, redefines the narrative, and leverages good old-fashioned American know-how and innovation. As Roosevelt once said, "Conservation is a great moral issue, for it involves the patriotic duty of insuring the safety and continuance of the nation."

Environmental protection is a great American success story. The quality of our environment affects every aspect of our economy, health, and quality of life. Thanks, in large measure, to conservative leaders, including Richard Nixon, who established the U.S. Environmental Protection Agency and signed into law the federal clean air and water acts, we are a healthier and more prosperous nation.

We can afford a clean environment because of a robust economy. Moreover, our energy companies, increasingly focused on cleaner energy, are poised to lead the world, creating even more American jobs.

Yet despite our environmental gains over the last 45 years, we still have a long way to go.

Environmental pollution continues to harm America's working families and communities. For example, air pollution alone causes 200,000 early deaths each year in the U.S. Children and those living in socioeconomically distressed communities continue to be disproportionately harmed by air and water pollution. Consider the tragedy in Flint, Mich., where 100,000 people were unwittingly poisoned by lead in their drinking water. As well, many of our nation's water bodies such as the Chesapeake Bay, the Great Lakes, and Gulf of Mexico continue to be impaired due to excess pollution, imposing enormous costs on communities, businesses, and the public health. And there are over 1,300 endangered or threatened species in the U.S listed under the Endangered Species Act and hundreds more are awaiting review.

While many, including myself, applaud the president's decisive actions to reform federal agencies and roll back bad regulations, a caution is in order. We can't afford to gut national safeguards to protect public health and the environment. The American public cares deeply about clean air, clean water, and our public lands.

To be great again means that our air and water are safe and clean, our streams and lakes are swimmable and fishable, our oceans are free from toxic plastic pollution, our public lands are properly maintained and accessible to all, and our natural resources are managed according to the best available science.

My party must return to its conservation roots. It is our moral and patriotic duty.

We can start to by passing important bipartisan legislation. The first, sponsored by Sens. Richard Burr, R-N.C., and Maria Cantwell, D-Wash., would permanently authorize the Land and Water Conservation Fund, one of the most important programs for protecting federal public lands and waters, including national parks, forests, and wildlife refuges.

Another bill, the WILD (Wildlife Innovation and Longevity Driver) Act, co-sponsored by Sens. John Barrasso, R-Wyo., and Tom Carper, D-Del., would promote wildlife conservation, fight against invasive species, and protect threatened species using U.S. technology and innovation. The National Park Restoration Act, sponsored by Sen. Lamar Alexander, R-Tenn., would help reduce the growing maintenance backlog that has long plagued our national parks. And lastly, the Recovering America's Wildlife Act, sponsored by Rep. Jeff Fortenberry, R-Neb., would help proactively protect species from endangerment and being placed on the ESA list.

America is at its best when we recognize and attack common challenges. Let's put aside partisan politics and make our great outdoors great again.

Andy Sabin, a lifelong Republican, is the Chairman and President of Sabin Metal Corporation and founder of the Andrew Sabin Family Foundation, which funds global research and conservation to protect imperiled species and their habitat, environmental scholarships, and cancer research.

Brent Fewell, Esq. | Earth & Water Law Group
1455 Pennsylvania Ave., NW, Suite 400, Washington, DC 20004
(202) 280-6362 (o) | Ex. 6 Personal Privacy (PP) (c) | www.earthandwatergroup.com

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Message

From: Jack Gerard [registrar@api.org]
Sent: 12/20/2017 3:02:10 PM
To: Dravis, Samantha [dravis.samantha@epa.gov]
Subject: Last Chance to Register for The State of American Energy 2018

STATE OF AMERICAN ENERGY 2018

HOW NATURAL GAS & OIL ARE POWERING PAST IMPOSSIBLE

Today is the **last chance to register** for API's 2018 State of American Energy luncheon on **Tuesday, January 9, 2018** from 11:30 A.M.-1:00 P.M. Please RSVP at Registrar@api.org if you have any questions.

Sincerely,

JACK N. GERARD,
President and CEO, API

This event has been designed to comply with the gifts and ethics rules of the U.S. Senate and House of Representatives as a "widely attended event." Employees of the executive branch may wish to consult their Designated Agency Ethics Official about any rules that may apply to their attendance at this event.

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Message

From: Jack Gerard [registrar@api.org]
Sent: 1/9/2018 5:33:22 PM
To: Dravis, Samantha [dravis.samantha@epa.gov]
Subject: Watch Live: API's State of American Energy 2018

STATE OF AMERICAN ENERGY 2018 | HOW NATURAL GAS & OIL ARE POWERING PAST IMPOSSIBLE

Watch Live: The State of American Energy

If you were unable to attend API's State of American Energy 2018 event today, you don't have to miss it! Simply watch the event live.

We encourage you to join the conversation on Twitter using #SOAE2018.

This event has been designed to comply with the gifts and ethics rules of the U.S. Senate and House of Representatives as a "widely attended event." Employees of the executive branch may wish to consult their Designated Agency Ethics Official about any rules that may apply to their attendance at this event.

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cvent

Appointment

From: Dravis, Samantha [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=ECE53F0610054E669D9DFFE0B3A842DF-DRAVIS, SAM]
Sent: 1/15/2018 9:14:04 PM
To: 'moffetth@api.org' [moffetth@api.org]; Jackson, Ryan [jackson.ryan@epa.gov]; Brown, Byron [brown.byron@epa.gov]; Willis, Sharnett [Willis.Sharnett@epa.gov]
CC: Inge, Carolyn [Inge.Carolyn@epa.gov]; Irving, Verna [Irving.Verna@epa.gov]; Kime, Robin [Kime.Robin@epa.gov]; Germann, Sandy [Germann.Sandy@epa.gov]
BCC: DCRoomARN3500/OPEI [DCRoomARN3500@epa.gov]

Subject: Meeting with API
Location: 3530 WJCN

Start: 3/7/2017 4:00:00 PM
End: 3/7/2017 4:45:00 PM
Show Time As: Tentative

Topic: Meeting with API
Date: March 7
Time: 11:00 – 11:45
Location: 3500 WJC (10 attendees are expected)
Required: moffetth@api.org
Cc: Kime, Robin <Kime.Robin@epa.gov>; Germann, Sandy Germann.Sandy@epa.gov;

Notes:

Directions: Please use the William Jefferson Clinton North Entrance located on your right as you exit the Federal Triangle Metro Station. Please arrive 20 minutes prior to the meeting with photo IDs to clear Security.

EPA Contact: Robin Kime (202) 564-6587 or the main OP line (202) 564-4332

Contact:
Hilary Moffett
Director, Federal Relations
American Petroleum Institute
202-682-8040 (desk)
Ex. 6 Personal Privacy (PP) (cell)
MoffettH@api.org

Appointment

From: Schaaff, Lesley [lschaaff@hess.com]
Sent: 11/1/2018 1:30:28 PM
To: Ex. 6 Personal Privacy (PP) Amy L. Farrell - American Wind Energy Association (afarrell@awea.org) [afarrell@awea.org]; anna.burhop@bracewell.com; Barbara Camille [camille.barbara@gmail.com]; Bennett, Tate [Bennett.Tate@epa.gov]; Bolen, Brittany [bolen.brittany@epa.gov]; Campbell, Catherine [Catherine.Campbell@dlapiper.com]; Carrie Domnitch [domnitchc@api.org]; Cat Giljohann (FERC) [Catherine.giljohann@ferc.gov]; catherine@cgastrategies.com; Bertrand, Charlotte [Bertrand.Charlotte@epa.gov]; Cooperstein, Sharon [Cooperstein.Sharon@epa.gov]; Curry, Bridgid [Curry.Bridgid@epa.gov]; Daigle, Stephanie N., Celanese [stephanie.daigle@celanese.com]; downey.magallanes@bp.com; elitr@dongenergy.com; Elizabeth Boylan [Elizabeth.boylan@solvay.com]; Elizabeth Horner [Elizabeth_Horner@epw.senate.gov]; elizabeth.craddock@iadc.org; Felicia Barnes (FBarnes@hunton.com) [FBarnes@hunton.com]; Gentile, Laura [Gentile.Laura@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Ex. 6 Personal Privacy (PP) hilary_moffett@oxy.com; hopkinsh@api.org; 'jeanne. o. mitchell@exxonmobil. com' [jeanne.o.mitchell@exxonmobil.com]; Jennifer Smith [Smith.Jennifer@chevron.com]; Jennifer Thompson [jennifer.thompson@shell.com]; jennifer.biever@hoganlovells.com; jennifer@jas-strategies.com; Ex. 6 Personal Privacy (PP) Kate MacGregor (katharine_macgregor@ios.doi.gov) [katharine_macgregor@ios.doi.gov]; kate.fay@nblenergy.com; Ex. 6 Personal Privacy (PP); Kim.Harb@alyeska-pipeline.com; Kime, Robin [Kime.Robin@epa.gov]; kjersten.s.drager@conocophillips.com; knathanson@crowell.com; Kristin.Whitman@shell.com; Laura Vaught - EPA (laura.e.vaught@dom.com) [laura.e.vaught@dom.com]; Lauren Hagen Ex. 6 Personal Privacy (PP) Lauren S [Lauren.Sheehan@valero.com]; Levine, Carolyn [Levine.Carolyn@epa.gov]; lindens@api.org; Lisa Ceglia (Lisa.Ceglia@smiths.com) [Lisa.Ceglia@smiths.com]; Liz Reicherts (Elizabeth.reicherts@siemens.com) [Elizabeth.reicherts@siemens.com]; Mara E. Zimmerman [ZimmermanM@api.org]; Marnie Funk (Marnie.Funk@shell.com) [Marnie.Funk@shell.com]; Mary Martin (mary.martin@mail.house.gov) [mary.martin@mail.house.gov]; Mayya [mayya@chevron.com]; Meadows@api.org; Megan Bel Miller (Megan.Miller@mail.house.gov) [Megan.Miller@mail.house.gov]; Misty McGowen (misty.mcgowen@p66.com) [misty.mcgowen@p66.com]; Nagle, Deborah [Nagle.Deborah@epa.gov]; Beck, Nancy [Beck.Nancy@epa.gov]; Ex. 6 Personal Privacy (PP); Patel, Manisha D. [Manisha.Patel@wsp.com]; Patel, Manisha D. [patelmd@pbworld.com]; Patricia T [Patricia.Tamez@shell.com]; Prianka P. Sharma (Prianka.Sharma@sba.gov) [Prianka.Sharma@sba.gov]; Puneet Verma [PVerma@chevron.com]; rebecca.rosen@dvn.com; rmiller@forbes-tate.com; Sarah Gainer [sarah.gainer@chk.com]; Ex. 6 Personal Privacy (PP) smm@nei.org; Suzanne M. Lemieux [LemieuxS@api.org]; Swink, Suzanne [Suzanne.Swink@bp.com]; Victoria Souza (Home Fax) [IMCEAFAX-+28423+29+A0774-1687@namprd05.prod.outlook.com]; Wendy Kirchoff [Wendy.Kirchoff@nblenergy.com]; Souza, Victoria [VSouza@hess.com]; Letendre, Daisy [letendre.daisy@epa.gov]; Ex. 6 Personal Privacy (PP) kelsey.voytovich@conocophillips.com; Avery, Kevin J (Kevin.J.Avery@conocophillips.com) [Kevin.J.Avery@conocophillips.com]
CC: Elisabeth-Anne Treseder [ELITR@orsted.com]; Hill, Amanda (HSGAC) [Amanda_Hill@hsgac.senate.gov]; Ex. 6 Personal Privacy (PP) Duncan, Emily [Emily.Duncan@nationalgrid.com]; Rachel Feinstein [feinstein@hpba.org]

Subject: Save the Date: Women in Energy (WinE) Happy Hour
Location: TBD

Start: 11/16/2018 9:30:00 PM
End: 11/16/2018 11:30:00 PM
Show Time As: Tentative

Recurrence: (none)

Appointment

From: Schaaff, Lesley [lschaaff@hess.com]
Sent: 11/5/2018 8:38:31 PM
To: Ex. 6 Personal Privacy (PP) Amy L. Farrell - American Wind Energy Association (afarrell@awea.org) [afarrell@awea.org]; anna.burhop@bracewell.com; Barbara Camille Ex. 6 Personal Privacy (PP) ; Bennett, Tate [Bennett.Tate@epa.gov]; Bolen, Brittany [bolen.brittany@epa.gov]; Campbell, Catherine [Catherine.Campbell@dlapiper.com]; Carrie Domnitch [domnitchc@api.org]; Cat Giljohann (FERC) [Catherine.giljohann@ferc.gov]; catherine@cgastrategies.com; Bertrand, Charlotte [Bertrand.Charlotte@epa.gov]; Cooperstein, Sharon [Cooperstein.Sharon@epa.gov]; Curry, Bridgid [Curry.Bridgid@epa.gov]; Daigle, Stephanie N., Celanese [stephanie.daigle@celanese.com]; downey.magallanes@bp.com; elitr@dongenergy.com; Elizabeth Boylan [Elizabeth.boylan@solvay.com]; Elizabeth Horner [Elizabeth_Horner@epw.senate.gov]; elizabeth.craddock@iadc.org; Felicia Barnes (FBarnes@hunton.com) [FBarnes@hunton.com]; Gentile, Laura [Gentile.Laura@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Ex. 6 Personal Privacy (PP) hilary_moffett@oxy.com; hopkinsh@api.org; 'jeanne. o. mitchell@exxonmobil. com' [jeanne.o.mitchell@exxonmobil.com]; Jennifer Smith [Smith.Jennifer@chevron.com]; Jennifer Thompson [jennifer.thompson@shell.com]; jennifer.biever@hoganlovells.com; jennifer@jas-strategies.com; Ex. 6 Personal Privacy (PP) Kate MacGregor (katharine_macgregor@ios.doi.gov) [katharine_macgregor@ios.doi.gov]; kate.fay@nblenergy.com; Ex. 6 Personal Privacy (PP) Kim.Harb@alyeska-pipeline.com; Kime, Robin [Kime.Robin@epa.gov]; kjersten.s.drager@conocophillips.com; knathanson@crowell.com; Kristin.Whitman@shell.com; Laura Vaught - EPA (laura.e.vaught@dom.com) [laura.e.vaught@dom.com]; Lauren Hagen Ex. 6 Personal Privacy (PP) ; Lauren S [Lauren.Sheehan@valero.com]; Levine, Carolyn [Levine.Carolyn@epa.gov]; lindens@api.org; Lisa Ceglia (Lisa.Ceglia@smiths.com) [Lisa.Ceglia@smiths.com]; Liz Reicherts (Elizabeth.reicherts@siemens.com) [Elizabeth.reicherts@siemens.com]; Mara E. Zimmerman [ZimmermanM@api.org]; Marnie Funk (Marnie.Funk@shell.com) [Marnie.Funk@shell.com]; Mary Martin (mary.martin@mail.house.gov) [mary.martin@mail.house.gov]; Mayya [mayya@chevron.com]; Meadows@api.org; Megan Bel Miller (Megan.Miller@mail.house.gov) [Megan.Miller@mail.house.gov]; Misty McGowen (misty.mcgowen@p66.com) [misty.mcgowen@p66.com]; Nagle, Deborah [Nagle.Deborah@epa.gov]; Beck, Nancy [Beck.Nancy@epa.gov]; Ex. 6 Personal Privacy (PP) Patel, Manisha D. [Manisha.Patel@wsp.com]; Patel, Manisha D. [patelmd@pbworld.com]; Patricia T [Patricia.Tamez@shell.com]; Prianka P. Sharma (Prianka.Sharma@sba.gov) [Prianka.Sharma@sba.gov]; Puneet Verma [PVerma@chevron.com]; rebecca.rosen@dvn.com; rmiller@forbes-tate.com; Sarah Gainer [sarah.gainer@chk.com]; Ex. 6 Personal Privacy (PP) smm@nei.org; Suzanne M. Lemieux [LemieuxS@api.org]; Swink, Suzanne [Suzanne.Swink@bp.com]; Victoria Souza (Home Fax) [IMCEAFAX-+28423+29+A0774-1687@namprd05.prod.outlook.com]; Wendy Kirchoff [Wendy.Kirchoff@nblenergy.com]; Souza, Victoria [VSouza@hess.com]; Letendre, Daisy [letendre.daisy@epa.gov]; Ex. 6 Personal Privacy (PP) kelsey.voytovich@conocophillips.com; Avery, Kevin J (Kevin.J.Avery@conocophillips.com) [Kevin.J.Avery@conocophillips.com]
CC: Elisabeth-Anne Treseder [ELITR@orsted.com]; Hill, Amanda (HSGAC) [Amanda_Hill@hsgac.senate.gov]; priankapsharma@gmail.com; Duncan, Emily [Emily.Duncan@nationalgrid.com]; Rachel Feinstein [feinstein@hpba.org]

Subject: Save the Date: Women in Energy (WinE) Happy Hour (Location added)
Location: Bobby Van's Grill 1201 New York Avenue, NW

Start: 11/16/2018 9:30:00 PM
End: 11/16/2018 11:30:00 PM
Show Time As: Tentative

Recurrence: (none)

Appointment

From: Verma, Puneet (puve) [PVerma@chevron.com]
Sent: 4/2/2018 3:02:23 PM
To: Verma, Puneet (puve) [PVerma@chevron.com]; Jennifer Thompson [jennifer.thompson@shell.com]; elitr@dongenergy.com; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Swink, Suzanne [Suzanne.Swink@bp.com]; katharine.fredriksen@gmail.com; Misty Mcgowen [Misty.McGowen@p66.com]; Elizabeth.boylan@solvay.com; Souza, Victoria [VSouza@hess.com]; Sarah Gainer [sarah.gainer@chk.com]; Burhop, Anna [anna.burhop@bracewell.com]; Holly Hopkins [hopkinsh@api.org]; Bolen, Brittany [bolen.brittany@epa.gov]; Elizabeth Craddock [Elizabeth.Craddock@iadc.org]; megan.miller@mail.house.gov; Mary Martin [mary.martin@mail.house.gov]; Kate MacGregor [katharine_macgregor@ios.doi.gov]; Lisa Ceglia [Lisa.Ceglia@smiths.com]; Kime, Robin [Kime.Robin@epa.gov]; Elisabeth-Anne Treseder [ELITR@orsted.com]; Carrie Domnitch [domnitchc@api.org]; Amy Farrell Ex. 6 Personal Privacy (PP) ; leger [stephanie@legerstrategies.com]; Kristin.Whitman@shell.com; MSHUT@statoil.com; Laura E Vaught [Laura.E.Vaught@dominionenergy.com]; kayla.dolan@mail.house.gov; Hilary Moffett [moffetth@api.org]; Beck, Nancy [Beck.Nancy@epa.gov]; Patricia.Tamez@shell.com; Bertrand, Charlotte [Bertrand.Charlotte@epa.gov]; Smith, Jennifer [Smith.Jennifer@chevron.com]

Subject: FW: Women in Energy
Location: Proper 21 1319 F St NW, Washington, DC 20004

Start: 4/26/2018 9:00:00 PM
End: 4/27/2018
Show Time As: Busy

Recurrence: (none)

Hi all. Trying this again....
Come to Happy Hour on Thursday, 4/26 at 5PM at Proper 21 (near Metro Center) to catch up with friends in the energy/environment field. All are welcome -- feel free to forward this invitation.
Lesley Schaaff
lschaaff@hess.com
Ex. 6 Personal Privacy (PP)

Appointment

From: Dominguez, Alexander [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=5CED433B4EF54171864ED98A36CB7A5F-DOMINGUEZ,]
Sent: 5/24/2017 9:07:05 PM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Hilary Moffett [moffetth@api.org]; Dominguez, Alexander [dominguez.alexander@epa.gov]; Dravis, Samantha [dravis.samantha@epa.gov]; Bolen, Brittany [bolen.brittany@epa.gov]

Subject: API Ozone Meeting w/ EPA
Location: 1200 Pennsylvania Avenue, NW (North) Please call 202-564-3164 (Room 3530)

Start: 6/16/2017 2:00:00 PM
End: 6/16/2017 3:00:00 PM
Show Time As: Busy

Message

From: Will Hupman [HupmanW@api.org]
Sent: 6/28/2018 8:14:57 PM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
CC: Khary Cauthen [cauthenk@api.org]
Subject: Invitation

Hey Mandy – I hope you've had a good week. Any big plans for the 4th of July?

I wanted to reach out to invite you to attend one of our upcoming weekly meetings with the member company downstream lobbyists here at API. It would be helpful for our folks to hear your perspective on the RFS and learn how we best assist your efforts. We usually meet at 10:45 am on Thursdays, but would of course accommodate your schedule. We're also more than happy to come visit you at EPA if that's easier. Our group is usually about 10 or 12 folks and includes representatives from ExxonMobil, BP, Chevron, Shell, P66, Marathon Petroleum, and Aramco. Would you be available to spend a few minutes with us on Thurs., July 12th, 19th, or 26th? If a different day/time is better, please let me know. My cell is Ex. 6 Personal Privacy (PP) if its easier to coordinate that way. Thank you, Mandy! Will

Will Hupman
Director - Federal Relations | American Petroleum Institute
office: 202-682-8396 | cell: Ex. 6 Personal Privacy (PP) | hupmanw@api.org

Message

From: Will Hupman [HupmanW@api.org]
Sent: 9/12/2018 4:36:56 PM
To: Dominguez, Alexander [dominguez.alexander@epa.gov]
CC: Frank Macchiarola [MacchiarolaF@api.org]; Patrick Kelly [kellyp@api.org]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: Re: meeting request in re E15 waiver

Thank you, Alex. We'll look forward to seeing you tomorrow. Will

---

Will Hupman
Director – Federal Relations
American Petroleum Institute
office: 202-682-8396
cell: Ex. 6 Personal Privacy (PP)
hupmanw@api.org

On Sep 12, 2018, at 11:58 AM, Dominguez, Alexander <dominguez.alexander@epa.gov> wrote:

Will -

You are confirmed for a meeting on Thursday, September 13th at 1:45 with Mandy Gunasekara and Alex Dominguez.

Directions and procedures to 1200 Pennsylvania Avenue NW:

Metro: If you come by Metro get off at the Federal Triangle metro stop. Exit the metro station and go up two sets of escalators to the surface level and turn right. You will see a short staircase and wheelchair ramp leading to a set of glass doors with the EPA logo - that is the William Jefferson Clinton Federal Building, North Entrance.

Taxi: Direct the taxi to drop you off on 12th Street NW, between Constitution and Pennsylvania Avenues, at the elevator for the Federal Triangle metro stop - this is almost exactly half way between the two avenues on 12th Street NW. Facing the building with the EPA logo and American flags, walk toward the building and take the glass door on your right hand side with the escalators going down to the metro on your left – that is the North Lobby of the William Jefferson Clinton building.

Security Procedures: A government issued photo id is required to enter the building and it is suggested you arrive 15 minutes early in order to be cleared and arrive at the meeting room on time. Upon entering the lobby, the meeting attendees will be asked to pass through security and provide a photo ID for entrance. If you are a foreign national entering on a non-US passport, please let us know in advance, as there is a separate clearance process.

Upon arrival, let the guards know that you were instructed to call 202-564-7404 for a security escort.

Feel free to contact me should you need any additional information.

Alex Dominguez
Policy Analyst to the Principal Deputy

Office of Air and Radiation
U.S. Environmental Protection Agency
D: 202-564-3164
M: Ex. 6 Personal Privacy (PP)

From: Will Hupman [mailto:HupmanW@api.org]
Sent: Wednesday, September 12, 2018 11:36 AM
To: Dominguez, Alexander <dominguez.alexander@epa.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>
Cc: Frank Macchiarola <MacchiarolaF@api.org>; Patrick Kelly <kellyp@api.org>
Subject: RE: meeting request in re E15 waiver

Thank you, Alex. We have a meeting at the EEOB tomorrow at 3 pm. Could we start a little earlier, at 1:45 pm, to be sure we have enough time? Attendees would be Frank Macchiarola, Patrick Kelly, and myself, all from API. Please let me know what else you need on our end. Thanks, Will

---

Will Hupman
Director – Federal Relations | American Petroleum Institute
office: 202-682-8396 | cell: Ex. 6 Personal Privacy (PP) | hupmanw@api.org

---

From: Dominguez, Alexander <dominguez.alexander@epa.gov>
Sent: Wednesday, September 12, 2018 11:29 AM
To: Will Hupman <HupmanW@api.org>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>
Cc: Frank Macchiarola <MacchiarolaF@api.org>
Subject: RE: meeting request in re E15 waiver

Hey Will – Does tomorrow (9/13) from 2:00 – 2:45 work?

Alex Dominguez
Policy Analyst to the Principal Deputy
Office of Air and Radiation
U.S. Environmental Protection Agency
D: 202-564-3164
M: Ex. 6 Personal Privacy (PP)

From: Will Hupman [mailto:HupmanW@api.org]
Sent: Tuesday, September 11, 2018 2:16 PM
To: Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>
Cc: Dominguez, Alexander <dominguez.alexander@epa.gov>; Frank Macchiarola <MacchiarolaF@api.org>
Subject: meeting request in re E15 waiver

Hi Mandy and Alex – I'm reaching out to see if you may have a few minutes soon for Frank Macchiarola, API Downstream Director, and myself to come in and chat on the RVP waiver for E15 issue? We wanted to hear your latest thinking and hopefully share our perspective.

We'll obviously work around your schedule, but to get the ball rolling the following days are good on our end: Thursday afternoon (9/13), all day Friday, next Tuesday (9/18), Wednesday afternoon (9/19), Thursday afternoon (9/20), and all day Friday (9/21).

Thank you! Will

Will Hupman
Director – Federal Relations | American Petroleum Institute

office: 202-682-8396 | cell: Ex. 6 Personal Privacy (PP) | hupmanw@api.org

Message

From: Mike Sommers [registrar@api.org]
Sent: 12/19/2018 3:29:17 PM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: You're Invited to API's State of American Energy 2019

The American Petroleum Institute invites you to

The 2019 State of American Energy luncheon – celebrating Generation Energy

We are in the midst of Generation Energy. More natural gas and oil is produced in the United States than any other country in the world. At the same time, U.S. carbon dioxide emissions are at their lowest levels in a generation, largely because of the growing role played by clean natural gas. Our industry is an economic engine, supporting 10.3 million jobs – to produce, deliver and refine natural gas and oil – as well as jobs associated with energy development and the personal spending of our workers.

Guided by smart policies and regulations that unleash innovation and progress, natural gas and oil are playing a powerful role in America's economic progress and will for generations to come.

Join me and industry leaders from coast to coast at the 2019 State of American Energy luncheon.

Sincerely,

MIKE SOMMERS
President and CEO, API

RSVP

BY DECEMBER 31st
This invitation is non-transferable.

WHEN

TUESDAY, JANUARY 8, 2019
11:30 A.M.– 1:30 P.M.

WHERE

RONALD REAGAN BUILDING AND INTERNATIONAL TRADE CENTER ATRIUM BALLROOM
1300 PENNSYLVANIA AVENUE, NW
WASHINGTON, DC 20004
Please use entrance on 14th Street

This event has been designed to comply with the gifts and ethics rules of the U.S. Senate and House of Representatives as a "widely attended event." Employees of the executive branch may wish to consult their Designated Agency Ethics Official about any rules that may apply to their attendance at this event.

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Message

From: Mike Sommers [registrar@api.org]
Sent: 12/17/2018 3:40:11 PM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: You're Invited to API's State of American Energy 2019

The American Petroleum Institute invites you to

The 2019 State of American Energy luncheon – celebrating Generation Energy

We are in the midst of Generation Energy. More natural gas and oil is produced in the United States than any other country in the world. At the same time, U.S. carbon dioxide emissions are at their lowest levels in a generation, largely because of the growing role played by clean natural gas. Our industry is an economic engine, supporting 10.3 million jobs – to produce, deliver and refine natural gas and oil – as well as jobs associated with energy development and the personal spending of our workers.

Guided by smart policies and regulations that unleash innovation and progress, natural gas and oil are playing a powerful role in America's economic progress and will for generations to come.

Join me and industry leaders from coast to coast at the 2019 State of American Energy luncheon.

Sincerely,

MIKE SOMMERS
President and CEO, API

RSVP

BY DECEMBER 31st
This invitation is non-transferable.

WHEN

TUESDAY, JANUARY 8, 2019
11:30 A.M.– 1:30 P.M.

WHERE

RONALD REAGAN BUILDING AND INTERNATIONAL TRADE CENTER
ATRIUM BALLROOM
1300 PENNSYLVANIA AVENUE, NW
WASHINGTON, DC 20004
Please use entrance on 14th Street

This event has been designed to comply with the gifts and ethics rules of the U.S. Senate and House of Representatives as a "widely attended event." Employees of the executive branch may wish to consult their Designated Agency Ethics Official about any rules that may apply to their attendance at this event.

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Message

From: Will Hupman [HupmanW@api.org]
Sent: 6/20/2018 2:24:10 PM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: quick question

Hey Mandy – Hope you're having a great week. I just left you a voicemail and wanted to touch base quickly on something RFS-related that we're picking up if you have a quick sec to give me a call, please? My desk is 202-682-8396, and my cell is Ex. 6 Personal Privacy (PP) Thank you! Will

Will Hupman
Director – Federal Relations | American Petroleum Institute
office: 202-682-8396 | cell: Ex. 6 Personal Privacy (PP) hupmanw@api.org

Message

From: Will Hupman [HupmanW@api.org]
Sent: 9/14/2018 5:15:23 PM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
CC: Frank Macchiarola [MacchiarolaF@api.org]; Patrick Kelly [kellyp@api.org]
Subject: thank you

Mandy – Thank you for taking the time to sit down with Frank, Patrick, and me yesterday to talk RFS. Always good catching up with you. Please let me know if we can ever be of service. Have a great weekend. Will

Will Hupman
Director – Federal Relations | American Petroleum Institute
office: 202-682-8396 | cell: Ex. 6 Personal Privacy (PP) | hupmanw@api.org

Message

From: Hunton Andrews Kurth LLP [info@huntonak.com]
Sent: 7/10/2018 6:46:51 PM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: Shannon Broome Named Among Top Women Lawyers in California

Shannon Broome Named Among Top Women Lawyers in California

If you have problems viewing this email, click here to view it online.

Click here to forward this email.

ANNOUNCEMENT

July 10, 2018

Shannon Broome Named Among Top Women Lawyers in California

Hunton Andrews Kurth Partner Shannon Broome was named to the *Daily Journal*'s 2018 list of 100 Top Women Lawyers in California. This prestigious ranking recognized women lawyers who have made a difference to their clients, their firms and their profession in the past year. This is the second year in a row that Broome has been bestowed this honor and the third time to date.

Broome is Hunton Andrews Kurth's San Francisco office managing partner and leads the California environmental practice. Among other representations, the *Daily Journal* spotlighted her representations of a major oil and gas company in controversial cases claiming that certain oil companies have created a nuisance under common law due to claimed climate change impacts.

Shannon S. Broome
San Francisco
sbroome@HuntonAK.com
+1 415 975 3718
vCard

Environmental

Hunton Andrews Kurth LLP
50 California Street, Suite 1700
San Francisco, CA 94111

Visit HuntonAK.com.

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Hunton Andrews Kurth LLP, 200 Park Avenue, New York, NY 10166

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Message

From: Mike Sommers [registrar@api.org]
Sent: 12/13/2018 3:42:43 PM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: You're Invited to API's State of American Energy 2019

The American Petroleum Institute invites you to

The 2019 State of American Energy luncheon – celebrating Generation Energy

We are in the midst of Generation Energy. More natural gas and oil is produced in the United States than any other country in the world. At the same time, U.S. carbon dioxide emissions are at their lowest levels in a generation, largely because of the growing role played by clean natural gas. Our industry is an economic engine, supporting 10.3 million jobs – to produce, deliver and refine natural gas and oil – as well as jobs associated with energy development and the personal spending of our workers.

Guided by smart policies and regulations that unleash innovation and progress, natural gas and oil are playing a powerful role in America's economic progress and will for generations to come.

Join me and industry leaders from coast to coast at the 2019 State of American Energy luncheon.

Sincerely,

MIKE SOMMERS
President and CEO, API

RSVP

BY DECEMBER 31st
This invitation is non-transferable.

WHEN

TUESDAY, JANUARY 8, 2019
11:30 A.M.– 1:30 P.M.

WHERE

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Message

From: Brian Johnson [johnsonb@api.org]
Sent: 8/22/2018 5:02:21 PM
To: Brian Johnson [johnsonb@api.org]
Subject: Moving on...
Attachments: ATT00001.txt; Brian Marshall Johnson.vcf

Colleagues / Friends,

Apologies if you receive this more than once; I wanted to let you know this Friday will be my last day at API.

Eight years ago I came to API. I am leaving having proudly been a part of many successful initiatives while learning from some of the smartest people I've met in both a fantastic industry and in public service.

From working to pass Trade Promotion Authority, Customs Reauthorization, and of course, the Tax Cuts and Jobs Act of 2017 (finally!) among others, I can truly say I'm leaving the industry better than when I started. None of which could have happened without being part of a great team and working with talented people on the Hill and in two Administrations. I will be moving forward a smarter professional and a better person than when I arrived because of everything you all have taught me. Thank you.

I'm not going far. Starting September 10th I will join The Vogel Group as a principal where I will focus on assisting current clients and growing their global government affairs practice and advisory services.

I hope you'll stay in touch using my new contact information attached, or my LinkedIn.

Sincerely,

Brian

PS – if you, or someone you know, is interested in applying for the API Director of Federal Relations – Tax position, please see here.

Brian M Johnson MPA
Director – Federal Relations

American Petroleum Institute
1220 L Street NW
Washington, DC 20005
202.682.8509 | www.api.org | LinkedIn

This e-mail is intended only for the individual to whom it is addressed and may contain information that is privileged, confidential, or exempt from disclosure under applicable law. If you have received this communication in error, please delete the email from your system and notify me immediately.

Contact

Full Name: Brian Marshall Johnson
Last Name: Johnson
Middle Name: Marshall
First Name: Brian
Company: The Vogel Group

Business Address: Brian M Johnson 1010 Wisconsin Avenue, NW, Suite 530 Washington, D.C. 20007

Mobile Phone: Ex. 6 Personal Privacy (PP)

Web Page: www.vogelgroupdc.com

E-mail: Brian@VogelGroupDC.com

Message

From: Dominguez, Alexander [dominguez.alexander@epa.gov]
Sent: 4/16/2018 7:38:17 PM
To: Hilary Moffett [moffetth@api.org]
CC: Mara E. Zimmerman [ZimmermanM@api.org]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; DeLuca, Isabel [DeLuca.Isabel@epa.gov]; Atkinson, Emily [Atkinson.Emily@epa.gov]
Subject: RE: May 1 API Legal Committee Call
Attachments: Event Form OAR AA.DOCX

Hey Hilary,

Hope you had a good weekend and were able to enjoy the great weather on Saturday.

Mandy will likely be in transit at 10:00AM EST on May 1st, so to err on the side of caution we will likely want to try for another time slot. Have any other times already been booked or if the day is still pretty open? Additionally, if you could please fill out and return the attached event form that would be much appreciated.

Best,
Alex

Alex Dominguez
Policy Analyst to the Principal Deputy
Office of Air and Radiation
U.S. Environmental Protection Agency

From: Hilary Moffett [mailto:moffetth@api.org]
Sent: Thursday, April 12, 2018 11:52 AM
To: Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>
Cc: Dominguez, Alexander <dominguez.alexander@epa.gov>; Mara E. Zimmerman <ZimmermanM@api.org>
Subject: May 1 API Legal Committee Call

Hi Mandy,

I hope this email finds you well. Thanks for agreeing to chat with API's Subcommittee on Environmental, Health, and Safety Law on May 1. The group has their meeting in Houston from 930-400 EST. Are you able to call in at 10:00am EST? The day is pretty open, but I always suggest trying to go first, so you know they're on schedule. If you have a different preferred time, just let me know and we'll make it happen. The group is the legal arm of API's thought on anything environmental related.

I will be in touch with more details about attendees in the near future.

Thanks,
Hilary

Hilary Moffett
Director, Federal Relations
American Petroleum Institute
202-682-8040 (desk)
Ex. 6 Personal Privacy (PP) (cell)
MoffettH@api.org

Event Information Form

This form has been designed to assist in planning participation in events and activities.
This is not a confirmation of attendance.

Basic Background

Name of Event	
Sponsoring Organization	
Date of Event	
Time of Event	
Expected time of remarks or participation by EPA official	
Location (please include city/town and street address)	
Directions to the event (if appropriate, please also include relevant information about parking, the specific building, and best entrance to use)	
Where to meet POC	

Event Description and Role of the EPA official

Brief description or outline of the event	
Brochure, invitation and/or other event material(s)	
Agenda and order of speakers and biography/information of other speakers	
Name of person introducing EPA official	
Basic information about the role of the EPA official at the event. (For example, will they serve as a keynote speaker? Participate on a panel? Take part in a press conference? Tour a facility?)	
If the EPA official is a featured speaker, which topic(s) should they address and how long?	
What rules would the audience like to hear about?	
Will there be time for Q&A? If so, who will be moderating?	
Do you have a sense of the types of questions that may be asked?	
Recommendations on the use of visuals/PowerPoint. Should the EPA official plan on using a PowerPoint Presentation?	
What is the physical layout of the room (e.g. size, and format of the interaction; podium, seated in armchair dialogue, or at a table, etc.)	

About the Audience

Please tell us about the make-up of the audience for the event:	
Expected number in attendance at the event	
Will it be largely members of your organization?	
Will others be in attendance? If so, who will be at the event? (General public, Businesspeople, Educators, Families, Students – what grade level, Children – how old)	
Others? (Please describe)	
Is the event open to press?	

Contact Information

Your name:	
Telephone Number:	
Mailing Address:	
E-Mail Address:	
Cell Phone Number:	
Fax Number:	
Best way to reach you at the event?	

EPA Contact Person

Emily Atkinson, Administrative Speech Coordinator: 202-564-1850
John Millett, Communications Director: 202-564-2903

Message

From: Mike Sommers [registrar@api.org]
Sent: 12/10/2018 2:43:36 PM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: You're Invited to API's State of American Energy 2019

The American Petroleum Institute invites you to

The 2019 State of American Energy luncheon – celebrating Generation Energy

We are in the midst of Generation Energy. More natural gas and oil is produced in the United States than any other country in the world. At the same time, U.S. carbon dioxide emissions are at their lowest levels in a generation, largely because of the growing role played by clean natural gas. Our industry is an economic engine, supporting 10.3 million jobs – to produce, deliver and refine natural gas and oil – as well as jobs associated with energy development and the personal spending of our workers.

Guided by smart policies and regulations that unleash innovation and progress, natural gas and oil are playing a powerful role in America's economic progress and will for generations to come.

Join me and industry leaders from coast to coast at the 2019 State of American Energy luncheon.

Sincerely,

MIKE SOMMERS
President and CEO, API

RSVP

BY DECEMBER 31st
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Message

From: Mike Sommers [registrar@api.org]
Sent: 1/8/2019 5:03:40 PM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: Live Now: 2019 State of American Energy

Watch Live: The State of American Energy

If you were unable to attend API's State of American Energy 2019 event today, you don't have to miss it! Simply watch the event live.

We encourage you to join the conversation on Twitter using #SOAE2019.

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Message

From: Khary Cauthen [cauthenk@api.org]
Sent: 3/26/2018 8:40:03 PM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: FYI: Final Comments Re: PES Settlement
Attachments: PES Settlement Comment .pdf

Mandy- Hope that all is well with you. Please find attached to this email, API comments to the proposed Consent Decree and Environmental Settlement Agreement between the United States and PES Holdings, LLC. The comments cover two related issues; first, the requirements for obligated parties under the RFS, and second, PES' claims of economic hardship caused by the RFS. Please let me know if I can provide you with any additional information or materials.

Best- Khary
202-682-8209 o
Ex. 6 Personal Privacy (PP) C

From: Patrick Kelly
Sent: Monday, March 26, 2018 4:01 PM
To: pubcomment-ees.enrd@usdoj.gov
Subject: In re PES Holdings, LLC., et al., D.J. Ref. No. 90–5–2–1–10993/1.

In re *PES Holdings, LLC., et al.*, D.J. Ref. No. 90–5–2–1–10993/1.

Please see the attached comments from the American Petroleum Institute.

Regards,

Patrick G. Kelly

American Petroleum Institute
1220 L Street, NW Washington, DC 20005
Office: 202-682-8192|email: kellyp@api.org

Patrick G. Kelly
Senior Fuels Policy Advisor
Downstream

1220 L Street, NW
Washington, DC 20005-4070
USA
Telephone 202-682-8192
Fax 202-682-8051
Email KellyP@api.org
www.api.org

March 26, 2018

Assistant Attorney General
US DOJ-ENRD
P.O. Box 7611
Washington, DC 20044-7611

Transmitted via email to pubcomment-ees.enrd@usdoj.gov

Re: In re PES Holdings, LLC., et al., D.J. Ref. No. 90-5-2-1-10993/1

Dear Assistant Attorney General,

The American Petroleum Institute (API)[1] is commenting on two issues related to the proposed consent decree between the US Department of Justice (DoJ) and Philadelphia Energy Solutions (PES): 1) the requirements for obligated parties under the Renewable Fuel Standard (RFS); and 2) the refiner claims of economic hardship caused by the RFS.

The RFS has been in existence for over ten years, and the requirements of the RFS program are well understood by obligated parties -- producers and importers of gasoline and diesel fuel. Obligated parties are required to collect RINs and submit them to EPA after the end of the compliance year in sufficient quantity to satisfy their obligation in each of four RFS categories. Failure to meet these compliance requirements can result in violations of the Clean Air Act (CAA or the Act) including significant civil penalties.[2]

Adherence to the compliance structure of the program by obligated parties along with robust and consistent enforcement by EPA are essential to maintaining the integrity of the program. Any deviation

[1] The American Petroleum Institute (API) is the national trade association that represents all aspects of America's oil and natural gas industry. Our more than 625 corporate members - from the large major oil and gas companies to the small independents - come from all segments of the industry. They are producers, refiners, suppliers, marketers, pipeline operators and marine transporters as well as service and supply companies that support all segments of the industry. They provide most of the nation's energy and are backed by a growing grassroots movement of more than 30 million Americans. As refiners and importers of transportation fuels, our member companies are obligated parties under the Renewable Fuel Standard (RFS) program and subject to its requirements.

[2] 42 USC 7545 states that "any person who violates subsection … (o) … shall be liable for a civil penalty of not more than the sum of [$46,192] for every day of such violation and the amount of economic benefit or savings resulting from the violation. Any violation with respect to a regulation prescribed under subsection … (o) … which establishes a regulatory standard based upon a multiday averaging period shall constitute a separate day of violation for each and every day in the averaging period." All four of the RVOs are separate annual average standards. EPA's RFS regulations at 40 CFR 80.1463(a) states that "any person who is liable for a violation under section 80.1461 is subject to a civil penalty as specified in sections 205 and 211(d) of the Clean Air Act, for every day of such violation and the amount of economic benefit or savings resulting from each violation." Further, 80.1463(b) states "any person liable… for a violation for failure to meet its RVOs … during any compliance period, is subject to a separate day of violation for each day in the compliance period."

from this structure creates an un-level playing field and penalizes obligated parties who have met their compliance requirements in good faith.

The proposed settlement agreement limits PES' RFS obligation to retiring the RINs that it has on hand. The proposal would eliminate a significant portion of the compliance obligation for PES for 2016 and 2017. There is no mention in the proposed settlement of penalties for noncompliance with the four renewable volume obligations (RVOs) for the past two years or forfeiture of the economic gains of the noncompliance, per Clean Air Act authority. It appears that the Act and EPA's RFS regulations were not considered in DoJ and EPA's negotiation of the settlement. We urge DoJ and EPA to consider whether this settlement creates the right incentives for other entities subject to the RFS program.

In keeping with the primary purpose of Chapter 11 bankruptcy, namely the restructuring of debt repayments rather than significant forgiveness of a party's outstanding obligations, API asks that DoJ reconsider this proposed settlement. Instead of eliminating the RFS compliance obligation for PES, API recommends that the RIN deficit be restructured, and PES be required to repay the deficit over time.

Regarding economic hardship, the RFS program burdens the entire refining sector with costs that are ultimately borne by consumers. For years, API has recommended that EPA establish standards that are consistent with the ability of the fuels marketplace to consume the required volumes of renewable fuels. When the RFS volume standards exceed the limits of the fuel distribution system and the vehicle fleet, significant market disruptions occur, and the overall cost of the program increases. The economic impact of high volume standards is felt across the marketplace.

The ongoing issues with the RFS program are structural in nature and apply to <u>all</u> regulated parties. The best available remedy is for EPA to use its waiver authority to establish annual volumes that are reasonable, achievable, and fair for <u>all</u> RFS stakeholders.

PES argues that the company experienced economic harm and is financially disadvantaged by the RFS. PES cites the high cost of acquiring RINs (which are used by obligated parties to demonstrate compliance with the RFS) as the primary factor motivating its bankruptcy filing. Several studies, however, including analysis by the U.S. Environmental Protection Agency, have concluded that RIN costs are largely recovered by refineries through the increased value of gasoline and diesel fuel they supply to the market. EPA specifically noted: "while a merchant refiner is directly paying for the RINs they buy on the market, they are passing that cost along" and concluded that merchant refiners like PES are not disadvantaged compared to integrated refiners in terms of their costs of compliance.[3] These points make clear that obligated parties are subject to similar regulatory costs that are recovered in the marketplace.

Published reports concerning the PES bankruptcy have indicated that their current situation has instead been precipitated by their investment choices and financial management decisions including recent sales of RINs despite a compliance need for those credits.[4] If the DOJ finalizes the proposed settlement agreement, it will penalize other obligated parties for their good faith compliance efforts and set a

---

[3] Assessment and Standards Division Office of Transportation and Air Quality U.S. Environmental Protection Agency, Denial of Petitions for Rulemaking to Change the RFS Point of Obligation. EPA-420-R-17-008. November 2017.

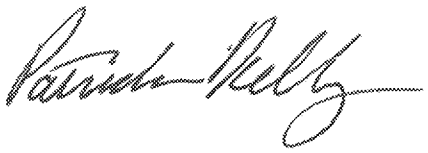
[4] Simeone, Christina. Assessing Competitiveness of Philadelphia Energy Solutions; Kleinman Center for Energy Policy, February 22, 2018. Accessed at: https://kleinmanenergy.upenn.edu/blog/2018/02/22/assessing-competitiveness-philadelphia-energy-solutions

negative precedent for the enforcement of RFS and other environmental liabilities in bankruptcy proceedings.

API believes that regulations should provide a level playing field and be equitably enforced among market participants. Providing relief for one individual company sets a dangerous precedent and creates a distortion in the marketplace and threatens the integrity of the RFS program.

For these reasons API does not support a settlement that provides PES with the proposed level of relief from the requirements under the Clean Air Act. API appreciates your attention to these concerns.

Sincerely,



Patrick Kelly
Senior Fuels Policy Advisor

Message

From: Mike Sommers [registrar@api.org]
Sent: 12/27/2018 3:32:14 PM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: Last Chance to Register for The State of American Energy

The American Petroleum Institute invites you to
The 2019 State of American Energy luncheon – a celebration of Generation Energy

December 31, 2018 is the last chance to register for API's 2019 State of American Energy luncheon on **Tuesday, January 8, 2019** from 11:30 A.M.-1:30 P.M. Please RSVP at Registrar@api.org if you have any questions.

Sincerely,

MIKE SOMMERS,
President and CEO, API

This event has been designed to comply with the gifts and ethics rules of the U.S. Senate and House of Representatives as a "widely attended event." Employees of the executive branch may wish to consult their Designated Agency Ethics Official about any rules that may apply to their attendance at this event.

If you do not want to receive future emails from Mike Sommers, go to: Opt-Out

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Message

From: Smythe Anderson [AndersonS@api.org]
Sent: 12/6/2018 4:41:20 PM
To: Dominguez, Alexander [dominguez.alexander@epa.gov]; Rakosnik, Delaney [rakosnik.delaney@epa.gov]
CC: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Lewis, Josh [Lewis.Josh@epa.gov]
Subject: RE: API Meeting Request - Methane

Thanks, Alex. Much appreciated. Smythe

From: Dominguez, Alexander <dominguez.alexander@epa.gov>
Sent: Thursday, December 6, 2018 9:41 AM
To: Smythe Anderson <AndersonS@api.org>; Rakosnik, Delaney <rakosnik.delaney@epa.gov>
Cc: Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Lewis, Josh <Lewis.Josh@epa.gov>
Subject: RE: API Meeting Request - Methane

Smythe,

I am adding Delaney and Josh who will be able to respond regarding Bill's availability. Anything else please let me know.

Best,

Alex Dominguez
Policy Advisor to the Assistant Administrator
Office of Air and Radiation
U.S. Environmental Protection Agency
D: 202-564-3164
M: Ex. 6 Personal Privacy (PP)

From: Smythe Anderson <AndersonS@api.org>
Sent: Tuesday, December 4, 2018 5:06 PM
To: Dominguez, Alexander <dominguez.alexander@epa.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>
Subject: API Meeting Request - Methane

Mandy and Alex – On behalf of our members at API, I would like to request a meeting with Susan Bodine, Bill Wehrum and Justin Schwab or Matt Leopold to discuss EPA's technical and policy methane rules.

If at all possible, we would like to meet during the week of December 17 following the technical rule comment period. Understanding that schedules are tight in advance of the holidays, please let me know if there is a window of time during that week or in early January that works on your end.

I expect to be joined by API member company representatives and API technical staff. Please let me know if you have additional questions.

Thanks in advance,
Smythe

Smythe Anderson
Director of Federal Relations
1220 L Street NW
Washington, DC 20005
202.682.8040

AndersonS@api.org

energy API POWER PAST IMPOSSIBLE.ORG

Message

From: Hilary Moffett [moffetth@api.org]
Sent: 3/20/2018 5:55:44 PM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: Re: Excellent Photos

Haha! Thank you. Always fun to see you!

On Mar 20, 2018, at 12:20 PM, Gunasekara, Mandy <Gunasekara.Mandy@epa.gov> wrote:

> You look fab!

<RTR Refineries Signing.jpg>

<RTR Refineries Signing II.jpg>

This EPA action saves
$11.5 million per
...for American job
#EPAInAction

This EPA action saves...
$11.5 million per yea
...for American jo
#EPAInAction

Message

From: Schaaff, Lesley [lschaaff@hess.com]
Sent: 3/20/2018 5:18:52 PM
To: ceglial@api.org; Jennifer Thompson [jennifer.thompson@shell.com]; elitr@dongenergy.com; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Swink, Suzanne [Suzanne.Swink@bp.com]; katharine.fredriksen@gmail.com; Misty Mcgowen [Misty.McGowen@p66.com]; Puneet Verma [PVerma@chevron.com]; Elizabeth.boylan@solvay.com; Amy Farrell [FarrellA@api.org]; Souza, Victoria [VSouza@hess.com]; Sarah Gainer [sarah.gainer@chk.com]; Burhop, Anna [anna.burhop@bracewell.com]; Holly Hopkins (hopkinsh@api.org) [hopkinsh@api.org]; Bolen, Brittany [bolen.brittany@epa.gov]; Elizabeth Craddock [Elizabeth.Craddock@iadc.org]; megan.miller@mail.house.gov; Mary Martin (mary.martin@mail.house.gov) [mary.martin@mail.house.gov]; Kate MacGregor (katharine_macgregor@ios.doi.gov) [katharine_macgregor@ios.doi.gov]; Lisa Ceglia (Lisa.Ceglia@smiths.com) [Lisa.Ceglia@smiths.com]; Kime, Robin [Kime.Robin@epa.gov]; Carrie Domnitch [domnitchc@api.org]; Amy Farrell Ex. 6 Personal Privacy (PP) leger [stephanie@legerstrategies.com]; Kristin.Whitman@shell.com; MSHUT@statoil.com; Laura E Vaught [Laura.E.Vaught@dominionenergy.com]; kayla.dolan@mail.house.gov; Hilary Moffett [moffetth@api.org]; Beck, Nancy [Beck.Nancy@epa.gov]; Patricia.Tamez@shell.com; Bertrand, Charlotte [Bertrand.Charlotte@epa.gov]
CC: Elisabeth-Anne Treseder [ELITR@orsted.com]; Smith, Jennifer [Smith.Jennifer@chevron.com]
Subject: Women's Energy Gathering

Hi all. Due to the expected weather challenges in DC tomorrow, we are going to reschedule this get together for a date in April. Stay tuned and hope to see you all soon.

Lesley Schaaff
Senior Manager, Regulatory Affairs
Government & External Affairs
HESS CORPORATION
Office: 202-263-1012
Cell: Ex. 6 Personal Privacy (PP)
lschaaff@hess.com

Message

From: Matthew Todd [ToddM@api.org]
Sent: 2/22/2018 7:37:55 PM
To: Tsirigotis, Peter [Tsirigotis.Peter@epa.gov]
CC: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Lassiter, Penny [Lassiter.Penny@epa.gov]; Cozzie, David [Cozzie.David@epa.gov]
Subject: API Leak Monitoring Data Analysis in Support of EPA's Reconsideration of the New Source Performance Standards for the Oil and Natural Gas Sector
Attachments: 2018 02 22 Leak Data NSPS OOOOa Letter.pdf

Importance: High

Dear Peter:

API is pleased to submit the attached information in support of EPA's reconsideration of the New Source Performance Standards ("NSPS") 40 C.F.R. Part 60 Subpart OOOOa, "Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources; Final Rule" 81 Fed. Reg. 32826 (June 3, 2016). Following publication of the rule, API recommended that the agency revisit the leak detection and repair survey frequencies for both well sites and compressor stations. To further support this recommendation, API initiated an analysis, described in the attached letter, following data collection from companies to determine how the implementation of current leak monitoring and repair programs might further inform a reduced leak survey frequency.

Please contact me with any questions regarding the content of this submittal. We look forward to the opportunity to review the data analysis and its conclusions with your staff.

Regards,

Matthew Todd
API
202.682.8319

Matthew Todd
Senior Policy Advisor

Regulatory and Scientific Affairs

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Washington, DC 20005-4070
USA
Telephone 202-682-8319
Email toddm@api.org
www.api.org

February 22, 2018

Mr. Peter Tsirigotis, Director
Office of Air Quality Planning and Standards
U.S. Environmental Protection Agency
Mail Code: D205-01
109 T. W. Alexander Drive
Durham, NC 27709

Re: Leak Monitoring Data Analysis in Support of EPA's Reconsideration of the "Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources; Final Rule"

Dear Mr. Peter Tsirigotis:

The American Petroleum Institute ("API") is pleased to submit the attached information in support of EPA's reconsideration of the New Source Performance Standards ("NSPS") 40 C.F.R. Part 60 Subpart OOOOa, "Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources; Final Rule" 81 Fed. Reg. 32826 (June 3, 2016).

API represents over 625 oil and natural gas companies, leaders of a technology-driven industry that supplies most of America's energy, supports more than 9.8 million jobs and 8 percent of the U.S. economy, and, since 2000, has invested nearly $2 trillion in U.S. capital projects to advance all forms of energy, including alternatives. Most of our members conduct oil and gas development and production operations and are directly impacted by the final rule.

Throughout the development of the 2012 oil and gas NSPS rule and its amendments in 2016, API has constructively engaged with the agency to provide operational knowledge and emissions data to inform these important rules. During this time, our objective has remained the identification of cost-effective emission control requirements that reduce VOC emissions for new sources and, as a co-benefit, also reduce methane emissions.

Following publication of the 2016 NSPS rule, API filed a petition with EPA seeking administrative reconsideration of certain requirements in the final rule. In the petition, API also included issues where changes to the rule were needed. These issues were included because, were EPA to grant reconsideration of any issues, it would be efficient for EPA to make these changes during the reconsideration process. Among the supplemental list of issues was a recommendation that the agency revisit the leak detection and repair survey frequencies for both well sites and compressor stations.

To further support this recommendation, API initiated an analysis (see attached) following data collection from companies to determine how the implementation of leak monitoring and repair programs might further inform a reduced leak survey frequency. Based on our analysis, it was determined that the initial or uncontrolled leak incidence – the number of components found leaking divided by total number of components surveyed – is significantly lower than the basis of EPA's original rule analysis. A lower initial leak incidence results in a lower baseline mass of emissions from leaks. Using EPA's cost effectiveness calculations with the lower initial leak incidence of 0.4% calculated from this analysis, it is clear that leak detection and repair programs at oil and gas well sites are not cost-effective, even under the multi-pollutant scenario EPA utilized in the rulemaking. This conservative analysis supports justification for a reduced survey frequency at well sites from semi-annual to annual. While the revised analysis results in a value greater than the agency's historical threshold of cost-effective control, the recommendation for an annual frequency is based on established industry practice for new operations. API requests that EPA review this new information as the agency reconsiders Subpart OOOOa. An electronic version of this analysis can be made available upon request.

Please contact me at toddm@api.org or 202-682-8319 with any additional questions regarding the content of this submittal.

Sincerely,

/s/
Matthew Todd

cc: Mandy Gunasekara, USEPA
Penny Lassiter, USEPA
David Cozzie, USEPA

API's Leak Monitoring and Repair Analysis in Support of EPA's Reconsideration of "Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources; Final Rule"

81 Fed. Reg. 35826 (June 3, 2016)

1. Background

As noted in API's December 4, 2015 comments on the proposed Subpart OOOOa, EPA overestimated the environmental benefit from leak detection and repair (LDAR) programs at oil and natural gas facilities, while at the same time underestimating the costs associated with implementation of LDAR programs. As a result, EPA underestimated the cost of control ($/ton) of LDAR at well sites and compressor stations as documented in EPA's Technical Support Document (TSD) that accompanied the final Subpart OOOOa rule[1].

Since the time of the proposal of Subpart OOOOa, API member companies have established LDAR programs as part of both voluntary and regulatory efforts (e.g., Subpart OOOOa, CO, WY, CA, OH, PA, etc.). API previously shared results of some such programs in Colorado and in the Barnett Shale area of Texas in our August 2, 2016 petition for reconsideration. That data indicated an average leak incidence of 0.2% of the total components surveyed that were found leaking based on annual survey data. Similarly, Chevron submitted comments during the original rulemaking sharing their observed leak incidence range between 0.04 to 0.16%[2]. In an effort to develop a larger data set across a wider range of companies and operating areas, API conducted a blinded survey of available LDAR data to review the actual initial leak incidence being observed by operators.

2. API LDAR Survey and Initial Leak Incidence Assessment

API completed a blinded survey of operating companies that resulted in the collection of data from LDAR surveys completed using optical gas imaging (OGI) from six (6) member companies.[3] The data cover a wide range of operators and facility types at sites located in more than 14 states[4]. Only the results from the initial leak survey (the first survey) conducted at an individual

[1] https://www.regulations.gov/document?D=EPA-HQ-OAR-2010-0505-7631

[2] https://www.regulations.gov/document?D=EPA-HQ-OAR-2010-0505-6929

[3] These six companies provided data specific to count of leaks identified during each leak survey and also provided equipment information for the site in order to derive the total count of components at each site where a survey was conducted.

[4] This includes sites located in Alaska, Arkansas, Colorado, Louisiana, Montana, New Mexico, North Dakota Ohio, Oklahoma, Pennsylvania, Texas, Utah, West Virginia, and Wyoming.

well site was considered for this analysis. Following are key summary statistics from the LDAR surveys for determining the initial leak incidence rate at well pads:

- Six (6) companies providing LDAR survey results at well site locations
- 4,117 well sites
  - 1,841 Oil well sites
    - 1,164 single well sites
    - 677 multi well sites
  - 2,276 Gas well sites
    - 1,521 single well sites
    - 755 multi well sites
- 1,958,033 components surveyed
  - 95,187 components available directly from actual component count data provided for 93 sites
  - 1,862,846 estimated components based on major equipment count information for 4,024 sites using the default average component counts for onshore natural gas and crude oil production equipment as listed in 40 CFR Part 98, Subpart W Table W-1B and Table W-1C.

Utilizing the number of leaks found at the 4,117 surveyed well sites, the average initial leak incidence for all well sites was determined to be 0.4% of components surveyed. This leak incidence indicates that for sites just beginning an LDAR program – that is sites for which no organized leak detection and repair efforts had previously been made, only 4 out of every 1,000 components surveyed were found to be leaking. Table 1 below summarizes the API member company leak data.

Table 1. Summary of Initial Leak Incidence Assessment

Number of Well Sites Included in Analysis	4,117
Estimated Number of Total Components Surveyed	1,958,033
Number of Leaking Components Detected using OGI	7,838
Leak Incidence Rate	0.4%

3. EPA Leak Rate Assumptions – Subpart OOOOa Basis

In the Subpart OOOOa rulemaking, EPA relied upon various sources of information to estimate the leak incidence rate and associated emissions from leaking components. For determining the number of components that would require repair and the cost associated with repairing those components, EPA estimated that 1.18% percent of components were leaking at well sites. The leak incidence of 1.18% was obtained from Table 5 for baseline gas valves from the memorandum from Cindy Hancy, RTI to Jodi Howard, EPA, *Analysis of Emission Reductions Techniques for Equipment Leaks, December 21, 2011*[5]. Note that the 1.18% percent of leaking components used by EPA to estimate the cost of repair was not directly used to estimate the baseline emissions in EPA's original analysis.

To estimate the emissions from the model well sites used to represent oil and gas facilities, EPA relied upon emission rates (kg/hr/source) for components in gas service from Table 2-4 of EPA-453/R-95-017 "*Protocol for Equipment Leak Emission Estimates*[6] *(EPA Protocol)*. As described in the EPA Protocol, the values in Table 2-4 were derived from studies completed by EPA and API in the early 1990s. Appendix C of the EPA Protocol provides additional details regarding the derivation of the data in Table 2-4. Notably, Table C-1 indicates that data from only 775 total components were considered in the development of the average emission factors, of which only 368 were from oil and gas production operations.

The EPA Protocol also notes on page 5-54: *"At a process unit, the initial leak frequency can be determined based on collected screening data. If no screening data are available, the initial leak frequency can be assumed to be equivalent to the leak frequency associated with the applicable average emission factor. However, if a process unit already has some type of LDAR program in place, the average emission factor may overestimate emissions."* Table 2-4 is the source of the "applicable average emission factor" for oil and gas facilities.

4. Updated Cost-Effectiveness Values based on New Initial Leak Incidence Data

A more accurate estimate of emissions from oil and gas operations, before the implementation of an LDAR program, can be developed from new leak screening data from API member companies. This assessment consisted of the following step-wise approach, which is described in more detailed in this section:

[5] https://www.regulations.gov/contentStreamer?documentId=EPA-HQ-OAR-2010-0505-4493&contentType=pdf
[6] https://www3.epa.gov/ttnchie1/efdocs/equiplks.pdf

A. Utilize correlation equations within EPA's Leak Protocol with Table 2-4 average emission rates to establish the baseline leak incidence rate for each component type embedded within EPA's original analysis.

B. Use the derived leak incidence from Step A for each component type with the number of components in EPA's model plant to obtain the overall average leak incident rate in EPA's original analysis.

C. Re-assess the baseline emission rates for each component type using the actual observed leak incidence of 0.4% in comparison to the overall leak incidence used in EPA's original analysis identified in Step B.

D. Apply new baseline emission rates from Step C for each component in EPA's cost-effectiveness analysis for LDAR.

The EPA Protocol Table 2-4 emission rates from leaks utilized in the calculations supporting the TSD[7] were established to provide estimates of emissions from components that are not yet part of an LDAR program, and when no leak screening data is available. Section 5.3.1 of the EPA Protocol provides correlation equations that can be used to estimate leak emission rates based on the leak incidence (fraction of leaking components). For the case of oil and gas fugitive components, Table 5-7 provides correlation equations that estimate mass emission rates for different leak concentrations levels[8] (in parts per million or ppm). These emission rates are based on the average fraction of components found to be leaking during leak surveys. An example formula from Table 5-7 is shown below for gas connectors at the 10,000 ppm leak definition. All correlation equations have been provided within Attachment B for reference.

$$ALR = (0.026 \times LKFRAC) + 1.0E\text{-}05$$

Where:

ALR = Average leak rate (kg/hr per source)

LKFRAC = Leak fraction

Utilizing the formulas in Table 5-7, it is possible to back calculate the incidence rate (leak fraction) inherent to the average leak emission rates in Table 2-4. Table 2 below provides the summary of the leak incidence rates for all component types calculated using the Table 2-4 average leak emission rates with the corresponding equations at both the 10,000 ppm and

[7] https://www.regulations.gov/document?D=EPA-HQ-OAR-2010-0505-7631

[8] Table 5-7 correlation equations are stated for leak concentrations at 500 ppm, 1000 ppm, 2000 ppm, 5000 ppm, and 10000. A lower leak definition correlates to a higher incidence rate for each component type and vice versa.

500 ppm leak definition levels. To estimate the overall average leak incidence for a typical well pad, the leak incidence rates for each component were combined with the component counts and number of well pads assumed by EPA to be impacted by Subpart OOOOa in the TSD. This leads to an overall average leak incidence of 0.0165 at the 10,000 ppm leak definition and 0.0250 at the 500 ppm leak definition, versus the 0.004 observed by API members.

Table 2. Summary of Initial Leak Incidence at 10,000 ppm and 500 ppm Derived from EPA's Table 2-4 Uncontrolled Emission Factors and Table 5-7 Correlation Equations from the EPA Leak Protocol

	Derived Leak Incidence Rate (10,000 ppm leak definition)	Derived Leak Incidence Rate (500 ppm leak definition)
Valves	0.046	0.064
Flanges	0.005	0.009
Connectors	0.007	0.012
OEL	0.036	0.054
PRV	0.098	0.160
Overall Average Leak Incidence (calculated)[a]	*0.0165*	*0.0250*

a. The overall average was derived from the average leak incidence rates for each component combined with the component counts and number of well pads assumed by EPA to be impacted by Subpart OOOOa in the TSD.

In order to update the uncontrolled leak emission rates, API multiplied the average leak incidence rate for each component (as listed in Table 2 above) by the ratio of the new API average incidence rate (0.004) divided by the EPA average leak incidence rate (0.0165). The resulting updated leak emission rates for each component are provided in Table 3. Note the baseline emissions were conservatively updated using the leak incidence rates at the 10,000 ppm leak definition though OGI detects leaks at much lower leak concentrations[9]. The use of 10,000 ppm is conservative since, in this analysis, it leads to a smaller fraction of components leaking in EPA's basis (albeit at a higher mass rate). This in turn leads to the use of a smaller ratio for updating the uncontrolled leak rate.

[9] EPA states on Pages 41-42 of Subpart OOOOa TSD: *"The OGI camera is capable of viewing leaks at a 500 ppm level, and achieve similar reductions as a Method 21 monitoring program. Based on this information, we believe the expected emission reductions from an OGI monitoring and repair program falls somewhere in the 500 and 10,000 ppm range found in the Method 21 monitoring programs, but closer to the 500 ppm level."*

Table 3. EPA Leak Emission Rate and Updated Leak Emission Rates Based on Lower Observed Initial Leak Incidence

	EPA Table 2-4 Uncontrolled (kg/hr/comp)	Updated Table 2-4 Uncontrolled (kg/hr/comp)[a]
Valves	0.0045	0.0011
Flanges	0.00039	0.00009
Connectors	0.0002	0.00005
OEL	0.002	0.00048
PRV	0.0088	0.00021

a. Emission values updated using 10,000 ppm leak definition.

Next, API used the updated leak rates in Table 3 in place of the original Table 2-4 leak rates to recalculate EPA's analysis presented in its *"Modified Final_Rule_OOOOa_TSD_Section_4_-_OGI_Well_Pad_050216.xlsx"* workbook provided with the TSD, which accompanied the final rule. API also replaced the assumed 1.18% value EPA used to estimate effort to repair leaks with the actual 0.4% observed by API members. In summary, the following two changes were made to EPA's cost-effectiveness analysis:

1. Replace the Table 2-4 average emission rates with the updated leak emission rates provide in Table 3 that reflect the lower overall observed leak incidence rate observed by operators.
2. Replace EPA's assumed 1.18% leak incidence for repairs with the 0.4% leak incidence derived from actual LDAR survey data.[10]

The "Model Plant 2012" tab of EPA's workbook provides cost-effectiveness estimates for implementation of LDAR at quarterly, semiannual, and annual frequencies. The tables in Attachment A of this document provide comparison of the cost effectiveness considering the updated values reviewed by API and described above versus the original values used by EPA. As the first table in Attachment A shows, the updated cost-effectiveness values are approximately 4 times higher than the values EPA originally estimated. As this data clearly shows, if the more accurate representation of initial (uncontrolled) leak incidence from API member data were available at the time of the original rulemaking, LDAR would not have been considered cost-effective, even at an annual frequency.

No other changes were made to the cost-effectiveness calculations in this assessment, even though API has commented previously on numerous issues with the overall approach and

[10] This update has the effect of lowering EPA's cost-effectiveness estimate because EPA directly used the leak incidence of 1.18% to estimate time for repair of components.

analysis conducted for the original rulemaking as it relates to LDAR. As API outlined in our December 4, 2015 comments during the rulemaking, other key issues include:

- EPA underestimated the programmatic costs to implement an LDAR program for oil and gas sites.
- EPA applied incorrect values for emissions reductions that would occur for different leak frequencies (i.e., annual, semi-annual, quarterly) and the actual reductions are less than EPA assumed.
- EPA overestimated component counts for the model plant gas and oil well sites, thus overstating baseline emissions.

If the above issues were also addressed and corrected, the result would be to further increase the cost-effectiveness ($/ton) value associated with applying LDAR. For instance, applying the correct 50% control factor for semi-annual LDAR instead of the 60% used by EPA would increase the Cost of Control ($/ton) values for semi-annual LDAR by a factor of 1.2. This analysis supports justification for a reduced survey frequency at well sites from semi-annual to annual.

ATTACHMENT A

LDAR Cost Effectiveness Estimates

(Updated and Original EPA Multi-Pollutant Values)

API Updated Cost-Effectiveness Analysis

Model Plant 2012 - Multi Pollutant

OGI Monitoring & Repair Plan - Oil & Natural Gas Production Well Sites

Category	Number of New Sources[1]	Capital Cost ($)[2]	Annual Cost ($/yr)[3]	Well Site Annual Cost w/Savings ($/yr)[4]	Nationwide Emission Reductions[5]		Methane Cost of Control		VOC Cost of Control		Nationwide Emission Reductions		Total Nationwide Costs		
					Methane (Tons/yr)	VOC (Tons/yr)	w/o Savings ($/Ton)	w/ Savings ($/Ton)	w/o Savings ($/Ton)	w/ Savings ($/Ton)	Methane (Tons/yr)	VOC (Tons/yr)	Capital Cost	Annual Cost w/o savings	Annual Cost w/ Savings
Annual OGI Monitoring - Multi Pollutant															
Gas Well Sites	3,346	$759	$1,094	$971	0.53	0.148	$1,027	$912	$3,696	$3,279	1,782	495	$2,539,249	$3,661,461	$3,248,433
Oil Well Sites (GOR < 300)	6,812	$759	$1,094	$1,067	0.12	0.032	$4,574	$4,458	$17,051	$16,619	815	219	$5,169,565	$7,454,236	$7,265,331
Oil Well Sites w/ Associated Gas (GOR > 300)	9,330	$759	$1,094	$1,033	0.27	0.073	$2,053	$1,937	$7,504	$7,081	2,486	680	$7,080,452	$10,209,633	$9,633,275
All Wells Weighted Averages							**$2,098**	**$1,982**	**$7,648**	**$7,226**					
Semi-Annual OGI Monitoring - Multi Pollutant															
Gas Well Sites	3,346	$801	$1,837	$1,652	0.80	0.222	$1,150	$1,034	$4,137	$3,720	2,673	743	$2,679,903	$6,147,634	$5,528,092
Oil Well Sites (GOR < 300)	6,812	$801	$1,837	$1,796	0.18	0.048	$5,119	$5,004	$19,086	$18,654	1,222	328	$5,455,917	$12,515,746	$12,232,388
Oil Well Sites w/ Associated Gas (GOR > 300)	9,330	$801	$1,837	$1,745	0.40	0.109	$2,298	$2,182	$8,400	$7,976	3,730	1,020	$7,472,651	$17,142,089	$16,277,552
All Wells Weighted Averages							**$2,348**	**$2,232**	**$8,561**	**$8,138**					
Quarterly Monitoring - Multi Pollutant															
Gas Well Sites	3,346	$885	$3,323	$3,076	1.07	0.296	$1,560	$1,444	$5,613	$5,196	3,564	991	$2,961,210	$11,119,981	$10,293,924
Oil Well Sites (GOR < 300)	6,812	$885	$3,323	$3,268	0.24	0.064	$6,945	$6,829	$25,893	$25,461	1,630	437	$6,028,620	$22,638,766	$22,260,955
Oil Well Sites w/ Associated Gas (GOR > 300)	9,330	$885	$3,323	$3,200	0.53	0.146	$3,118	$3,002	$11,395	$10,972	4,973	1,361	$8,257,050	$31,007,000	$29,854,284
All Wells Weighted Averages							**$3,185**	**$3,069**	**$11,614**	**$11,191**					

While API outlined additional issues with the overall approach for estimating costs and benefits of implementing LDAR in our December 4, 2015 comments, only the following changes were made in this analysis:

1) Replaced the Table 2-4 emission rates with the updated leak emission rates that reflect the lower observed leak incidence rate, and

2) Replaced EPA's assumed 1.18% leak incidence for repair costs with the 0.4% leak incidence derived from actual LDAR survey data observed by operators.

EPA 's Original Cost Effectiveness (Model Plant 2012 Sheet in "Final_Rule_OOOOa_TSD_Section_4_-_OGI_Well_Pad_050216.xls")

Model Plant 2012 - Multi Pollutant

OGI Monitoring & Repair Plan - Oil & Natural Gas Production Well Sites

					Nationwide Emission Reductions[5]		Methane Cost of Control		VOC Cost of Control		Nationwide Emission Reductions		Total Nationwide Costs		
Category	Number of New Sources[1]	Capital Cost ($)[2]	Annual Cost ($/yr)[3]	Well Site Annual Cost w/Savings ($/yr)[4]	Methane (Tons/yr)	VOC (Tons/yr)	w/o Savings ($/Ton)	w/ Savings ($/Ton)	w/o Savings ($/Ton)	w/ Savings ($/Ton)	Methane (Tons/yr)	VOC (Tons/yr)	Capital Cost	Annual Cost w/o savings	Annual Cost w/ Savings
Annual OGI Monitoring - Multi Pollutant															
Gas Well Sites	3,346	$759	$1,318	$809	2.20	0.611	$300	$184	$1,079	$662	7,355	2,044	$2,539,249	$4,411,155	$2,706,234
Oil Well Sites (GOR < 300)	6,812	$759	$1,318	$1,204	0.49	0.132	$1,335	$1,219	$4,977	$4,545	3,364	902	$5,169,565	$8,980,511	$8,200,737
Oil Well Sites w/ Associated Gas (GOR > 300)	9,330	$759	$1,318	$1,063	1.10	0.301	$599	$483	$2,190	$1,767	10,263	2,808	$7,080,452	$12,300,083	$9,920,962
All Wells Weighted Averages							***$612***	***$496***	***$2,232***	***$1,810***					
Semi-Annual OGI Monitoring - Multi Pollutant															
Gas Well Sites	3,346	$801	$2,285	$1,521	3.30	0.917	$347	$231	$1,247	$830	11,032	3,067	$2,679,903	$7,647,023	$5,089,641
Oil Well Sites (GOR < 300)	6,812	$801	$2,285	$2,114	0.74	0.199	$1,543	$1,427	$5,752	$5,319	5,046	1,353	$5,455,917	$15,568,296	$14,398,635
Oil Well Sites w/ Associated Gas (GOR > 300)	9,330	$801	$2,285	$1,903	1.65	0.451	$693	$577	$2,531	$2,108	15,395	4,212	$7,472,651	$21,322,989	$17,754,307
All Wells Weighted Averages							***$708***	***$592***	***$2,580***	***$2,157***					
Quarterly Monitoring - Multi Pollutant															
Gas Well Sites	3,346	$885	$4,220	$3,201	4.40	1.222	$480	$364	$1,726	$1,310	14,710	4,089	$2,961,210	$14,118,757	$10,708,915
Oil Well Sites (GOR < 300)	6,812	$885	$4,220	$3,991	0.99	0.265	$2,136	$2,020	$7,964	$7,532	6,728	1,805	$6,028,620	$28,743,865	$27,184,318
Oil Well Sites w/ Associated Gas (GOR > 300)	9,330	$885	$4,220	$3,710	2.20	0.602	$959	$843	$3,505	$3,081	20,527	5,616	$8,257,050	$39,368,800	$34,610,558
All Wells Weighted Averages							***$980***	***$864***	***$3,572***	***$3,150***					

[1] It was estimated that 42.2% of the total oil wells were less than 300 GOR and 57.8% were greater than 300 GOR based on date from the HPDI.

[2] Capital cost includes costs for reading rule, developing monitoring plan, initial activities planning, notification of initial compliance status, and purchase of M21 monitoring device.

[3] Annual cost includes contractor monitoring, planning, storing of records and amortization of capital cost over 8 years at 7% interest.

[4] Recovery credits calculated assuming the natural gas (82.9% methane) from the methane reduction has a value of $4/Mscf.

[5] Assumes 40% reduction with annual OGI camera monitoring, 60% reduction with semi-annual OGI camera monitoring and 80% reduction with quarterly OGI camera monitoring.

Message

From: Hilary Moffett [moffetth@api.org]
Sent: 12/12/2017 3:41:16 PM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: Quick call?

Hi Mandy,

I hope you're doing well! I have been working with Josh about the meeting that was scheduled to take place with Bill tomorrow. We are going to reschedule until he has more time to get settled. We don't need to come in and take up an entire meeting with you because you already know where we are, but I just wanted to chat on the phone briefly on a few issues. Do you have 10 minutes for a quick chat to go over some of the questions we planned on asking him?

Thanks,
Hilary

Hilary Moffett
Director, Federal Relations
American Petroleum Institute
202-682-8040 (desk)
Ex. 6 Personal Privacy (PP) (cell)
MoffettH@api.org

Message

From: Matthew Todd [ToddM@api.org]
Sent: 12/8/2017 9:25:19 PM
To: AirAction [AirAction@epa.gov]
CC: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Zenick, Elliott [Zenick.Elliott@epa.gov]; Page, Steve [Page.Steve@epa.gov]; Tsirigotis, Peter [Tsirigotis.Peter@epa.gov]; Cozzie, David [Cozzie.David@epa.gov]
Subject: ATTN Docket ID Nos: EPA–HQ–OAR–2017–0346 & EPA–HQ–OAR–2010–0505
Attachments: 2017 12 08 API Comments on NSPS OOOOa NODA Final.pdf

Importance: High

The American Petroleum Institute submitted the attached comments via www.regulations.gov regarding the notices of data availability in support of EPA's New Source Performance Standards ("NSPS") 40 C.F.R. Part 60 Subpart OOOOa, "Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources: Stay of Certain Requirements" 82 Fed. Reg. 51,788 and 82 Fed. Reg. 51,794 (both dated November 8, 2017).

Throughout the development of the oil and gas NSPS rulemaking, API has maintained a collaborative working relationship with Agency staff to provide operational and emissions data to inform the developments of these important rules. During this time, our objective has remained the identification of cost-effective emission control requirements that reduce VOC emissions for new sources and, as a co-benefit, also reduce methane. API encourages EPA to proceed with its review and revision of the underlying rule as expeditiously as possible, based on sound science and economics, considering the operational and technical issues that have already been raised in comments and litigation. API supports extension of compliance deadlines as the Agency completes this review.

Sincerely,

Matthew Todd

Matthew Todd
API
202.682.8319

Matthew Todd
Senior Policy Advisor

Regulatory and Scientific Affairs

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USA
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Email toddm@api.org
www.api.org

December 8, 2017

The Honorable Scott Pruitt, Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

Attention: Docket ID Number EPA–HQ–OAR–2017–0346 & EPA–HQ–OAR–2010–0505
Submitted to the Federal eRulemaking Portal (www.regulations.gov)

Re: Notice of Data Availability in Support of "Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources: Stay of Certain Requirements"

Dear Administrator Pruitt:

The American Petroleum Institute ("API") is pleased to submit the attached comments on the notices of data availability in support of EPA's New Source Performance Standards ("NSPS") 40 C.F.R. Part 60 Subpart OOOOa, "Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources: Stay of Certain Requirements" 82 Fed. Reg. 51,788 and 82 Fed. Reg. 51,794 (both dated November 8, 2017).

API represents over 625 oil and natural gas companies, leaders of a technology-driven industry that supplies most of America's energy, supports more than 9.8 million jobs and 8 percent of the U.S. economy, and, since 2000, has invested nearly $2 trillion in U.S. capital projects to advance all forms of energy, including alternatives. Most of our members conduct oil and gas development and production operations and are directly impacted by these proposed actions.

Throughout the development of the 2012 oil and gas NSPS rule and its amendments in 2016, API has maintained a collaborative working relationship with Agency staff to provide operational and emissions data to inform the developments of these important rules. During this time, our objective has remained the identification of cost-effective emission control requirements that reduce VOC emissions for new sources and, as a co-benefit, also reduce methane. API encourages EPA to proceed with its review and revision of the underlying rule as expeditiously as possible, based on sound science and economics, considering the operational and technical issues that have already been raised in comments and litigation. API supports extension of compliance deadlines as the Agency completes this review.

Coincident with the publication of the Notices of Data Availability, EPA also published a memo entitled *Estimated Cost Savings and Forgone Benefits Associated with the Proposed Rule, "Oil and Natural Gas: Emission Standards for New, Reconstructed, and Modified Sources: Stay of Certain Requirements"*, which contains an analysis considering foregone benefits associated with social cost of methane. API is reviewing the updated analysis provided by EPA and may provide additional comments following a more detailed review.

Please contact me at toddm@api.org or 202-682-8319 with any additional questions regarding the content of this submittal.

Sincerely,

/s/

Matthew Todd

cc: Bill Wehrum, USEPA
Mandy Gunasekara, USEPA
Elliott Zenick, USEPA
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API's Comments on EPA's Notice of Data Availability in Support of "Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources: Stay of Certain Requirements"
82 Fed. Reg. 51,788 (Nov. 8, 2017)

Docket ID No. EPA–HQ–OAR–2010–0505, EPA–HQ–OAR–2017–0346

In our August 2, 2016 petition, API raised specific technical issues that warrant reconsideration and review of the rule by the Agency. These issues still require attention, as do the issues raised by others, including the Independent Petroleum Association of America (IPAA), Texas Oil and Gas Association (TXOGA), and the Gas Processors Association (GPA).

On July 27, 2017, API submitted comments[1] to the EPA regarding the legal authorities the agency possesses to extend the relevant compliance deadlines of the Subpart OOOOa provisions. On August 8, 2017, API submitted comments further expanding on some of the technical issues and challenges industry would face and currently is facing in the absence of a targeted extension of the compliance deadlines of certain rule provisions.

As described in prior comments and as further discussed below, API believes outstanding issues support the need to provide a compliance extension while the Agency considers new information and assesses its impacts as part of the reconsideration process. While the Agency has proposed to extend the compliance dates for a targeted subset of the rule requirements for two years, there is nothing preventing the agency from reconsidering these issues, along with the other technical issues raised in API's August 2, 2016 petition, in less than two years. Going forward, the Agency should consider addressing any issues, on an expedited timeline, that can be easily addressed to provide the clarity the industry is seeking.

1. EPA Has Authority Under the Clean Air Act To Stay Compliance Dates.

A. Background

On June 3, 2016, EPA finalized new source performance standards ("NSPS") for new, reconstructed, and modified sources in the oil and natural gas sector pursuant to its authority under section 111(b) of the Clean Air Act ("CAA" or "Act"). 81 Fed. Reg. 35,823 (June 3, 2016) ("2016 NSPS Rule"). The 2016 NSPS Rule was codified at 40 C.F.R. part 60, Subpart OOOOa, and is sometimes referred to as the Quad Oa Rule. API filed petitions for reconsideration with EPA seeking administrative reconsideration of the 2016 NSPS Rule. Earlier this year, EPA granted

[1] Docket ID No: EPA-HQ-2010-0505-10577

reconsideration of four narrow issues in the 2016 NSPS Rule: (1) the fugitive emission requirements for low production well sites; (2) the process related to the alternative means of emission limitations ("AMEL") for fugitive emission requirements; (3) the standards of performance for pneumatic pumps at well sites; and (4) the requirements for certification by a professional engineer. 82 Fed. Reg. 25,730-31 (June 5, 2017). EPA also granted a three-month stay, pursuant to section 307(d)(7)(B) of the CAA, of the following three requirements in the 2016 NSPS Rule: (1) the fugitive emissions requirements (also referred to as leak detection and repair); (2) the standards of performance for pneumatic pumps at well sites; and (3) the requirements for certification by a professional engineer. *Id.* at 25,732.

In addition to the three-month stay, EPA issued a proposed rule staying compliance dates for these portions of the 2016 NSPS Rule. 82 Fed. Reg. 27,645 (June 16, 2017) ("Proposed Rule"). API filed comments in support of the Proposed Rule on July 27, 2017. American Petroleum Institute, Legal Comments on EPA's Proposed Rule (July 27, 2017), EPA-HQ-OAR-2010-0505-10577 ("API Comments"). On November 8, 2017, EPA issued a notice of data availability ("NODA") that explains in further detail the legal basis for the Proposed Rule. 82 Fed. Reg. 51,788 (Nov. 8, 2017). As EPA notes, it possesses the legal authority under sections 111(b) and 301(a)(1) of the CAA to amend the compliance deadlines in the 2016 NSPS Rule through "phase-in" periods. *Id.* at 51,791 (identifying both section 111 and section 301 as providing legal authority for the Proposed Rule); *see also* API Comments at 3-6, 12-14.

B. Section 111 of the CAA Provides the Agency With Authority To Extend the Relevant Compliance Deadlines Through Phase-In Periods.

As the NODA explains, EPA has authority under section 111 of the CAA to extend or "phase-in" the relevant compliance dates in the 2016 NSPS Rule. EPA issued the 2016 NSPS Rule under section 111(b)(1)(B) and can, as it notes, use the "same statutory authority" to extend the relevant compliance deadlines in the rule. 82 Fed. Reg. at 51,789. EPA correctly notes that agencies have inherent authority to revise or reconsider prior decisions, including "the appropriate length of the phase-in periods provided in the 2016 Rule for specific requirements, as well as whether to provide one for phasing in an additional compliance assurance measure." *Id.* at 51,790. Under this authority, EPA proposes to "extend the current phase-in periods for the fugitive emissions requirements and well site pneumatic pump requirements, as well as providing one for the requirement for certification of closed vent systems by a professional engineer." *Id.*

As discussed further below, section 111 allows EPA to establish a reasonable compliance period after the effective date of a rule and does not restrict how EPA can set compliance dates for

NSPS. Further, the statute does not proscribe when compliance must be obtained when EPA conducts a voluntary, ahead-of-schedule review of NSPS, as EPA did with the 2016 NSPS Rule.

EPA has authority under the plain language of section 111(b) of the CAA to extend compliance deadlines. Standards of performance are effective upon promulgation. 42 U.S.C. § 7411(b)(1)(B). Under the Act, however, a rule's effective date can differ from its compliance dates. For example, section 112(i) has separate, specific instructions for when a rule becomes effective *and* when compliance is required. *Id.* § 7412(i). This demonstrates that Congress does not consider the terms "effective date" and "compliance date" to be synonymous. *See id.* § 7412(d). Section 111 specifies when a rule must be effective but, unlike section 112, does not state when regulated sources must achieve compliance with NSPS. Consequently, EPA has discretion to establish reasonable compliance dates that are after the effective date of NSPS.

In the NODA, EPA states that it can "extend the current phase-in periods for the fugitive emissions requirements and well site pneumatic pump requirements" and establish a phase-in period "for certification of closed vent systems by a professional engineer," because agencies have inherent authority to revise or reconsider prior decisions. 82 Fed. Reg. at 51,790. As a reasonable exercise of its ability to revise rules and reconsider its decisions, the Agency may decide to revise "the appropriate length of the phase-in periods provided in the 2016 [NSPS] Rule for specific requirements, as well as whether to provide one for phasing in an additional compliance assurance measure. . . ."[2] *Id.*

EPA also has discretion to establish phase-in periods here because the 2016 NSPS Rule was the result of EPA's voluntary rulemaking, not the statutorily-required 8-year review of the oil and gas NSPS. Section 111(b)(1)(B) requires EPA to review the NSPS for each source category every 8 years, unless "such review is not appropriate in light of readily available information on the efficacy" of the NSPS. 42 U.S.C. § 7411(b)(1)(B). In 2011, EPA conducted this required review of the oil and gas NSPS and issued a proposed rule to revise the NSPS. 76 Fed. Reg. 52,738, 52,740-41, 52,754 (Aug. 23, 2011). In 2012, EPA issued a final revised NSPS based on its statutorily-required review. 77 Fed. Reg. at 49,490. The next 8-year review was not required until at least 2020, but EPA voluntarily reviewed the NSPS early, issuing the 2016 NSPS Rule

[2] EPA has used this approach in several other NSPS rules, as API noted in its comments on the Proposed Rule. API Comments at 5. EPA included future compliance deadlines in a 2012 NSPS rule for the oil and gas sector and in at least two other rules. *See* 77 Fed. Reg. 49,490, 49,517-19 (Aug. 16, 2012) (establishing phased requirements for reduced emissions completions equipment based on availability and cost considerations); *id.* at 49,500, 49,525-26 (establishing a one-year phase-in period for storage vessel controls); 70 Fed. Reg. 28,606 (May 18, 2005) (establishing mercury standards under section 111 for coal-fired electric utility steam generating units using a two-step compliance program); 73 Fed. Reg. 3568 (Jan. 18, 2008) (finalizing NSPS for stationary spark ignition internal combustion engines that included delayed compliance dates).

years ahead of the statutory deadline. Thus, extending or phasing-in the relevant compliance deadlines for the 2016 NSPS Rule does not result in an extension of the statutorily-mandated schedule for 8-year review of these NSPS.

Further, EPA asserts it has discretion to issue new standards of performance regardless of the timing of the 8-year review. 82 Fed. Reg. at 51,789 ("EPA has discretion under CAA section 111(b)(1)(B) to add new standards of performance for additional pollutants or emission sources not previously covered concurrent with, or independent of, the 8-year review."); *id.* at 51,790 ("[T]here is no reason that the EPA's authority and discretion to promulgate such standards should be constrained by the timing of the 8-year review. The EPA, therefore, reasonably interprets CAA section 111(b)(1)(B) to allow the Agency to exercise its discretion to promulgate new performance standards for additional sources or pollutants when appropriate (concurrent with or independent of the 8-year review)."). EPA states it issued the 2016 Rule under this authority. *Id.* at 51,790. In such circumstances, EPA has discretion to establish phase-in requirements.[3]

C. Section 301(a) of the CAA Also Provides Additional Legal Support for the Proposed Rule.

In the NODA, EPA reasonably and lawfully identifies section 301(a) of the CAA as supplemental authority for its proposed phase-in of compliance deadlines for the 2016 NSPS Rule. EPA accurately notes the "broad rulemaking authority" it has under section 301. 82 Fed. Reg. at 51,790-91 (discussing section 301 case law and explaining that it justifies "phase-in" periods here). Section 301 grants EPA authority to issue "such regulations as are necessary to carry out" its obligations under the Act. 42 U.S.C. § 7601(a)(1).

API agrees with EPA's explanation in the NODA that it is necessary for EPA to extend these deadlines to carry out its obligations under the CAA. As EPA explained, a "phase-in" is necessary for the fugitive emission requirements because without it, "regulated entities would incur significant and potentially unnecessary additional costs and compliance burden to implement the 2016 Rule, and, in some cases, at the expense of disrupting or complicating compliance with applicable state programs, just to later revert back to what they were doing in the first place." 82 Fed. Reg. at 51,791. EPA promulgated the AMEL in the 2016 NSPS Rule to avoid these very problems. *Id.* As such, EPA is correct that "it is not clear that the marginal

[3] API also notes EPA's alternative authority under section 111 to establish future effective dates based on its determination of the best system of emission reduction, which was discussed in more detail in API's comments on the Proposed Rule. API Comments at 4-5.

additional emission reductions achieved during the EPA's reconsideration process outweigh the potential disruption to existing state programs and company-specific programs." *Id.*

Regarding the well site pneumatic pump requirements, EPA explains that some sources require greater clarity regarding the definition of "greenfield site" in the technical infeasibility exemption and that this provision places sources experiencing actual technical infeasibility at risk of being in noncompliance. As such, "[d]elaying these requirements until the EPA resolves this potential problem through its reconsideration process is consistent with the 2016 [NSPS] Rule to require emission reductions from well site pneumatic pumps only where it is technically feasible to do so." *Id.* EPA also notes that it is necessary for EPA to phase-in the closed vent certification requirement for a professional engineer because "EPA had not considered its cost and whether the additional assurance justifies such expenditure," which is contrary to "section 111 of the CAA, which expressly identifies cost as a factor for consideration when promulgating emission standards." *Id.*

API agrees that all of the requirements of section 301 are met here. EPA's section 301 authority is broad and addresses when regulations are necessary to carry out EPA's duties under the Act. *See, e.g.*, *NRDC v. EPA*, 22 F.3d 1125, 1148 (D.C. Cir. 1994) (agreeing that EPA had authority under section 301 to issue binding basic inspection and maintenance programs rules); *Specialty Equipment Market Ass'n v. Ruckelshaus*, 720 F.2d 124, 138 (D.C. Cir. 1983) (holding that EPA had authority under section 301 to create a reimbursement scheme for vehicle manufacturers "even though the statute does not specifically authorize such a scheme"); *Citizens To Save Spencer Cty. v. EPA*, 600 F.2d 844, 873 (D.C. Cir. 1979) (upholding EPA's use of rulemaking, on the basis of section 301(a)(1), to resolve a conflict between two provisions of the Act).

EPA may use section 301 of the CAA when necessary, provided that Congress has not written a "clear impediment to the issuance" of a regulation, *NRDC v. EPA*, 22 F.3d at 1148, or no other "statutory language on point" exists, *NRDC v. EPA*, 749 F.3d 1055, 1063 (D.C. Cir. 2014). Nothing in the CAA (or any other statute) bars EPA from using its authority under section 301(a)(1) in this instance. *See id.* Section 307(d) of the CAA cannot be deemed a more specific provision because that provision applies only to mandatory reconsideration proceedings, and EPA's reconsideration proceedings here do not meet the criteria for mandatory reconsideration. *See Clean Air Council v. Pruitt*, 862 F.3d 1 (D.C. Cir. 2017). As such, section 307(d) does not apply here. Moreover, section 705 of the Administrative Procedure Act cannot be deemed a more specific provision because it is a portion of a different statute and therefore sheds no light on EPA's CAA rulemaking authority.

Phase-in periods are necessary for EPA to meet the statutory standard under section 111 of the CAA and respect the process enshrined in section 307 of the CAA. Specifically, it would

undermine the statutory purpose and text of section 111 for EPA to require current compliance with regulations that are duplicative of state requirements, provide little or no environmental protection, impose significant compliance costs and burdens on regulated entities, and cannot be said to constitute BSER. There is nothing in the Act that is a "clear impediment" to staying the relevant compliance dates here. *NRDC v. EPA*, 22 F.3d at 1148.

Finally, there are no statutory deadlines that prevent EPA's use of section 301 here. As previously explained, EPA completed the required 8-year review of the NSPS in 2012, and the next review is not required until at least 2020. 42 U.S.C. § 7411(b)(1)(B). The provisions EPA proposes to stay here were promulgated in the 2016 NSPS Rule, which EPA undertook *after* it completed its required 8-year review of the oil and natural gas NSPS in 2012. By staying certain provisions of the 2016 NSPS Rule, EPA would not be circumventing this review cycle.

2. Support for Compliance Phase-in Extensions

In the Notices of Data Availability for both the 3-month and 2-year stays, EPA seeks comments, data, and any other information that would help the EPA determine whether a phase-in is needed for certain Subpart OOOOa requirements and, if so, the length of such period. As stated in our August 8, 2017 letter, API believes that EPA requires additional time to address issues in the rule, but our members indicate that the most concerning issues are:

> (1) Technical problems with implementation of the rule for specific and unique operational situations that create untenable situations for meeting compliance, and
>
> (2) Certain requirements and associated burden on operators that provide little or no environmental benefits.

With respect to the technical problems raised in previous comments, it is noted that the problems are generally not widespread issues (e.g. delay of repair scenarios, addressing leak detection requirements in very cold environments, etc.). The fugitive emission compliance obligations were only effective for two months and the pneumatic pump requirements were effective for less than one year during the initial compliance period for Subpart OOOOa. Therefore, many of the issues raised in API's reconsideration request and in our prior comments on the stays may not be reflected in most initial compliance reports submitted earlier this fall. However, it is also critically important to note that it is not possible to predict when applicable sources could experience the technical issues API has raised. Without a compliance extension to allow time to revise certain aspects of the rule, operators are exposed to potential non-compliance scenarios.

One example of a potential noncompliance scenario is the inability to conduct fugitive emission surveys for prolonged periods of time in cold weather environments. For example, as stated in ConocoPhillips Alaska Inc.'s letter dated December 4, 2015, temperatures on the Alaskan North Slope can remain below the acceptable range for operation of leak detection equipment for four or more consecutive months. This not only limits the periods that semi-annual surveys can be conducted at well sites located on the North Slope, but also makes it impossible to complete the initial monitoring surveys within 60 days during winter months for a new or modified well site. EPA has previously set precedent within Subpart OOOO and Subpart OOOOa to address such challenges. The rules currently allow for an exemption from LDAR in §60.5401(e) and §60.5401a(e) for natural gas processing plants located on the Alaskan North slope. Consistent with this precedent, API recommends EPA consider similar exemptions from LDAR for well sites and compressor stations on the Alaskan North Slope.

More generally, there are similar instances for other locations that experience extreme cold weather (e.g., assets in North Dakota and Wyoming) such that winter temperatures may stay below the acceptable range to operate the leak monitoring equipment throughout the initial 60 days of operations a new or modified well site. EPA recognized this challenge by providing a waiver due to cold temperatures in §60.5397a(g)(5) for compressor stations. API recommends that EPA also provide a similar waiver for well sites.

Another example is specific to the delay of repair requirements found in §60.5397a(h)(2). If specialty parts are not available and need to be ordered or if a certain repair on a specific leak would take a prolonged period of time to complete, operators could be forced to reconcile a customer demand (e.g., feed of fuel to a power plant) by restarting a compressor after an unplanned event (e.g., equipment trip) against remaining shutdown for prolonged period of time to enable the repair of what could be a very small and insignificant leak. See further discussion of such leak repair scenarios in Section 3.b. of this letter.

In our December 4, 2015 comments on the draft Subpart OOOOa rule, API expressed the need for a phase-in period for certain provisions (e.g., leak detection and repair at wells sites and compressor stations, control of pneumatic pumps, etc.) and EPA provided time for phasing-in these requirements in the final rule. While some operators may be experiencing challenges linked to the availability of resources, the primary objective for an extension of the compliance deadlines is to allow EPA enough time to address the issues on record. This includes fixing technical problems with the rule, providing clarifying language better reflecting EPA's intent, and removing or otherwise addressing requirements that were not properly considered during the notice and comment process. In parallel, this time will allow the Agency to properly consider new information and assess its impacts as part of the reconsideration process.

API encourages the Agency to work as quickly as possible to address the issues raised in the reconsideration process. While many issues can be fixed in less than 2 years, providing up to 2

years is appropriate to avoid further extension of compliance deadlines. API sees no reason that more than 2 years' time would be required.

3. Fugitive Emissions Requirements

a. 3rd Party Equipment (e.g., equipment such as meters owned by midstream operators):

As stated in API's August 8, 2017 letter, the leak monitoring and repair requirements should not apply to all equipment at a well site or compressor station regardless of ownership. As an initial matter, the potential emissions from fugitive midstream equipment at well sites are insignificant to the costs associated with establishing leak detection and repair programs. Further, based on the definition of a "well site", it can be interpreted that EPA intends the definition of a well site to apply to the producers' operations at the well site, and not ancillary equipment separately owned and maintained by third-party midstream companies. As set forth in the definition, a well site means *"one or more surface sites...constructed for the drilling and subsequent operation of any oil well, natural gas well, or injection well."* It is the producer of the well that constructs, drills and operates the well. As stated in the NODAs, this definition has resulted in "confusion as to the appropriate scope of components that are included in the definition of the well site for the fugitive emission requirements," particularly with respect to "ancillary midstream assets (e.g., meters)" that are "owned by legally distinct companies from the well site owner and operator and could have limited emissions." 82 Fed. Reg. at 51,798; 82 Fed. Reg. at 51,792

In addition, midstream operators have no way of confirming and controlling when a well site may become modified and subject to the leak detection and monitoring requirements for well sites. In §60.5365a(i)(3), the requirements that trigger modification of well sites includes any time a new well is drilled, or when an existing well is hydraulically fractured, or refractured. Midstream operators have no control over, nor advance knowledge of, when a well site operator takes actions that may constitute a modification. There are many instances where insignificant equipment owned by a midstream company, such as a meter run, is located at a well site along with equipment owned and operated by the producer. There are legal and logistical issues that can prevent the midstream operator from being able to comply with Subpart OOOOa for that small piece of equipment based on actions made by another operator. This presents significant practical issues with renegotiating contractual obligations on the thousands of sites[4] that may eventually be impacted by these requirements, particularly as facilities are modified over time. It is not a reasonable expectation that these arrangements can readily provide for these circumstances.

[4] At least one member company has hundreds of locations currently affected and another member company estimates thousands of locations will eventually be affected as sites are modified.

API recommends EPA provide clarification that midstream equipment are not part of the definition of a well site, and the requirements were intended to be applicable to the well site operator only.

b. Delay of Repair

As API commented in our August 8, 2017 letter, while the concept of delayed repair is appropriate and necessary, the current rule language describes events that may not present safe conditions to perform leak repair. The delay of repair provisions as written do not reflect the realities of well site and compressor station operation, where blowdowns can occur as part of standard operations to prevent safety concerns. Unscheduled and emergency shutdowns occur from time to time, and can last a very short time before service is returned. As written, the rule requires operators to make repairs following a blowdown or during an unscheduled or emergency shutdown and this requirement does not allow adequate time to make certain repairs that require specialty parts, logistical prearrangements, skilled labor, etc. Specialty parts are sometimes required to be ordered from the manufacturer and may take longer than 30 days to arrive, which creates an untenable situation for completing the repair within 30 days in absence of a delay of repair provision specific to parts availability. This is especially a concern for locations on the Alaska North Slope that contain custom parts designed for the Arctic environment.

While these situations will occur infrequently and most repairs will be completed expeditiously, operators must have flexibility to delay repair when warranted. Although such situations are expected to be uncommon, the rule requirements have the potential to lead to prolonged shutdowns that could last days or weeks. For example, during the recent hurricane events in Texas and Florida, certain compressor stations experienced emergency shutdowns that were unplanned. If a compressor station was subject to Subpart OOOOa and had previously identified a leak that was on delay of repair, at least a portion of the compressor station (where the leak is occurring) would have had to remain offline for additional time until the leak could be repaired per the current requirements. Coordinating such repair during such a natural disaster event, especially if a specialty part is required to complete repair for a fugitive emission source, is not reasonable and the impacts and cost impacts of such a scenario were certainly not considered by EPA during the rulemaking process.

In some cases, such as on the Alaska North Slope and northern areas of the lower 48 states, the shutdown of a facility or a group of facilities in the winter can pose significant risks, including potentially the lack of primary electricity generation and space heating, and the potential for idle flow lines to gel or freeze. Backup diesel power generation is available only in limited capacities, and has higher emissions than gas turbines. In such extreme cases, bringing critical facilities back on line should not be delayed for relatively minor repairs for fugitive emissions.

The rule should allow for such overriding considerations and not put the operator in a position of having to elect between regulatory compliance and prudent facility operations.

Additionally, the language in §60.5397a(h)(2) presumes that various compressor station shut down events and well shut-ins would necessarily result in the blow down of all equipment located on site (including the component on delay of repair). This is not accurate. For example, some equipment on site may remain isolated, but under pressure (such as the line pressure of the site). As written, the rule language could be interpreted to mean that all equipment must be depressurized during a shutdown in order to repair the fugitive leak. In such circumstances, the emissions from forcing blow down of all equipment can be greater than the emissions associated with the component leaking on delay of repair.

There are several instances where a well is shut in automatically or manually for a very short period of time before production is restarted. Specifically, there are many well sites that have a flash gas compressor on site to collect gas from a low pressure separator or have a VRU that collects flash gas from storage tanks. These units compress the gas to a pressure sufficient to get the gas into a sales line. Depending on the remoteness of the well site and other factors, some operators will configure the equipment instrumentation so that when a flash gas compressor and/or a VRU trips offline, the well is automatically shut-in to prevent a short-term release of gas from pressure relief valves. A well could also be shut-in due to an emergency of some type, a fault in instrumentation, or a power outage. In most of these cases, the process equipment is not depressurized so that the well can be brought back into production and normal operations resumed as quickly as possible. If a fugitive component on delay of repair located at a well site with this type of configuration would need to be repaired prior to restart, it could result in the blowdown of pressurized equipment in order to fix a potentially small leak. This can result in significant cost to the operator due to lost revenue for a very small benefit, if any, to the environment considering the potential need to blowdown equipment for the repair.

API does not believe EPA's intent was to create such scenarios described and recommends the Agency provide clarification related to the delay of repair provisions to mitigate these technical, safety, and environmental issues.

API encourages the Agency to work as quickly as possible to address the issues raised in the reconsideration process. While many issues can be fixed in less than 2 years, providing up to 2 years is appropriate to avoid further extension of compliance deadlines. API sees no reason that more than 2 years' time would be required.

c. Alternative Means of Emission Limitation Provisions

Adherence to the Clean Air Act Section 111(h) outlines the procedures for Alternative Means of Emission Limitation (AMEL) work practices, which includes a process that is labor intensive, time consuming and provides little incentive for operators to participate. As API stated in our August 8, 2017 letter, the AMEL provisions included in the rule are not sufficiently clear to facilitate effective application and approval of AMEL, and therefore fail to serve their intended

purpose. The ability to apply for and obtain AMEL for fugitive emissions requirements determines whether operators of well sites and compressor stations, in particular those subject to existing state programs or those which have invested in emerging technology, must redirect or expend additional resources and efforts to implement the 2016 Rule's fugitive emissions requirements. This is negatively impacting and complicating compliance with applicable state programs and will hinder progress in using emerging technology - all while providing little to no incremental environmental benefit.

API agrees the Agency requires additional time to review the proposed AMEL process and reduce burden for Industry where duplicative requirements occur or where emerging technology has been identified.

4. Pneumatic Pumps

a. Greenfield sites

As stated in API's August 8, 2017 letter, pneumatic pumps at "greenfield" well sites are not currently eligible to claim technical infeasibility associated with the control of an affected pneumatic pump. Due to lack of clarity regarding EPA's intent, the current rule language puts operators into a potentially untenable situation. This occurs if regulatory authorities interpret a "greenfield" well site as synonymous with "new" for Subpart OOOOa, thereby removing future technical infeasibility determinations for the entire life of a well site. It is unclear if a well site remains a greenfield site for the entire life of the well or only for a short period of time.

Initial design for construction of a greenfield site may not require installation of a pneumatic pump or a control device for the early operational period of a well site. At some point later in the life of a well (which could be years), site design requirements may change where a new control and/or pump is installed and a technical infeasibility determination is justified but not available if the site is considered greenfield throughout the life of the site. Further, even for a new site, process or control device design requirements may not be compatible with controlling pneumatic pump emissions.

Some examples include the following:

- A new site contains equipment owned and operated by two different entities and the owner/operator of an affected pneumatic pump is not the owner/operator of a control device located at the same site. For instance, a dehydration unit owned and operated by the gathering company could have a control device, but the well site owner or operator cannot route the pump emissions to the gathering company's control device.
- A new site design only requires installation of a high pressure flare to handle emergency and maintenance blowdowns. It may not be technically feasible for a low pressure pneumatic pump discharge to be routed to a high pressure flare. In addition, the flare

or other combustion device may have a rated heat capacity that would be exceeded if the discharge of pump were to be sent to it.

- Another and likely more common example would be if a new greenfield site design calls for installation of a pneumatic diaphragm pump but no control device is present. Only a process heater or boiler is present at the facility. The design and operation of a given pneumatic pump and co-located process heater or boiler may not be compatible. The heater and boiler will be designed based on the process it needs to support without regard to the additional capacity or operational need to control a pneumatic pump. More specifically, due to the small size (generally 125,000 Btu per hour to 2.5 mmBtu per hour) of many heaters or boilers used at well sites, burner capacity may be insufficient to compensate for emission combustion of additional large pneumatic diaphragm pump discharge and may result in frequent safety trips and burner flame instability (i.e., high temperature limit shutdowns, loss of flame signal, etc.). Additionally, industry guidelines (i.e., NFPA 86) would prohibit the use of boilers or heaters as control devices where the following criteria are not met: the operating temperature must be a minimum of 1400°F, emission source safety interlocks, etc.

EPA can address the greenfield issues by providing clarification that allows for technical infeasibility determinations at all well sites (and not just at non-greenfield sites). Additionally, EPA should clarify that heaters and boilers are not considered control devices with respect to pneumatic device provisions under Subpart OOOOa. It is noted that additional time to phase in the requirements as written will not address the issues API has raised. Rather, the time will allow for EPA to appropriately review and provide clarifications.

5. Professional Engineer Certifications

Under current rule provisions, many companies face additional costs and project delays for a third-party Professional Engineer (PE) to design and certify closed vent systems and/or certify technical infeasibility associated with control of a pneumatic pump. As an update to our prior comments, API members report costs from $2,000 - $9,000 per certification; with actual cost dependent on the site complexity and thus the amount of engineering design time involved.

Some challenges experienced by operators include the following:

- Multiple member companies have had difficulty finding professional engineers willing to certify the design based on the certification statement included within the rule. Engineers were concerned with the liability of the statement and whether they had sufficient insurance or bonding to cover such a certification.
- At least one state, Wyoming, is taking a position that PE certifications for sources located in that state must be completed by a PE registered in Wyoming. While EPA indicated that this was not their intent, EPA failed to determine how state regulations or

practices might result in such situations. This new, unanticipated additional burden is not trivial and can result in material cost and schedule impacts on operators.

- At least one member company has experienced additional burden with obtaining the PE certification for a new tank installed at an existing facility. In this instance, the third-party consultant would not certify the closed vent system (CVS) individually, since this specific contractor did not originally design the entire facility-wide system. While the CVS system met engineering best practices, the certification could not be provided since this professional engineer was not willing to certify only a portion of the overall process operations / system.
- Since certification is on the design specifications of the facility and not necessarily only the CVS, any alteration at the facility must be re-reviewed, no matter how material the change may be to the operation of the CVS. Therefore, costs incurred to maintain PE certifications are generally ongoing and not a one-time expense.

A technical assessment of a closed vent system by a qualified person is an appropriate action for compliance assurance of the emission standards for storage vessels, compressors and pneumatic pumps. However, the certification requirement to have the assessment performed by a licensed Professional Engineer presents additional challenges and unintended costs than EPA considered when finalizing these requirements. Meanwhile, the PE certification process does not add significant environmental benefit to the rule provisions since there are provisions in place for ongoing compliance specific to the operation of closed vent systems, a general duty for all operators to minimize environmental impacts, and annual report submittals must be approved by a certifying official.

Therefore, API recommends EPA clarify that technical assessments can be performed by a qualified person in oil and gas facility design and does not require additional certification by a licensed Professional Engineer for both CVS and for the technical infeasibility assessment associated with control of a pneumatic pump.

Message

From: Hilary Moffett [moffetth@api.org]
Sent: 11/29/2017 7:05:21 PM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
CC: Atkinson, Emily [Atkinson.Emily@epa.gov]
Subject: FW: GHG Inventory

Hey There! Hope you **Ex. 6 Personal Privacy (PP)** !!

Just wanted to circle back on this email. I just want to make sure you guys are aware of what the career team is doing on the inventory and how this could inaccurately depict emissions. This data is so important to all that EPA does, so we want to make sure it fairly represents all the effort to decrease emissions. Let me know if you have some time to chat. Alex mentioned that Emily has taken on the role of helping manage your schedule, so I've cc'd her here. I know we're asking a lot of you guys right now, so I appreciate any time you can find.

Thanks,
Hilary

From: Hilary Moffett
Sent: Monday, November 20, 2017 11:20 AM
To: gunasekara.mandy@epa.gov
Subject: GHG Inventory

Hey Mandy,

I hope you had **Ex. 6 Personal Privacy (PP)** ???

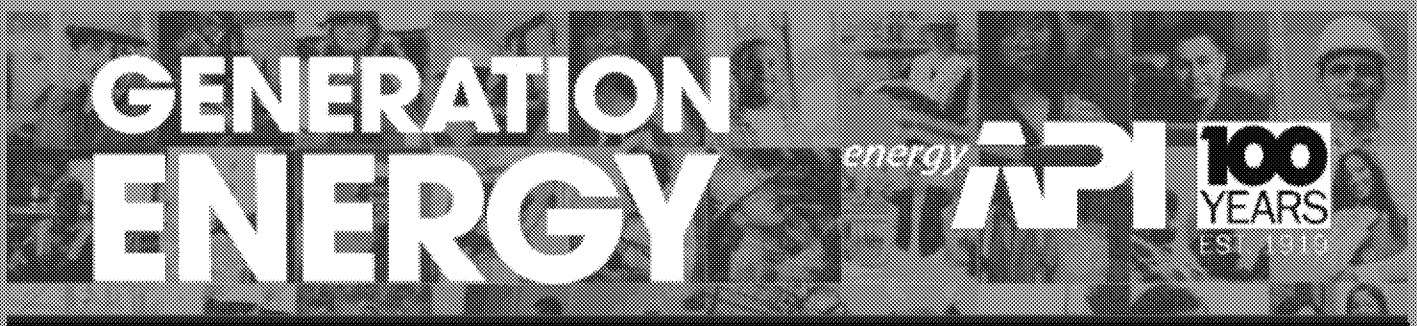
I wanted to flag an issue that is pretty important as we look toward next spring. We expect to see the the GHG inventory released in April. Some changes have been made to what is included in the inventory (namely the inclusion of gathering and boosting) that will create the appearance of increased methane emissions. We worry about how the changes here will misinform the public perception of the industry and the great work we are doing to lower emissions. Is this issue on your radar? If not, would you have Tim the week of December 11-15 for a group to come explain why the changes were made, what the outcome will be, and perhaps how we can work to preempt the inevitable issues that these changes will create.

Let me know how we can be helpful.

Thanks,
Hilary

Message

From: Mike Sommers [registrar@api.org]
Sent: 12/3/2018 3:47:03 PM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: You're Invited to API's State of American Energy 2019



The American Petroleum Institute invites you to

The 2019 State of American Energy luncheon – celebrating Generation Energy

We are in the midst of Generation Energy. More natural gas and oil is produced in the United States than any other country in the world. At the same time, U.S. carbon dioxide emissions are at their lowest levels in a generation, largely because of the growing role played by clean natural gas. Our industry is an economic engine, supporting 10.3 million jobs – to produce, deliver and refine natural gas and oil – as well as jobs associated with energy development and the personal spending of our workers.

Guided by smart policies and regulations that unleash innovation and progress, natural gas and oil are playing a powerful role in America's economic progress and will for generations to come.

Join me and industry leaders from coast to coast at the 2019 State of American Energy luncheon.

Sincerely,

MIKE SOMMERS
President and CEO, API

RSVP

BY DECEMBER 31st
This invitation is non-transferable.

WHEN

TUESDAY, JANUARY 8, 2019
11:30 A.M.– 1:30 P.M.

WHERE

RONALD REAGAN BUILDING AND INTERNATIONAL TRADE CENTER
ATRIUM BALLROOM
1300 PENNSYLVANIA AVENUE, NW
WASHINGTON, DC 20004
Please use entrance on 14th Street

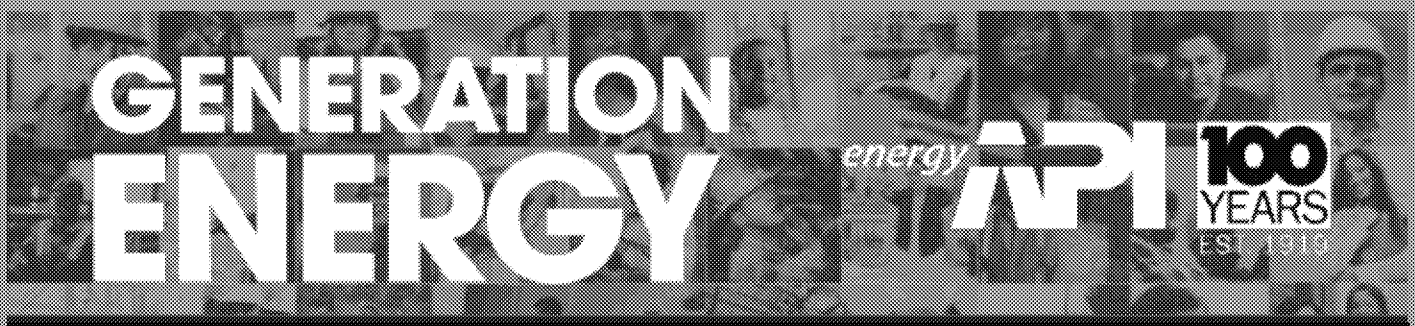
energy API | POWER PAST IMPOSSIBLE.ORG

This event has been designed to comply with the gifts and ethics rules of the U.S. Senate and House of Representatives as a "widely attended event." Employees of the executive branch may wish to consult their Designated Agency Ethics Official about any rules that may apply to their attendance at this event.

powered by cvent

Message

From: Mike Sommers [registrar@api.org]
Sent: 11/27/2018 4:11:51 PM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: You're Invited to API's State of American Energy 2019



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powered by cvent

Appointment

From: Schaaff, Lesley [lschaaff@hess.com]
Sent: 11/12/2018 1:56:25 PM
To: Ex. 6 Personal Privacy (PP) Amy L. Farrell - American Wind Energy Association (afarrell@awea.org) [afarrell@awea.org]; anna.burhop@bracewell.com; Barbara Camille Ex. 6 Personal Privacy (PP); Bennett, Tate [Bennett.Tate@epa.gov]; Bolen, Brittany [bolen.brittany@epa.gov]; Melissa Shute [mshut@equinor.com]; Campbell, Catherine [Catherine.Campbell@dlapiper.com]; Carrie Domnitch [domnitchc@api.org]; Cat Giljohann (FERC) [Catherine.giljohann@ferc.gov]; catherine@cgastrategies.com; Bertrand, Charlotte [Bertrand.Charlotte@epa.gov]; Cooperstein, Sharon [Cooperstein.Sharon@epa.gov]; Curry, Bridgid [Curry.Bridgid@epa.gov]; Daigle, Stephanie N., Celanese [stephanie.daigle@celanese.com]; downey.magallanes@bp.com; elitr@dongenergy.com; Elizabeth Boylan [Elizabeth.boylan@solvay.com]; Elizabeth Horner [Elizabeth_Horner@epw.senate.gov]; elizabeth.craddock@iadc.org; Felicia Barnes (FBarnes@hunton.com) [FBarnes@hunton.com]; Gentile, Laura [Gentile.Laura@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Ex. 6 Personal Privacy (PP) hilary_moffett@oxy.com; hopkinsh@api.org; 'jeanne. o. mitchell@exxonmobil. com' [jeanne.o.mitchell@exxonmobil.com]; Jennifer Smith [Smith.Jennifer@chevron.com]; Jennifer Thompson [jennifer.thompson@shell.com]; jennifer.biever@hoganlovells.com; jennifer@jas-strategies.com; Ex. 6 Personal Privacy (PP) Kate MacGregor (katharine_macgregor@ios.doi.gov) [katharine_macgregor@ios.doi.gov]; kate.fay@nblenergy.com; Ex. 6 Personal Privacy (PP) Kim.Harb@alyeska-pipeline.com; Kime, Robin [Kime.Robin@epa.gov]; kjersten.s.drager@conocophillips.com; knathanson@crowell.com; Kristin.Whitman@shell.com; Laura Vaught - EPA (laura.e.vaught@dom.com) [laura.e.vaught@dom.com]; Lauren Hagen Ex. 6 Personal Privacy (PP); Lauren S [Lauren.Sheehan@valero.com]; Levine, Carolyn [Levine.Carolyn@epa.gov]; lindens@api.org; Lisa Ceglia (Lisa.Ceglia@smiths.com) [Lisa.Ceglia@smiths.com]; Liz Reicherts (Elizabeth.reicherts@siemens.com) [Elizabeth.reicherts@siemens.com]; Mara E. Zimmerman [ZimmermanM@api.org]; Marnie Funk (Marnie.Funk@shell.com) [Marnie.Funk@shell.com]; Mary Martin (mary.martin@mail.house.gov) [mary.martin@mail.house.gov]; Mayya [mayya@chevron.com]; Meadows@api.org; Megan Bel Miller (Megan.Miller@mail.house.gov) [Megan.Miller@mail.house.gov]; Misty McGowen (misty.mcgowen@p66.com) [misty.mcgowen@p66.com]; Nagle, Deborah [Nagle.Deborah@epa.gov]; Beck, Nancy [Beck.Nancy@epa.gov]; Ex. 6 Personal Privacy (PP) Patel, Manisha D. [Manisha.Patel@wsp.com]; Patel, Manisha D. [patelmd@pbworld.com]; Patricia T [Patricia.Tamez@shell.com]; Prianka P. Sharma (Prianka.Sharma@sba.gov) [Prianka.Sharma@sba.gov]; Puneet Verma [PVerma@chevron.com]; rebecca.rosen@dvn.com; rmiller@forbes-tate.com; Sarah Gainer [sarah.gainer@chk.com]; Ex. 6 Personal Privacy (PP) smm@nei.org; Suzanne M. Lemieux [LemieuxS@api.org]; Swink, Suzanne [Suzanne.Swink@bp.com]; Victoria Souza (Home Fax) Ex. 6 Personal Privacy (PP)]; Wendy Kirchoff [Wendy.Kirchoff@nblenergy.com]; Souza, Victoria [VSouza@hess.com]; Letendre, Daisy [letendre.daisy@epa.gov]; Ex. 6 Personal Privacy (PP) 'kelsey.voytovich@conocophillips.com' [kelsey.voytovich@conocophillips.com]; Avery, Kevin J (Kevin.J.Avery@conocophillips.com) [Kevin.J.Avery@conocophillips.com]
CC: Elisabeth-Anne Treseder [ELITR@orsted.com]; Hill, Amanda (HSGAC) [Amanda_Hill@hsgac.senate.gov]; Ex. 6 Personal Privacy (PP) Duncan, Emily [Emily.Duncan@nationalgrid.com]; Rachel Feinstein [feinstein@hpba.org]

Subject: Women in Energy (WinE) Happy Hour
Location: Bobby Van's Grill 1201 New York Avenue, NW

Start: 11/16/2018 9:30:00 PM
End: 11/16/2018 11:30:00 PM
Show Time As: Tentative

Recurrence: (none)

Ladies – I promise that this is my last update. Location added.

I wanted to get a date on the calendar for what is evolving into a biannual Women in Energy (WinE) Happy Hour. All are welcome, so feel free to forward this invitation.

A few disclaimers....

- If you should have been on MY list and got this through a forwarded message from someone else, forgive me! I'm simply relying on past invitation lists and have not individually scrutinized the names.
- Details will follow closer to the date.
- Feel free to suggest locations that will accommodate the group (leg work on your part appreciated).
- This is not a Hess sponsored event.
- No one is being invited to this event in any official capacity; just a bunch of friends that have known eachother over the years getting together.

Lesley

Ex. 6 Personal Privacy (PP)

Message

From: Hilary Moffett [moffetth@api.org]
Sent: 10/19/2017 1:43:21 PM
To: Dominguez, Alexander [dominguez.alexander@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: Methane Voluntary Program

Hi Mandy and Alex,

I hope this finds you well. In the past, API mentioned the voluntary efforts our companies are engaged in to lower methane emissions. We are working to launch a more formal API Voluntary Program early next year and would like the chance to come in and discuss the program particulars. Right now, our members are reviewing the program requirements and must make a decision about sign on by the first week of November. Are you guys available during the second week of November to chat about the voluntary efforts by industry and how this program, in conjunction with EPA efforts on the NSPS reconsideration, can result in some marked reductions in methane emissions.

Let me know if you have some time the second week in November.

Thank you for your consideration.

Regards,
Hilary

Message

From: Hilary Moffett [moffetth@api.org]
Sent: 10/12/2017 2:26:18 PM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
CC: Dominguez, Alexander [dominguez.alexander@epa.gov]
Subject: Ozone Implementation Assistance

Hi Mandy,

Hope you're doing well. Congratulations on such a big week with CPP!

I wanted to reach out about a meeting request for ozone implementation assistance. I know the Administrator has talked about looking at the Exceptional Events rule and possibly other rules that could help with implementation of the ozone standards. We are heavily invested in this conversation and would welcome the chance to come in and discuss specific ways that we believe EPA could address implementation issues.

Do you have time at the end of the month for a meeting with API members?

Thanks,
Hilary

Hilary Moffett
Director, Federal Relations
American Petroleum Institute
202-682-8040 (desk)
Ex. 6 Personal Privacy (PP) (cell)
MoffettH@api.org

Message

From: Will Hupman [HupmanW@api.org]
Sent: 4/21/2017 8:10:28 PM
To: Washington, Valerie [Washington.Valerie@epa.gov]
CC: Patrick Kelly [kellyp@api.org]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: RFS and the 2018 RVOs

Hi Valerie – Below is a list of folks planning to attend the meeting scheduled with Mandy for Tuesday at 11 am. Please let me know if I can provide you with any additional information. Also, would you be our point of contact for the guards at the front desk? Any other info that I'll need to give them upon arrival? Thanks, and hope you have a great weekend. Will

API Meeting Attendees – Tues. 4/26 at 11 am
Mike Brien – BP
Ryan Walker -- BP
Mike Birsic – Marathon Petroleum
Guy Beeman – Marathon Petroleum
Fred Walas -- Marathon Petroleum
Dave Sander – Chevron
Puneet Verma – Chevron
Bob Anderson – Chevron
Elisabeth Vrahopoulou -- ExxonMobil
Robert Nolan – ExxonMobil
Kristin Whitman – Shell
John Reese -- Shell
Dale Thanjan – P66
Jennifer Draper -- Motiva
William Woebkenberg -- Aramco
Patrick Kelly – API
Bryan Just – API
Erik Baptist – API
Khary Cauthen – API
Prentiss Searles -- API
Frank Macchiarola -- API
Will Hupman – API

Will Hupman
Director – Federal Relations | American Petroleum Institute
desk: 202-682-8396 | cell: Ex. 6 Personal Privacy (PP) | hupmanw@api.org

From: Will Hupman
Sent: Tuesday, April 18, 2017 12:10 PM
To: Washington, Valerie
Cc: Patrick Kelly
Subject: Re: RFS and the 2018 RVOs

Will do. I suppose that we'll plan to meet at EPA then?? Just want to make sure.

I'll send you a list in the next few days if that's OK. Thanks again, Valerie. Will

---

Will Hupman
Director – Federal Relations
American Petroleum Institute
desk: 202-682-8396
cell: Ex. 6 Personal Privacy (PP)
hupmanw@api.org

On Apr 18, 2017, at 12:03 PM, Washington, Valerie <Washington.Valerie@epa.gov> wrote:

> Yes,
> Can you send me a list of people that will be attending the meeting so I can give it to the guard.
>
> Thanks
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>
> **From:** Will Hupman [mailto:HupmanW@api.org]
> **Sent:** Tuesday, April 18, 2017 9:48 AM
> **To:** Washington, Valerie <Washington.Valerie@epa.gov>
> **Cc:** Patrick Kelly <kellyp@api.org>
> **Subject:** Re: RFS and the 2018 RVOs
>
> Thank you, Valerie!
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> Also, would Mandy be available to come to API (1220 L St. NW) to talk with our group? If not, we'd be happy to come to EPA. There would be about 20 folks total.
>
> Thanks again, Will
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> Will Hupman
> Director – Federal Relations
> American Petroleum Institute
> desk: 202-682-8396
> cell: Ex. 6 Personal Privacy (PP)
> hupmanw@api.org
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> > Good Morning Will,
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> > Mandy calendar for Tuesday April 25 she is available 10am and 11am
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> > Thursday April 27th she is free from 10am – 12noon and 3pm to 5pm
> >
> > ---
> >
> > **From:** Will Hupman [mailto:HupmanW@api.org]
> > **Sent:** Monday, April 17, 2017 8:40 AM
> > **To:** Washington, Valerie <Washington.Valerie@epa.gov>
> > **Cc:** Patrick Kelly <kellyp@api.org>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>
> > **Subject:** RE: RFS and the 2018 RVOs

Hi Valerie – I hope you had a great weekend. Just checking in on Mandy's availability for next week to meet with our API Fuels Group to discuss the 2018 RVOs for the RFS and the Point of Obligation issue. We're obviously happy to work around her schedule, but to get the ball rolling next Tuesday morning (4/25), Wednesday afternoon (4/26), or Thursday morning (4/27) work best on our end. I look forward to hearing from you. Thank you! Will

Will Hupman
Director – Federal Relations | American Petroleum Institute
desk: 202-682-8396 | cell: Ex. 6 Personal Privacy (PP) | hupmanw@api.org

From: Will Hupman
Sent: Tuesday, April 11, 2017 2:43 PM
To: 'Washington, Valerie'
Cc: Patrick Kelly
Subject: RE: RFS and the 2018 RVOs

Hi Valerie – I just wanted to circle back on the emails below to see if we could confirm a date, time, and location with Mandy? We'd be delighted to host her here at API (1220 L St. NW) with our Fuels Group on Tuesday morning (4/25), Wednesday afternoon (4/26), or Thursday morning (4/27). We're also happy to come to EPA if that's better. There will be roughly 20 folks total in our group. Thank you for your consideration. Will Hupman

Will Hupman
Director – Federal Relations | American Petroleum Institute
desk: 202-682-8396 | cell: Ex. 6 Personal Privacy (PP) | hupmanw@api.org

From: Will Hupman
Sent: Friday, April 07, 2017 8:56 AM
To: 'Gunasekara, Mandy'
Cc: Patrick Kelly; Washington, Valerie
Subject: RE: RFS and the 2018 RVOs

Thank you, Mandy!

Valerie – please let me know what additional information you need on my end. Will

Will Hupman
Director – Federal Relations | American Petroleum Institute
desk: 202-682-8396 | cell: Ex. 6 Personal Privacy (PP) | hupmanw@api.org

From: Gunasekara, Mandy [mailto:Gunasekara.Mandy@epa.gov]
Sent: Friday, April 07, 2017 12:41 AM
To: Will Hupman
Cc: Patrick Kelly; Washington, Valerie
Subject: RE: RFS and the 2018 RVOs

Hey Will,
I'd be happy to meet with the folks.
Valerie, can you set up a time and place for us to meet?

Thanks,
Mandy

From: Will Hupman [mailto:HupmanW@api.org]
Sent: Thursday, April 6, 2017 12:35 PM
To: Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>
Cc: Patrick Kelly <kellyp@api.org>
Subject: RFS and the 2018 RVOs

Hey Mandy – How's life at EPA so far? You're not busy at all, right?!? Haha. I'm sure it's been a whirlwind. I can only imagine…

I wanted to reach out on the 2018 RVOs for the RFS. We have our group of fuels experts in town in a few weeks, and I wanted to see if you'd be willing to join us at API to discuss potential volume numbers (and our justifications for recommendations)? Also, how those volumes may relate to the Point of Obligation issue. Would you potentially have any availability on Tuesday morning (4/25), Wednesday afternoon (4/26), or Thursday morning (4/27) to chat with us? We'll obviously work around your schedule if there's a better time during those days. And, if it's more convenient for us to come to you at EPA, we're happy to do that as well. The group should be roughly 20 folks total.

Please let me know if I can provide anything else on this in the interim. Appreciate your consideration, and hope to see you soon! Will

---

Will Hupman
Director – Federal Relations | American Petroleum Institute
desk: 202-682-8396 | cell: Ex. 6 Personal Privacy (PP) | hupmanw@api.org

Message

From: Will Hupman [HupmanW@api.org]
Sent: 4/20/2017 3:42:35 PM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
CC: Patrick Kelly [kellyp@api.org]; Washington, Valerie [Washington.Valerie@epa.gov]
Subject: Re: RFS and the 2018 RVOs

Hey Mandy -- I hope you're having a good week. I wanted to know if you'd like to chat briefly before Tuesday's meeting to see if there's anything I can help out with beforehand? Also, I just wanted to provide some details on what our group plans to say. Really, two areas. 1) on the 2018 RVOs, we wanted to provide you with suggestions on volume numbers in the upcoming rule and give justification for how we arrived at those numbers. 2) on Point of Obligation we'll stick to high level talking points on why we think any adjustment would be detrimental.

We'll have some fuels experts with us to get into the weeds on specifics and answer any technical questions if necessary. Our lobbyists (almost all of whom you know already) will be there as well. Anyway, let me know if I can get you anything in advance, and we'll look forward to seeing you Tuesday at 11 at EPA. I'll also shoot over a list of attendees to Valerie soon once we have that finalized. Thanks, Mandy. Will

---
Will Hupman
Director – Federal Relations
American Petroleum Institute
desk: 202-682-8396
cell: Ex. 6 Personal Privacy (PP)
hupmanw@api.org

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desk: 202-682-8396 | cell: Ex. 6 Personal Privacy (PP) | hupmanw@api.org

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desk: 202-682-8396 | cell: Ex. 6 Personal Privacy (PP) | hupmanw@api.org

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Subject: RFS and the 2018 RVOs

Hey Mandy – How's life at EPA so far? You're not busy at all, right?!? Haha. I'm sure it's been a whirlwind. I can only imagine…

I wanted to reach out on the 2018 RVOs for the RFS. We have our group of fuels experts in town in a few weeks, and I wanted to see if you'd be willing to join us at API to discuss potential volume numbers (and our justifications for recommendations)? Also, how those volumes may relate to the Point of Obligation issue. Would you potentially have any availability on Tuesday morning (4/25), Wednesday afternoon (4/26), or Thursday morning (4/27) to chat with us? We'll obviously work around your schedule if there's a better time during those days. And, if it's more convenient for us to come to you at EPA, we're happy to do that as well. The group should be roughly 20 folks total.

Please let me know if I can provide anything else on this in the interim. Appreciate your consideration, and hope to see you soon! Will

Will Hupman
Director – Federal Relations | American Petroleum Institute
desk: 202-682-8396 | cell: Ex. 6 Personal Privacy (PP) | hupmanw@api.org

Message

From: Matthew Todd [ToddM@api.org]
Sent: 8/8/2017 7:08:40 PM
To: Dunham, Sarah [Dunham.Sarah@epa.gov]
CC: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Page, Steve [Page.Steve@epa.gov]; Tsirigotis, Peter [Tsirigotis.Peter@epa.gov]; Culligan, Kevin [Culligan.Kevin@epa.gov]; Cozzie, David [Cozzie.David@epa.gov]
Subject: API Comments on EPA's Proposed NSPS OOOOa Stay
Attachments: 2017 08 08 NSPS OOOOa Extension API Comment Letter.pdf

Importance: High

Ms. Sarah Dunham,

Today, API submitted additional comments (attached) to the docket on the proposed rule to stay the compliance dates for certain portions of the New Source Performance Standards ("NSPS") 40 C.F.R. Part 60 Subpart OOOOa, "Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources: Stay of Certain Requirements" 82 Fed. Reg. 27645 (June 16, 2017). Please contact me with any questions.

Sincerely,

Matthew Todd
API
202.682.8319

Matthew Todd
Senior Policy Advisor

Regulatory and Scientific Affairs

1220 L Street, NW
Washington, DC 20005-4070
USA
Telephone 202-682-8319
Email toddm@api.org
www.api.org

August 8, 2017

The Honorable Scott Pruitt, Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

Attention: Docket ID Number EPA–HQ–OAR–2017–0346 & EPA–HQ–OAR–2010–0505
Submitted to the Federal eRulemaking Portal (www.regulations.gov)

Re: Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources: Three Month Stay of Certain Requirements & Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources: Stay of Certain Requirements

Dear Administrator Pruitt:

The American Petroleum Institute ("API") is pleased to submit the attached comments on the proposed rule to extend the compliance dates for certain portions of the New Source Performance Standards ("NSPS") 40 C.F.R. Part 60 Subpart OOOOa, "Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources: Stay of Certain Requirements" 82 Fed. Reg. 27645 (June 16, 2017) ("Proposed Rule"). API previously submitted comments on the legal authorities the United States Environmental Protection Agency ("EPA" or "Agency") possesses to issue a two-year stay of these provisions. These comments expand further on some of the technical issues and challenges industry would face in the absence of staying the provisions.

API represents over 625 oil and natural gas companies, leaders of a technology-driven industry that supplies most of America's energy, supports more than 10.3 million jobs and 7.6 percent of the U.S. economy, and, since 2000, has invested nearly $2 trillion in U.S. capital projects to advance all forms of energy, including alternatives. Most of our members conduct oil and gas development and production operations and are directly impacted by these proposed actions.

Throughout the development of the 2012 oil and gas NSPS rule and its amendments in 2016, API has maintained a collaborative working relationship with Agency staff to provide operational and emissions data to inform the developments of these important rules. During this time, our objective has remained the identification of cost-effective emission control requirements that reduce VOC emissions for new

sources and, as a co-benefit, also reduce methane. API encourages EPA to proceed with its review and revision of the underlying rule as expeditiously as possible, based on sound science and economics, considering the operational and technical issues that have already been raised in comments and litigation.

While the agency has proposed to extend the compliance dates for a targeted subset of the rule requirements for two years, there is nothing preventing the agency from reconsidering these issues, along with the other technical issues raised in API's August 2nd petition, in less than two years. Going forward, the agency should consider addressing any issues, on an expedited timeline, that can be easily addressed to provide the clarity the industry is seeking to comply with the rule.

Please contact me (202-682-8319) if you have any questions regarding the comment submittal.

Sincerely,

Matthew Todd

cc: Mandy Gunasekara, USEPA
Sarah Dunham, USEPA
Steve Page, USEPA
Peter Tsirigotis, USEPA
Kevin Culligan, USEPA
David Cozzie, USEPA

API's Technical Comments on EPA's Proposed Rule, "Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources: Stay of Certain Requirements" 82 Fed. Reg. 27645 (June 16, 2017)

Docket ID No. EPA–HQ–OAR–2010–0505, EPA–HQ–OAR–2017–0346

On July 27, 2017, API submitted comments[1] to the EPA regarding the legal authorities the agency possesses to extend the relevant compliance deadlines of the Subpart OOOOa provisions. The following comments expand further on some of the technical issues and challenges industry would face in the absence of a targeted extension of the compliance deadlines or staying of certain rule provisions.

In our August 2, 2016 petition, API raised specific technical issues that warrant reconsideration and review of the rule by the Agency. These issues still require attention, as do the issues raised by others, including the Independent Petroleum Association of America (IPAA), Texas Oil and Gas Association (TXOGA), and the Gas Processors Association (GPA).

More specifically, the following issues support the need to provide a 2-year compliance extension while the Agency considers new information and assesses its impacts as part of the reconsideration process.

1. Leak Detection and Repair

a. Delay of Repair

The language finalized in Subpart OOOOa regarding delay of repair of an identified fugitive leak requires more clarity because the language in §60.5397a(h)(2) erroneously presumes that various shutdown events and well shut-ins would result in the blowdown of all equipment located on-site, including the leaking component on delay of repair. This is not accurate and can lead to an untenable lack of clarity regarding compliance expectations.

§60.5397a(h)(2) states:

> *If the repair or replacement is technically infeasible, would require a vent blowdown, a compressor station shutdown, a well shutdown or well shut-in, or would be unsafe to repair during operation of the unit, the repair or replacement must be completed during <u>the next compressor station shutdown, well shutdown, well shut-in, after an unscheduled, planned or emergency vent blowdown</u> or within 2 years, whichever is earlier.* (Emphasis added)

While the concept of delayed repair is appropriate and necessary, the language underlined above describes events that may not present safe conditions to perform the repair. The delay of repair

[1] Docket ID No: EPA-HQ-2010-0505-10577

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provisions as written do not reflect the realities of well site and compressor station operation, where blowdowns can occur as part of standard operations to prevent safety concerns. Unscheduled and emergency shutdowns occur from time to time, and can last a very short time before service is returned. As written, the rule requires operators to make repairs following a blowdown or during an unscheduled or emergency shutdown and this requirement does not allow adequate time to make certain repairs that require parts, logistical prearrangements, skilled labor, etc. While these situations will occur infrequently and most repairs will be completed expeditiously, operators must have flexibility to delay repair when warranted. Although such situations are expected to be infrequent, the rule requirements have the potential to lead to prolonged shutdowns that could last days or weeks.

Additionally, the language in §60.5397a(h)(2) presumes that various compressor station shut down events and well shut-ins would necessarily result in the blow down of all equipment located on site (including the component on delay of repair). This is not accurate. For example, some equipment on site may remain isolated, but under pressure (such as the line pressure of the site). As written, the rule language could be interpreted to mean that all equipment must be depressurized during a shutdown in order to repair the leak. In such circumstances, the emissions from forcing blow down of all equipment can be greater than the emissions associated with the component on delay of repair. API does not believe EPA's intent was to create such scenarios.

Further, other federal and state LDAR regulations do not require that repairs be made immediately during emergency or unscheduled shutdowns. For example, 40 C.F.R. § 60.482-9a, Subpart VVa, allows delay of repair if the parts must be ordered and the repair must be made during a unit shutdown. Similar provisions are provided in state regulations as well (e.g., PA, WV, CO).

Imposition of these requirements during the pendency of the reconsideration is very burdensome, and in some cases infeasible. The agency should provide additional time to work with stakeholders to better understand and account for the nature of operations and update the rule language accordingly to resolve the problems and unintended potential impacts to both operation and the environment associated with compliance with these provisions.

b. Legal Complications associated with 3rd-Party Equipment

As written, the leak monitoring and repair requirements appear to apply to all equipment at a well site or compressor station regardless of ownership. As EPA acknowledged in its response to comments made by the Gas Processors Association, EPA intended to include third-party equipment, but supported such intention by simply stating that arrangements can be made to address and handle these situations (see EPA-HQ-OAR-2010-0505-6881, Excerpt 4). This response and

assumption was an oversimplification of what can be very complicated site configurations and contractual arrangements.

As an example, there are many instances where insignificant equipment owned by a midstream company, such as a meter run, is located at a well site along with equipment owned and operated by the producer. There are legal and logistical issues that can prevent the midstream operator from being able to comply with Subpart OOOOa for that small piece of equipment based on actions made by another operator. There are significant practical issues with renegotiating contractual obligations on the thousands of sites that may be impacted by these requirements.

Imposition of these requirements during the pendency of the reconsideration is very burdensome, and in some cases infeasible. The agency should provide additional time to work with stakeholders to better understand and account for the nature of operations and update the rule language accordingly to reflect the reality that equipment owned, operated, or leased by one operator is legally distinct and cannot be subject to requirements triggered by another operator.

c. Low Production Wells[2]

Well sites with equipment configurations or component counts significantly less than EPA's model plants should be exempt from the LDAR requirements based on cost effectiveness. EPA is not correct in their Response to Comments (EPA-HQ-OAR-2010-0505-6983, Excerpt 17) when suggesting that the model plant cost analysis should equate to all well sites, even those with significantly fewer components, since there are larger well sites that have more components.

The best system of emission reduction (BSER) is not based on a calculated average value, but rather it establishes a threshold limit where controlling a source above the threshold is considered cost effective and controlling a source below the threshold is not. One example of this is found in 40 CFR Part 60, Subpart JJJJ where applicability and levels of control are linked directly to rated horsepower, which is generally proportional to potential emissions. There is a threshold (e.g., rated horsepower) where technology emission limits are cost effective and below which they are not. As communicated to the Agency previously, API continues to recommend EPA apply a similar approach for low production wells in regards to LDAR because the typical count of components at those facilities is substantially less than the EPA's model plant analysis and LDAR does not meet the criteria to be considered BSER for low production well sites.

Additionally, low production wells are typically located on single well pads. Therefore, the "special analysis of producing crude oil and natural gas wells from the DrillingInfo HPDI database" (see page

[2] See Section 27.2.4 of API December 4, 2015 comments for additional discussion.

50 of EPA's August 2015 Background Technical Support Document(TSD)) that EPA used to determine a two-well model production site is not representative of new or modified low-production wells. The two-well site model used in the BSER analysis may have overstated, by at least a factor of two, the number of fugitive emission components at a typical new or modified low production well site.

In the proposed rule, it was also EPA's understanding that *"such well sites are inherently owned and operated by small businesses."* Revising the final rule to include low-production wells may have inadvertently created problems for some small businesses that drill new low production wells.

d. Unaccounted Impacts in BSER Analysis from 60% Reduction Efficiency Assumption for Semiannual Monitoring

EPA made a material mistake in assuming a 60 percent reduction in fugitive emissions due to completing semiannual fugitive monitoring surveys. In the preamble for the proposed Subpart OOOOa rule, EPA stated, *"Therefore we assigned an emission reduction of 60 percent to semiannual monitoring survey and repair frequency and 40 percent to annual frequency, consistent with the reduction levels used by the Colorado Air Quality Control Commission in their initial and final economic impacts analysis."* (See 81 FR 56635 and page 70 of August 2015 Background TSD). EPA solicited comments on these assumed emissions reductions, but retained the 60% reduction for semiannual frequency and 40% reduction for annual frequency when finalizing the rule.

However, a review of the Colorado document[3] shows the CAQCC stated that, *"Based on EPA reported information, the Division calculated a 40% reduction for annual inspections, a 60% reduction for quarterly inspections, and an 80% reduction for monthly inspections."* This would suggest that the emissions reductions for semi-annual inspections should be estimated at 50%, but not 60%. Colorado did not provide additional information for the EPA source; however, it is likely it includes data from Table 5-2 Control Effectiveness for an LDAR Program at a SOCMI Process Unit of EPA's Protocol for Equipment Leak Emission Estimates (EPA-453/R-95-017).

A 50% emission reduction versus a 60% emission reduction would mean a 17% lower reduction in fugitive emissions for semi-annual frequency, which is not reflected in the BSER analysis to determine cost-effectiveness of the final rule's leak monitoring and repair provisions. A 17% lower reduction in fugitive emissions would increase the cost/ton of pollutant reduction by 20% (1/0.83 = 1.20).

[3] Colorado Air Quality Control Commission, *Initial Economic Impact Analysis for Proposed* Revisions *to Regulation Number 7 (5 CCR 1001-9).* November 15, 2013.

e. The Alternative Means of Emission Limitation (AMEL)

The AMEL provisions included in the rule are not sufficiently clear to facilitate effective application and approval of AMEL, and therefore fail to serve their intended purpose. The ability to apply for and obtain AMEL for fugitive emissions requirements determines whether operators of well sites and compressor stations, in particular those subject to existing state programs or those which have invested in emerging detection technology, must now redirect or expend additional resources and efforts to implement the 2016 Rule's fugitive emissions requirements. This may negatively impact or otherwise complicate compliance with applicable state programs and/or progress in using emerging technology while providing little to no incremental environmental benefit.

The scale and impact of duplication and overlap with state requirements is significant. Many of the states with the largest oil and gas production and drilling activity already have leak detection and repair programs and requirements in effect, e.g. PA, CO, TX, WY, OH, CA. This means that, until approval is granted through the AMEL process, industry will be spending duplicative effort for little to no environmental benefit in order to demonstrate clear compliance with both state and federal programs. Given the detailed nature of recordkeeping associated with most LDAR programs, the concept of satisfying two different programs for the same facility with similar, but not identical requirements, is a significant burden.

For example, one API member working through an AMEL process for a separate matter has estimated costs for the application process to be at least $100,000 and approval is still pending. Additionally, for perspective regarding how long the AMEL process can take, one can look to the approval process to operate pressure-assisted multi-point ground flares (MPGF) (Docket#: EPA-HQ-OAR-2014-0738). On August 5, 2014, the Dow Chemical Company requested an AMEL in order to operate pressure assisted multi-point ground flares and on October 21, 2014, ExxonMobil made a similar request. EPA approved the AMEL requests for Dow and ExxonMobil on August 31, 2015, over 1 year after Dow's application. Notably, in the August 31, 2015 approval, EPA recognized the significant amount of time involved with navigating the AMEL process and sought comments on ways to improve EPA's ability to approve future AMEL requests for MPGF in a more efficient and streamlined manner.

With respect to LDAR – an issue for the entire oil and gas industry with known duplicative requirements in multiple states – the only practical and reasonable approach is for EPA to determine how to address equivalency in a streamlined manner rather than subject the entire industry to a long and burdensome AMEL process.

The Agency should provide additional time to work with stakeholders to review and streamline the AMEL process to avoid duplicative requirements and foster the development and approval of emerging technology. It is important to note, the proposed compliance extensions will have minimal environmental impact since many States have requirements that target the same emissions

sources.

2. Obtaining Certification by a Professional Engineer (PE)

Under current rule provisions, many companies face additional costs and project delays for a third-party PE to design and certify closed vent systems and/or certify technical infeasibility associated with control of a pneumatic pump. The PE certification process does not add any significant environmental benefit to the rule provisions since there are provisions in place for ongoing compliance specific to the operation of closed vent systems, a general duty for all operators to minimize environmental impacts, and annual report submittals must be approved by a certifying official. EPA did not justify the extra expense and burden of PE certifications in the final rule. Such certification to achieve compliance with the current rule, is estimated to cost some API members between $4,000 – 7, 500 on average per certification. This adds significant cost and burden, particularly to smaller operators who are less likely to have access to in-house PEs. At least one state, Wyoming, is taking a position that PE certifications for sources located in that state must be completed by a PE registered in Wyoming. While EPA indicated that this was not their intent, EPA failed to determine how state regulations or practices might result in such situations. This new, unanticipated additional burden is not trivial and can result in material cost and schedule impacts on operators.

Additionally, based on a survey of API members, there have been no situations identified to date where a design change was made as a result of the PE review – further validating that this requirement adds burden and cost, while providing no environmental benefit.

3. Pneumatic Pumps at Well Sites

Pumps at "greenfield" well sites are not currently eligible to claim technical infeasibility associated with the control of an affected pneumatic pump. Due to lack of clarity regarding EPA's intent, the current rule language puts operators into a potentially untenable situation. This occurs if regulatory authorities interpret a "greenfield" well site as synonymous with "new" for Subpart OOOOa thereby removing future technical infeasibility determinations for the entire life of a well site.

Further, EPA failed to provide clarity regarding how boilers and heaters located at well site should be considered. Without a technical infeasibility option, a process heater or boiler would require design around the pneumatic pump's capacity needs to adequately and safely control a pneumatic pump when it otherwise would not be designed with this feasibility in mind. This may not even be possible in all cases. Further, this is equivalent to requiring installation of a new control device,

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which is contradictory to EPA's stated intent that the installation of a control device or process equipment for the sole purpose of controlling a pneumatic pump is not required.

Message

From: Hilary Moffett [moffetth@api.org]
Sent: 7/13/2017 6:20:23 PM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: Ozone

Hey Hey!

Wanted to reach out on ozone. API has come to a position and wanted to see when we would be able to come in and share our input. What are you thinking on timing—how can we be most helpful?

Thanks!
Hilary

Hilary Moffett
Director, Federal Relations
American Petroleum Institute
202-682-8040 (desk)
Ex. 6 Personal Privacy (PP) (cell)
MoffettH@api.org

Message

From: Hilary Moffett [moffetth@api.org]
Sent: 5/25/2017 9:09:29 PM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: Fwd: API letter requesting withdrawal and revisitation of the Oil & Gas CTGs
Attachments: image002.jpg; ATT00001.htm; API Comments on Draft CTGs 12042015.pdf; ATT00002.htm; 2017-05-25 Letter to EPA re CTGs Final.pdf; ATT00003.htm

Hey there,

Howard sent the email below to Sarah today re:CTGs. Hope it's helpful!

Begin forwarded message:

> **From:** "Howard Feldman" <Feldman@api.org>
> **To:** "Dunham, Sarah (Dunham.Sarah@epa.gov)" <Dunham.Sarah@epa.gov>
> **Subject: API letter requesting withdrawal and revisitation of the Oil & Gas CTGs**
>
> Sarah,
>
> Please see the attached letter from API requesting that EPA withdraw and revisit the *Control Techniques Guidelines for the Oil and Natural Gas Industry* (CTGs), released on October 27, 2016. Please let me know if you have any questions.
>
> Be well,
> Howard

Howard J. Feldman
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May 25, 2017

Ms. Sarah Dunham
Acting Assistant Administrator
Office of Air and Radiation
U.S. Environmental Protection Agency
1200 Pennsylvania Ave, NW
Washington, DC 20004
Sent via email: Dunham.sarah@epa.gov

Re: Control Techniques Guidelines for the Oil and Natural Gas Industry

Dear Ms. Dunham:

The American Petroleum Institute (API) requests that EPA withdraw and revisit the *Control Techniques Guidelines for the Oil and Natural Gas Industry* (CTGs), released on October 27, 2016.[1] API represents over 625 oil and natural gas companies, leaders of a technology-driven industry that supplies most of America's energy, supports more than 9.8 million jobs and 8 percent of the U.S. economy, and, since 2000, has invested nearly $2 trillion in U.S. capital projects to advance all forms of energy, including alternatives. Many of our members will be negatively impacted by the CTGs if adopted by the states in their current form.

EPA's own data show that industry has been reducing methane emissions while at the same time dramatically increasing production. EPA's GHG inventory shows that methane emissions from hydraulically-fractured natural gas wells have fallen nearly 79 percent since 2005 and that total methane emissions from natural gas systems are down 16 percent between 1990 and 2015. Natural gas production from the same period is up 55 percent. Furthermore, EPA data indicate that total US emissions of Volatile Organic Compounds, which the CTGs are ostensibly designed to address, have already decreased by 41 percent since 1990 under the current rules. These trends are indicative of what our industry has achieved; both improving the environment and bolstering our nation's energy security.

Executive Order 13783, Promoting Energy Independence and Economic Growth, highlights the importance of domestic energy production. The Executive Order requires executive departments and agencies to review existing regulations "that potentially burden the development or use of domestically produced energy resources ..." and to "appropriately suspend, revise, or rescind those that unduly burden the development of domestic energy resources..." The 2016 CTGs are clearly an agency action that "burdens the development and use of domestically produced energy resources." They are also

[1] 81 FR 74798

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fundamentally flawed because they mirror the requirements of the NSPS OOOOa final rule, which was intended to identify cost-effective controls for new sources, and fail to take into account the increased costs associated with retrofitting existing sources.

Failure to withdraw the CTGs will unfairly burden both states and industry:

1) States will be burdened with rewriting the CTGs to make them cost-effective for existing sources, for which the cost-effectiveness is far different than that of new sources, and
2) Industry could face cost-ineffective controls in states that fail to significantly modify the CTGs before their adoption.

Furthermore, now that EPA has announced its plans to reconsider the NSPS, any adoption of the CTGs by the states is premature.

Withdrawal of the 2016 CTGs will allow time for EPA to revisit the final CTGs to better address the issues raised by API and others during their development (see our attached comments from 2016 on the proposed CTGs). Until then, these guidelines could burden state and industrial resources and hamper the development of domestically produced energy resources.

Please feel free to contact me if you have questions or need more information.

Sincerely,

Howard J Feldman

Attachment

ED_002719_00009077-00002

Howard J. Feldman

Senior Director, Regulatory and Scientific Affairs

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202-682-8340
Feldman@api.org
www.api.org

December 4, 2015

The Honorable Gina McCarthy, Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

Attention: Docket ID Number EPA-OAR-2015-0216
Submitted to the Federal eRulemaking Portal (www.regulations.gov)

Re: Environmental Protection Agency's (EPA's) "Release of Draft Control Techniques Guidelines for the Oil and Natural Gas Industry" at 80 FR 56577 (September 18, 2015)

Dear Administrator McCarthy:

American Petroleum Institute (API) respectfully submits the attached comments on the Environmental Protection Agency's (EPA's) "Release of Draft Control Techniques Guidelines for the Oil and Natural Gas Industry" at 80 FR 56577 (September 18, 2015).

API represents over 625 oil and natural gas companies, leaders of a technology-driven industry that supplies most of America's energy, supports more than 9.8 million jobs and 8 percent of the U.S. economy, and, since 2000, has invested nearly $2 trillion in U.S. capital projects to advance all forms of energy, including alternatives. Collectively, they provide most of the nation's energy and many will be directly impacted by the proposed regulations.

The proposed rule is part of the President's "Methane Strategy," which includes multiple regulations and programs from several different agencies, intended to further reduce greenhouse gas emissions from oil and natural gas operations. However, it's important to take into account the recent methane emission trends associated with our industry. Even as U.S. oil and natural gas production has surged, methane emissions have declined significantly. For example, EPA's GHG inventory shows methane emissions from hydraulically-fractured natural gas wells have fallen nearly 79 percent since 2005 and total methane

emissions from natural gas systems are down 11 percent over the same period. According to the Energy Information Agency, these reductions have occurred during a time when total U.S. gas production has increased 44% and, as a result of the increased use of natural gas, carbon dioxide (CO_2) emissions from the energy sector are now near 20-year lows. These trends are indicative of what our industry, when given the freedom to innovate, can achieve to improve the environment as we bolster our nation's energy security.

Each of the proposals (NSPS Subpart OOOOa, Source Determination, Minor Source Tribal NSR), including this one, has potentially significant impacts on our industry's operations and, collectively, they have the potential to hinder our ability to continue providing the energy our nation demands. These cumulative impacts must be considered in conjunction with the impacts of the lowered ozone standards and the pending Bureau of Land Management (BLM) methane rule, which has not yet been proposed and will likely require costly methane controls for some of the very same emission sources. Our organizations have collaborated well in the past and API remains committed to working with EPA and the Administration to identify emission control opportunities that are both cost-effective and, when implemented, don't impact safety or hinder our ability to provide the energy our nation will continue to demand for many years to come. Attached are our comments on the "Release of Draft Control Techniques Guidelines for the Oil and Natural Gas Industry" as well as an executive summary.

As we noted in our comment extension request, we again request that EPA officially re-open the docket for all three rulemakings when the proposed BLM methane rule is published in the Federal Register, to allow additional time for public comment once its interrelationship with the EPA proposed regulations can be fully analyzed. Also, given the limited comment period and minimal extension for these complex proposals, API will continue its review and, if warranted, provide supplemental comments to the agency that we request be included in the appropriate docket to protect the record and considered before finalizing the rules.

We look forward to working with you and your staff as these rules are developed. If you have any questions regarding the content of these comments, please contact Matthew Todd (toddm@api.org, 202-682-8319).

Sincerely,

Howard J. Feldman

Howard J. Feldman

Cc: Janet McCabe, EPA
Joe Goffman, EPA
Peter Tsirigotis, EPA
David Cozzie, EPA
Bruce Moore, EPA
Cheryl Vetter, EPA
Chris Stoneman, EPA
Charlene Spells, EPA

Attachment

API Comments on the Draft Control Techniques Guidelines for the Oil and Natural Gas Industry

December 4, 2015

Docket ID No. EPA-HQ-OAR-2015-0216

Executive Summary

As detailed in our comments, API has numerous concerns with EPA's draft Control Techniques Guideline (CTG) for the Oil and natural gas (O&G) sector. EPA has indicated the desire to finalize the draft CTG in early 2016. We are concerned that this artificial deadline will hinder the agency's ability to adequately address stakeholder comments. This is an unrealistic schedule for issuing a complex guidelines with the concerns identified that cover oil and natural gas industry segments as large and diverse as the onshore production, processing, and transmission and storage segments. EPA has only a few months to review and analyze all the submitted comments, make appropriate revisions, and complete the necessary internal and interagency reviews. As such, EPA should take sufficient time between the close of the comment period and promulgation of the final guidance to adequately consider and address public comments.

Many of API's concerns stem from the broad applicability of EPA's draft Reasonably Available Control Technology (RACT) recommendations and the associated model regulatory text. The one-size-fits-all approach is not appropriate for an industry that varies greatly in the type, size and complexity of operations. EPA has supported its RACT recommendations using economic studies based on "average model facilities" without determining whether the resulting control requirements are appropriate for the entire range of sources included in the source category. The notification, monitoring, recordkeeping, performance testing and reporting requirements are significantly more burdensome than justified for the small and/or temporarily affected facilities.

Listed below are API's primary concerns with the proposed rule. To facilitate review of our comments, API has summarized the concern and provided a recommendation with a reference to the detailed comments where additional supporting discussion has been included.

EPA Must Develop Applicability Thresholds Based On VOC Content To Avoid Requiring Controls That Are Clearly Not Cost Effective And Not RACT For Areas With Low-VOC Gas

Issue – By performing all RACT analyses using a single representative gas composition, EPA has recommended RACT for several fugitive sources that will result in cost effectiveness values considerably higher than EPA considers acceptable in many areas of the U.S. The volatile organic compound (VOC) content of the gas at a site is directly related to the VOC emissions, and thus, the VOC emission reduction when controls are applied. By using a single gas composition for all RACT analyses, EPA did not properly evaluate the VOC cost effectiveness for dry gas, coal bed methane, and other areas that have low-VOC gas. API has performed an analysis that provides recommendations for these thresholds that are technically sound.

Recommendation – Include VOC content applicability thresholds that ensure that areas with low VOC gas are not subject to controls that are not cost effective.

Refer to Section 2.0 for detailed comments on this matter.

Storage Vessel Monitoring Requirements

Issue – The CTG model rule includes onerous continuous parameter monitoring requirements for storage vessels that are considerably more stringent than EPA has proposed for NSPS. The RACT monitoring requirements for storage vessels should not be more stringent than the Best System of

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Emission Reduction (BSER) monitoring requirements in the NSPS. Further, EPA did not include the costs of this more stringent monitoring in the impacts assessment for storage vessels.

Recommendation – Make the continuous compliance requirements in the CTG consistent with the proposed requirements in NSPS subpart OOOOa.

Refer to Section 13.8 for detailed comments on this matter.

Fugitives At Well Sites And Compressor Stations

Issue – The draft CTG has a process that requires significant, unnecessary recordkeeping and reporting, and requires surveys of sites that are proven to have little to no detectable leaks. Associated proposed definitions unnecessarily complicate compliance. Additionally, the initial semi-annual frequency is not warranted, and the complex process for determining frequency introduces a burdensome paperwork exercise with no emissions reduction benefit. Closed vent systems (CVS) should not be subject to duplicative requirements. As well, leak detection should not be duplicative with other state or federal enforceable leak detection requirements.

Recommendation – Streamline program to require annual inspections at sites with a compressor or storage vessel. Eliminate the requirement for a site-specific monitoring plan. Existing programs demonstrate that monitoring with an annual frequency results in very low emissions. A companywide monitoring plan will cover all the relevant material; there is no added benefit and significant added cost of developing thousands of site-specific monitoring plans. Revise definitions according to our recommendations. CVS monitoring requirements should be the same as those for fugitive emission components. Finally, exempt sites subject to state, local, or other federally enforceable leak detection programs.

Refer to Section 17.0 for detailed comments on this matter.

EPA Should Delay Finalizing the CTGs Until Six Months After NSPS OOOOa is Finalized

Issue – The CTGs and NSPS OOOO/OOOOa regulate the same type of equipment. Proposing these two actions at the same time resulted with significant inconsistences that appear to be unintentional and would be illogical if the inconsistences were intended. Finalizing these two actions at the same time is like to result in inconsistences in the final actions, as well as duplication of technical errors.

Recommendation – The CTG actions can be delayed without significant impacts. EPA should delay finalizing the CTGs until six months after NSPS OOOOa is finalized.

Refer to Section 1.0 for detailed comments on this matter.

The Emissions Threshold For Controlling Existing Storage Vessels Should Be Higher Than 6 Tpy VOC

Issue – The proposed rule applies the same 6 TPY VOC applicability for new storage vessels to existing storage vessels. Cost of control is higher for existing storage vessels than new storage vessels. EPA's cost estimate underestimates the retrofit costs for an existing storage vessel by ignoring other costs such as purchasing additional land to meet safety buffers for combustion devices. Some existing storage vessels would need to be replaced since they could not handle the additional pressure required for a closed vent system to a control device. These additional considerations make a 6 TPY VOC applicability threshold economically unreasonable for existing tanks.

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Solution – Increase the applicability threshold to 10 – 15 TPY VOC to assure that controls are economically feasible.

Refer to Section 13.2 for detailed comments on this matter.

EPA Should Exempt Natural Gas Pneumatic Pumps That Emit At A Rate Lower Than A High Bleed Controller

Issue – EPA is proposing to regulate low emitting sources which would add considerable expense and burden while providing very limited environmental benefit.

Recommendation – EPA should exempt low emitting pumps, i.e. pumps that emit at a rate lower than a high bleed controller. This should include low usage equipment as well. This is consistent with the position taken in subpart OOOO and reinforced under the subpart OOOOa proposal for pneumatic controllers.

Refer to Section 15.4.1 for detailed comments on this matter.

Pneumatic Pump Control Technical Feasibility

Issue – EPA has ignored major technical and safety issues in assuming that pneumatic pumps can be readily connected to existing closed vent systems. There are numerous potential issues with connecting the discharge from a pneumatic pump to an existing control device and closed vent system. These issues can impact both the performance of the pump and result in back pressure on the other sources being controlled.

Recommendation – EPA should provide an exemption from the requirements to control pump emissions where it has been determined to not be technically feasible.

Refer to Sections 15.0 for detailed comments on this matter.

Common Sense Voluntary Reductions And Incentives Will Lead To Increased Early Emission Reductions

Issue – The CTGs should work in concert with the Methane Challenge Voluntary Initiative to seek common sense voluntary reductions and incentives, which will lead to increased early emission reductions. If the Administration wishes to seek additional reductions through a federal framework, the best approach would be a voluntary program without duplicative mandatory regulation. The industry is interested in participating in a well-constructed voluntary program, and has shared options for achieving substantial methane emissions reductions more rapidly than regulations would allow. Industry and EPA's incentives are aligned in desiring to keep methane in the pipeline, to reduce losses and improve product recovery. Industry members strive to evaluate options for cost effective measures to reduce emissions and implement them where they can achieve the greatest reductions. For example, EPA recently reported that total methane emissions from natural gas systems are down 11 percent since 2005 despite significant growth in production. To continue this progress and maximize the results, the industry requires flexible voluntary programs with appropriate incentives, not inflexible regulatory mandates.

Solution – Eliminate duplicative regulation of emissions.

Refer to all sections for detailed comments on this matter.

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Attachments

Attachment A - Technical Review of Western Climate Initiative Proposals to Meter Fuel and Control Gas

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GENERAL COMMENTS

1.0 GENERAL PROCEDURAL AND LEGAL COMMENTS

EPA has requirements in the proposed Control Technique Guidelines (CTG) on the same sources regulated in NSPS, Subpart OOOO, including currently proposed amendments, and the proposed NSPS Subpart OOOOa. Writing two separate rules on the same equipment at the same time inevitably cause inconsistences between the rules, as has been the case in these proposed rules. For instance, continuous parameter monitoring systems (CPMS) are required in the proposed CTGs for control devices, regardless of what type of affected source the emissions are coming from. However, NSPS Subpart OOOOa requires CPMS for emissions coming from centrifugal compressors or pneumatic pumps, but only sensory monitoring and inspection requirements for storage vessels. Discussions with EPA indicate they intended to propose the same compliance assurance in both NSPS Subpart OOOOa and the CTGs.

An existing storage vessel regulated by the CTG may be located right next to a new storage vessel regulated by NSPS, Subpart OOOOa. Requiring stringent CPMS monitoring for the existing storage vessel and visual inspections for the new storage vessel will be very confusing to both the agency inspectors and to the oil & gas industry personnel in trying to comply with the two different sets of requirements. Retrofitting existing equipment is more expensive than the respective increased cost for new equipment, thus you would expected existing equipment to have less stringent requirements than those for new equipment. The opposite occurred in the proposal. EPA widely utilized Best System of Emissions Reduction (BSER) as Reasonably Available Control Technology (RACT), which is not always supportable. However, in all cases BSER should be considered a cap to RACT (see Section 4.1).

For this reason, API requests that EPA delay finalizing the CTGs for at least six months after the NSPS, Subpart OOOOa rule has been finalized. Finalizing the NSPS first allows the requirements to be implemented during the initial equipment construction when it is most effective. Additionally, the existing CTGs are expected to have the most impact on existing equipment in new nonattainment areas designated due to the lowering of the Ozone NAAQS in October 2015. These new nonattainment areas are not expected to be finalized until October 2017. Further, the CTGs require state regulatory actions before these requirements can be implemented. Thus, delaying the finalized CTG until early in 2017 will cause no delays in implementation for these areas . The CTGs are not expected to have significant impact in existing ozone nonattainment areas, since RACT requirements are already in place (i.e in Denver, CO; Houston, Dallas, and Beaumont, TX; etc .). Where states feel that regulatory changes are needed promptly, they can proceed with those actions based on the NSPS OOOO/OOOOa final rule.

2.0 EPA MUST DEVELOP APPLICABILITY THRESHOLDS BASED ON VOC CONTENT TO AVOID REQUIRING CONTROLS THAT ARE CLEARLY NOT COST EFFECTIVE AND NOT RACT FOR AREAS WITH LOW-VOC GAS

CTGs are required by the CAA to help an area obtain the NAAQS. As such, CTGs cannot consider the benefits of methane reductions in the economic analysis of control options. As proposed, the CTG would require controls in production fields (i.e. coalbed methane or dry gas fields) where little to no VOC reductions would occur. EPA should adopt minimum VOC thresholds for fugitive monitoring, pneumatic pumps, pneumatic controllers and centrifugal

compressors, below which no controls would be required to maintain the cost effectiveness of controls where little or no benefits to NAAQS attainment would occur.

2.1 Cost Effectiveness Is Key Element Of RACT

As stated in Chapter 1 of the draft CTG, EPA defines RACT as "the lowest emission limitation that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility." 44 FR 53761 (September 17, 1979). Historically, the primary measure that EPA has relied upon to assess economic feasibility is the cost of the emission reduction in relation to the level of emission reduction. This "cost-effectiveness" is calculated by dividing the annual costs of the control (including capital recovery along with operating and maintenance costs) by the annual emission reduction.

EPA calculated and showed the cost effectiveness for every option considered. The cost effectiveness values for the fugitive emission sources that EPA recommended as RACT are summarized in Table 2-1.

Table 2-1 EPA VOC Cost Effectiveness Values from CTG

Source	Cost Effectiveness ($/ton VOC reduced)	
	without savings	with savings
Reciprocating Compressor (Gathering and Boosting Station)	$1,132	$298
Reciprocating Compressor (Processing Plant)	$334	($500)
Pneumatic Controller (Well Site)	$210	($627)
Pneumatic Controller (Processing Plant)	$2,807	$1,970
Pneumatic Pump (Diaphragm) – Existing Control Device	$312	$312
Pneumatic Pump (Piston) – Existing Control Device	$2,840	$2,840
Equipment Leaks (Processing Plant)	$2,844	$2,010
Fugitive Emissions (Natural Gas Well Site)	$2,945	$2,111
Fugitive Emissions (Oil Well Site)	$12,294	$11,460
Fugitive Emissions (Gathering and Boosting Station)	$2,710	$1,876

It is evident that EPA relied on the cost effectiveness in determining the economic feasibility of controls for the oil and natural gas industry, as every section of the document that discusses the recommended RACT level of control includes a discussion of cost effectiveness. For example, on pages 7-17 and 7-18 of the CTG, EPA states:

> *"Our rationale for selecting 95 percent control when there is an existing control device is that, as presented in Table 7-4 in section 7.3.1.4 of this chapter, the VOC cost of control when an existing combustion device is available on-site was estimated to be $312/ton for diaphragm pumps and $2,850/ton for piston pumps. As presented in Table 7-6 in section 7.3.1.5 of this chapter, the VOC cost of control when an existing VRU is available on-site was estimated to be a cost savings for diaphragm pumps and $2,007/ton for piston pumps. We consider these costs to be reasonable. Requiring control where there is not an existing control device on-site was not considered to be reasonable available technology, and the costs per ton of VOC reduced are estimated at greater than $20,000 per ton of VOC reduced for diaphragm pumps and over $200,000 per ton of VOC reduced for piston pumps."*

This citation also shows that there are levels at which EPA considers the cost effectiveness for VOC to be reasonable, as well as levels that EPA considers to be unreasonable. Historically, EPA has avoided establishing a bright line that separates reasonable versus unreasonable, but past EPA decisions do provide insight into what constitutes reasonable.

The best and most relevant example of EPA's view of a reasonable cost effectiveness level for VOC for the oil and natural gas industry was provided in EPA's final decision related to the 4 tpy alternative emission limitation for storage vessel affected facilities under NSPS subpart OOOO, which was published on September 23, 2013. Following are quotes from the preamble for these final amendments (78 FR 58429.

> *". . . . our analysis indicates that the cost of controls for each storage vessel affected facility at a VOC emission rate of 4 tpy is approximately $5,100 per ton. This cost increases to approximately $6,900 per ton at an emission rate of 3 tpy, and to approximately $10,000 per ton at 2 tpy. For comparison, we note that, in a previous NSPS rulemaking [72 FR 64864 (November 16, 2007)], we had concluded that a VOC control option was not cost effective at a cost of $5,700/ton, which calls into question the cost effectiveness of continuing control of storage vessel affected facilities at an emission rate below 4 tpy."*
>
> *"In light of the cost-effectiveness, the secondary environmental impacts and the energy impacts, we have concluded that the BSER for reducing VOC emissions from storage vessel affected facilities is not represented by continued control when their sustained uncontrolled emission rates fall below 4 tpy."*

There are several key facts worthy of note regarding these statements related to establishing a reasonable cost effectiveness level for RACT for fugitive sources from this industry.

1) This decision was specific to the exact industry that is covered by the oil and natural gas CTG.
2) The 2007 rulemaking cited as precedent was for fugitive sources analogous to most of the sources covered in the CTG. Specifically, this rulemaking was for "Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry; Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries; Final Rule."
3) This threshold was used by EPA to establish a cost effectiveness level considered unreasonable for BSER, which is by definition, more stringent that RACT. Therefore, based on clear precedent summarized above, EPA must consider any cost effectiveness value greater than $5,700 per ton of VOC reduction to be unreasonable for the purpose of recommending RACT for fugitive source the oil and natural gas industry.

2.2 Cost Effectiveness Of Recommended Fugitive RACT For Oil Wells Is Unreasonable

Given this fact, an obvious first observation is that the cost effectiveness for EPA's recommended RACT for fugitive emissions at oil wells is well above this reasonableness threshold. EPA provided a vague and unsupportable rationale for ignoring the results of their own analysis and recommending level of control estimated to have a cost effectiveness of $11,460 (considering savings), which is more than double the level previously determined to be unreasonable (see

pages 9-32 and 9-33 of the CTG). Without any consideration of any other factors discussed below, EPA must not finalize a recommendation of any fugitive leak monitoring program as RACT for fugitive emissions at well site. This is discussed in more detail in section 17.0.

2.3 Variation In VOC Content Of Gas Directly Impacts Emission Reductions And Cost Effectiveness

A lower VOC content would reduce the emission reduction achieved by a technology, thus increasing the cost effectiveness. For instance, consider a fugitive emission source where the cost of reducing the emissions is $10,000 per year. If the VOC emissions reduction for this measure at a site with a gas stream consisting of 20% VOC by weight is 5 tons per year, the cost effectiveness would be $2,000 per ton. However, applying the same reduction measure to a site where the gas content of the stream is 5% VOC by weight, the VOC emission reduction would be reduced to 1.25 tons per year and the cost effectiveness would increase to $8,000. Therefore, this difference in VOC content causes the cost effectiveness to be reasonable (by EPA's previous determination) at one site and unreasonable at another.

All the analyses in the CTG were conducted using a single representative gas composition.[1] For oil and natural gas production, this gas composition included 6.8% VOC by volume and 18.3% VOC by weight.

API notes that the documentation for the selection of this representative composition is lacking. In Table 1 of the 2011 EC/R memorandum, gas composition information from a variety of sources was presented. After a review of the available data, the outcome was that only data provided by the Gas Research Institute (GRI) data during the 1995 MACT development was used to calculate the representative gas compositions. Part of the rationale for relying on this GRI data was that a comparison of the GRI data to the other information showed that the GRI data was representative. However, Table 1 and the paragraph that describes this conclusion are severely flawed. For example, the memo states "For production, the 1995 GRI data is well within the ranges of the other data sources, which range from 1.19 to 11.6 percent for VOC by volume." However, the maximum VOC content shown in Table 1 for the other data sources is 5.7 volume percent. Also, Table 1 presents the average VOC content of the other data sources as 3.5 volume percent, as compared to an average of 3.66 volume percent for the GRI data. However, in Table 5 of the EC/R memorandum (which summarizes the GRI data) the sum of the volume percentages of the VOC components is 6.8 percent. Not only does this not match the 3.66 percent provided as the average in Table 1, it is also higher than the maximum VOC content of all the other data sources evaluated. This raises questions about the overall credibility of the analysis leading to EPA's representative composition. It also indicates that EPA may have significantly overestimated VOC emissions when this representative composition was used. In order for the public to have confidence in EPA's overall impacts assessment, EPA must explain these discrepancies in the documentation of the representative analysis and make corrections as necessary.

Despite the significant errors discussed above in EPA's documentation, API believes that the resulting representative gas composition (containing 6.8 percent VOC by volume and

[1] Memorandum to Bruce Moore, U.S. EPA from Heather Brown, EC/R. *Composition of Natural Gas for Use in the Oil and Natural Gas Sector Rulemaking*. July 2011.

18.3 percent VOC by weight) is a reasonable portrayal of an "average" gas composition across the U.S. However, API strongly disagrees with the use of this representative composition to establish a universal RACT recommendation. It is inappropriate to use these general averages for determining whether particular existing oil and natural gas sources should be subject to VOC regulation and what is a cost-effective level of RACT control. The gas compositions in oil and natural gas fields in ozone nonattainment areas and the transport region where these RACT regulations will apply vary widely. In many areas, the VOC content is considerably lower than level in EPA's representative composition.

2.4 Evaluation Of Cost Effectiveness For Sites In EPA's Dataset

As noted above, the average VOC content for the GRI data set chosen by EPA to establish the representative composition was 6.8% by volume. The cost effectiveness calculated by EPA for the recommended RACT level of control for fugitive emissions from gas wells, using this representative composition, was $2,111 (considering savings). EPA considers this level to be reasonable. However, the VOC content of the gas compositions for the individual sites in the GRI data set ranged from 0.59% to over 28% by volume. This significant difference in gas composition would have a tremendous impact on the emission reductions, and thus, the associated cost effectiveness. Table 2-2 estimates the cost effectiveness values for each of the sites in EPA's GRI data set.

Table 2-2 Estimated Cost Effectiveness for Recommended RACT for Fugitive Emissions at Gas Well Sites at Sites in EPA's Gas Composition Data Set

Site	VOC Content (vol %)	Estimated Cost Effectiveness
Representative Composition	6.82%	$2,111
GRI1	0.59%	$24,414
GRI2	2.20%	$6,547
GRI3	3.93%	$3,665
GRI4	28.13%	$512
GRI5	7.15%	$2,015
GRI6	8.64%	$1,667
GRI7	7.01%	$2,055
GRI8	10.09%	$1,428
GRI9	6.22%	$2,316
GRI10	2.41%	$5,977
GRI11	3.21%	$4,487
GRI12	2.30%	$6,263

Considering the actual compositions from EPA's own dataset shows that the recommended RACT level for fugitive emissions as gas well sites would result in many gas well sites being subject to controls that have cost effectiveness values above the $5,700 level which EPA has previously determined to be unreasonable for this industry. In fact, four of the twelve sites in EPA's data set, or 25%, would incur what EPA itself has determined are unreasonable costs when considering the VOC emission reduction. This includes one site that would be required to install controls at a cost effectiveness of over $24,000 per ton of VOC reduction.

2.5 Evaluation Of Cost Effectiveness With Varying VOC Composition In Gas

In order to demonstrate the overall impact of varying VOC content on cost effectiveness, API conducted a succinct analysis for the fugitive emission sources at oil and natural gas sites covered by the CTG. This analysis was conducted using two different costs. The first analysis was conducted using EPA's estimated annual costs as provided in the CTG without adjustment. However, as discussed throughout this document, API believes EPA's costs in the CTG underestimated the actual impact that will occur in several instances. Therefore, the second analysis uses API's updated cost estimates.

2.5.1 Analysis Using EPA Costs

As noted above, EPA's representative gas composition consisted of 6.8% VOC by volume and 18.3% VOC by weight. The cost effectiveness values that were provided in Table 2-1 were based on emissions calculated using these weight percentages. Cost effectiveness values were calculated at varying concentrations of VOC by assuming a linear relationship between VOC emission reductions and the VOC content. Figure 2-1 through Figure 2-4 show the results of this analysis. For reciprocating compressors at processing plants and pneumatic controllers at well sites, EPA estimated that there would be net savings due to the recovery of natural gas. These sources were not included in this analysis.

Figure 2-1 CTG Cost of Control – Reciprocating compressors at Gathering and Boosting Stations

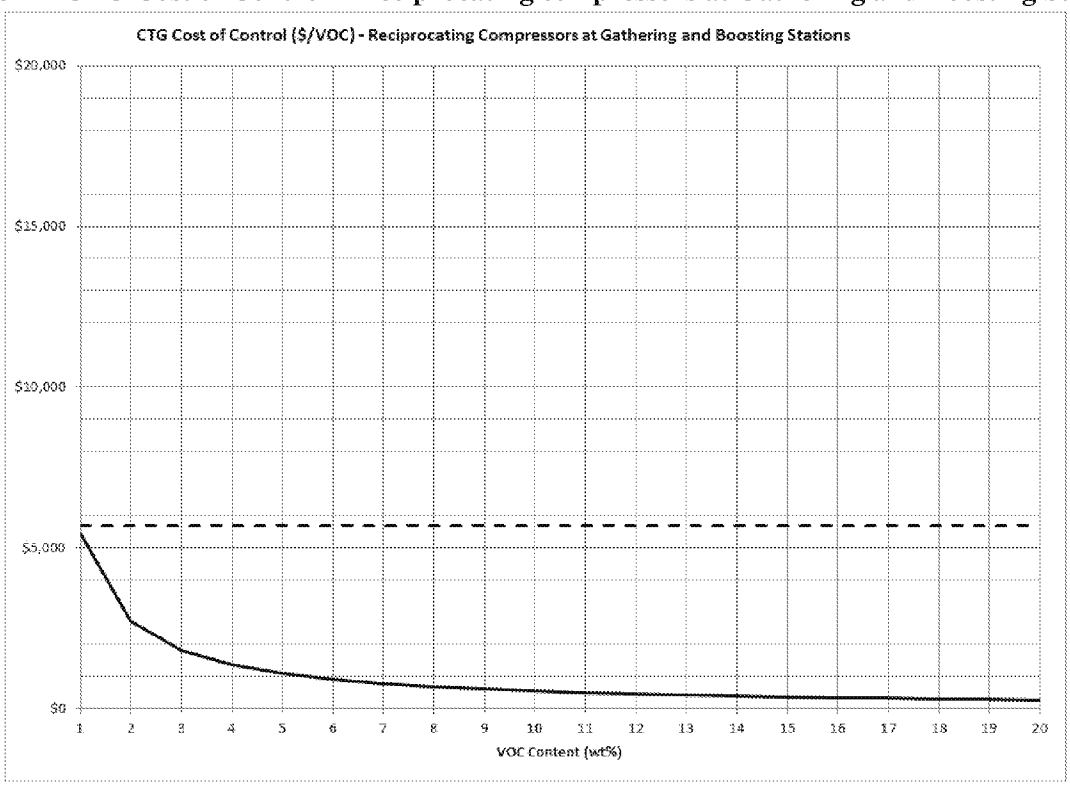


Figure 2-2. CTG Cost of Control – Pneumatic Controllers at Processing Plants

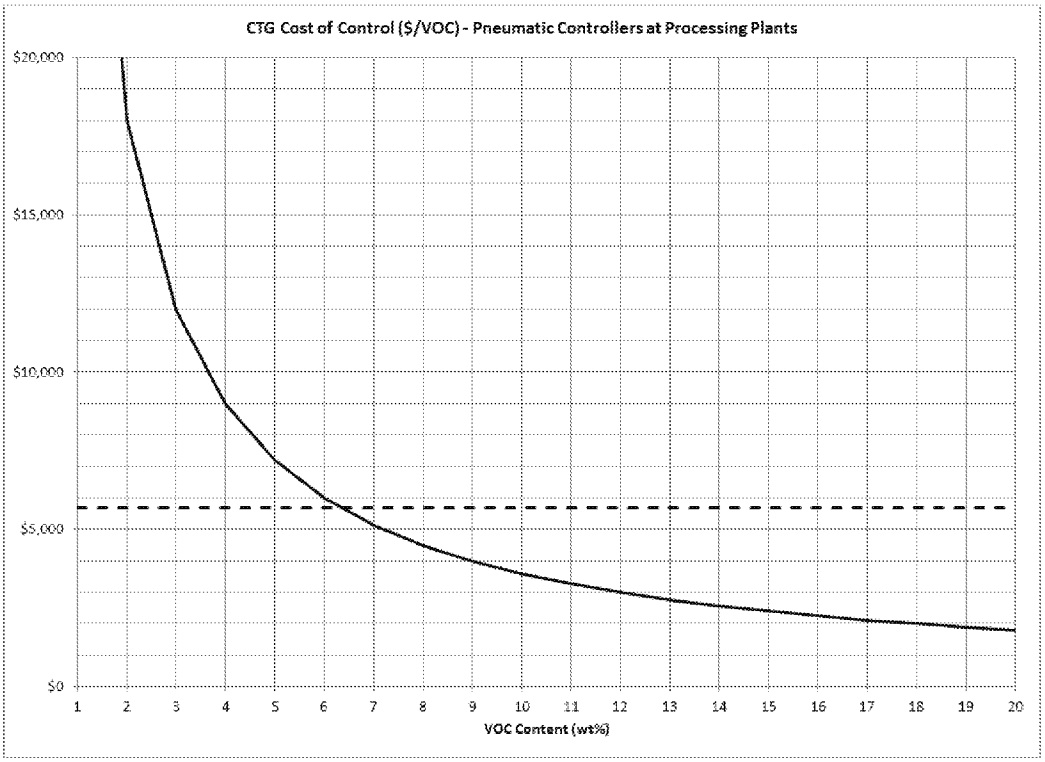


Figure 2-3. CTG Cost of Control – Pneumatic Pumps

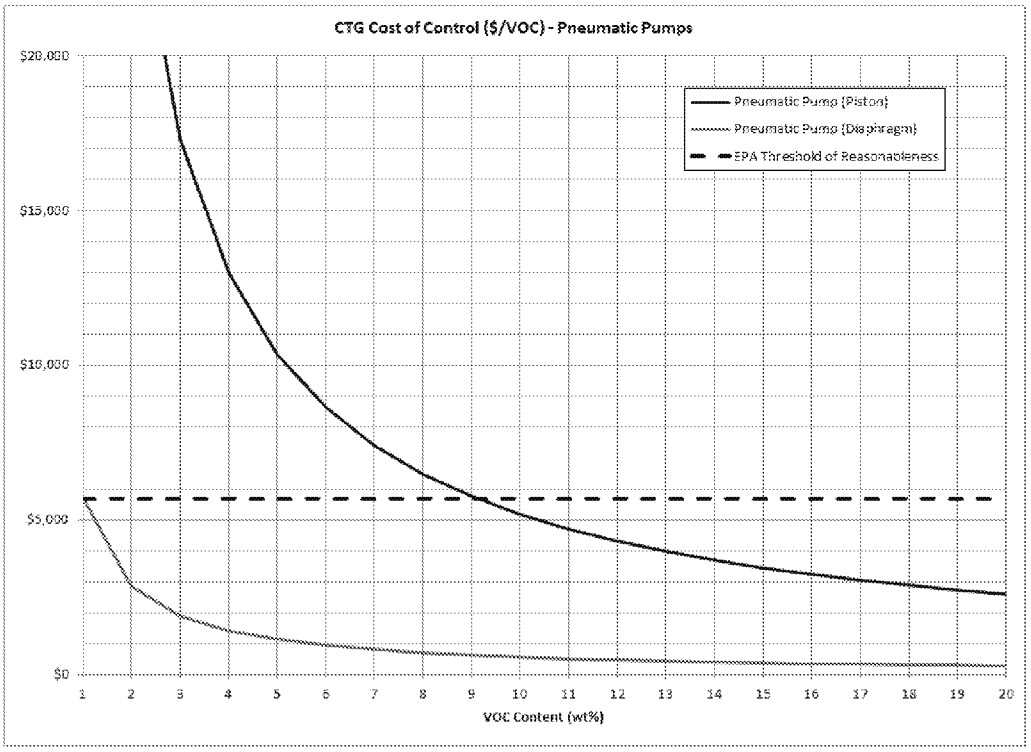
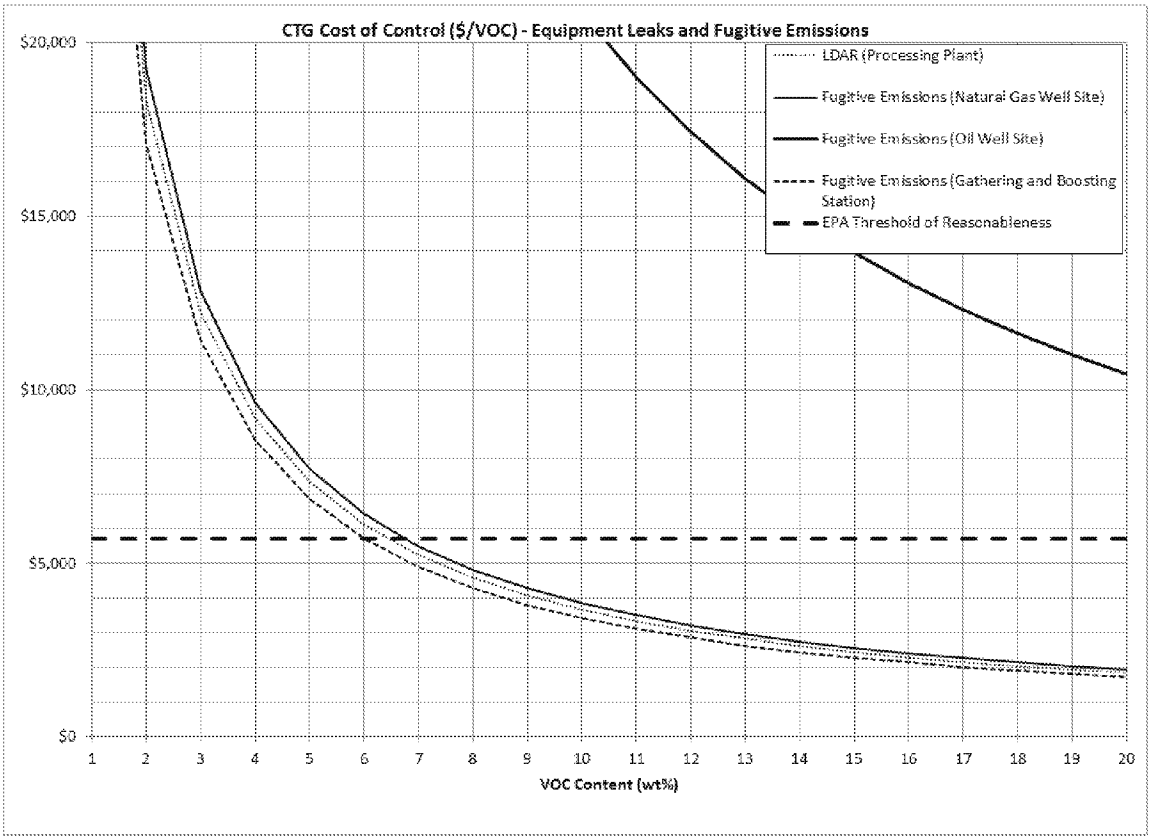


Figure 2-4. CTG Cost of Control – Equipment leaks and Fugitive Emissions



The conclusion of this analysis based on the EPA costs, are as follows:

- For reciprocating compressors at gas processing plants, the cost effectiveness is below $5,700 for VOC concentrations down to 1% by weight.
- The cost effectiveness for fugitive emissions control at oil well sites is greater than $5,700 and thus unreasonable at all VOC concentrations.
- For pneumatic controllers and LDAR at gas processing plants, pneumatic piston pumps, and fugitive emissions at natural gas well sites and gathering and boosting stations, the cost effectiveness rises above $5,700 at VOC concentrations about 6 and 7% by weight.

2.5.2 Analysis Using Updated API Costs

For pneumatic pumps and fugitive emissions from well sites, EPA significantly underestimated the cost of control. API provides detailed analyses of these costs in sections 15.0 and 17.3 for pneumatic pumps and fugitives, respectively. Table 2-3 shows the difference in the annual costs estimated by EPA and the corrected costs based on API members' extensive experience installing and implementing these controls.

Table 2-3. Comparison of EPA and Updated API Cost Estimates

Source	Annual Costs (including savings)	
	EPA	API
Pneumatic Pump (Diaphragm)	net savings	$4,359
Pneumatic Pump (Piston)	$201	$5,024
Fugitive Emissions (Gas Well Sites)	$1,599	$7,712
Fugitive Emissions (Oil Well Sites)	$2,079[a]	$8,192[a]

[a] EPA cost is for semi-annual OGI program. API cost is for annual program.

Table 2-4 shows the cost effectiveness calculations using API's updated annual costs. Note that these are based on the VOC emission reductions estimated by EPA using the representative gas composition.

Table 2-4. Comparison of EPA and Updated API Cost Effectiveness Calculations

Source	Cost Effectiveness ($/ton VOC reduction)	
	EPA	API
Pneumatic Pump (Diaphragm)	net savings	$4,790
Pneumatic Pump (Piston)	$2,007	$50,240
Fugitive Emissions (Natural Gas Well Site)	$2,111	$10,147
Fugitive Emissions (Oil Well Site)	$11,460[a]	$45,511[a]

[a] EPA cost is for semi-annual OGI program. API cost is for annual program.

As seen in Table 2-4, the cost effectiveness values for EPA's draft RACT recommendations for fugitive emissions programs at well sites and for pneumatic piston pumps are well above EPA's reasonableness threshold of $5,700/ton. The diaphragm pneumatic pumps are below this threshold. However, this cost effectiveness is based on the 18.3% by weight VOC content in EPA's representative composition. As discussed above, many areas have gas compositions much lower than this level. Figure 2-5 illustrates the cost effectiveness at different VOC composition levels. As can be seen, the cost effectiveness crosses the $5,700 reasonableness threshold at around 15% VOC by weight.

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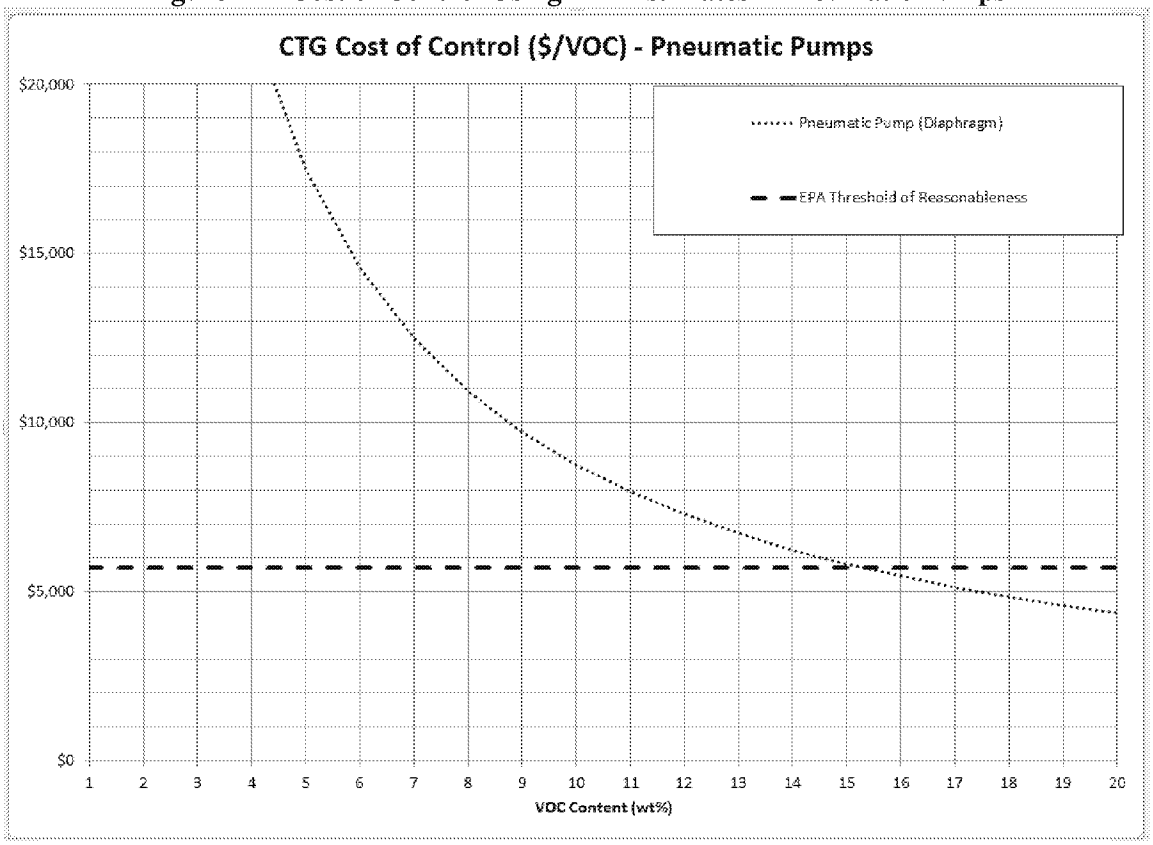
Figure 2-5 Cost of Control Using API Estimates – Pneumatic Pumps



2.6 Many Areas That Will Be Impacted By The CTG And Model Rule Are Low VOC Gas Areas

The oil and natural gas produced in the US varies considerably. This can range from very heavy, thick crude oil (a.k.a. black oil or dead oil) that has no associated natural gas, to light hydrocarbon liquids (a.k.a. condensate) that co-produce VOC-laden gas, to gas that is almost 100% methane with no associated liquids. Each type of formation may have some similarities, but still can have wide variation. Some tight sands behave like sand stone and can produce significant amounts of heavier hydrocarbons. Shale fields run the gamut from wells that produce nearly 100% methane to wells that produce significant quantities of hydrocarbons that are liquid at stock tank conditions. The definitions of the various types of reservoirs are very broad and the defining characteristics have little to do with the reservoir's potential to emit VOC or HAP.

As evidenced by the brief discussion above, areas that produce low VOC gases are likely to be adversely and unfairly impacted by high costs with little VOC emission reduction. However, this is not just a theoretical exercise, as there are numerous areas that will be impacted by EPA's RACT recommendation and model rule and the resulting SIPs where low-VOC gases are prevalent.

There are several active oil and natural gas production areas that are in the ozone transport region or ozone nonattainment areas (or in areas likely to be nonattainment under the new 70 ppbv ozone NAAQS) where the VOC content is very low. These include, but are not limited to the Marcellus, New Albany, Barnett, and Mancos areas. It is estimate that there are over 23,000

wells in these low-VOC areas.[2] While not all of these areas will be in moderate or above ozone nonattainment areas where RACT is required, States may choose to voluntarily implement these recommended RACT requirements to address the VOC from oil and natural gas operations.

In addition, coal bed methane (CBM) typically is produced at low pressures and contains very high percentage of methane (often as high as 97% by volume) and almost no hydrocarbons heavier than ethane. Coal has classically been thought of as a "cap rock", not a reservoir rock. This means that the pore volume (i.e., porosity) is on the order of 0.25%. This very low porosity demonstrates that the only gases that can be stored in the coalbed must be of a size that allows them to be adsorbed to the surface of the coal. Coal has a high affinity to accept CO_2 onto its absorption sites, and a slightly smaller affinity for methane. Heavier hydrocarbons do not "fit" on the adsorption sites (the traces of heavier hydrocarbons that are sometimes reported in CBM fields have come from the very small pore volume, not desorption). Consequently, CBM fields tend to have zero or near zero VOC emissions. There are also several CBM areas that are in the transport region or potential ozone nonattainment areas including, but not limited to, the Black Water, Appalachian, and Uinta areas. It is estimated that there are over 10,000 CBM wells in these areas.[3]

Therefore, a large number of low-VOC sites could be impacted by the RACT rules resulting from this CTG. These sites will be subject to requirements that clearly have costs at a level that EPA has considered unreasonable in relation to the associated VOC emission reductions. Therefore, EPA must include VOC applicability thresholds in the RACT recommendations and model RACT rules to avoid these high cost impacts with very minimal environmental benefit.

2.7 There Is Precedent For VOC Applicability Thresholds In Ctgs And Federal Regulations

There are precedents in many NSPS and other federal regulations where EPA has recognized that the composition of the gas impacts the level of emissions, and thus has included applicability thresholds. This is particularly prevalent for regulations that focus on fugitive emissions, such as the 1983 CTG for fugitive monitoring in Gas Processing[4] (which stated 1% VOC by weight; see section 16.2.8), and multiple NSPS subparts. For example, NSPS subparts VV and VVa only cover equipment "in VOC service," which is defined as equipment that "contains or contacts a process fluid that is at least 10 percent VOC by weight." In other words, equipment components that contact a process fluid with less than 10 weight percent VOC are exempt from the leak detection and repair requirements.

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[2] Marcellus - http://stateimpact.npr.org/pennsylvania/drilling/
New Albany - http://www.in.gov/dnr/dnroil/files/og-NASWellsByStatus1990to2013.pdf
Barnett - http://www.tceq.state.tx.us/assets/public/implementation/barnett_shale/bs_images/bsOilGasWells.png
Mancos - https://www.env.nm.gov/aqb/4C/Documents/Mancosshale_May30_2012.pdf

[3] Black Warrior - http://www.gsa.state.al.us/gsa/cbm/Coalbed%20Methane%20Research.htm
Appalachian – http://www.dcnr.state.pa.us/cs/groups/public/documents/document/dcnr_007916.pdf
Uinta - http://www.blm.gov/style/medialib/blm/ut/vernal_fo.Par.57849.File.dat/GCW%20Cums%20TSD%2003-22-12%20final.pdf

[4] http://www3.epa.gov/ozonepollution/SIPToolkit/ctg_act/198312_voc_epa450_3-83-007_leaks_naturalgas_processing.pdf

2.8 Conclusion: EPA Must Include Applicability Thresholds Based On VOC Content In The Gas

The discussion above clearly proves the need for EPA to include applicability thresholds based on VOC content in the gas for the RACT recommendations and model rule for several fugitive emission sources where it is proven that the cost effectiveness levels are at unacceptable levels as VOC content decreases.

Specifically, API recommends that EPA exempt the following emission sources from RACT requirements in the CTG if the gas composition at the site exceeds an appropriate threshold. Using EPA's proposed cost estimates that threshold is 7.0 % VOC by weight or less:

- Pneumatic controllers at gas processing plants,
- LDAR at gas processing plants,
- Pneumatic piston pumps, and
- Fugitive emissions at natural gas well sites and gathering and boosting stations.

Considering API's more accurate cost estimates, requirements for fugitive VOC emissions at all well sites and pneumatic piston pumps are not cost effective even using EPA's representative composition. Further, the cost effectiveness for the requirements for pneumatic diaphragm pumps becomes reasonable at 15 % VOC by weight.

3.0 EPA SHOULD APPLY LOW PRODUCTION EXEMPTION TO ALL EMISSION SOURCES AND THIS EXEMPTION SHOULD APPLY WHENEVER THE AVERAGE PRODUCTION OF A WELL SITE FALLS BELOW THE 15 BOE/DAY LEVEL

In Section 9.1 of the CTG, EPA states: "For purposes of this guideline, the emissions and programs to control emissions discussed herein would apply to the collection of fugitive emissions components at a well site with an average production of greater than 15 barrels of oil equivalent per well per day (15 boe/day), and the collection of fugitive emissions components at compressor stations in the production segment. It is our understanding that fugitive emissions at a well site with low production wells are inherently low and that many well sites are owned and operated by small businesses. We are concerned about the burden of the fugitive emissions recommendation on small businesses, in particular where there is little emission reduction to be achieved."

This exemption is specific to the fugitive emission requirements at well sites. However, the reasons stated by EPA are applicable to all emission sources at low-production well sites. Therefore EPA should universally apply this exemption and totally exempt all sources at well sites with average production of less than 15 boe/day from all requirements.

Furthermore, this exemption should apply throughout the life of the well site. In other words, whenever the average production of a well site falls below 15 barrel equivalents it should no longer be subject to any RACT requirements.

4.0 THE CTG DOCUMENT DOES NOT ADEQUATELY COVER ALL THE DATA REQUIRED BY THE CLEAN AIR ACT, WHICH INCLUDE RETROFIT COSTS, OPERATIONAL COSTS, ENERGY REQUIREMENTS, ENVIRONMENTAL IMPACTS, AND FUEL COSTS.

Clean Air Act Section 108(b)(1) outlines the information that EPA is required to provide to states and other air pollution agencies related to air pollution control techniques for criteria pollutants associated with NAAQS. Specifically, this paragraph states that EPA "shall include data relating to the cost of installation and operation, energy requirements, emission reduction benefits, and environmental impact of the emission control technology. Such information shall include such data as are available on available technology and alternative methods of prevention and control of air pollution. Such information shall also include data on alternative fuels, processes, and operating methods which will result in elimination or significant reduction of emissions." In this CTG, EPA failed to comply with this requirement. Not only did lead to insufficient information being provided for states, it led EPA to recommend RACT requirements (which are reflected in the model rule) that are not based on accurate information. Throughout these comments, API points out examples of the inadequacies in EPA's cost estimates.

4.1 The CTGS Must Take Into Consideration The Impacts And Costs Of Retrofitting Existing Sources

EPA is not taking into account the significant cost differences between applying a control in a new and existing operations. Applying BSER controls to existing source controls are more expensive (not RACT) for several reasons. As economically feasible is part of the definition of RACT, these costs must be considered.

- Existing controls may not be adequate for CTG compliance. There will be situations where the control device itself is not designed adequately or does not have the necessary uptime and efficiency, or is designed for testing and monitoring. Furthermore the existing control device may not have the monitoring systems required by the CTG. The control device may have been installed for state permitting or regulatory compliance, or maintaining emissions below a threshold, In these situations the existing control device and monitoring systems would need upgrade, potentially significant upgrade. Those costs must be considered by USEPA in their evaluation.
- There may be permitting implications if a flare is the chosen control device.
- New land may be required to add control devices to existing sites.
- Existing vapor recover units, compressors, and storage vessels may require early retirement.
- Existing controls may have remaining useful life and will require early retirement.

4.2 EPA Should Consider The Cost Of Disturbance Of Land To Install New Controls

One of the elements that EPA did not consider in estimating the impacts of these RACT requirements on existing sources is the cost of disturbance of land to install new controls. Industry standards and insurance typically require that combustion devices must be placed 50-150 feet from equipment containing hydrocarbon to avoid explosions from thermal radiation. Due to the spacing requirement for control devices, adding a control device may require additional surface disturbance beyond the existing pad location. There are numerous repercussions of additional land disturbance including:

- Additional land may have to be purchased. EPA has not included in the cost estimate for the control devices the cost of the additional land that would be required.

- Wetlands may be further impacted requiring additional wetland mitigation and/or a Corps 404 Permit under the Clean Water Act. EPA has not considered the additional cost for wetland mitigation and permitting.
- The additional land needed may encroach on endangered species habitat and may not be allowed to be developed or require additional mitigation. EPA has not considered the impacts of this situation.
- Federal land will potentially require NEPA analysis for the additional disturbance. EPA has not considered the great cost and effort of a NEPA analysis for additional disturbance on Federal land.
- National Historic Preservation Act review may be required for the additional disturbance. EPA has not considered the impact under the NHPA.

4.3 EPA Should Not Require The Same Controls As In The NSPS, Which Is For New Sources

On September 18, 2015, EPA proposed NSPS Subpart OOOOa, which covers all the same emission sources addressed in the draft CTG but for new sources. The Clean Air Act has requirements for evaluating the stringency of controls for the different programs.

Control Technique Guidelines define Reasonably Available Control Technologies (RACT) as the following:

- "RACT emissions limitations are the lowest emissions limitations that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility."[5]
- While EPA has not set a financial threshold for RACT, per a 2006 EPA memo[6], generally the VOC cost threshold has been approximately $2000 per ton in 1980 dollars ($5,784.37 in 2015 dollars[7]).

New Source Performance Standards outline the Best System of Emissions Reduction (BSER)

- "For purposes of this section, if in the judgment of the Administrator, it is not feasible to prescribe or enforce a standard of performance, he may instead promulgate a design, equipment, work practice, or operational standard, or combination thereof, which reflects the best technological system of continuous emission reduction which (taking into consideration the cost of achieving such emission reduction, and any non-air quality health and environmental impact and energy requirements) the Administrator determines has been adequately demonstrated. (CAA – U.S. Code Title 42 Chapter 85 Subchapter I Part A 7411 (h)(1)."

Despite this difference in statutory authority, in this package of rulemakings, EPA has determined in almost every case that the exact same controls are appropriate for new sources and existing

[5] http://www3.epa.gov/ttn/atw/ctg_act.html
[6] http://www3.epa.gov/ttn/caaa/t1/memoranda/ractqanda.pdf
[7] http://www.bls.gov/data/inflation_calculator.htm

sources in non-attainment areas. In other words, EPA determined that BSER and RACT are equal. In a few cases (alternative emission limitation for storage vessels, continuous monitoring provisions for storage vessels), the RACT requirements in the model rule in the appendix to the CTG are more stringent than the NSPS. EPA cannot propose the same requirements for BSER and RACT without an explanation. EPA must re-evaluate RACT based on the appropriate criteria and re-issue the draft CTG based on these appropriately conducted analyses.

5.0 EPA SHOULD REITERATE THAT EACH STATE IS ABLE TO ADOPT OTHER EXISTING REGULATIONS IN LIEU OF CTGS AS RACT.

EPA has defined RACT as "the lowest emission limitation that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility" (44 FR 53762; September 17, 1979). Since the cost effectiveness tabulations are based upon a nationwide average, economic feasibility[8] may vary from state to state. Thus, while EPA considers CTGs to constitute "presumptive" RACT, states are not required to adopt the control measures specified in CTGS as RACT. CTGs may not meet the definition of RACT[9] in terms of being reasonably available for a specific source or source category for a particular area.

Additionally a RACT analysis might conclude different control measures should include the application of a VOC threshold for the implementation within a particular area based upon the sources in that particular area.

According to 2006 Guidance from Harnett[10], in response to a question regarding how to address requirements as part of the SIP where a State determination that sources subject to Federal rules meet RACT by compliance with those requirements:

> To rely on federal rules to meet the RACT requirement, the State must incorporate these requirements into the SIP. For example, a State could incorporate by reference the Federal requirement or could submit a permit that includes this provision as a SIP revision.

The same guidance points out that "a State may rely on control obligations required by federally enforceable permits by submitting the relevant portions of these permits (i.e., the portions establishing the VOC and NOx obligations) as SIP revisions along with a demonstration that such controls are RACT." And "a RACT analysis needs to be done for all CTG sources and all major non-CTG sources. While the CTGs and ACTs provide a starting point for such an analysis, RACT can change over time as new technology becomes available or the cost of existing technology adjusts. States are encouraged to use the latest information available in making RACT determinations, whether that information is in CTGs, ACTs, other guidance that is available or through information submitted during the public review process."

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[8] 1994 guidance indicates that cost effectiveness should be within $160 to $1300 per ton.

[9] Note that API does not agree with this presumption, as there is no basis under the law for the suggestion that EPA's recommendations carry any greater weight than individual state determinations.

[10] http://www3.epa.gov/ttn/caaa/t1/memoranda/ractqanda.pdf

While a CTG is the starting point for a RACT analysis for a source category covered by a CTG, the analysis must still be conducted to identify "the lowest emission limitation that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility." EPA should reiterate this obligation and that it is wholly acceptable that such an analysis may conclude that existing regulations satisfy the RACT obligations for a source category and the CTG need not be adopted as written.

An example of where this is especially true relates to monitoring, inspection and performance testing requirements. States typically have their own policies and procedures on these requirements. It is less burdensome for state agency personnel and the regulated community to use the state compliance assurance requirements in lieu of the EPA style requirements included in the model rule. If EPA includes compliance assurance requirements in the model rule, EPA should specifically state in the preamble that state may utilize their own compliance assurance provisions in lieu of those in the model rule.

6.0 API REQUESTS THAT THE CONTROL TECHNIQUE GUIDELINES FOR THE OIL AND NATURAL GAS INDUSTRY AND EPA'S SIP PLANNING GUIDANCE ENCOURAGE STATES NOT TO REQUIRE EMISSIONS OFFSETS FOR MINOR OIL AND NATURAL GAS EMISSIONS SOURCES.

States with marginal non-attainment areas and above are subject to the non-attainment new source review requirements including offsets for increases of emissions for new or modified major stationary sources. While the Clean Air Act only requires emissions offsets in the Non-attainment New Source Review (NNSR) program for major sources in non-attainment areas, some States additionally require offsets for minor sources (Wyoming – WYDEQ). Additionally, some State statutes do not distinguish between major sources and minor sources in their Prevention of Significant Deterioration (PSD) programs applicable to attainment areas with respect to the requirement that new or modified facility does *"not cause or contribute to an exceedance of a NAAQS."* (e.g. Wyoming WAQSR Chapter 6, Section 2(c)(ii)), which can result in air quality offset requirements for minor sources. In rural areas of the US, where most oil and natural gas development occurs, there are limited opportunities to acquire emission or air quality offsets. In the event emissions offsets are required, new oil and natural gas production could be significantly restricted.

With Control Technique Guidelines and NSPS OOOO/OOOOa, the value of additional VOC offsets through beyond-the-requirements control of minor sources is even further diminished. Additionally, virtually no offset opportunities exist for oil and natural gas in rural areas. Thus, API requests that the CTGs and EPA's SIP planning guidance specifically encourage states not to require emissions or air quality offsets for minor oil and natural gas emissions sources.

7.0 STATES SHOULD BE ALLOWED TO DETERMINE WHAT CTGS SHOULD BE APPLIED

The precursors to ozone formation are both VOCs and NO_X. The net impact of ozone formation depends on the NO_X, VOCs, and meteorology for a particular location. As noted in EPA's

Integrated Science Assessment for Ozone[1] , "Duncan et. al 2010[2] found that O3 [ozone] formation over most of the U.S. became more sensitive to NO_X over most of the U.S. from 2005 to 2007 largely because of decreases in NO_X emissions." Further control of VOC in many areas may result in no discernible ozone reduction. Moreover, control of emissions with combustion devices results in increases of NO_x. The ozone formation for most of the U.S. is NO_X limited; therefore, in most areas of the country adding more NO_X could result in increased ozone formation and implementing a CTG RACT rule would be counterproductive. Analysis for particular areas could find that there was no benefit to ozone reductions with application of CTGs, or in the worst case, such an analysis may find that the net result of controlling VOC emissions with combustion creates *more* ozone since it would add NO_X emissions. EPA should allow the states to determine whether incorporation of the CTGs into RACT SIPs is beneficial through analysis of the air quality for the particular area.

8.0 THE FINAL CTG SHOULD INCLUDE A FEDERAL FRAMEWORK FOR ENCOURAGING VOLUNTARY METHANE REDUCTIONS FROM EXISTING OIL AND NATURAL GAS SOURCES

The incentive to generate voluntary methane reductions from existing oil and natural gas sources will be significantly undercut if EPA adopts CTGs that apply to all existing oil and natural gas sources, including those highly-controlled sources that have voluntarily implemented "best management practices" (BMP) under the Methane Challenge Program. In particular, the adoption of CTGs applicable to the entire source category will trigger a requirement for states to establish RACT standards for all sources, including the BMP-controlled sources, which are located in ozone nonattainment areas and ozone transport areas classified as moderate or higher. The imposition having to change from the BMPs to the RACT requirements once they are finalized will deter many companies from trying to implement the BMPs. Furthermore, once the RACT requirements for the CTGs are included in a state's regulations and State Implementation Plan (SIP), companies will be unable to get offset credits from reduction implemented under a BMP that they make legally and practically enforceable.[11]

To correct this problem, EPA should establish in the final CTGs a federal framework that encourages, to the maximum extent permissible under the CAA, voluntary methane reductions from existing oil and natural gas sources. Such methane reductions are necessary to help ensure

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[1] US EPA. 2013a. "Integrated Science Assessment for Ozone and Related Photochemical Oxidants (Final)." EPA/600/R–10/076F.

[2] Duncan, BN; Yoshida, Y; Olson, JR; Sillman, S; Martin, RV; Lamsal, L; Hu, Y; Pickering, KE; Retscher, C; Allen, DJ. (2010). Application of OMI observations to a space-based indicator of NOx and VOC controls on surface ozone formation. Atmos Environ 44: 2213-2223. http://dx.doi.org/10.1016/j.atmosenv.2010.03.010

[11] The CAA establishes specific rules for the generation of offsets. One key requirement is that the emission reductions must not otherwise be required by some other CAA program or regulation. *See* Section 173 (c)(2) of the CAA (providing that "Emission reductions otherwise required by this chapter shall not be creditable as emissions reductions for purposes of any such offset requirement"). EPA has also established federal guidance providing that to the extent that the emission reductions are in fact required by CAA, those reductions are not "surplus" and consequently may not be used to generate offsets. *See* Emissions Trading Policy Statement; General Principles for Creation, Banking and Use of Emission Reduction Credits, 51 Fed. Reg. 43,814, (December 4, 1986).

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the achievement of the Administration's goal to cut methane emissions from the oil and natural gas sector by 40-45 percent from 2012 levels by 2025.

This important policy objective can easily be accomplished by narrowing the scope of the oil and natural gas sector subject to the CTGs as well as setting the control thresholds for sources such as storage vessels at a higher level than the NSPS OOOOa levels. Also the final CTGs should include language that excludes sources that have established legally and practically enforceable limits for already implemented BMPs under the Methane Challenge Program from implementing the CTG requirements. Sources that are controlled and following the BMPs for the Methane Challenge that have made them legally and practically enforceable could use the reductions as offsets since they are not under the CTGs. Allowing companies to be exempt from the CTGs that implement the BMPs and make them legally and practically enforceable to get offsets will encourage companies to make reductions earlier than when the would be required for newly designated ozone nonattainment areas under the 2015 ozone NAAQS. Final designations will be issued by October 26, 2017 and the RACT SIPs will be due by October 26, 2019 that would need to include the CTGs. Any reductions made after the designations years of 2013-2015 or 2014-2016 could still be used for Reasonable Further Progress demonstrations and used as offsets as long as they are done before the RACT regulations are put in place. If the CTG fails to provide a source category exclusion for those sources that have voluntarily implemented BMPs for reducing their methane and VOC emissions, the only option available to generate offsets will be for existing sources to achieve VOC reductions that exceed the RACT control levels specified in the CTGs. Under this "RACT-Plus" approach, sources could generate offsets for only a small increment of the total VOC reductions that the company could achieve by the implementation of BMPs under the Methane Challenge Program. This small increment would be those VOC reductions that are in excess of the VOC reduction levels mandated by the state in the VOC RACT standards applicable to affected oil and natural gas sources.

Only a small increment of the total VOC reductions achieved by companies under the Methane Challenge Program would be available to generate a correspondingly small amount of offsets once the CTGs are incorporated into the state regulations. This small amount of offsets may not be a sufficient incentive to encourage robust participation by many companies to achieve substantial methane emission reductions under the Methane Challenge Program above any VOC RACT standard. Furthermore, the states could impose stricter requirements for RACT in their regulations and RACT SIPS beyond the CTGs leaving no further reductions available. The window to do reductions that would still be creditable by making the BMPs legally and practically enforceable but before CTGs are incorporated in the regulations and the RACT SIPs will only be from 2017-2019 giving companies a very small window to acquire offsets.

9.0 THE CONTROL DEVICE TESTING AND MONITORING COMPLIANCE ASSURANCE REQUIREMENTS ARE NOT APPROPRIATE

9.1 Oil and Natural Gas Production Sites Are Unique From Traditional Stationary Sources

The sources that will be subject to RACT rules based on the recommendations in the CTG are unique from typical stationary sources in that they are small sites, located in remote areas, dispersed from each other (often requiring an hour or more travel time between regulated sites), and typically unmanned. These sites lack the infrastructure of power, communication or even a simply found geographic address that are required to make many of the historic compliance assurance measures function. Because EPA has "force fit" the testing, monitoring, and other compliance assurance requirements designed for traditional stationary sources to the oil and natural gas industry, the proposed testing and monitoring requirements result in unnecessary

burden without a commensurate benefit. Sections 9.1.1 through 9.1.3 briefly describe some of the unique aspects of the oil and natural gas industry. Sections 9.2 and 9.3 provide specific examples of the inappropriateness of these requirements and provide recommendations that will ensure compliance and environmental benefit without creating unnecessary and costly burdens on the industry.

9.1.1 Oil and natural gas Production Operating Conditions Are Not Steady State

Oil and natural gas operations are unique due to the dependence on the naturally occurring underground nature of the resource being harvested. This section summarizes some of those unique characteristics and their impact on emission control devices (primarily combustion control devices).

Unlike other industrial sectors where operating conditions are defined in the engineering stage, the oil and natural gas production sector does not operate at steady state conditions. Equipment design must be tailored to the conditions and fluid compositions supplied by the reservoir. Oil and natural gas is located thousands of feet below the surface and must flow in two or three phases to the surface. Ideally, this flow would occur at a relatively steady rate at a velocity fast enough to suspend small droplets of produced water and liquid hydrocarbons during the vertical ascent to the surface. The mixture is then separated in the two or three phase separator with steady pulses of produced water sent from the bottom of the separator to its storage vessel, hydrocarbon liquids off the middle to its storage vessel, and natural gas off the top of the separator to the gathering system. This may occur at times, but it is not typical.

As production declines and velocity in a vertical pipe decrease, the small droplets start to move slower than the gas combine into larger and larger droplets. These eventually form slugs of liquid that must be pushed up the pipe. The increasing back-pressure on the reservoir reduces in-flow, production, and hence velocity. As backpressure on the reservoir increases and the velocity continues to decrease, the liquid column in the wellbore can stop the gas flow until the gas pressure below the slug increases sufficiently to push the liquid to the surface. The management of these wellbore liquids is a major concern throughout the life of a well that mandates changes in both down hole and surface equipment. The impact to environmental emissions controls is that flow to the control device varies from essentially zero to high flow rates and quickly back to zero rapidly and often. This highly variable, non-steady state flow mandates equipment to be sized much larger than ideal steady state conditions would dictate and makes flow measurement infeasible.

9.1.2 Production Separator Operation

The purpose of the two or three-phase production separator is to separate the two or three-phase flow from the well to make sure that only natural gas goes to the gathering system and only liquid hydrocarbons and produced water are sent to their respective storage vessels. Separators are sized to give sufficient "residence time" to allow the separation of phases to take place. Since the actual mix of gas, oil (or condensate), and produced water varies randomly with time, it is impossible to predict when or how often a given control-action will occur.

The flow into the separator is made up of the fluids that the reservoir produces at any given moment, as modified by the transport of those fluids to the surface. The liquid levels in the separator are maintained by valves (often called dump valves) on the separator outlets to the oil/condensate storage vessel and the produced water storage vessel (although liquid collection systems are sometimes used in lieu of a storage vessel). The dump valves are sized to handle the highest flow rate of liquid that the separator can be expected to receive. Because of the highly

variable flow conditions, separators normally provide flow to storage vessels in short spurts, typically lasting only seconds, to maintain the required liquid levels and dump cycles may be separated by many minutes, hours, or even days.

9.1.3 Closed Vent System Flow Rate

Gas flow from the storage vessel into the closed vent system (CVS) predominantly results from flashing vapors (resulting from the spurts of liquids from the separator) and dwarfs the working and standing/breathing emissions typical from storage vessels (that occur between spurts). However, the CVS and control device must be sized sufficiently to handle the peak vapor volumes expected. Measuring the flow in CVS causes two distinct problematic issues. The normal volumes from working and standing losses and the flashing of separator liquids are at very low velocities that are hard to measure with current measurement technology (see "Technical Review of Western Climate Initiative Proposals to Meter Fuel and Control Gas", Attachment A). Measuring the flow of flash vapors and peak flow rates would require a device that can go from zero flow to maximum flow in milliseconds, and be able to go back to zero just as quickly. The hysteresis (i.e., the amount that the previous state impacts the future state) and the latency (i.e., the time required to return to steady flow after a transient) of the very best commercial measurement devices available today are both inadequate for millisecond-scale transients. Currently for minerals accounting purposes the Federal government and states do not require flow measurement for liquids but only gaging or strapping of the tank because of the lack of adequate measurement technology.

9.2 The Proposed Testing, Monitoring, And Other Compliance Assurance Requirements Are Inappropriate For The Oil and natural gas Industry

9.2.1 The NESHAP-Level Approach For Compliance Assurance Is Inappropriate And Unrealistic For Oil and natural gas Production Sites

For the most part, EPA has copied the full MACT control device and compliance assurance requirements in NESHAP HH (40 CFR 63, Subpart HH) for the CTG model rule, rather than craft cost-effective requirements tailored to address the unique situations related to RACT for oil and natural gas operations. The capital cost of the control device is trivial in comparison to the cost of the performance tests, monitoring, recordkeeping, etc. for complying with NESHAP HH. These ongoing operating and maintenance costs were not adequately considered by EPA in the cost effectiveness determination for the RACT recommendations. Furthermore, these RACT regulations will apply to dispersed that do not have electricity, may not have automation and may have limited space for existing automation to accept additional inputs into their programmable logic controller (PLC) and remote transmitting unit (RTU). Although it may be appropriate to evaluate control devices similar to those found in NESHAP HH major sources, it is not appropriate to arbitrarily invoke compliance assurance requirements intended for the maximum control of hazardous air pollutants (HAPs) as the standard for RACT guidelines for the control of volatile organic compounds (VOCs).

Examples of the inappropriateness of invoking MACT compliance assurance requirements for RACT guidelines include but are not limited to:

- E.2(a) of the model rule requires Continuous Parameter Monitoring System (CPMS) for control devices. EPA did not include the cost for installing, maintaining, and operating a CPMS in any of the impact assessments for this rulemaking. Most affected facilities in the production segment of the industry will be located in remote areas without available electricity or limited remote transmitting unit (RTU) space. In addition, a programmable

logic controller (PLC) is often needed to record, average, and analyze the large amounts of data to determine if a parameter is exceeded, resulting in activation of a control system or signal for site visit evaluation. The calibration, maintenance, and repair of a CPMS requires specialized crafts knowledgeable in instrumentation and controllers. This work cannot be performed by lease operators during normal inspection visits.

- E.2(f)(1) of the model rule requires the operator to establish minimum and/or maximum values for the operation parameter and operate the control device within the range. As explained in section 9.3.4, this requirement is impractical to meet for either manufacturer certified combustors or combustion controls where the performance test is performed in the field, but for different reasons. This requirement is the same as the NESHAP HH requirement located in §63.773(d)(5)(i)(a) & (c).

- Similar to above, E.2.(d)(1)(iii) of the model rule requires that a flare pilot be assured by a heat detection sensor and continuous controller. Section E.2(a) of the model rule makes this appear to be a CPMS requiring all of the assurance provisions of (c), (f) and (g). This requirement is essentially identical to the one in §63.773(d)(3)(i)(C) with the CPMS general provisions located §63.773(d)(1) requiring to meet (4), (6), & (7). Requiring a pilot monitoring device to meet the requirements for a CPMS is extremely burdensome for any rule but is unprecedented for RACT regulations.

- Compliance Demonstrations (E) and Test Methods (F). EPA reference methods that determine percent reduction on a mass basis, as is specified in Subpart HH major source control requirements where the CTG model rule does not specify percent reduction of a pollutant on a mass basis. This causes the measurement of volume that is not practical or in many cases possible with the types of operations and fluid flows typical for these facilities.

9.2.2 Compliance Assurance Requirements Are Unnecessarily Complex

The use of extensive cross referencing both between sections concerning control devices (i.e., E.1 for initial compliance requirements, F for performance testing, and E.2 for continuous monitoring requirements) and various test methodologies renders the requirements confusing and nearly impossible to follow. These segmented requirements unnecessarily add to the compliance burden, and likely to lead to errors and misunderstanding. Companies that operate stationary sources subject to EPA's NSPS and NESHAP regulations may have personnel whose sole job is to understand EPA's complex requirements. However, many companies regulated by these RACT rules are primarily small businesses that do not have this luxury. API members along with the consultants they have hired have had difficulty in interpreting the requirements for control devices as proposed. There is still not agreement of interpretation within API with many of the provisions.

9.2.3 The Compliance Assurance Requirements For Centrifugal Compressors Are Not Justified

During discussions with EPA, API was told that the control device monitoring and testing requirements of the 2012 rule were retained since few centrifugal compressors were expected to require control and that most of these affected sources would be located at more developed facilities, such as Natural Gas Processing Plants. While this statement may sufficiently explain the retention of some of the monitoring provisions, it does not address the practical considerations in complying with the performance test provisions and the identifying parameter ranges required for the continuous monitoring. Although there are few centrifugal compressors that require

control, almost all of the control devices they are connected to also fed with gases from other sources, such as storage vessels, that bring in the impracticality of flow measurement discussed in Section 9.1.3.

9.2.4 The Proposed Compliance Assurance Requirements For Pneumatic Pumps Have Numerous Problems

There are many issues with the proposed compliance assurance provisions for pneumatic pumps. Following are two major issues associated with the compliance assurance requirements. These are discussed at length in Section 15.0

Compliance Assurance Requirements of an Existing CVS/Control Device Should Not Change

EPA determined that the benefit of controlling the discharge of a pneumatic pump was insufficient to justify the installation of a control device, thus the requirement to only connect new pneumatic pumps to existing CVS/control device. Further, EPA only considered the cost of piping the pump discharge to the CVS but did not include costs for additional compliance assurance (see Section 15.3). Most control devices are expected to be installed due to state minor source NSR permits. These permits have their own compliance assurance requirements which are significantly different those in the CTG model rule, resulting in significant additional cost. These additional costs have not been included in EPA's cost analysis, cannot be justified with the low emission benefits achieved, and add no additional environmental benefit. Thus, API recommends that EPA should not require additional compliance assurance requirements in the CTG model rule for a CVS or control device when a pneumatic pump is connected to it (see Section 15.0).

Clarification is Needed When a Pneumatic Pump Must be Connected to a CVS/Control Device

There is significant uncertainty on when a pneumatic pump must be connected to a control device. Control device is an undefined term and defining it is a necessary first step to resolve this issue (see Sections 10.0 and 15.4.5). Another great source of uncertainty is when a boiler or process heater is considered a control device and when it is part of a process (see Section 10.0). API believes that pneumatic pumps should not be required to be routed to a boiler or heater.

Further, the control device and the pneumatic pump may be owned/operated by two different companies (i.e. chemical injection for gathering system corrosion control at a well site). In this case, even though a control device is at the location, it is not available to the owner/operator of the pneumatic pump (see Section 15.4.6). Finally, instances occur where it is not technically feasible to connect the pneumatic pump to the control device (see 15.3.3).

9.3 Compliance Assurance Requirements For Combustion Control Devices

9.3.1 The Proposed Compliance Assurance Requirements May Discourage The Use Of Enclosed Combustors

The design of enclosed combustors intrinsically yields higher destruction efficiencies than flares because of the heater style of burner and protection from cross wind. The enclosure also creates an induced draft of air that aids complete combustion of heavier (higher molecular weight) hydrocarbon streams. Additionally, the enclosure isolates the flame from sight that may cause concern to some members of the public. These benefits sometimes encourage industry to install the high cost internal (i.e., "enclosed") combustor instead of the commonly used open flame flare. Enclosed combustors do have the ability to be performance tested where the open nature of flares do not. It is ironic that EPA is requiring substantially more burdensome monitoring and performance testing requirements for enclosed combustors in the proposed rule, even though

these combustors have greater environmental benefit than flares. It is counterproductive for the environment to disadvantage enclosed combustors with compliance assurance requirements, just because they are technically feasible. EPA should encourage the use of enclosed combustors by using the same visual inspection requirements as with flares for opacity.

9.3.2 The Continuous Parameter Monitoring System (CPMS) Provisions Are Inappropriate

In section A.4(c) of the model rule, continuous parameter monitoring and the comparison of daily average parameter monitoring results against site-specific maximum or minimum values established during the performance test are required for storage vessels. For the reasons stated below, EPA has not justified these requirements and must not include them in the final CTG model rule.

First, these RACT requirements are considerably more stringent than the BSER requirements proposed for NSPS subparts OOOO and OOOOa. For those NSPS, EPA did not propose any parameter monitoring for storage vessel control devices. RACT-level requirements should, by definition, generally be less stringent than BSER. In this case, EPA has included RACT monitoring requirements for storage vessel control device monitoring that are orders of magnitude more stringent than the BSER requirements in the NSPS.

Second, EPA did not justify the significant additional cost of this continuous monitoring. In fact, EPA did not include costs of monitoring equipment in their capital cost estimates, nor did they include any annual costs associated with the maintenance of this system or for the collection and maintenance of this monitoring data.

9.3.3 The Determination Of CPMS Range Determinations In Field Performance Test Is Technically Impractical

Section E.2(f)(1) of the model rule requires that for any parameter that requires CPMS monitoring, the operator must determine the minimum or maximum value of the parameter that continuously achieves the performance requirements in E.1(a). E.2(f)(1)(i) requires a performance test performed by the operator to determine the minimum or the maximum operating parameter based values measured during the performance test. However, the operator has limited ability to adjust the conditions of the process to test the control device. The performance test must be run at the conditions available when the test is scheduled. The operator is unable to vary the operating conditions to determine the limit of the operating parameter as a manufacturer does when conducting a shop test on an enclosed combustor. Section E.2(f)(1)(i) cannot practically be complied with, because the performance test cannot be completed at the full range of conditions for which the control device will be operated. Furthermore, this goes far beyond what EPA requires for testing control devices for NESHAP HH for area sources that apply to nearly all oil and natural gas production sites and approaches the NESHAP HH requirements for major sources like natural gas processing facilities. For a RACT rule at a remote, unmanned site, it is more reasonable to test the device during the current operating conditions.

9.3.4 It Is Not Technically Feasible To Meet The CPMS Flow Measurement Requirements For Manufacturer Certified Combustion Control Devices

Paragraph E.2(f)(1)(iii) requires that for manufacturer certified enclosed combustors, an operator must install CPMS measurement on the inlet flow to assure that the flow is not greater than the maximum or less than the minimum that the manufacture specifies. As explained in section 9.1.3, the measurement of flow from storage vessels is very difficult, even when only the normal emissions must be measured. With both the minimum and maximum range to be measured, it is

doubtful if a single instrument can measure both values. The pump flow as well is intermittent low pressure, low velocity/flow and difficult to measure as discussed in Section 15.0.

9.4 Compliance Options For Combustion Control Devices

Section E.1(a)(1) specifies four compliance options that can be used to assure compliance with the combustion control device requirements. These options include (1) percent reduction of the pollutant, (2) limiting the concentration in the exhaust, (3) maintaining a minimum combustion zone temperature, and (4) inject the stream into the flames zone of a boiler or process heater. Comments are provided below on options 1 and 2. As explained in Section 10.0 below, option 4 is a direct conflict with the definition of "route to a process", and therefore, API recommends that EPA remove E.1(a)(1)(iv) and (d)(4)(iv).

9.4.1 Percent Reduction Of Pollutant Should Be Based On Volume Not Mass And Should Not Require Measurement of Flow to the Control

The standards for centrifugal compressors, pneumatic pumps, and storage vessels each require a percent reduction.

- For centrifugal compressors, C.2(a) requires that VOC emissions be reduced by 95.0 percent or greater
- For pneumatic pumps located between the wellhead and point of custody transfer, H.2(b)(1) requires that natural gas emissions by 95.0 percent, and
- For storage vessels, A.2(a) requires that VOC emissions be reduced by 95.0 percent

Note that in none of these standards specify the basis for the 95.0 percent reduction. However the initial compliance demonstration requirements in E.1 add the requirement that this percent reduction in emissions be determined on a mass basis. The associated performance test requirements for calculating percent reduction by weight of pollutants requires the measurement of flow to the control device. These requirements were predominantly adopted from the major source NESHAP requirements in Subpart HH that specify control requirements of 95 percent reduction by weight. While mass reduction requirements may be appropriate and specified by Subpart HH, they are burdensome and impractical for RACT requirements for small, remote, dispersed and unmanned production facilities.

Section 9.1.3 above describes the many difficulties encountered when attempting to measure the flow of vapors to a control device at oil and natural gas production sites. EPA has not explained the reason for prescribing the reduction of pollutants to be determined by weight in the compliance demonstration and performance testing requirements when a mass destruction was not specified as part of the control requirements. Conditions of intermittent high/low flow conditions, variable and turbulent flow, and variable temperature and pressure make it infeasible to perform the test methods in the production field that are typically used in refineries or chemical plants. Coupled with the dispersed and remote nature of the small sources regulated under this rule, the proposed requirements are not appropriate and are unnecessarily burdensome. API

requests EPA to determine percent of TOC reduction through a carbon balance methodology similar to that described in EPA's Flare Efficiency Study Report.[12]

The requirement in E.1(a)(1)(i), E.1(d)(1), and E.1(d)(2) should be modified to require reduction of TOC emissions by 95% on a volumetric concentration basis using a "carbon balance" methodology for analysis of the exhaust stack effluent from an "enclosed combustion device" being used as a control device to demonstrate reduction efficiency.

Methodologies 25A for TOC (calibrated to propane), 3A for CO_2 and O_2, and 10 for CO should be specified for testing of the stack effluent gas. The CO_2 measured using Method 3A should be adjusted downward by the latest published atmospheric CO_2 concentration, as reported from the Mauna Loa monitoring site by NOAA's Earth System Research Laboratory, multiplied by the ratio of O_2 measured in the stack effluent as compared to the ambient O_2 content of 20.8 volume %. (3A measured CO_2 (ppmv) – (Mauna Loa Concentration (ppmv) X (3A measured O_2 (ppmv)/208,000 (ppmv) ambient O_2 concentration).

The percent pollutant reduction or destruction efficiency of 95% would be demonstrated when the following equation yields a value of 95% or greater:

$$(CO_{2c} + CO)/(CO_{2c} + CO + (3*TOC))$$

Where:

CO_{2c} = CO_2 ppmv concentration measured in the stack via method 3A minus the ambient CO_2 ppmv concentration present in the stack determined as described above.

CO = CO concentration measured in the stack via method 10

TOC = Total Organic Carbon, expressed as propane, measured in the stack via method 25A

The following table shows this calculation and outcome for an assumed stack effluent composition:

Table 9-1 Assumed Stack Affluent Composiiton

Outlet CO_2	30,000	Measured Value
Outlet CO	100	
Outlet TOC	30	
Outlet O2	150,000	
Ambient O2	208,000	
Ambient CO_2	388	

[12] . Technical Report "EPA-600/2-83-052" "FLARE EFFICIENCY STUDY" by Marc McDaniel, July 1983 (see http://www3.epa.gov/ttn/chief/ap42/ch13/related/ref_01c13s05_jan1995.pdf).

ED_002719_00009078-00036

Outlet CO_{2c} from combustion	29,720	Outlet CO_2 - ((Ambient CO_2 X (Outlet O2/Ambient O2))
Destruction Efficiency	99.70%	(CO_{2c} +CO)/(CO_2c +CO+(3*TOC))

9.5 EPA Must Revise The Provisions Related To Flares Subject To §60.18

9.5.1 There Are Technical Challenges In Meeting The §60.18 For Flares In Oil and natural gas Production And Gas Processing That Must Be Addressed

Flares are an attractive control device choice for the oil and natural gas industry due to their simplicity, reliability, lower maintenance requirements, and effectiveness in reducing organic compound emissions. The requirements in §60.18 of the 40 CFR part 60 General Provisions were developed by EPA to generally apply to flares. However, these requirements were developed and refined based on industrial flares primarily used at large petroleum refineries and petrochemical plants. As discussed above in section 9.1, there are unique aspects of the oil and natural gas industry that require accommodations in the control device requirements. The following sections suggest changes related to the application of the §60.18 provisions to Subpart OOOO and OOOOa affected facilities that will allow the compliant use of flares in the oil and natural gas industry without compromising their effectiveness in reducing VOC and methane emissions.

9.5.2 The Use Of Electronic Ignition Systems Should Be Allowed

§60.18(c)(2) requires that flares shall be operated with a flame present at all times, as determined by monitoring using a thermocouple or any other equivalent device to detect the presence of a flame.

API continues to believe that an option to use electronic ignition systems should be allowed for the oil and natural gas sector. Since oil and natural gas operations are not always steady state, flares with continuously lit pilots (24/7) can unnecessarily burn and waste fuel gas for the pilot while causing unnecessary emissions when there is otherwise no emissions stream being burned. An attractive and effective alternative is to allow the use of electronic ignition systems that ensure a flame is present whenever emissions are being routed to the flare.

In addition, many oil and natural gas production sites are remote and unmanned. In these situations, an electronic ignition system has proven to be a more reliable means of ensuring there is always a flame when emissions are routed to the flare than attempting to maintain a continuous pilot.

In the Natural Gas STAR program, EPA published a Partner Recognized Opportunity (PRO) in PRO Fact Sheet No. 903.[13] Presumably this was published because EPA approves of the design, recognizes its benefits and wanted to promote its use in industry. EPA should not forfeit the benefits of this control technology enhancement by disallowing its use. As an established and

[13] http://www3.epa.gov/gasstar/documents/installelectronicflareignitiondevices.pdf

preferred technology by EPA in the Natural Gas STAR program, operators should not have to petition EPA for approval.

API recognizes the need to ensure that the electronic ignition system is working and that a flame is present at all times when emissions are being routed to the flare. API believes that the existing requirements in §60.18(f)(2) already provides an appropriate requirement: Paragraph (e) states that "Flares used to comply with provisions of this Subpart shall be operated at all times when emissions may be vented to them" and (f)(2) states "The presence of a flare pilot flame shall be monitored using a thermocouple or any other equivalent device to detect the presence of a flame." With the simple amendments to F(a)(1) and E.2(d)(1)(iii) shown below, EPA can allow the use of auto-ignition devices while also ensuring compliance.

Specific recommendations for these amendments are provided in section 9.5.5.

9.5.3 Testing Should Not Be Required To Demonstrate Compliance With §60.18(f)(4)

Paragraph 60.18(f)(4) requires that the volumetric flow rate be "*determined by Reference Methods 2, 2A, 2C, or 2D as appropriate*". As a result, a test will be required for every flare used to comply with the CTG model rule. As discussed in section 9.1, the measurement of flow is impractical and potentially impossible at oil and natural gas production sites. In addition, even if these technical challenges were ignored, EPA's estimate of impacts did not include significant costs that would be incurred by the industry.

While not specifically referenced in this paragraph, the provisions in §60.8(c) require that performance tests be conducted on conditions that reflect "*representative performance of the affected facility*." During representative conditions, the exit velocities of the flare at oil and natural gas sites will never approach 400 feet per second. This can be easily demonstrated through the use of engineering calculations rather than testing or direct measurements. Specific changes must be made to F(a) to correct this situation. The recommendations for these amendments are provided in section 9.5.5

The technical challenges related to volumetric flow rate are not unique to storage vessels in the production segment. At many gas processing plants, pressure release devices are often routed to flares along with the emissions from other equipment. While there are typically no emissions from these pressure release devices, they can develop leaks. Under subparts OOOO and OOOOa, these pressure relief devices are subject to §60.482-4a(a) of NSPS subpart VVa. Since these pressure release devices are routed to a "closed vent system capable of capturing and transporting leakage through the pressure relief device to a control device", they are exempt from the LDAR requirements in §60.482-4a(a) and (b), but are subject to the closed vent system and control device requirements of §60.482-10a. Paragraph §60.482-10a(d) requires flares to comply with §60.18. The leaks that would occur from these pressure release devices would be very low, meaning that the difficulties in measuring the flow to these flares results in costly test programs that are entirely unnecessary given the extremely low flow rates. Therefore, API also recommends that the volumetric flow rate for these flares also be allowed to be determined using engineering calculations. API suggests that paragraphs be added to G.3 to address this technical infeasibility situation. These recommendations for these amendments are provided in section 9.5.5.

9.5.4 Sonic And Other Flares Operated During Maintenance, Startup, Shutdown, And Malfunction Situations Should Not Be Required To Comply With The Exit Velocity Requirements In §60.18(c)(4)

In EPA's September 18, 2015 Federal Register Notice (80 FR 56646), EPA specifically requested comment on the use of pressure-assisted flares in the oil and natural gas industry.

As EPA notes, pressure-assisted, or sonic, flares are designed to exceed §60.18's maximum exit velocity of 400 feet per second. As a result, they do not meet §60.18. Some facilities with potential large volume flows may utilize sonic flares, such as those included at onshore natural gas processing facilities, to control emissions in times of emergency, upsets, or maintenance. Sonic flares offer advantages over traditional low-pressure flares in some applications. For example, some designs allow smokeless operation over the entire operating range without any assist medium. This is a clear benefit for remote areas. Additionally, with no assist medium, energy usage and its related emissions are minimized and there remains no potential for steam/air over-assist. Some designs also offer less low frequency noise and less flame visibility in low profile designs. Sonic flares operate with destruction efficiencies that are at least as equivalent to, and generally greater, than low pressure flares.

Pressure-assisted (sonic) flares are not designed for continuous use, but instead operate in emergency, upset or maintenance situations where high volumes and pressures are sent to the flare. In some scenarios, pressure relief valves subject to LDAR monitoring are routed to sonic flares for the purpose of emergencies or upsets. Maintenance events are also routed to these flares in some cases.

However, a conflict with the velocity limits in §60.18(c)(3) is not limited to the case of pressure-assisted flares. Velocity limits for commonly used low-pressure flares (ground or elevated steam-assisted, air-assisted or unassisted flares) are achievable under representative day-to-day conditions. However, velocity limits for even low-pressure flares can be exceeded under conditions that approach the hydraulic capacity of flares. General application of §60.18(b) to a Subpart without the inclusion of §60.11 or an alternative exemption for periods of emergency, upset or maintenance is problematic.

Flares designed under §60.18(b) may exceed velocity limits during periods of emergency, upset or maintenance. In order to remain in compliance with the velocity limits, flare operators would need to install additional flare capacity for SSM events either by replacing an existing flare or adding additional flares. Therefore, the exemption from the §60.18 maximum velocity requirements should not be limited to pressure-assisted flares, but rather to all flares during periods of emergency, upset, or maintenance. As discussed in section 9.5.6 below, there is substantial evidence that indicates that the performance of flares will be maintained at these higher velocities.

Therefore, in order to allow the use of sonic flares and traditional flares designed under §60.18(b) for the oil and natural gas industry, EPA should exempt flares from the maximum velocity requirements in §60.18(c)(4).

Revisions are needed to F(a) and to G to allow the use of flares in these situations. The recommendations for these amendments are provided in section 9.5.5.

9.5.5 Recommended Model Rule Changes To Address Issues With Flare Requirements

Following are the recommended rule changes related to the issues discussed above that are related to the requirement that flares used for compliance with the CTG model rule comply with the requirements of §60.18.

G.3

(h) For a flare that is subject to §60.18 via §60.482-10a(d), the volumetric flowrate used to calculate the actual exit velocity in §60.18(f)(4) may be determined using engineering calculations based on conditions that reflect representative performance of the process unit. In addition, the velocity limits in §60.18(c)(3) do not apply during periods of emergency, upset, or maintenance.

E.1

(d) Each control device used to meet the emission reduction standard in section A.2 for a storage vessel must be installed according to paragraphs (d)(1) through (45) of this section, as applicable. As an alternative to paragraph (d)(1) of this section, you may install a control device model tested under section F(d), which meets the criteria in section F(d)(11) and F(e).

* * * * *

(3) You must operate each control device used to comply with this subpart at all times when gases, vapors, and fumes from working or flash losses are vented from the storage vessel affected facility through the closed vent system to the control device. You may vent more than one affected facility to a control device used to comply with this subpart.

* * * * *

(5) You must design and operate a flare in accordance with the requirements of section F.

F(a)(1)

(1) A flare that is designed and operated in accordance with §60.18(b), with the exceptions noted in paragraphs (a)(1)(i) through (iii) of this section. You must conduct the compliance determination using Method 22 of appendix A-7 of this part to determine visible emissions.

(i) A flare that is equipped with an electronic ignition system will satisfy the requirements in §60.18(c)(2) and (e),

(ii) The volumetric flowrate used to calculate the actual exit velocity in §60.18(f)(4) may be determined using engineering calculations based on conditions that reflect representative performance of the centrifugal compressor, pneumatic pump, or storage vessel affected facility, and

(iii) During periods of emergency, upset, or maintenance, the velocity limits in §60.18(c)(3) do not apply.

E,2(d)(1)

(iii) For a flare, a heat sensing monitoring device equipped with a continuous recorder that indicates the ~~continuous ignition of the pilot flame~~ presence of a flame as required in E.1(d)(3).

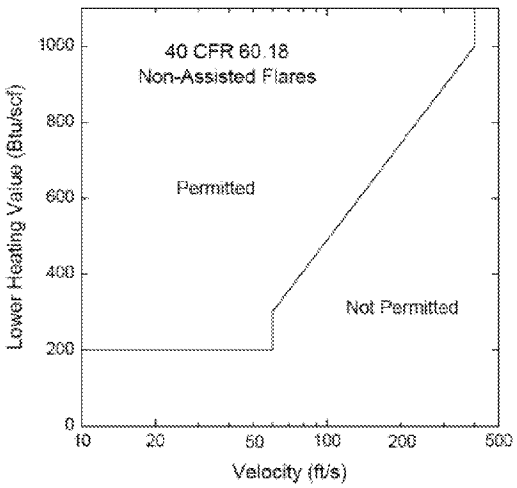
9.5.6 Velocity Limits in §60.18(c)(3) Are Unnecessary To Ensure High Destruction Efficiency in Flares

There is substantial evidence that flares operating with higher exit velocities are effective in reducing emissions. Following is a discussion of this evidence. [14]

Origins of Existing Flare Velocity Limits

The velocity limits in 40 CFR 60.18 were originally promulgated on January 21, 1986 and are graphically depicted below. The figure shows flame exit velocities in feet-per-second (fps) along the x-axis and lower heating value of the waste gas in Btu per standard cubic feet (scf) along the y-axis. A minimum heat content is required of 200 Btu/scf for unassisted flares or 300 Btu/scf for assisted flares up to 60 fps, where the required heat content increases as a function of exit velocity until a maximum allowable velocity of 400 fps is reached.

Figure 9-1 Current EPA Flare Velocity Limits



This relationship was developed following a series of EPA sponsored tests conducted in the 1980's that examined how various flare operating parameters, including velocity, affect flare performance. The tests with relevance to the current velocity requirements are the 1983 McDaniel[15] test and the 1984 Pohl[16] test. The focus of the 1985 Pohl[17] and 1986 Pohl[18] studies was not on high velocity, but any test runs from these studies where the exit velocity of the flare was greater than 60 feet per second (fps) have been included in this analysis.

The 1986 limits appear to originate with only four data points from these tests – the average value at the upper limits of each study. The 60 fps, 300 Btu/scf limit for steam-assisted flares was set

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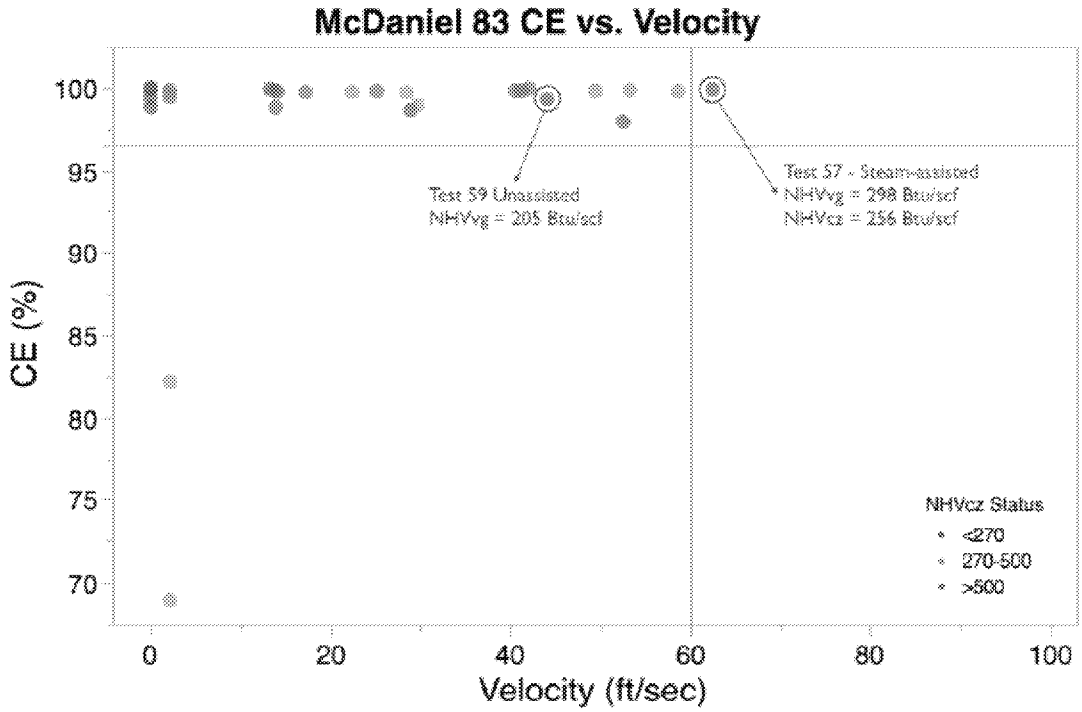
[14] Adapted from "A Review of Flare Velocity Limits in 40 CFR 60.18 and 63.11." Prepared for American Petroleum Institute October 26, 2014 by Scott Evans.
[15] McDaniel, M.; "Flare Efficiency Study," EPA-600/2-83-052, July 1983
[16] Pohl, J., et. Al.; "Evaluation of the Efficiency of Industrial Flares: Test Results," EPA-600/2-84-095
[17] Pohl, J, and Soelberg, N.; "Evaluation of the Efficiency of Industrial Flares: Flare Head Design and Gas Compostion," EPA-600/2-85-106, September 1986
[18] Pohl, J, and Soelberg, N.; "Evaluation of the Efficiency of Industrial Flares: H2S Gas Mixtures and Pilot Assisted Flares," EPA-600/2-86-080; September 1986

based on a single data point -- McDaniel 1983[15] test 57. The 200 Btu/scf limit for unassisted flares was also set based on a single data point – McDaniel test 59. These tests were performed on an 8.6-inch steam-assisted flare fueled with a propylene/nitrogen mix. The data are shown in

Figure 9-3. The data are binned by heat content, where red dots indicate test runs whose combustion zone net heating value (NHVVG) is less than 270 Btu/scf, green dots indicate test runs with NHVVG between 270 and 500 Btu/scf, and blue indicate test runs with NHVVG greater than 500 Btu/scf.

Figure 9-2 A Comparison of Combustion Efficiency vs Velocity for McDaniel 1983

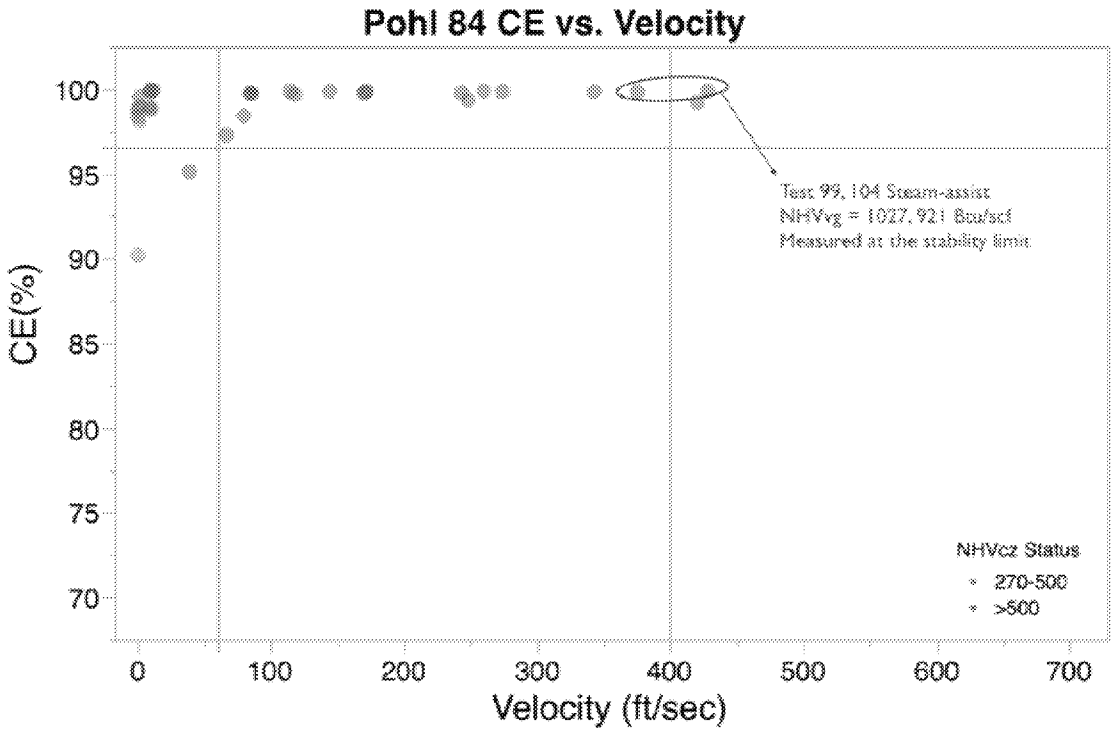


McDaniel did not collect data at velocities higher than 60 fps. At the 60 fps upper limit of the data, combustion efficiency remained very high and with no evidence of a trend toward lower combustion efficiency. These data were used to establish the 60 fps velocity limit although there is no evidence that operating at higher velocities results in degraded combustion efficiency.

The 400 fps, 1,000 Btu/scf limit appears to be set based on two data points from flame stability test runs 99 and 104 from Pohl 1984.[16] That study was performed on a 3-inch steam assisted flare fueled with a propane/nitrogen mix. These data are shown in

Figure 9-3. The data are binned by heat content, where green dots indicate test runs with NHVCZ between 270 and 500 Btu/scf and blue indicate test runs with NHVCZ greater than 500 Btu/scf.

Figure 9-3 A Comparison of Combustion Efficiency vs Velocity for Pohl 1984



Similarly to the data used to establish the 60 fps limit, data collected in this study were not collected at velocities higher than the upper limit of 400 fps. As in McDaniel 83, Pohl 84 showed no evidence of a trend towards lower combustion efficiency at the upper velocity limit measured. These data were used to establish the 400 fps limit although there is no evidence that operating at higher velocities results in degraded combustion efficiency.

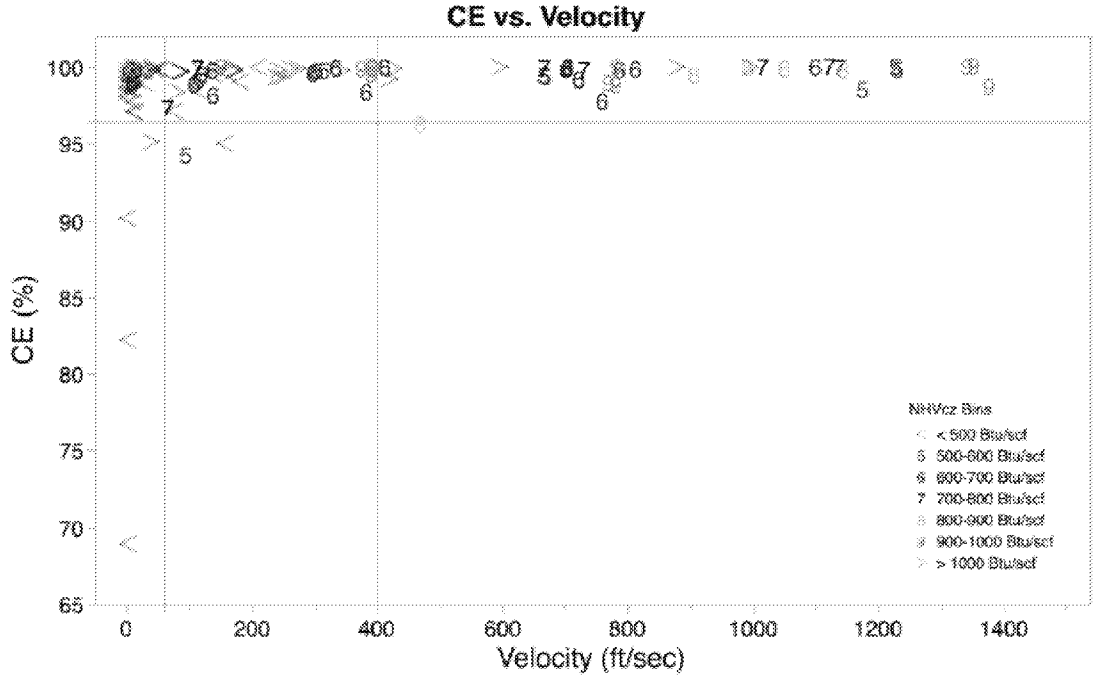
High Velocity Flare Test Data

Figure 9-4 shows all data from publically available high velocity flare tests as of October 2014. Some low velocity data are also included to the extent that they were measured during a test series including high velocity data. Data includes the 1980's flare studies referenced above as well as more recent studies (Marathon Garyville[19] and Dow[20]). This data is similarly displayed based upon combustion efficiency (CE) as a function of exit velocity in fps. The data is binned by combustion zone net heating value (NHVCZ) in groups of 500 Btu/scf. Only data with NHVcz > 270 are included.

[19] Clean Air Engineering, "Performance Test of Steam-Assisted and Pressure-Assisted Ground Flare Burners with Passive FTIR – Garyville," March 21, 2013

[20] Varner, V., Kodesh, Z.; "Emission Testing of Pressure Assisted Flare Burners," Presented at the American Flame Research Committee 2014 Industrial Combustion Symposium, September 2014

Figure 9-4 A Comparison of Combustion Efficiency vs Velocity for All Publically Available High Velocity Flare Tests binned by NHVcz Range



Almost all of the low velocity data that also have low CE have NHVcz values less than 500 Btu/scf. Additionally, virtually all of the test runs with velocity greater than the current limit of 400 fps, were conducted at NHVcz values less than the current 1,000 Btu/scf limit. This graph clearly shows that high combustion efficiency above the current limits is not only possible, but that it is assured based upon available test data.

Flame Stability

The claim is often made that the reason velocity limits are necessary is to ensure "flame stability." However, flame stability has been defined differently in different studies. McDaniel did not address flame stability. Pohl defines flame stability as:

The term "flame stability" simply means that a flame is maintained; flame instability occurs when the jet velocity exceeds the flame velocity and the flame goes out. [Pohl 84, p2-3]

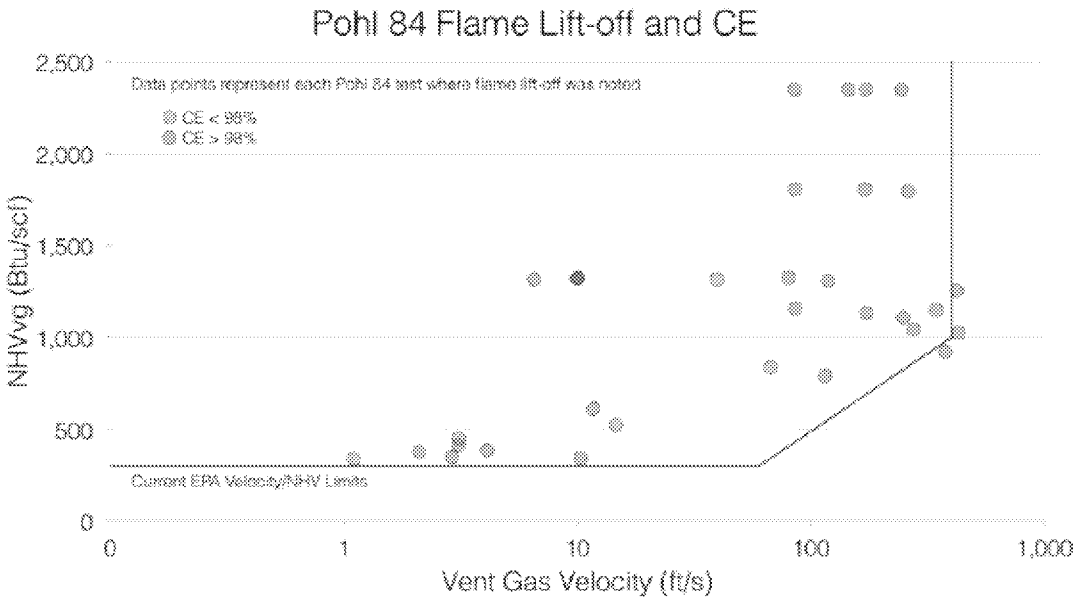
Others[21] have defined flame stability in terms of "lift-off", a conditions that occurs when the base of the flame detaches from the flare tip.

While there is no doubt that Pohl's definition results in unacceptable flare performance, there is little evidence that flame lift-off has any correlation either positive or negative to combustion

[21] Shore, D., "Improving Flare Design: A Transition From Art-Form to Engineering Science," Presented at AFRC-JFRC October, 2007.

efficiency. Figure 5 shows every data point from Pohl 84 where flame lift-off was noted in the report.

Figure 9-5 A Comparison of Flame Lift-Off and Combustion Efficiency from Pohl 84



27 of the 32 lifted flames showed high combustion efficiency. None of the remaining five points had measured combustion efficiency below 91%. Figure 9-5 clearly shows that flame lift-off does not affect combustion efficiency over a wide range of velocities and net heating values.

Concern over flame lift-off affecting combustion efficiency is not supported by the data. The only definition of flame stability with relevance to velocity limits is Pohl's definition… a high velocity flame is stable until it goes out.

There is also no evidence of a gradual decline of combustion efficiency when approaching the point where the flame is extinguished or the "snuff point." Both the Pohl 84 data and the Marathon Garyville data were collected as near as possible to the snuff point while still maintaining a flame. No evidence of degraded combustion efficiency was noted.

Conclusion

Current flare velocity limits restrict flare operation above 60 fps and prohibit operation entirely above 400 fps. This paper reviewed data from the data sets used to establish those federal regulatory velocity limits as well as recent high velocity flare test results.

All of the data collected, including the data used previously to set current limits as well as recently collected data, show that high velocity flaring results in high flare combustion efficiency (>96.5%). Previous limits were based solely on lack of data at higher flare exit velocities. There is no indication either in the 1980's studies or the more recent flare studies that high velocity flaring contributes to poor combustion efficiency.

The data on high velocity flaring is consistent with combustion theory, which shows that high velocity flames result in better air entrainment and mixing and so result in higher combustion efficiency. Limits on high velocity flaring are unnecessary and, in fact, counter-productive.

9.6 While EPA Has Been Testing Various Manufacturer Devices, The Process Has Been Slow

The CTG model rule allows for the use of combustion devices that are tested by the manufacturer which eliminates the need for source testing at the site. This has been allowed under NSPS Subpart OOOO (40 CFR 60, Subpart OOOO) and MACT HH and HHH (40 CFR 63, Subparts HH and HHH), for several years. EPA maintains a list of approved Combustion Control Devices[22] on their website. EPA has also stated that the current "approved list" will be adopted for OOOOa. API requests confirmation of this in the response to comments to reflect EPA's intent.

However, there are several issues with the approval process. First, more than half of the devices listed on the website are characterized as "under review", and they have maintained this status for a long period of time (one or more years). According to one manufacturer, the approval process should be less than a month. The CTG will result in the need for many more combustion devices to control existing sources, which increases the need to shortern the approval process. Closer inspection revealed that incomplete test reports may be a possible cause for achieving "under review" status, and therefore it may not be a fault of EPA's process. However, EPA needs to investigate the cause for these long delays in this approval process and correct them.

Second, manufacturers report that relief from propene testing would decrease the testing costs considerably. The requirement for propene testing for combustion devices that will be used at oil and natural gas production facilities seems illogical as there are insignificant amounts of double bond hydrocarbon compounds in natural gas. API requests that F(d)(2)be modified as follows to allow the use of propane to expedite the approval process.

> (2) Performance testing must consist of three 1-hour (or longer) test runs for each of the four firing rate settings specified in paragraphs (d)(2)(i) through (iv) of this section, making a total of 12 test runs per test. ~~Propene (propylene)~~ Propane gas must be used for the testing fuel. All fuel analyses must be performed by an independent third-party laboratory (not affiliated with the control device manufacturer or fuel supplier).

10.0 EPA MUST ELIMINATE THE CONFUSION AND CONFLICT ASSOCIATED WITH "CONTROL DEVICE" AND "ROUTED TO A PROCESS"

It is clear from the model rule control requirements for centrifugal compressors at C.2(b), pneumatic pumps at H.2(b)(4), and storage vessels at A.2(b)(1) that "route to a process" was intended as an alternative to a control device. For example:

A.2(b)(1): Except as required by paragraph (b)(2) of this section, if you use a control device to reduce emissions, you must equip the storage vessel with a cover that meets the requirements of Section D.1(a), that is connected through a closed vent system that meets the requirements of section D.1(b), and routed to a control device that meets the conditions specified in paragraph (b)(3)(i) and (ii) of this section. As an alternative to routing the closed vent system to a control device, you may route the closed vent system to a process.

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[22] http://www3.epa.gov/airquality/oilandgas/pdfs/mantesteddevices.pdf

However, the definitions and provisions related to "control device" and "routed to a process" are inconsistent and confusing, and in some instances, conflicting. This is particularly the case with regard to boilers and process heaters. The following sections highlight these issues and suggest a recommendation that will eliminate the confusion and conflicts without any reduction in the effectiveness of the rule.

10.1 Definition Of "Routed To A Process" Should Be Clarified

The CTG model rule includes the following definition:

Routed to a process or route to a process means the emissions are conveyed via a closed vent system to any enclosed portion of a process where the emissions are predominantly recycled and/or consumed in the same manner as a material that fulfills the same function in the process and/or transformed by chemical reaction into materials that are not regulated materials and/or incorporated into a product; and/or recovered. Salable quality gas means natural gas that meets the flow line or collection system specifications, regardless of whether such gas is sold.

The use of "routed to a process" is clear as used in connection to a VRU, as these emissions are recycled and incorporated into a product.

This definition also unmistakably applies to situations where the emissions are combusted in a boiler or process heater. There are three different ways in which hydrocarbon vapors can be fed into a boiler or process heater for destruction – 1) vapors routed to the flame zone, 2) vapors routed to the fuel system as a primary fuel, and 3) vapors routed to the combustion air supply as a secondary fuel. For all three of these methods of introducing hydrocarbon emissions into a boiler or process heater the emissions are clearly "consumed in the same manner as the material that fulfills the same function in the process" Further, the emissions are "transformed by chemical reaction into materials that are not regulated materials". However, the CTG model rule is not as clear how this definition applies for boilers and process heaters. EPA must clarify this linkage between "routed to a process" and boilers and process heaters throughout the model rule.

Despite the fact that EPA defined routed to a process/route to a process in a manner that would include all situations when emissions are routed to a boiler or process heater, there are instances throughout the model rule where EPA appears to consider boilers and process heaters as control devices. For example, in E.1(a)(1), EPA includes boilers and process heaters in a parenthetical describing a combustion device (e.g., thermal vapor incinerator, catalytic vapor incinerator, boiler, or process heater). Similarly, this same parenthetical description of enclosed combustion device in in E.1(d)(1). Further, in the list of "control devices" exempted from performance testing in F(a), there are several specific boiler and process heater examples that are exempted.

One of these exemptions, specifically F(a)(3), exempts boilers or process heater "into which the vent stream is introduced with the primary fuel or is used as the primary fuel." These seems to indicate that EPA draws a distinction between the three situations described above where emissions are routed to a boiler or process heater (even though they are all three clearly covered by the definition of "routed to a process").

The recommended changes discussed below resolve this conflict.

10.1.1 NSPS Subparts VV And VVa Include The Concept Of "Fuel Gas"

In the rulemakings for NSPS Subparts VV and VVa, EPA has addressed this same basic situation in a clear and reasonable manner. For example, §60.482-4a(c) states that:

> "Any pressure relief device that is routed to a process or fuel gas system or equipped with a closed vent system capable of capturing and transporting leakage through the pressure relief device to a control device as described in §60.482-10a is exempted from the requirements of paragraphs (a) and (b) of this section."

Further, Subpart VVa includes the following related definitions.

> *Fuel gas* means gases that are combusted to derive useful work or heat.
>
> *Fuel gas system* means the offsite and onsite piping and flow and pressure control system that gathers gaseous stream(s) generated by onsite operations, may blend them with other sources of gas, and transports the gaseous stream for use as fuel gas in combustion devices or in-process combustion equipment, such as furnaces and gas turbines, either singly or in combination.

API believes that this precedent can be utilized to improve the clarity in Subparts OOOO and OOOOa. This recommendation is provided below.

10.1.2 Recommended Change to Definition Of "Routed To A Process Or Route To A Process"

API recommends that the following changes be made to the definition of routed to a process or route to a process" in the CTG model rule.

> *Routed to a process or route to a process* means the emissions are conveyed via a closed vent system to any enclosed portion of a process where the emissions are predominantly recycled and/or consumed in the same manner as a material that fulfills the same function in the process and/or transformed by chemical reaction into materials that are not regulated materials and/or incorporated into a product; and/or recovered. Salable quality gas means natural gas that meets the flow line or collection system specifications, regardless of whether such gas is sold. Emissions used as fuel gas in a boiler, process heater, or other combustion device are considered to be routed to a process.

API further recommends that the following definition of fuel gas be added.

> *Fuel gas* means gases that are combusted to derive useful work or heat.

10.2 Definitions Of "Control Device", "Combustion Device", And "Combustion Control Device"

The confusion discussed above related to boilers and process heaters and routed to a process is acerbated by the fact that the CTG model rule does not define control device. In addition to this situation that needs to be corrected, the model rule requirements for pneumatic pumps make defining "control device" critical. This is discussed later in Section 15.4.5,

As discussed in Section 10.1.2, the definition of "routed to a process" clearly includes routing emissions to a boiler or process heater to be consumed, yet the CTG model rule discusses boilers and process heaters as control devices in other places.

In addition, the situation is further confused as EPA uses the terms "combustion device", "combustion control device", and "enclosed combustion control device" in an arbitrary manner that further confuses the situation. None of these terms are defined in the CTG model rule.

In conjunction with the recommended definitions in Section 10.1.2**API offers the following definitions to be added to the CTG model rule.**

> *Control device* means any equipment used for recovering or oxidizing volatile organic compound (VOC) or methane emissions. Such equipment includes, but is not limited to, absorbers, carbon adsorbers, condensers, and combustion devices. Recovery devices that recycle the emissions back to the process, and combustion devices that use the emissions as fuel gas, are not considered control devices under this rule.
>
> *Combustion control device means* a thermal vapor incinerator, catalytic vapor incinerator, flare, or other combustion device that do not burn emissions as a fuel gas.
>
> *Enclosed combustion control device* means a combustion control device with an enclosure such that the flame is not an open flame.

This definition of control device, along with the definition of "routed to a process or route to a process" recognizes that routing to a process is not emissions control but rather a beneficial use or reuse of exhaust gases and vapors. Thus, routing pneumatic pump exhaust or compressor blowdown gas to be used as a fuel gas would not make heaters and boilers using these streams part of a control device.

In addition, the following changes are needed throughout the model rule to rectify the inconsistent usage of these terms throughout. These changes also address the changes related to boilers and process heaters and "routed to a process."

> **E.1**
>
> (a) Each control device used to meet the VOC emission reduction requirements must be installed according to paragraphs (a)(1) through (3) of this section. As an alternative, you may install a combustion control device model tested under section F(d), which meets the criteria in section F(d)(11) and section F(e).
> (1) Each combustion control device ~~(e.g., thermal vapor incinerator, catalytic vapor incinerator, boiler, or process heater)~~, except for a flare, must be designed and operated in accordance with one of the performance requirements specified in paragraphs (a)(1)(i) through (~~iv~~iii) of this section.
> * * * * *
> ~~(iv) If a boiler or process heater is used as the control device, then you must introduce the vent stream into the flame zone of the boiler or process heater.~~
> * * * * *
> (d) Each control device used to meet the emission reduction standard in section A.2 for a storage vessel must be installed according to paragraphs (d)(1) through (4) of this section, as applicable. As an alternative to paragraph (d)(1) of this section, you may install a combustion control device model tested under F(d), which meets the criteria in F(d)(11) and F(e).
> (1) For each enclosed combustion control device ~~(e.g., thermal vapor incinerator, catalytic vapor incinerator, boiler, or process heater)~~ you must meet the requirements in paragraphs (d)(1)(i) through (iv) of this section.
> * * * * *
> (iv) Each combustion control device ~~(e.g., thermal vapor incinerator, catalytic vapor incinerator, boiler, or process heater)~~ must be designed and operated in accordance with

one of the performance requirements specified in paragraphs (i) through (iii) of this section.
~~(iv) If a boiler or process heater is used as the control device, then you must introduce the vent stream into the flame zone of the boiler or process heater.~~

F
(a) Performance test exemptions. You are exempt from the requirements to conduct performance tests and design analyses if you use any of the control devices described in paragraphs (a)(1) through (~~7~~5) of this section.
~~(2) A boiler or process heater with a design heat input capacity of 44 megawatts or greater.~~
~~(3) A boiler or process heater into which the vent stream is introduced with the primary fuel or is used as the primary fuel.~~
(~~4~~2) A boiler or process heater burning hazardous waste for which you have either been issued a final permit under 40 CFR part 270 and comply with the requirements of 40 CFR part 266, Subpart H; or you have certified compliance with the interim status requirements of 40 CFR part 266, Subpart H.
(~~5~~3) A hazardous waste incinerator for which you have been issued a final permit under 40 CFR part 270 and comply with the requirements of 40 CFR part 264, Subpart O; or you have certified compliance with the interim status requirements of 40 CFR part 265, Subpart O.
(~~6~~4) A performance test is waived in accordance with §60.8(b).
(~~7~~5) A combustion control device whose model can be demonstrated to meet the performance requirements of E.1(a) through a performance test conducted by the manufacturer, as specified in paragraph (d) of this section.
* * * * *
(b)(3)(iv) Reserved ~~If the vent stream entering a boiler or process heater with a design capacity less than 44 megawatts is introduced with the combustion air or as a secondary fuel, you must determine the weight-percent reduction of total TOC (minus methane and ethane) across the device by comparing the TOC (minus methane and ethane) in all combusted vent streams and primary and secondary fuels with the TOC (minus methane and ethane) exiting the device, respectively.~~

E.2
(b) Reserved ~~You are exempt from the monitoring requirements specified in paragraphs (c) through (g) of this section for the control devices listed in paragraphs (b)(1) and (2) of this section.~~
~~(1) A boiler or process heater in which all vent streams are introduced with the primary fuel or are used as the primary fuel.~~
~~(2) A boiler or process heater with a design heat input capacity equal to or greater than 44 megawatts.~~
* * * * *
(d)(1)(iv) Reserved ~~For a boiler or process heater, a temperature monitoring device equipped with a continuous recorder. The temperature monitoring device must have a minimum accuracy of ±1 percent of the temperature being monitored in °C, or ±2.5°C, whichever value is greater. You must install the temperature sensor at a location representative of the combustion zone temperature.~~
* * * * *
(d)(1)(viii) (A) The continuous monitoring system must measure gas flow rate at the inlet to the combustion control device. The monitoring instrument must have an accuracy of ±2 percent or better. The flow rate at the inlet to the combustion control device must not

exceed the maximum or be less than the minimum flow rate determined by the manufacturer.
(B) A monitoring device that continuously indicates the presence of the pilot flame while emissions are routed to the combustion control device.

11.0 THE PROPOSED BY-PASS DEVICE REQUIREMENTS ARE NOT REASONABLE AND WERE NOT JUSTIFIED BY EPA

EPA failed to consider the cost and technical feasibility of the audible alarm and notification via remote alarm at the nearest field office for non-secured by-pass device requirements. A remote alarm at a field office does not add any additional environmental benefit, where an onsite device meets the intent of the alarm requirements. There are several considerations for a field office to receive data from field locations including onsite equipment, programming, and installation and maintenance. Adding an alarm will require installation of new equipment requiring potentially a facility to be shut down and the equipment purged so that "hot work" can be performed to install the equipment which will result in additional emissions. Furthermore, a company would need a remote transmitter unit (RTU) installed or have an existing RTU with sufficient capacity to transmit a signal from the device to an operations center to notify the operations center. There are also cost from programming, installation, and maintenance of the alarm. Equipment and installation costs are several thousands of dollars for each data point, per site, routed into a system, even if existing monitoring equipment is located onsite. Ongoing support and maintenance of the monitored parameter is required to sustain operation

For bypass devices secured with a car-seal or lock-and-key type configuration, the requirement is for visual verification that the device is secured. The requirements for non-secured devices should be similar and only require verification if the alarm - whether audio or visual - has been triggered. Since there is a flow indicator present, the amount vented would be known. Following are recommended changes to the CTG model rule language:

D.1(b)(3)(i)(A)
(A) You must properly install, calibrate, maintain, and operate a flow indicator at the inlet to the bypass device that could divert the stream away from the control device or process to the atmosphere. Set the flow indicator to trigger an audible and/or visible alarm~~, and initiate notification via remote alarm to the nearest field office,~~ when the bypass device is open such that the stream is being, or could be, diverted away from the control device or process to the atmosphere.

D.2(d)(1)
(d) For each bypass device, except as provided for in section D.1, you must meet the requirements of paragraphs (d)(1) or (2) of this section.
(1) Set the flow indicator to take a reading at least once every 15 minutes at the inlet to the bypass device that could divert the steam away from the control device to the atmosphere. You must properly install, calibrate and maintain a flow indicator at the inlet to the bypass device that could divert the stream away from the control device or process to the atmosphere. Set the flow indicator to trigger an audible and/ot visible alarm when the bypass device is open such that the stream is being, or could be, diverted away from the control device or process to the atmosphere.

12.0 THERE IS UNNECESSARY OVERLAP AND REDUNDANCY BETWEEN THE COVER AND CLOSED VENT SYSEM AND FUGITIVE EMISSION REQUIREMENTS

EPA proposes fugitive monitoring like requirements for closed vent systems, but also includes closed vent systems in the definition of Fugitive Emission Components. This results in CVS being subject to both closed vent system requirements in Section D and the fugitive emission component monitoring requirements in Section I. This creates a situation which is unnecessarily duplicative and redundant. Specifically, EPA has required both optical gas imaging monitoring for the tank cover and the closed vent systems under Section I, as well as annual Method 21 (M21) monitoring and visual inspections for closed vent systems under Section D. This could result in as many as three different leak detection programs at a single facility.

To avoid this conflict, API provides recommendations that will eliminate this overlap while still ensuring that emissions from leaks from closed vent system components are minimized. The problem and API's recommendations are discussed in detail in Section 16.0.

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TECHNICAL COMMENTS

13.0 STORAGE VESSELS

13.1 The Cost Analysis For Retrofitting Existing Storage Tanks With Controls Is Inadequate

In section 4.3.1.2 of the Draft CTG, EPA describes the control option of routing emissions to a combustion device. API agrees that a combustor is one of the technically feasible options to reduce VOC emissions from storage vessels. In this section, EPA estimates the cost impacts of a combustor. These costs are summarized in Table 4-5 of the CTG. However, this cost analysis is inadequate in several respects, ranging from simple mathematical errors to the omission of cost elements that EPA includes in their own guidance. Section 10.1.1 summarizes the background for EPA's cost estimate. This is followed by section 10.1.2, which discusses the numerical errors and section 10.1.3, which shows how EPA omitted costs identified in the EPA OAQPS Control Cost Manual from the analysis.

Note that these corrections do not account for the testing, monitoring, and other compliance costs that are included in the CTG model rule, as discussed in section 9.0. If EPA maintains these onerous requirements in the final CTG, they must update the cost analysis further to include these costs.

13.1.1 *Basis For Draft CTG Cost Estimate For Combustors For Storage Vessels*

EPA evaluated costs for control of vapors from storage vessels as described in the 2012 Technical Support Document (2012 TSD) for NSPS OOOO.[23] As stated in section 7.3 of the 2012 TSD, cost data for a combustor were obtained from an Initial Economic Impact Analysis prepared for the proposed State-only revisions to a Colorado regulation (2008 Colorado EIA),[24] which were assumed to be in 2007 dollars. EPA escalated the costs to 2008 dollars using the Chemical Engineering (CE) Indices for 2007 (525.4) and 2008 (575.4),[25] or a factor of 1.0952. EPA also added estimated costs for operating and maintenance labor. These cost data are summarized below in Table 13-1.

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[23] U.S. EPA, "Oil and Natural Gas Sector: Standards of Performance for Crude Oil and Natural Gas Production, Transmission, and Distribution," Background Supplemental Technical Support Document for the Final New Source Performance Standards, April 2012.

[24] Initial Economic Impact Analysis for Proposed State-Only Revisions to the Colorado Air Quality Control Commission's Regulation Number 7, "Emissions of Volatile Organic Compounds." September 18, 2008.

[25] Economic Indicators: Chemical Engineering Plant Cost Index. Chemical Engineering Magazine.

Table 13-1 NSPS Subpart OOOO Cost Analyses for Combustor for Storage Vessels

Cost Item	Basis Year:	NSPS 2012 TSD Table 7-5 2007	(x 1.0952)	NSPS 2012 TSD Table 7-5 2008
Capital Costs Items				
	Combustor	$16,540		$18,114
	Freight and Design	$1,500		$1,643
	Auto Ignitor	$1,500		$1,643
	Surveillance System Instrumentation Auxiliary Equipment	$3,600		$3,943
	Combustor Installation Indirect Installation Sales Tax	$6,354		$6,959
	Storage Vessel Retrofit			
	Subtotal			
	Contingency			
Total Capital Investment		**$29,494**		**$32,302**
Annual Costs Items				
Operating Labor	*labor hours*	130		130
	labor rate	$33.51		$36.70
	supervisory hours	19.5		19.5
	supervisory rate	$52.85		$57.88
	Operating Labor	$5,387		$5,900
Maintenance Labor	*labor hours*	130		130
	labor rate	$33.51		$36.70
	supervisory hours	0		0
	supervisory rate	$52.85		$57.88
	Maintenance Labor	$4,356		$4,771
	Subtotal Labor	**$9,743**		**$10,671**
	Maintenance	$2,000		$2,190
	Pilot Fuel	$1,897		$2,078
	Make-up gas			
	Data Management	$1,000		$1,095
	interest rate (%)	7%		7%
	equipment life (years)	15		15
	CRF	0.1098		0.1098
	Capital Recovery ($/yr)	$3,238		$3,547
	Overhead			
	Administrative Charges			
	Property Taxes			
	Insurance			
Total Annual Costs ($/yr)		**$17,878**		**$19,580**
Control Threshold (tpy)		**6**		**6**
	control efficiency (%)	95%		95%
	emission reductions (tpy)	5.7		5.7
Cost Effectiveness ($/ton)		**$3,136**		**$3,435**

EPA evaluated costs in the draft CTG for control of vapors from storage vessels in a similar manner as for NSPS OOOO, with the costs adjusted to a 2012 basis. EPA referenced a more recent version of the Colorado Initial Economic Impact Analysis (2013 Colorado EIA)[26] for most of the costs, but relied on the cost given in the 2012 TSD for the surveillance system, with an adjustment of 5.69% to account for changes in cost from 2008 to 2012. In that the draft CTG is applicable to existing storage vessels, and these storage vessels would require certain alterations to accommodate the routing of vapors to a control device, EPA added a cost item in the draft CTG for "Storage Vessel Retrofit." The costs in the draft CTG are summarized in Table 13-2, with a comparison to the costs in the 2012 TSD.

13.1.2 Numerical Errors In The Draft CTG Cost Evaluation

There appear to be two numerical errors in the draft CTG cost data. One is an omission of the non-labor component of maintenance and the other is an understatement of the cost of fuel to maintain the pilot flame. The impacts on cost-effectiveness of these two numerical errors are shown in Table 13-3.

Omission of the Non-Labor Component of Maintenance.

Table 1 of the 2013 Colorado EIA includes a cost of $2,197 for Maintenance. This should have been understood as maintenance materials, corresponding to the $2,000 in the 2008 Colorado EIA. As in the 2012 TSD, the Maintenance line item from the Colorado EIA should have been included as a maintenance cost in addition to the cost of maintenance labor.

Miscalculation of the Cost of Pilot Fuel.

The cost of Pilot Fuel is given in Table 1 of the 2013 Colorado EIA as $768, which is substantially lower than the value of $2,078 from the 2012 TSD. A footnote to Table 1 of the 2013 Colorado EIA indicates that the cost was based on a fuel cost of $3.41/ million Btu (MMBtu). A typical high heat value (HHV) for natural gas is 1,028 MMBtu/ million scf (MMscf), or 1.028 MMBtu/ thousand scf. The cost per thousand scf would then be 3.41*1.028 = $3.51/ thousand scf. Various sources give values of pilot fuel consumption ranging from 50 scf/hr[27] to 70 scf/hr.[28] At the lower consumption rate of 50 scf/hr, this would correspond to 3.51*50*8760/1000 = $1,537/year, or twice the cost given in the 2013 Colorado EIA.

Further, this pilot fuel cost (said to be based on the Henry Hub Spot Price in August 2013) of $3.41/MMBtu does not match the assumed VRU cost offset of recovered gas that is priced at $4/Mcf (equivalent to $3.89/MMBtu). While this would not result in a significant increase in the cost of control for a single storage vessel, it could when amplified to include the cost of controls for the entire industry.

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[26] Initial Economic Impact Analysis for proposed revisions to Colorado Air Quality Control Commission Regulation Number 7, "Emissions of Volatile Organic Compounds," submitted with Request for Hearing Documents on November 15, 2013.

[27] Wyoming Department of Environmental Quality, Division of Air Quality, Proposed Revisions to the Chapter 6, Section 2, Oil and Gas Production Facilities Permitting Guidance, Technical Support Document, September 2013.

[28] U.S. Environmental Protection Agency, "EPA Air Pollution Control Cost Manual," EPA/452/B-02-001, Sixth Edition, January 2002. http://www.epa.gov/ttn/catc/dir1/cs3-2ch1.pdf

Table 13-2. NSPS Subpart OOOO versus Draft CTG Cost Analyses for Combustor for Storage Vessels

Cost Item	Basis Year:	NSPS 2012 TSD Table 7-5 2008	Draft CTG Table 4-5 2012
Capital Costs Items			
	Combustor	$18,114	$18,169
	Freight and Design	$1,643	$1,648
	Auto Ignitor	$1,643	$1,648
	Surveillance System Instrumentation Auxiliary Equipment	$3,943	$3,805
	Combustor Installation Indirect Installation Sales Tax	$6,959	$6,980
	Storage Vessel Retrofit		$68,736
	Subtotal		
	Contingency		
Total Capital Investment		**$32,302**	**$100,986**
Annual Costs Items			
Operating Labor	*labor hours*	130	130
	labor rate	$36.70	$32.00
	supervisory hours	19.5	19.5
	supervisory rate	$57.88	$51.03
	Operating Labor	$5,900	$5,155
Maintenance Labor	*labor hours*	130	130
	labor rate	$36.70	$32.00
	supervisory hours	0	0
	supervisory rate	$57.88	$51.03
	Maintenance Labor	$4,771	$4,160
	Subtotal Labor	**$10,671**	**$9,315**
	Maintenance	$2,190	
	Pilot Fuel	$2,078	$768
	Make-up gas		
	Data Management	$1,095	$1,057
	interest rate (%)	7%	7%
	equipment life (years)	15	15
	CRF	0.1098	0.1098
	Capital Recovery ($/yr)	$3,547	$11,088
	Overhead		
	Administrative Charges		
	Property Taxes		
	Insurance		
Total Annual Costs ($/yr)		**$19,580**	**$22,228**
Control Threshold (tpy)		**6**	**6**
	control efficiency (%)	95%	95%
	emission reductions (tpy)	5.7	5.7
Cost Effectiveness ($/ton)		**$3,435**	**$3,900**

Table 13-3. Draft CTG Cost Analyses for Combustor for Storage Vessels –Corrected for Numerical Errors

Cost Item	Basis Year:	Draft CTG Table 4-5 2012	Draft CTG *corrected* Table 4-5 2012
Capital Costs Items			
	Combustor	$18,169	$18,169
	Freight and Design	$1,648	$1,648
	Auto Ignitor	$1,648	$1,648
	Surveillance System	$3,805	$3,805
	Instrumentation		
	Auxiliary Equipment		
	Combustor Installation	$6,980	$6,980
	Indirect Installation		
	Sales Tax		
	Storage Vessel Retrofit	$68,736	$68,736
	Subtotal		
	Contingency		
Total Capital Investment		**$100,986**	**$100,986**
Annual Costs Items			
Operating Labor	*labor hours*	130	130
	labor rate	$32.00	$32.00
	supervisory hours	19.5	19.5
	supervisory rate	$51.03	$51.03
	Operating Labor	$5,155	$5,155
Maintenance Labor	*labor hours*	130	130
	labor rate	$32.00	$32.00
	supervisory hours	0	0
	supervisory rate	$51.03	$51.03
	Maintenance Labor	$4,160	$4,160
	Subtotal Labor	**$9,315**	**$9,315**
	Maintenance		$2,197
	Pilot Fuel	$768	$1,537
	Make-up gas		
	Data Management	$1,057	$1,057
	interest rate (%)	7%	7%
	equipment life (years)	15	15
	CRF	0.1098	0.1098
	Capital Recovery ($/yr)	$11,088	$11,088
	Overhead		
	Administrative Charges		
	Property Taxes		
	Insurance		
Total Annual Costs ($/yr)		**$22,228**	**$25,194**
Control Threshold (tpy)		**6**	**6**
	control efficiency (%)	95%	95%
	emission reductions (tpy)	5.7	5.7
Cost Effectiveness ($/ton)		**$3,900**	**$4,420**

13.1.3 Omission Of Costs Identified In The EPA OAQPS Control Cost Manual

EPA maintains a Control Cost Manual which has the following stated purpose:

> *The objectives of this Manual are two-fold: (1) to provide guidance to industry and regulatory authorities for the development of accurate and consistent costs (capital costs, operating and maintenance expenses, and other costs) for air pollution control devices, and (2) to establish a standardized and peer reviewed costing methodology by which all air pollution control costing analyses can be performed.*[29]

The EPA Control Cost Manual, then, is expressly intended to provide guidance in the evaluation of the cost of control devices. The costs to be included in the evaluation of a flare as a control device are addressed in Section 3.2, Chapter 1 of the EPA Control Cost Manual. These costs include the following line items for Indirect Annual Costs:

- Overhead	60% of total labor and material costs
- Administrative charges	2% of Total Capital Investment
- Property tax	1% of Total Capital Investment
- Insurance	1% of Total Capital Investment

EPA neglected these costs in both the 2012 TSD and the draft CTG, but has offered no rationale for doing so. The omission of these costs, then, appears to be arbitrary and capricious. The impact of these Indirect Annual Costs is shown below in Table 13-4.

13.1.4 Understatement Of Operating And Maintenance Hours

The EPA Control Cost Manual indicates an allowance of 630 hours per year for operation of a flare, and 0.5 hours per shift for maintenance of a flare. Assuming one shift per day, the estimated maintenance labor would be 182 hours. EPA, however, allowed just 130 hours per year for operating the device and another 130 hours per year for maintenance. In the 2012 TSD, EPA acknowledged the higher level of hours in the EPA Control Cost Manual, but reasoned that operating labor would be lower for these devices when used in the oil and natural gas production sector due to most of the sites being unmanned.[30] However, operating and maintenance hours would be increased for unmanned sites due to the travel time involved in getting personnel to the sites. It is, then, inappropriate to arbitrarily reduce estimated operating and maintenance hours for these facilities. The impacts of increasing the operating and maintenance hours to the levels indicated by the EPA Control Cost Manual are shown below in Table 13-5.

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[29] U.S. Environmental Protection Agency, "EPA Air Pollution Control Cost Manual," EPA/452/B-02-001, Sixth Edition, January 2002. http://www3.epa.gov/ttncatc1/dir1/c_allchs.pdf

[30] U.S. EPA, "Oil and Natural Gas Sector: Standards of Performance for Crude Oil and Natural Gas Production, Transmission, and Distribution," Background Supplemental Technical Support Document for the Final New Source Performance Standards, April 2012; page 7-4.

Table 13-4. Draft CTG Cost Analyses for Combustor for Storage Vessels – Corrected Plus Indirect Annual Costs

Cost Item	Basis Year:	Draft CTG *corrected* Table 4-5 2012	Draft CTG *corrected, plus Indirect Annual Costs* Table 4-5 2012
Capital Costs Items			
	Combustor	$18,169	$18,169
	Freight and Design	$1,648	$1,648
	Auto Ignitor	$1,648	$1,648
	Surveillance System Instrumentation Auxiliary Equipment	$3,805	$3,805
	Combustor Installation Indirect Installation Sales Tax	$6,980	$6,980
	Storage Vessel Retrofit	$68,736	$68,736
	Subtotal		
	Contingency		
Total Capital Investment		**$100,986**	**$100,986**
Annual Costs Items			
Operating Labor	*labor hours*	130	130
	labor rate	$32.00	$32.00
	supervisory hours	19.5	19.5
	supervisory rate	$51.03	$51.03
	Operating Labor	$5,155	$5,155
Maintenance Labor	*labor hours*	130	130
	labor rate	$32.00	$32.00
	supervisory hours	0	0
	supervisory rate	$51.03	$51.03
	Maintenance Labor	$4,160	$4,160
	Subtotal Labor	**$9,315**	**$9,315**
	Maintenance	$2,197	$2,197
	Pilot Fuel	$1,537	$1,537
	Make-up gas		
	Data Management	$1,057	$1,057
	interest rate (%)	7%	7%
	equipment life (years)	15	15
	CRF	0.1098	0.1098
	Capital Recovery ($/yr)	$11,088	$11,088
	Overhead		$6,907
	Administrative Charges		$2,020
	Property Taxes		$1,010
	Insurance		$1,010
Total Annual Costs ($/yr)		**$25,194**	**$36,141**
Control Threshold (tpy)		**6**	**6**
	control efficiency (%)	95%	95%
	emission reductions (tpy)	5.7	5.7
Cost Benefit ($/ton)		**$4,420**	**$6,340**

Table 13-5. Draft CTG Cost Analyses for Combustor for Storage Vessels – Corrected Plus Indirect Annual Costs and Full Labor Hours

Cost Item	Basis Year:	Draft CTG *corrected, plus Indirect Annual Costs* Table 4-5 2012	Draft CTG *corrected, plus Indirect Annual Costs and Full Labor Hours* Table 4-5 2012
Capital Costs Items			
	Combustor	$18,169	$18,169
	Freight and Design	$1,648	$1,648
	Auto Ignitor	$1,648	$1,648
	Surveillance System Instrumentation Auxiliary Equipment	$3,805	$3,805
	Combustor Installation Indirect Installation Sales Tax	$6,980	$6,980
	Storage Vessel Retrofit	$68,736	$68,736
	Subtotal		
	Contingency		
Total Capital Investment		**$100,986**	**$100,986**
Annual Costs Items			
Operating Labor	*labor hours*	130	630
	labor rate	$32.00	$32.00
	supervisory hours	19.5	94.5
	supervisory rate	$51.03	$51.03
	Operating Labor	$5,155	$24,982
Maintenance Labor	*labor hours*	130	182
	labor rate	$32.00	$32.00
	supervisory hours	0	0
	supervisory rate	$51.03	$51.03
	Maintenance Labor	$4,160	$5,824
	Subtotal Labor	**$9,315**	**$30,806**
	Maintenance	$2,197	$2,197
	Pilot Fuel	$1,537	$1,537
	Make-up gas		
	Data Management	$1,057	$1,057
	interest rate (%)	7%	7%
	equipment life (years)	15	15
	CRF	0.1098	0.1098
	Capital Recovery ($/yr)	$11,088	$11,088
	Overhead	$6,907	$19,802
	Administrative Charges	$2,020	$2,020
	Property Taxes	$1,010	$1,010
	Insurance	$1,010	$1,010
Total Annual Costs ($/yr)		**$36,141**	**$70,527**
Control Threshold (tpy)		**6**	**6**
	control efficiency (%)	95%	95%
	emission reductions (tpy)	5.7	5.7
Cost Benefit ($/ton)		**$6,340**	**$12,373**

13.2 The Emissions Threshold For Controlling Existing Storage Vessels Should Be Higher Than 6 TPY VOC

In section 4.4 of the draft CTG, EPA explains that 6 tpy of VOC was selected as the applicability threshold because this level was found to be "a cost effective applicability threshold for requiring 95 percent control of VOC emissions from existing storage vessels". Table 13-2 through Table 13-4 showed the cost effectiveness calculation at an emissions level of 6 tpy of VOC.

However, as was demonstrated in section 13.1, EPA's cost estimate for combustors for storage vessels was flawed. After adjusting for these flaws, the cost effectiveness values change accordingly for storage vessel emitting 6 tpy VOC.

As was shown in Table 13-4, the cost effectiveness for a 6 tpy VOC storage vessel is estimated to be $6,340 when the Indirect Annual Costs from the EPA Control Cost Manual are taken into account. This is greater than the value of $5,700/ton that EPA deemed to be unacceptably high in related rulemaking.[31] When the Indirect Annual Costs from the EPA Control Cost Manual are taken into account, it appears that a control threshold of 8 tpy would be more appropriate than a threshold of 6 tpy. This is shown in Table 13-6.

Table 13-6 Cost Effectiveness Evaluation for Combustor for Storage Vessels – Corrected Plus Indirect Annual Costs

Total Annual Costs ($/yr)	**$36,141**	**$36,141**
Control Threshold (tpy)	**6**	**8**
control efficiency (%)	95%	95%
emission reductions (tpy)	5.7	7.6
Cost Effectiveness ($/ton)	**$6,340**	**$4,755**

Further, as was shown in Table 13-5, the cost per ton of emission reductions is shown to be $12,373 for a 6 tpy VOC storage vessel when the full labor hours from the EPA Control Cost Manual. This is also greater than the value of $5,700/ton that EPA deemed to be unacceptably high in a related rulemaking.[32] When the full labor hours from the EPA Control Cost Manual are taken into account, it appears that a control threshold of 15 tpy would be more appropriate than a threshold of 6 tpy. This is summarized in Table 13-7.

Table 13-7. Cost Effectiveness Evaluation for Combustor for Storage Vessels – Corrected Plus Indirect Annual Costs and Full Labor Hours

Total Annual Costs ($/yr)	**$70,527**	**$70,527**
Control Threshold (tpy)	**6**	**15**
control efficiency (%)	95%	95%
emission reductions (tpy)	5.7	14.25
Cost Benefit ($/ton)	**$12,373**	**$4,949**

[31] 78 FR 58429 (September 23, 2013).

[32] 78 FR 58429 (September 23, 2013).

13.3 Adding Control To An Existing Storage Vessel To A Control Device Can Present A Safety Issue

Many existing storage vessels were not initially designed to route emissions to a control device. For these existing tanks, the integrity may not be able to withstand the back pressure from the closed vent system and control device. The high back pressure could result in tank damage or even rupture. Therefore, they will require changes to the tank, or full replacement of the tank, in order to handle the back pressure from the control device and closed vent system without damaging the tank. Most of the storage vessels in the oil and natural gas industry last only 10-15 years maximum and would eventually be subject to NSPS OOOOa due to routine replacement.

13.4 Adding Combustion Control To An Existing Storage Vessel May Cause Negative Environmental Impacts That Are More Significant Than The VOC Reductions

Combustion of gas from storage vessels not only destroys VOCs, it creates NO_X, CO, and CO_2 emissions. EPA acknowledges this on page 4-6 of the draft CTG, as they state that "Combustion and partial combustion of organic pollutants also created secondary pollutant including nitrogen oxides, carbon monoxide, sulfur oxides, carbon dioxide, and smoke/particulates." However, EPA did not attempt to quantify these impacts.

The precursors to ozone formation are both VOCs and NO_X. The net impact of ozone formation depends on the NO_X, VOCs, and sunlight for a particular location. As noted in EPA's Integrated Science Assessment for Ozone[33] , "Duncan et. al 2010[34] found that O3 [ozone] formation over most of the U.S. became more sensitive to NO_X over most of the U.S. from 2005 to 2007 largely because of decreases in NO_X emissions." The ozone formation or most of the U.S. is NO_X limited; therefore, in most areas of the country adding more NO_X could result in increased ozone formation would be counterproductive to the point of CTGs to help reduce ozone formation. Analysis for particular areas could find that the net result of controlling storage vessels actually creates more ozone. EPA should allow the states to determine whether controlling storage vessels creates or reduces ozone prior to having to incorporate the RACT recommendations in this CTG into their SIPs through analysis of the air quality for the particular area.

13.5 EPA's Does Not Define "Maximum Daily Average Throughput"

Paragraph (a) of section A.1 of the model rule states that "The potential for VOC emissions must be calculated using a generally accepted model or calculation methodology, based on the maximum average daily throughput determined for a 30-day period of production prior to the applicable emission determination deadline established by your regulatory authority". API agrees with this approach, except that the term "maximum daily throughput" is contradictory from both a plain text and mathematical point of view. **API suggests that the following definition be added to section A.6 of the model rule.**

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[33] US EPA. 2013a. "Integrated Science Assessment for Ozone and Related Photochemical Oxidants (Final)." EPA/600/R-10/076F.

[34] Duncan, BN; Yoshida, Y; Olson, JR; Sillman, S; Martin, RV; Lamsal, L; Hu, Y; Pickering, KE; Retscher, C; Allen, DJ. (2010). Application of OMI observations to a space-based indicator of NOx and VOC controls on surface ozone formation. Atmos Environ 44: 2213-2223. http://dx.doi.org/10.1016/j.atmosenv.2010.03.010

Maximum average daily throughput means the daily average throughput during the 30-day PTE evaluation period that represents steady-state conditions.

13.6 The Lack Of An Alternate Uncontrolled VOC Emission Standard In The CTG Model Rule Leads To Existing Storage Vessels Being Controlled Although Emissions Have Declined Below The Applicability Threshold

Under NSPS subpart OOOO and proposed subpart OOOOa, EPA has allowed for the removal of storage vessel control devices once emissions are below 4 TPY (§60.5395(d)(2) and proposed §60.5395a(a)(3)). In the proposed amendments to subpart OOOO published on April 12, 2013 (78 FR 22126), EPA provided extensive rationale for why it was justified to include this alternative limit for storage vessels.

However, the draft CTG model rule does not include this alternative. API believes that if BSER, as required for NSPS, includes this alternative, then certainly the less stringent RACT should also include it. EPA must either include this alternative 4 TPY limit in the CTG RACT recommendation and model rule, or justify why it is not included.

From a cost effectiveness standpoint, EPA stated that below 4 tpy of VOCs controlling storage vessels was not cost effective under NSPS subpart OOOO, which was published on September 23, 2013. Following are quotes from the preamble for these final amendments (78 FR 58429).

> *". . . . our analysis indicates that the cost of controls for each storage vessel affected facility at a VOC emission rate of 4 tpy is approximately $5,100 per ton. This cost increases to approximately $6,900 per ton at an emission rate of 3 tpy, and to approximately $10,000 per ton at 2 tpy. For comparison, we note that, in a previous NSPS rulemaking [72 FR 64864 (November 16, 2007)], we had concluded that a VOC control option was not cost effective at a cost of $5,700/ton, which calls into question the cost effectiveness of continuing control of storage vessel affected facilities at an emission rate below 4 tpy."*

> *"In light of the cost-effectiveness, the secondary environmental impacts and the energy impacts, we have concluded that the BSER for reducing VOC emissions from storage vessel affected facilities is not represented by continued control when their sustained uncontrolled emission rates fall below 4 tpy."*

For RACT, it would definitely not be cost effective below 4 tpy.

13.7 "Well Completion Vessel" Is Not Defined In The CTG Model Rule, Which Could Lead To Confusion

In section A.6 of the model rule, the definition of "storage vessel" includes the following sentence, "A well completion vessel that receives recovered liquids from a well after startup of production following flowback for a period which exceeds 60 days is considered a storage vessel under this rule." This sentence contains the following terms, which are not defined in section A.6,

- "well completion vessel",
- "recovered liquids",
- "well",

- "startup of production", and
- "flowback".

The omission of these related definitions makes the applicability of RACT toward well completion vessels unclear.

Since the CTG model rule will apply to existing sources only, API believes that well completion vessels would not be subject, as they would be associated with new wells and regulated under the existing NSPS subpart OOOO and proposed OOOOa as potential new, modified, or reconstructed storage vessel affected facilities.

However, in order to avoid confusion, API recommends that the following definitions be added to section A.6 of the model rule. These definitions are consistent with the existing NSPS subpart OOOO and proposed subpart OOOOa (§60.5430 and §60.5430a).

> *Flowback* means the process of allowing fluids and entrained solids to flow from a well following a treatment, either in preparation for a subsequent phase of treatment or in preparation for cleanup and returning the well to production. The term flowback also means the fluids and entrained solids that emerge from a well during the flowback process. The flowback period begins when material introduced into the well during the treatment returns to the surface following hydraulic fracturing or refracturing. The flowback period ends when either the well is shut in and permanently disconnected from the flowback equipment or at the startup of production. The flowback period includes the initial flowback stage and the separation flowback stage.
>
> *Recovered liquids* means any crude oil, condensate or produced water recovered through the separation process during flowback.
>
> *Startup of production* means the beginning of initial flow following the end of flowback when there is continuous recovery of salable quality gas and separation and recovery of any crude oil, condensate or produced water.
>
> *Well* means a hole drilled for the purpose of producing oil or natural gas, or a well into which fluids are injected.
>
> *Well completion vessel* means a vessel that contains flowback during a well completion operation following hydraulic fracturing or refracturing. A well completion vessel may be a lined earthen pit, a tank or other vessel that is skid-mounted or portable. A well completion vessel that receives recovered liquids from a well after startup of production following flowback for a period which exceeds 60 days is considered a storage vessel under this rule.

13.8 EPA Has Not Justified The Continuous Parameter Monitoring Requirements In The CTG

In section A.4(c) of the model rule, continuous parameter monitoring and the comparison of daily average parameter monitoring results against site-specific maximum or minimum values established during the performance test are required for storage vessels. As discussed earlier in Section 9.2.1, these NESHAP-level monitoring requirements are not appropriate for RACT. EPA has not justified these requirements and must not include them in the final CTG model rule.

However, for storage vessels the monitoring requirements in the RACT model rule are even more egregious as these RACT requirements are considerably more stringent than the BSER requirements proposed for NSPS subparts OOOO and OOOOa. For those NSPS, EPA did not propose any parameter monitoring for storage vessel control devices. RACT-level requirements should, by definition, generally be less stringent than BSER. In this case, EPA has included RACT monitoring requirements for storage vessel control device monitoring that are orders of magnitude more stringent than the BSER requirements in the NSPS. They must be removed from the model rule. **API recommends the monitoring requirements for storage vessels be consistent with those for NSPS subpart OOOOa**.

14.0 PNEUMATIC CONTROLLERS

14.1 EPA Must Clarify That Continuous Bleed Pneumatic Controllers With Bleed Rates Less Than 6 Standard Cubic Feet Per Hour Are Not Subject To Any Requirements Under The RACT Recommendation And Model Rule For Pneumatic Controllers From The Wellhead To The Natural Gas Processing Plant Or Point Of Custody Transfer To An Oil Pipeline

The CTG in section 6 proposes that each continuous bleed natural gas-driven pneumatic controllers is the affected facility for RACT by stating the following:

> "RACT for Each Single Continuous Bleed Natural Gas-Driven Pneumatic Controller Located from the Wellhead to the Natural Gas Processing Plant or Point of Custody Transfer to an Oil Pipeline: Each pneumatic controller, which is a single continuous bleed natural gas-driven pneumatic controller must have a natural gas bleed rate less than or equal to 6 scfh (unless there are functional needs, including but not limited to responsetime, safety and positive actuation, requiring a bleed rate greater than 6 scfh)."

Furthermore, the CTG states on page 6-3:"It is assumed intermittent, or no-bleed, controllers meet the definition of a low-bleed."

While API appreciates EPA recognizing the inherent low emissions of intermittent vent controllers, this statement could also be interpreted that for the purpose of this CTG that intermittent vent controllers should be considered continuous low bleed controllers.

Section B.1 provides the applicability requirements of the model rule to pneumatic controllers. Specifically for pneumatic controllers located from the wellhead to the natural gas processing plant or point of custody transfer to an oil pipeline, paragraph B.1(b) says that the VOC control requirements apply to each "single continuous bleed natural gas-driven controller operating at a natural gas bleed rate greater than 6 standard cubic feet per hour."
Paragraph B.2(c) then requires the following:

> *(c)(1) Each pneumatic controller subject to VOC emissions control requirements at a location between the wellhead and a natural gas processing plant or the point of custody transfer to an oil pipeline must have a bleed rate less than or equal to 6 standard cubic feet per hour.*
> *(2) Each pneumatic controller subject to VOC emission control requirements at a location between the wellhead and a natural gas processing plant or the point of custody transfer to an oil pipeline must be tagged with the date that the pneumatic controller is required to comply with the model rule (as established by your regulatory authority) that allows traceability to the records for that controller as required in section B.5(a)(3).*

Section B.1(b) is very clear that the rule only applies to pneumatic continuous bleed natural gas-driven controller operating at a natural gas bleed rate greater than 6 standard cubic feet per hour. Given the above citations from section 6, it can be interpreted to mean that all existing pneumatic controllers are subject to RACT in the CTG. However, the model rule for pneumatic controllers in Appendix B states that continuous high bleed controllers are the affected facility which is consistent with NSPS but inconsistent with the stated RACT in section 6. API recommends correcting its RACT statement in section 6 to clearly indicate that RACT applies only to continuous high bleed gas-driven pneumatic controllers and that RACT applies only to controllers constructed before August 12, 2011, the proposal date for NSPS which defines new sources.

If instead it is EPA's intent to apply RACT to all pneumatic controllers, this will setup the potential for an operator choosing to delay action until after a RACT rule becomes effective rather than take early action. While RACT is mainly for lowering emissions using emissions control, emission reduction from high bleed pneumatic controllers often requires replacement or when feasible a pilot valve retrofit to make them low bleed or intermittent vent. The cost of retrofit may also be considered a reconstruction of the controller as well in many instances. Replacing a controller with a new one or reconstructing it, will make the controller a new source and no longer an existing source, so would then be subject to NSPS not RACT. If this new replacement or reconstruction occurs before the RACT rule is effective, it could become an existing source subject to all the RACT requirements. Even where existing low bleeds and intermittent vents are already used, an operator may replace them anyway just to ensure being considered a new source rather than an existing source if this CTG doesn't clearly define the dates that separate new sources from existing sources. However, these issues are resolved if RACT applies as we recommend; only high bleed controllers are affected facilities, and existing sources are defined as construction prior to the proposal dates of Subpart OOOO or OOOOa as appropriate.

API disagrees with the CTG recommendation that all controllers should be replaced as described in section 6.5 of the RACT.

The CTG should only stipulate high bleed natural gas pneumatic controllers must be replaced, unless justifiable as consistent with the NSPS. Replacing an existing high bleed controller with a new low bleed controller or intermittent controller would cause the new controller be covered under NSPS and would not be subject to an existing source RACT rule.

API requests that EPA acknowledge this fact and provide a clear statement that continuous bleed pneumatic controllers with bleed rates less than 6 standard cubic feet per hour are not subject to any requirements under the RACT recommendation and Model Rule for pneumatic controllers from the wellhead to the natural gas processing plant or point of custody transfer to an oil pipeline.

15.0 PNEUMATIC PUMPS

15.1 Introduction

API appreciates EPA's efforts to simplify the guidelines for pneumatic pump control requirements as well as EPA's recognition that there are limited scenarios for which control of pneumatic pumps will be cost effective. However, from review of proposal and supporting documents, it is clear that EPA did not appreciate some key technical issues as well as some key costs that would be incurred if the rule were finalized as proposed.

Each of these points is expanded upon in this section, but API recommends that the following exemptions should be added to the proposed CTGs for pneumatic pumps:

- Technical Feasibility – If it is not technically feasible to connect a pump to an existing on site control device, there should be an exemption.
- Small or limited use emission pumps (< 53 thousand scf per year emission rate, which is equivalent to a continuous 6 scf/hour emission rate) rate or any pump operating less than 90 days per year).

Additionally, EPA has proposed overly burdensome and costly testing and monitoring requirements for control systems used to control pumps. If control requirements are retained for any types of pneumatic pumps, the model rule should eliminate testing, monitoring, and recordkeeping requirements for the control device that are triggered solely due to the connection of a pneumatic pump exhaust to the closed vent system or control device. Alternatively, EPA should only require control of pumps when an existing NSPS OOOO/OOOOa control device which is already subject to the same requirements as in the proposed rule is present.

Finally, for many technical reasons, API believes it is important that EPA should clarify in the CTGs that the presence of a heater or boiler should not be considered to be equivalent to presence of control device.

Given that the CTGs mirror the requirements under the proposed NSPS OOOOa, API also appreciates EPA's discussion in the NSPS preamble that recognizes the limitations of solar powered pumps, the typical unavailability of electricity at well sites and other remote sites, and the fact that gas-assist lean-glycol recirculation pumps on glycol dehydration units are not pneumatic pumps. API agrees with EPA's approach of defining the affected source as only pumps using natural gas as the pneumatic power source and located at a site with an existing control device. API also agrees with EPA's approach of only requiring control of new, modified or reconstructed pneumatic pumps on sites with existing control devices (combustion control or vapor recovery). However, API has several important issues with the details of the CTG as proposed.

- EPA inappropriately requires an existing control device/system to meet the closed-vent-system, performance testing, monitoring, and recordkeeping requirements of NSPS OOOOa. This is exacerbated by the proposal to require the same measures as for wet-seal centrifugal compressor affected source control devices.
- API believes the capital cost estimate EPA made is low and that several significant cost items are left out of the cost analysis.
- API believes the estimated emissions per pump for diaphragm type pumps is overestimated and the equal proportional split between piston type chemical pumps and diaphragm pumps is incorrect. Due to the limited time available for comment, API did not have time survey members adequately, but there are many more piston pumps installed than diaphragm pumps.
- Because the cost is underestimated and the emissions overestimated, the control actions required by the regulation are not cost effective in many instances.

- EPA failed to recognize important design and process factors that could render routing a pneumatic pump to an existing control device technically infeasible or unsafe.
- Some details of the model rule language are unclear or not defined fully.

Each of these issues is discussed in more detail in the following sections.

15.2 Control Device And Closed Vent System Requirements

As written, control devices not subject to Subpart OOOO or OOOOa would be required to be used to control emissions from pneumatic pumps. It is not clear if this was EPA's intent in writing the model rule. From the lack of consideration for performance requirements, performance testing, closed vent system monitoring, recordkeeping, and reporting compliance costs in the economic analysis, it appears that EPA did not intend for control devices not subject to Subpart OOOO or Subpart OOOOa to be pulled into the monitoring, reporting, and recordkeeping requirements under the CTGs. If EPA maintains a requirement to route higher emitting pneumatic pumps to existing control devices, this should not trigger the performance specifications, performance testing, monitoring, closed vent system monitoring, recordkeeping, and reporting requirements for the control device if it is not already subject to regulation under Subpart OOOO or Subpart OOOOa. This change from the proposed approach would address one of the two critical cost elements ignored by EPA when assessing the cost of control; specifically, the costs of testing, monitoring, reporting, and recordkeeping requirements.

EPA should also provide for routing of pump exhaust from glycol heat medium pumps (typically diaphragm type pumps) to a controlled tank or knock-out drum prior to the control device to provide for buffering the intermittent flow when the pump exhaust stroke occurs. This would provide for more stable flow to the control device and piping system and simplify connecting a pneumatic pump exhaust to an existing control system.

The draft CTG unnecessarily and inappropriately requires existing control devices and closed vent systems to comply with the full suite of requirements identical to those specified for control devices and systems on centrifugal compressor affected facilities degassing tank vents if a new, modified, or reconstructed pneumatic pump affected source is routed to the control device. EPA failed to recognize that the majority of the existing control devices and closed vent systems installed on sites where pneumatic pumps are likely to be used will not already be subject to Subpart OOOO requirements let alone those for centrifugal compressor affected facilities. Since centrifugal compressors are rarely used in the production segment and new, modified, or reconstructed centrifugal compressors in the gathering & collection, processing, and transportation & storage segments are almost certainly dry seal equipped, the probability is near zero that an existing control device on well sites or remote facilities would already be subject to the centrifugal compressor affected source requirements for closed vent systems and control devices. Most already installed or newly installed control devices/systems and closed vent systems will predate the requirements of Subpart OOOO or be installed pursuant to State regulations or enforceable permit conditions that limit emissions below the thresholds for applicability of Subpart OOOO. Even where an existing control device and closed vent system has applicable requirements under Subpart OOOO, these are almost certainly those requirements for control devices and closed vent systems installed on storage tank affected sources rather than centrifugal compressor affected sources and thus would have new requirements under the proposed rule. This could subject an individual control device and closed vent system to a dual set of requirements if the proposed rule is finalized as proposed. Note that this discussion focuses

on enclosed combustion control devices as sites with VRU's are likely to have electricity and hence no pneumatic pump affected sources.

By requiring existing closed vent systems and control devices to comply with the specified requirements listed in sections D.1, D.2, E.1, and E.2 of the draft CTG retroactively applies unnecessary, burdensome, and costly requirements to existing control devices and systems that were not designed, installed, or intended to comply with these requirements. Note also that none of the additional costs are included in EPA's analysis of the reasonableness of controlling pneumatic pump affected sources and the additional costs are likely to render such control not reasonable - cost analysis details are presented in a separate section of these comments.

- Section D.1 and D.2: An existing closed vent system may not be designed or constructed to meet the standard of "no detectable emissions" specified. Again, this may force retrofit or replacement of the existing piping system to enable meeting the "no detectable emissions" requirement.
- Section E.1: Existing control devices and the piping to them are not likely to have the necessary ports installed to enable performance testing as specified and would have to be taken offline in order to retrofit them if retrofit is even possible.
- Section E.2: Existing control devices are unlikely to have all of the monitoring instruments and capabilities required for continuous compliance demonstration as required and these would have to be retrofitted to the control device. Again, retrofit may not be possible which would leave an operator with no avenue to comply without installing a new control device which EPA already found to be not reasonable from a control cost standpoint. Additionally, the data monitoring, logging and averaging required under E.2.c would require either installation of an entirely new monitoring system or tying the monitoring devices into an existing automation system programmable logic controller (PLC) which may not have the number of input ports necessary nor have the memory and computing power necessary. Due to the typical lack of electrical power, the installation of a monitoring system would also require installation of a solar power system with the necessary power to operate the system and the necessary battery back-up to assure adequate data recovery.

Requiring control devices and covered vent systems, where a pneumatic pump affected source is routed to them, to comply with the performance testing, continuous monitoring, and associated requirements of the draft CTG is not necessary. The exhaust from a pneumatic pump affected source is the same natural gas used for the pilot flame in a combustion control device and as fuel for a boiler or heater. It is not difficult to combust and should not require the same rigor of demonstration for more difficult to combust compounds. In general, the low molecular weight straight chain aliphatic hydrocarbons that characterize the natural gas industry, including associated gas, are easy to combust.

To address the issues regarding retroactive application of the requirements in sections D and E of the CTGs to existing control devices and closed vent systems not already subject to the requirements proposed, API recommends EPA take one of the following approaches.

- Maintain the current definition of pneumatic pump affected source and require that the existing control device and closed vent system comply with whatever existing requirements for testing, monitoring, and reporting exist for the particular site/control device and closed vent system.

-or-

- Redefine the pneumatic pump affected source as only those new, modified, or reconstructed natural gas powered pneumatic pumps installed at a site with an existing control device that is already subject to the requirements contained in §60.5410a, §60.5411a, §60.5412a, §60.5413a, §60.5415a, §60.5416a, and §60.5417a proposed in the rule.
- To assure the integrity of the newly installed piping routing a new, modified, or reconstructed pneumatic pump affected source to an existing closed vent system or directly to the control device EPA could require an annual leak inspection with an Optical Gas Imaging camera for the newly installed piping to an existing control device or closed vent system.

15.3 Technical Basis For RACT Recommendation

15.3.1 EPA Underestimated The Cost Of The Proposed Control Strategy Which Renders Is Not Cost Effective In Many Situations

In the cost analysis for the proposed control strategy for pneumatic pumps, EPA incorrectly only listed a one-time capital cost impact of $2,000 for the design and installation of piping to route vapors from the exhaust of a pneumatic pump to an existing control device. This value was based upon Natural Gas Star program data.[35] Using a 7% interest rate, EPA estimated the annualized cost of controlling a pneumatic pump at $285/year. This value is too low and does not include significant cost items required by the rule. As an example, EPA assumed a cost of $23,252 for tying a wet-seal centrifugal compressor seal-oil degassing tank into an existing control device. (See Section 8.4.4.3 of Technical Support Document for NSPS Subpart OOOOa and Table 5-8 in the draft CTG document.) The low pressure nature of both pneumatic pump exhaust and a seal-oil degassing tank are similar. Unfortunately, the discussion of pneumatic pump control and seal-oil degassing control is not detailed enough to understand the difference in EPA's cost estimates.

API believes the average capital cost (inclusive of engineering) that would be incurred for design evaluation, designing, and construction of the piping to tie a pneumatic pump into an existing control device/system would be closer to $5,800 and would vary considerably from site to site.

Following are the details of API's initial capital cost estimate.

- Collecting the site specific information on an existing control device/system and performing an engineering evaluation of the ability to safely and technically add pump exhaust gas to the control device/system. 8 hours of engineering time at $185 per hour = $1480.
- Evaluating the specific pump's ability to tolerate the exhaust backpressure necessary to route to the existing control device/system; designing the piping necessary to route a pump exhaust to the control device/system; specifying materials, connection points, and connection types for routing a pump exhaust to the control device/system; and writing a work-order and procedure for connecting. Eight (8) hours of engineering time @ $185 per hour = $1480.

[35] http://www.epa.gov/gasstar/documents/pipeglycoldehydratortovru.pdf.

- Ordering and collecting materials for installing the piping, commissioning a contractor to perform the work, and overseeing the work. Six (6) hours of construction specialist time at $140 per hour = $840.
- Travel to the site, installation of the piping for tie-in, verification of the proper functioning of the tie-in and travel from the site. One day of a contract construction crew time at $2,000 per day = $2,000.

Utilizing EPA's assumed 7% interest rate, this equates to an annualized initial capital cost of $826 rather than EPA's value of $285.

In addition to underestimating the capital costs of routing the emissions to a control device, EPA did not consider other significant initial and reoccurring costs that would be incurred. The draft CTG requires an existing control device and closed vent system with a pneumatic pump routed to them to comply with the same performance testing, closed vent system, continuous monitoring, and recordkeeping and reporting requirements applicable to closed vent systems and control devices specified for centrifugal compressor affected facilities. The majority of the existing control devices and closed vent systems installed on sites where pneumatic pumps are likely to be used will not already be subject to Subpart OOOO requirements let alone those for centrifugal compressor affected facilities. The probability is near zero that an existing control device subject to the centrifugal compressor affected source requirements for closed vent systems and control devices will be on a site where a pneumatic pump source is located.

Most already installed or newly installed control devices/systems and closed vent systems will predate the requirements of Subpart OOOO or be installed pursuant to State regulations or enforceable permit conditions that limit emissions below the thresholds for applicability of Subpart OOOO. As such, costs not included in EPA's analysis are:

- The costs for an initial M21 demonstration that the closed vent system, at a site not already subject to the requirements under Subpart OOOO, is operating with no detectable emissions.
- The costs for initial and periodic performance testing of a control device that is not already subject to the required performance testing.
- The costs for monthly smoke inspections, including travel to and from the site for a trained visual smoke inspector.
- The costs for design, installation and maintenance of a parametric monitoring system.
- The recordkeeping and reporting cost.

The table below provides a more complete estimate of the costs associated with implementing the proposed rule requirements for pneumatic pumps. This table reflects the true cost of compliance with the CTG, including potential source testing, the need to install monitoring equipment, and the costs of conducting recurring inspection and equipment maintenance that would all be triggered by the proposed compliance requirements. Note that none of the performance testing exemptions listed in E.2(b) are considered. It should be noted that:

- Heaters with a design capacity of 44 MW (150 million BTU/hr) will not occur in the types of sites where pneumatic pump affected sources will be used

- Heaters used at well sites and other remote sites are likely to be seasonally used, or have intermittent firing dependent on heat demand and hence will not be able to accept the exhaust gas from a pneumatic pump as part or all of the fuel at all times
- As discussed previously, an existing control device is almost certainly not already subject to the performance testing requirements of the CTGs and hence not manufacture certified.
- Hazardous waste incinerators or hazardous waste fueled heaters will not occur at the type of sites where pneumatic pump affected sources will be used.

Table 15-1 Pneumatic Pump Control Cost Table

Cost Item	***Initial Cost***	***Annualized Cost***
Capital Costs (including engineering)	$5,800	$826
Option 1 Combustor Testing (repeat each 5 years)	$6,000	$1,200
Option 2 Process Heater Testing (repeat each 5 years)	$6,000	$1,200
Annual M21 & Visual CVS Inspection *(Contractor or Trained Technician - ½ day with vehicle)*	$600	$600
Monthly 15 min Smoke Check (trained operator inspection - $160/month)		$1,800
Flow Monitor, Thermal Dispersion Meter	$5,000	$712
CPMS - install measurement device and solar panel	$9,000	$1,282
CPMS - Annual Maintenance (contractor 1/2 day)		$600
Annual CPMS Auditing (trained instrument technician complete with equipment and vehicle - 1/2 day)		$600
Scenario		***Annualized Total***
Sites with Affected Pneumatic Pumps & Combustor field performance test		$6,908
Sites with Manufacturer Certified Combustor (no performance test)		$6,420
Sites with Affected Pneumatic Pumps (& Process Heater performance test)		$6,908
Sites with existing Subpart OOOO or OOOOa affected storage tank with control device		$3,308
Sites with existing Subpart OOOO or OOOOa affected compressor with control device		$826

Table 15-2 Retrofit Costs for Control Devices

Cost Item	*Initial Cost*	*Annualized Cost*
Retrofit control device with new or relocated ports to enable performance testing per Section F. (likely to occur)	$3,000	$427
Retrofit closed vent system to meet "no detectable emission" requirement per Section D.1(b) (less likely to occur)	$3,000	$427

Table 15-3 Average Pneumatic Pump Emission Rate (Reproduced from TSD)

	Tons/year Methane	Tons/year VOC
Piston Pump	0.38	0.11
Diaphragm Pump	3.46	0.96

Combining the complete estimate of actual costs for routing a pneumatic pump affected source to an existing control device with the emission estimates for piston pumps and diaphragm pumps from the CTGs and Technical Support Document (repeated in proposed NSPS OOOOa rule preamble) yields the following tables of control cost per ton for VOC.

Table 15-4 Piston Pump Control Cost Effectiveness (assuming 8760 hours of annual pump operation)

		Single Pollutant Approach
Production Piston Pumps	*Scenario*	**VOC Only**
	Sites with Affected Pneumatic Pumps & Combustor field performance test[1]	$62,797
	Sites with Manufacturer Certified Combustor (no performance test)	$58,362
	Sites with Affected Pneumatic Pumps (& Process Heater performance test)[1]	$62,797
	Sites with existing subpart OOOO or OOOOa affected storage tank with control device	$30,070
	Sites with existing subpart OOOO or OOOOa affected compressor with control device	$7,509

1. Note – These costs do not include the additional costs of retrofitting the control device (sampling ports, etc.) and the closed vent system per Table 14-2. Inclusion of these costs would only further increase the cost effectiveness ratios.

Table 15-5 Diaphragm Pump Control Cost Effectiveness (assuming 8760 hours of annual pump operation)

	Scenario	Single Pollutant Approach VOC Only
Production Diaphragm Pump	*Sites with Affected Pneumatic Pumps & Combustor field performance test*[1]	$7,196
	Sites with Manufacturer Certified Combustor (no performance test)	$6,687
	Sites with Affected Pneumatic Pumps (& Process Heater performance test)[1]	$7,196
	Sites with existing subpart OOOO or OOOOa affected storage tank with control device	$3.446
	Sites with existing subpart OOOO or OOOOa affected compressor with control device	$860

[1.] Note – These costs do not include the additional costs of retrofitting the control device (sampling ports, etc.) and the closed vent system per Table 14-2. Inclusion of these costs would only further increase the cost effectiveness ratios.

While EPA does not establish a bright line that separates what they consider to be reasonable and unreasonable with regard cost effectiveness, the proposal provides indications of levels that EPA clearly considers to be unreasonable. On page 56636 of the September 18, 2015 Federal Register notice proposal, EPA indicates: "In a previous NSPS rulemaking [72 FR 64864 (November 16, 2007)], **we had concluded that a VOC control option was not cost-effective at a cost of $5,700 per ton**."

As illustrated above, for piston pumps, the control costs exceed the reasonable cost of control per ton for all possible scenarios.

For diaphragm pumps, the cost effectiveness values shown above are lower due to the higher emissions. However, as discussed further in 15.3.4, diaphragm pumps are generally used for heat tracing and as such are not used everywhere and, when they are used do not operate year round. Using a more realistic estimate of 4 months of operation per year, the emissions from these pumps are actually 1/3rd the level assumed by EPA. The table below reflects the cost effectiveness of controlling diaphragm pumps after accounting for their non-year round operation.

Table 15-6 Diaphragm Pump Control Cost Effectiveness (assuming 4 months of annual pump operation)

		Single Pollutant Approach
Production Diaphragm Pump	*Scenario*	VOC Only
	Sites with Affected Pneumatic Pumps & Combustor field performance test[1]	$21,587
	Sites with Manufacturer Certified Combustor (no performance test)	$20,062
	Sites with Affected Pneumatic Pumps (& Process Heater performance test)[1]	$21,587

	Sites with existing subpart OOOO or OOOOa affected storage tank with control device	$10,377
	Sites with existing subpart OOOO or OOOOa affected compressor with control device	$2,581

[1.] Note – These costs do not include the additional costs of retrofitting the control device (sampling ports, etc.) and the closed vent system per Table 15-2. Inclusion of these costs would only further increase the cost effectiveness ratios.

After accounting for the non-year round operation of pneumatic pumps, the only reasonable control costs found were for an existing control device and closed vent system that is already subject to the performance testing and monitoring requirements specified in the CTGs. As explained in more detail earlier in these comments, the probability of this occurring is near zero.

This illustrates the need for EPA to revise the draft CTG approach to performance testing and monitoring for control devices and closed vent systems used for pneumatic pump affected sources as previously explained earlier in these comments.

It is important to note that the above costs assume that the control device and closed vent system existing on site has enough design margin to accommodate the tie-in of a pneumatic pump and that such a change to site configuration does not trigger the need for a revision to the site's air permit.

15.3.2 EPA Did Not Consider or Provide For Instances Where Routing A Pneumatic Pump Affected Source To An Existing Control Device Is Not Technically Feasible Or Where The Control Device Belongs To Another Party

Whether considering a VRU, flare, enclosed combustion device, or any other control technique, control devices are designed for a specific set of conditions with a number of key assumptions. For example, a flare header might be designed to allow enough flow to permit two pressure safety valves (PSV) to open simultaneously without creating so much back pressure as to take either PSV out of critical flow. The design is sensitive to other flow streams in the pipe and putting a pump exhaust into that header could result in too much backpressure for the safety devices to function as intended. Conversely, but equally important, a pneumatic pump is chosen for a specific backpressure and the backpressure imposed by a PSV could stop the pump from functioning at a critical moment, exacerbating the already unstable situation that resulted in the opening of the PSVs.

Additionally, enclosed combustion devices are designed for a maximum BTU load and may not be able to accommodate the exhaust gas from a pneumatic pump affected source without replacing the control device.

The design process for VRUs are even more sensitive to changes than other control devices. The VRU equipment is designed to recover vapors and raise their pressure enough to be useful, is expensive, and has a limited range of possible flow rates. Adding vapor loads to a VRU must be carefully evaluated on a case-by-case basis.

In some instances an existing control device on a particular site may be owned and operated by a third party, such as a control device owned and operated by a gathering and collection system operator with a glycol dehydration unit on a well site. In these instances, the well site operator does not have the right to route a pneumatic pump affected source exhaust to the control device.

EPA should provide exclusion in the CTGs such that routing a pneumatic pump affected source to an existing control device or closed vent system is not required if it is not technically feasible or if the control device is not owned and operated by the site operator. Proposed updated rule language is included in 15.4.1.

If needed, EPA could provide provisions in the rule for an operator to make an engineering determination that an existing control device cannot technically handle the additional gas from a pneumatic pump affected source exhaust, document this determination, and make such a determination available for inspection by EPA or other competent authority.

15.3.3 EPA Did Not Consider How CTG Requirements to Route Pneumatic Pumps To Control Devices Can Potentially Trigger Permitting Requirements.

Under draft CTG, EPA is requiring that the exhaust from pneumatic pumps be controlled by control devices if those devices are present on site.

EPA's analysis of the proposed approach to pneumatic pumps has ignored the fact that such an action may require amending the air permit for a facility simply due connecting a pump to a control device. In many cases, the act of tying a new stream into a combustion control device will result in a change in emissions from a site due to the rerouting, which can trigger permitting. Local permitting requirements are very sensitive to the reality that control devices are subtle and complex engineering structures that have very real physical limits. As discussed above, EPA's proposal for natural gas pneumatic pumps seems to ignore these physical realities.

EPA has not accounted for any time or expense associated with this permitting action, nor have they considered any of the additional burden on permitting authorities. These impacts should be quantified and considered prior to finalizing the CTG requirements that may trigger state permitting requirements. One alternative to this concern is to revise the affected source criteria so that a pneumatic pump would not be an affected source, if it was connected to a control device on site. This could be accomplished by revising the text of H.1 as follows:

> Each pneumatic pump, which is a natural gas-driven chemical/methanol or natural gas-driven diaphragm pump located at a natural gas processing plant or located from the wellhead and point of custody transfer to the natural gas transmission and storage segment ~~for~~ which has not been connected to a control device when one is located on site.

An additional advantage of this approach is that it clearly removes the addition of monitoring and performance testing currently in the proposed rule. As discussed in Section 15.3.1, these costs were not included in EPA's cost effectiveness analysis, nor should compliance assurance requirements from OOOOa be required for a control device that was installed for another purpose.

15.3.4 EPA Overstated The Emissions, And Therefore The Benefits, Of The Proposed Requirements For Pneumatic Pumps

EPA has overestimated the emissions from diaphragm pumps. As EPA notes in Section 7.2.1 of the CTGs: "Diaphragm pumps are commonly used to circulate hot glycol or other heat-transfer fluids in tubing covered with insulation to prevent freezing in pipelines, vessels and tanks." As such, these pumps only during the winter season which represents a fraction of the year on average. Yet, EPA has assumed these pumps operate 8,760 hours per year when estimating emissions. This assumption grossly inflates the actual emissions from these sources. A more realistic estimate would be that these sources would operate 3-4 months during the course of the

year and rarely more than 8 months per year. See discussion of cost effectiveness values in Section 15.3.1, including consideration of operation of diaphragm pumps for 4 months/year.

Diaphragm pumps are also used intermittently to transfer bulk fluids such as engine oil or emptying a sump. When used for these types of service they do not run for long periods, are not large emission sources and should not be covered by the CTGs.

API recognizes the need for EPA to simplify analysis for assessing cost benefits for the development of the CTGs. EPA presents values in Section 7 of the CTGs which are based on a number of assumptions. It should be noted that the exhaust rates from pneumatic pumps are, in reality, based on assumed pump rate, a gas-supply pressure, and a pump model. All of these values vary considerably from site to site and even from pump to pump on a given site. When one reviews several manufacturer's pumps, it is readily apparent that they all have a multiplier factor for calculating required supply pressure and allowable exhaust pressure and these factors vary by over two orders of magnitude from one pump model to the next.

15.4 Applicability/Definitions

15.4.1 The CTG Should Have An Exemption For Limited Use/Low Emission Pumps Such As Chemical Injection Pumps

API believes EPA's intent to regulate pneumatic pumps that have lower emission rates than continuous low bleed pneumatic controllers is inappropriate. EPA has previously determined that continuous bleed pneumatic controller devices emitting less than 6 scf/hour did not require control and EPA continues to support that position in the NSPS OOOOa rule proposal. EPA's Technical support document shows the assumed emission rate from pneumatic piston (chemical and methanol) pumps to be 2.48 scf/hour, which is less than half the 6 scf/hour threshold for continuous bleed pneumatic controllers. The cost effectiveness of controlling such low emitting pumps is substantially above EPA's assumed $285/ton as described Section 15.3.1. Piston pumps in services with emissions below 52,000 scf/year (equivalent to 6 scf/hour annualized) should be exempt due to the low volume of gas exhausted. Demonstration of emissions below this threshold should be a one-time engineering calculation for individual pumps or a class of pumps in similar service - for example chemical/methanol pumps below a pressure & volume combination which would yield exhausted volumes above the threshold.

There are also natural gas-driven pneumatic pumps, typically diaphragm pumps, that are used intermittently to transfer bulk liquids. These are generally either manually operated as needed or are triggered by a level controller. For instance, there are engine skid sump pumps, pipeline sump pumps, tank bottom pumps, flare knockout drum pumps, separator knockout drum pumps, etc. that are used to pump liquids from one place to another. These pumps do not run continuously or even seasonally for long periods, but only run periodically as needed. Thus, these pumps do not exhaust large volumes of gas in the aggregate. For this reason, there should be an annual venting limit and an exemption for intermittently operated pumps.

EPA should provide an exemption under the rule for any pump emitting at a rate less than the rate of a continuous low bleed pneumatic controller. Specifically, any pneumatic pump which emits less than 53,000 scf/year (i.e. 6 scf/hour for an entire year) should be exempted. This would provide a reasonable exemption for intermittent use pneumatic pumps which do not have large aggregate emissions, including diaphragm pumps that are operated manually, triggered by a level controller, or operated temporarily or seasonally.

Alternatively, EPA could use the operating time of a pump with exhaust rate of 22.45 scf/hour (equivalent to assume emission rate of a diaphragm pump from the technical support document) that would result in 53,000 scf/year of emissions, which is 96.5 days. This could be rounded down to 90 days of operation, or 2,160 hours. This approach would simplify the exemption, as companies would track the hours of operation instead of calculating the exact exhaust rate.

API proposes the following updates to the applicability text under H.1 of the model rule:

> Each pneumatic pump, which is a natural gas-driven chemical/methanol or natural gas-driven diaphragm pump located at a natural gas processing plant or located from the wellhead and point of custody transfer to the natural gas transmission and storage segment with an exhaust rate greater than 53,000 scf/year and operates more than 2,160 hours per year and for which a control device owned and operated by the owner and operator of the pump is located on site and not demonstrated to be technically infeasible to control.

15.4.2 The Rule Text Should Exempt Portable Pneumatic Pumps

There are many scenarios where portable pneumatic pumps are used by industry for infrequent and temporary operations, such as pumping out a tank or a sump. Since these pumps will, by their very nature, result in very low emissions, portable pumps should be exempt from the rule. Such as exemption would be analogous to that provided to portable or transportable (has wheels, skids, carrying handles, dolly, trailer or platform) engines relative to the NSPS RICE rules.

API recommends that EPA update the definition of pneumatic pump under the rule to exclude temporary and portable pumps.

EPA should amend the definitions in the draft rule language under Section H to address these temporary and portable sources, i.e. "A temporary or portable pump is considered a pump subject to the CTGs if the pump stays in one location for more than 12 months (or full annual operating period of a seasonal source)." (See revised definition under 15.4.3)

15.4.3 The CTG Text Should Be Clearer On Exclusion Of Lean Glycol Circulation Pumps (Often Referred To As Kimray Pumps) On Dehydration Units (As Intended By The NSPS OOOOa Preamble Language)

EPA's intent is clear in the Preamble (FR 56627) to NSPS Subpart OOOOa that EPA is not proposing to regulate glycol dehydrator pumps under that rule, but the draft CTG text is not as clear on this point.

EPA can improve this by editing the definitions in the CTGs draft rule language. The two definitions below are inconsistent; however, it is noted that neither defined term is used in the CTG text itself. EPA should remove the two definitions below.

> ~~"Chemical/methanol or diaphragm pump means a gas-driven positive displacement pump typically used to inject precise amounts of chemicals into process streams or circulate glycol compounds for freeze protection."~~
>
> ~~"Natural gas-driven chemical/ methanol or diaphragm pump means a chemical or methanol injection or circulation pump or a diaphragm pump powered by pressurized natural gas."~~

These definitions should be replaced with the following definition:

> "Natural gas-driven chemical/methanol pump or natural gas-driven diaphragm pump means a gas-driven positive displacement pump used to inject chemicals into process streams or circulate glycol compounds for freeze protection. A glycol circulation pump on a glycol dehydration unit is not a chemical/methanol or diaphragm pump. A temporary or portable pump is considered a pump subject to the CTGs if the pump stays in one location for more than 12 months (or full annual operating period of a seasonal source)."

15.4.4 The Rule Should Allow For Removal Of Control Device – I.E. Pneumatic Pump No Longer Has To Be Controlled If Control No Longer Present

If a control device is no longer needed for the purpose for which it was originally installed, EPA should clarify that any pneumatic pumps that were routed to the device should no longer require control. A control device should not be required to remain in service only for the purpose of controlling one or more pneumatic pumps.

For example, NSPS subpart OOOO allows for removal of control device from a storage vessel if emissions fall below a certain level. Specifically, under the NSPS, EPA has allowed for the removal of control devices once emissions are below 4 TPY (40 CFR 60.5395(d)(2) and 60.5395a(a)(3)). In the preamble to the NSPS OOOO revisions dated April 12, 2013 (Federal Register Vol. 78, No. 71, 22133-22134) EPA also noted that removal of control at 4 TPY will help relieve the control device shortage issue as well as reduce emissions from burning more pilot gas than the waste gas being burned. If a control device is removed, the requirement to route pneumatic pump exhaust to the control device should no longer be applicable.

15.4.5 EPA Must Define "Control Device" In The Context Of Its Use In The Requirements For Pneumatic Pumps

H.2(b)(1) states:

> *Each natural gas-driven pneumatic pump located between the wellhead and point of custody transfer to the natural gas transmission and storage segment, for which a control device is located on site, must reduce natural gas emissions by 95 percent, except as provided in paragraph (b)(2) of this section.*

Control device is not a defined term and should be specifically defined to clarify EPA's intent which, from review of the complete NSPS OOOOa proposal and TSD, appears to be to utilize combustion control devices and/or VRUs if available. This issue is discussed in Section 10.0, and a definition recommended that will eliminate the issues related to the uncertainty of when the pneumatic pump requirements apply.

However, if EPA does not elect to incorporate API's suggested changes in section 10.0, then EPA must made revisions within section H of the CTG model rule to clarify this situation. Specifically, API recommends the following change:

> **H.2(b)(1)** Each natural gas-driven pneumatic pump located between the wellhead and point of custody transfer to the natural gas transmission and storage segment, for which a control device is located on site, must reduce natural gas emissions by 95 percent, except as provided in paragraph (b)(2) of this section. For the purpose of this section, boilers,

process heaters, and other combustion devices that burn natural gas to derive useful work or heat are not considered control devices.

15.4.6 The Control Device Must Be Owned and Operated By The Pump Owner and Operator

EPA must be clear that a control device on site must be owned and operated by the same company that owns and operates the pumps. For instance, the dehydration unit located on a production site may be owned and operated by the gathering company, not the producer. If there is a dehydration unit on site with a control device that is owned and operated by the gathering company, the producer has no right to route pump exhaust to the control device and should not be required to route the pump exhaust to the dehydration control device owned and operated by a separate entity.

15.4.7 Heaters Should Not Be Considered As Existing Control Devices (i.e. Pneumatic Pump Exhaust Should Not Be Required To Be Routed To A Heater Simply Because One Is Present)

The language in section E.1 of the model rule describes requirements that each control device must meet and this list includes process heaters. This language could be misinterpreted to mean that any process heater should be considered a control device and thus, its presence would require routing of a pump exhaust to the heater. It is not believed that this was EPA's intent.

EPA should clarify that routing emissions to a process heater should be considered "routing to a process" and the heater should not be considered as a control device. More discussion on this topic is provided in section 10.0. However, if EPA does not elect to incorporate API's suggested changes in section 10.0, then EPA must made revisions within section H of the CTG model rule to clarify this situation. The recommended changes are shown above in section 15.4.5.

15.4.8 Non-Affected Facilities (e.g., Pumps Not Requiring Controls Under The CTGs Should Not Have Obligations Under The Rule)

H.3(c) states

> *(c) You own or operate a natural gas-driven pneumatic pump located between the wellhead and point of custody transfer to the natural gas transmission and storage segment and your pneumatic pump is not controlled by at least 95 percent because a control device is not available at the site, you must submit the certification in section H.5(a)(1)(i).*

EPA should remove the requirements requiring certification for pumps located at sites without control devices. Specifically, H.3(c) should be removed from the draft CTGs.

15.4.9 The CTGs Should Not Include An Ongoing Requirement To Review The Status Of The Addition Of A Control Device

Section H.2 of the draft CTGs states:

> *(b)(2) You are not required to install a control device solely for the purposes of complying with the 95 percent reduction of paragraph (b)(1) of this section. If you do not have a control device installed on site by the compliance date specified by your regulatory authority, then you must comply instead with the provisions of paragraph (b)(2)(i) and (ii) of this section.*

(i) Submit a certification in accordance with H.5(b)(1)(i).
(ii) If you subsequently install a control device, you are no longer required to submit the certification in H.5(b)(1)(i) and must be in compliance with the requirements of paragraph (b)(1) of this section within 30 days of installation of the control device. Compliance with this requirement should be reported in the next annual report in accordance with H.5(a)(1)(iii).

Companies typically do not track serial numbers on pumps, particularly small piston pumps for chemical injection. The pumps are often swapped out and moved around as needed for chemical injection. Typically pumps are purchased in bulk and maintained in a warehouse to install as needed. Trying to keep track of where these pumps are located and a control device is later added will be very difficult.

The applicability of control requirements in the CTGs should be based on an effective date of the CTG and not the construction, modification, or installation of a control device.

15.5 Reporting And Recordkeeping

15.5.1 Remove The Tagging Requirement.

It is unclear what EPA's intent is for requiring tagging of affected natural gas driven pneumatic pumps under H.2(a)(2), H.2(b)(3), and H.3(d). The applicability is clearly stated. The tagging appears to add little value.

API requests that EPA remove the following paragraphs related to tagging:

~~H.2(a)(2) Each natural gas-driven pneumatic pump at a natural gas processing plant must be tagged with the date the natural gas-driven pneumatic pump is required to comply with the model rule (as established by the regulatory authority) that allows traceability to the records for that gas-driven pneumatic pump as required in section H.5(a)(1)(i).~~

~~H.2(b)(3) Each natural gas-driven pneumatic pump located between the wellhead and point of custody transfer to the natural gas transmission and storage segment for which a control device is located on site must be tagged with the date that the pneumatic pump must comply with the model rule (as established by the regulatory authority) that allows traceability to the records for that natural gas-driven pneumatic pump as required in section H.5(a)(1)(ii).~~

~~H.3(d) You must tag each natural gas-driven pneumatic pump subject to VOC emission requirements according to the requirements of section (a)(2) or (b)(3), as applicable.~~

Building on section 15.4.9, if any tagging is retained, it should be to document that (a) no control device was not onsite as of the CTG effective date and therefore no further action would be needed at any time under the CTG or (b) that a pump is located with a control device on site, but the control has been determined to be technically infeasible.

15.5.2 EPA Should Remove The Recordkeeping Requirements For Control Devices And Closed Vent Systems

As discussed in Section 15.3.1, EPA's costs for controlling pneumatic pumps did not include the cost of the recordkeeping and reporting requirements in the cost estimate. The recordkeeping and

reporting requirements that EPA has included are burdensome in some cases and expand requirements to non-affected sources.

- H.3(c) requires certification of non-affected sources (Section 15.4.8).
- H.4 requires testing data to be submitted that is not accounted for in the cost analysis, not cost effective when included, and not needed based on the exhaust gas being natural gas, which is the same as the pilot of the combustion device (Section 15.2). EPA should remove the combustion control device testing, monitoring, reporting, and recordkeeping requirements.
- H.5(a)(1)(i) – It is not clear what EPA means by records of "the manufacturer specifications". EPA should clearly specify what they want here. It is assumed this refers to the make model of the pump.
- H.5(a)(1)(ii) – Having to continue to track the data of a pump being constructed, reconstructed, or modified at a non-natural gas processing plant location that did not have a control device that later has one installed. Pumps should only be triggered at the time the pump is installed. With the movement and replacement of pumps, keeping track of such information will be extremely difficult. (See Section 15.4.9)

In many instances, these controls have been installed under a state permit (or other regulatory requirement) and have compliance assurance requirements associated with those requirements. It is inappropriate to add new compliance assurance requirements that may conflict to the original requirements the control device was installed to meet. Additionally, the control device may not be able to meet or be retrofitted to meet (i.e. install sample ports) to meet the compliance assurance requirements of the CTG model rule.

API recommends the amendments to the draft rule language as outlined for pumps in these rule comments and those below.

> H.5(b)(1) For each natural gas-driven pneumatic pump subject to VOC emission control requirements, annual reports are required to include the information specified in paragraphs (b)(1)(i) through (iv) of this section.
> ~~(i) In the initial annual report, a certification that there is no control device on site, if applicable.~~
> (ii) An identification of each natural gas-driven pneumatic pump, including the identification information specified in section H.2(a)(2) or (b)(3).
> (iii) An identification of any sites which contain natural pneumatic pumps and which installed a control device during the reporting period, where there was no control device previously at the site.
> (iv) Records of deviations specified in paragraph (c)(16)(ii) of this section that occurred during the reporting period.
> ~~(v) If complying with H.2(b)(1) with a control device tested under section F(d), which meets the criteria in section F(d)(11) and section F(e), records specified in paragraphs (a)(1)(iv)(A) through (G) of this section for each pneumatic pump constructed, modified or reconstructed during the reporting period.~~

H.5(a)(1) For each applicable natural gas-driven pneumatic pump subject to VOC emission control requirements, you must maintain the records identified in paragraphs (a)(1)(i) through (iii) of this section onsite or at the nearest local field office for at least five years.

> (i) Records of the date that an individual natural gas-driven pneumatic pump is required to comply with the model rule (as specified by the regulatory authority), location and

~~manufacturer specifications~~ make and model for each natural gas-driven pneumatic pump.

(ii) Records of deviations in cases where the pneumatic pump was not operated in compliance with the requirements specified in section H.2.

(iii) ~~Records of the control device installation date and the location of sites containing pneumatic pumps at which a control device was installed, where previously there was no control device at the site.~~

(iv) ~~Except as specified in paragraph (a)(iv)(G) of this section, records for each control device tested under section F(d) which meets the criteria in section F(d)(11) and section F(e) and used to comply with H.2(b)(1) for each pneumatic pump.~~

~~(A) Make, model and serial number of purchased device.~~

~~(B) Date of purchase.~~

~~(C) Copy of purchase order.~~

~~(D) Location of the pneumatic pump and control device in latitude and longitude coordinates in decimal degrees to an accuracy and precision of five (5) decimals of a degree using the North American Datum of 1983.~~

~~(E) Inlet gas flow rate.~~

~~(F) Records of continuous compliance requirements in F(e) as specified in paragraphs (a)(1)(iv)(F)(1) through (4) of this section.~~

~~(1) Records that the pilot flame is present at all times of operation.~~

~~(2) Records that the device was operated with no visible emissions except for periods not to exceed a total of 2 minutes during any hour.~~

~~(3) Records of the maintenance and repair log.~~

~~(4) Records of the visible emissions test following return to operation from a maintenance or repair activity.~~

(G) As an alternative to the requirements of paragraph (a)(1)(i~~v~~)(D) of this part, you may maintain records of one or more digital photographs with the date the photograph was taken and the latitude and longitude of the pneumatic pump and control device imbedded within or stored with the digital file. As an alternative to imbedded latitude and longitude within the digital photograph, the digital photograph may consist of a photograph of the pneumatic pump and control device with a photograph of a separately operating GIS device within the same digital picture, provided the latitude and longitude output of the GIS unit can be clearly read in the digital photograph.

16.0 EPA MUST RESOLVE THE OVERLAP AND REDUNDANCY BETWEEN THE COVER AND CLOSED VENT SYSTEM AND FUGITIVE EMISSION REQUIREMENTS

In D.2(b) of the CTG model rule, EPA included initial and continuous inspection and monitoring requirements for covers and closed vent systems. These requirements consist of a program to identify leaks on covers and closed vent systems and repair them. In addition, the model rule includes a fugitive emissions program in Section I that is also based on identifying and repairing leaks. Section I will also apply to covers and closed vent systems, as the definition of "fugitive emissions component" includes "closed vent systems," and "thief hatches or other openings on storage vessels." This results in covers and CVS being subject to both the leak detection and repair requirements in Section I and the leak detection and repair requirements in Section D. This creates a situation which is unnecessarily duplicative and redundant.

Table 16-1 provides a summary of these overlapping requirements.

Table 16-1 Summary of the Overlapping Closed Vent System and Cover Requirements in NSPS Subpart OOOO

Affected Equipment/Components	D.2		I	
	Inspections	M21	OGI	M21
closed vent system joint, seam, or other connection that is permanently or semi-permanently sealed (*e.g.*, a welded joint between two sections of hard piping or a bolted and gasketed ducting flange)	(a)(2) annual visual inspections for defects	(a)(1) Initial, annual, and after repairs/ replacements	Initially, semiannually (could move to quarterly or annual depending on % leakers), and after repair/ replacement	Option for use after repair/ replacement
Closed vent system components other than a joint, seam, or other connection that is permanently or semi-permanently sealed	(b)(3) annual visual inspections for defects	(b)(1) and (2) Initial, annual, and after repairs/ replacements		
Covers	(c) annual visual inspections for defects	n/a		

API does not believe that this was EPA's intention, as EPA did not include component counts and cost estimates for monitoring the storage vessel cover or the closed vent system with the LDAR cost estimates. EPA only included counts in the model plant for components for a wellhead, separator, heater, and dehydration unit according to the CTG (Table 9-4 and Table 9-5).

API believes that the appropriate and most effective solution is to require the same methodology to monitor the cover and CVS and other fugitive leaks, and that OGI is the most effective methodology. OGI can see the leaks regardless of the type of system. There is no need for additional monitoring on top of the OGI monitoring.

To avoid duplicative monitoring requirements, API recommends clearly defining "closed vent system" consistent with NSPS Subpart definitions, that is entirely separate from "fugitive emission component". By having a separate definition for closed vent system, a subset of fugitive components is created for affected facilities with closed vent systems that are subject to fugitive monitoring requirements even if the rest of an existing site, for example, is not subject to fugitive monitoring requirements in Section D. The net result is one consistent set of fugitive monitoring requirements that allows for use of OGI whether fugitive components are part of a closed vent system or part of another process.

Following are descriptions of these recommended improvements.

16.1 Define "Closed Vent System"

As noted above, API recommends that EPA add a definition of a closed vent system in the CTG model rule. The components of a closed vent system may have fugitive components included but also has additional components outside of fugitives that ensure the emissions are being routed to the control device. Under NESHAP Subpart HH, EPA defined closed vent system as

> *"Closed-vent system means a system that is not open to the atmosphere and is composed of piping, ductwork, connections, and if necessary, flow inducing devices that transport gas or vapor from an emission point to one or more control devices. If gas or vapor from*

> *regulated equipment is routed to a process (e.g., to a fuel gas system), the conveyance system shall not be considered a closed-vent system and is not subject to closed-vent system standards."*

API recommends the same definition of closed vent system be added to the CTG model rule with an additional clarification **(bold)** that would include covers in the definition. This would ensure that all of the leak detection and repair requirements would also apply to components and openings on covers.

> *Closed-vent system* means a system that is not open to the atmosphere and is composed of piping, ductwork, connections, and if necessary, flow inducing devices that transport gas or vapor from an emission point to one or more control devices. If gas or vapor from regulated equipment is routed to a process (e.g., to a fuel gas system), the conveyance system **except for components and other openings on the cover of the equipment** shall not be considered a closed-vent system and is not subject to closed-vent system standards.

API recognizes that there are a number of interrelated aspects of this definition and the requirements related to the definitions of "routed to a process or route to a process" and "fugitive emissions component", as well as the associated requirements. Due to the insufficient length of the comment period, API is not offering a comprehensive recommendation in these comments. However, API will provide supplementary information with such a recommendation following the end of the comment period.

16.2 Remove Cover and Closed Vent Systems Components From Definition Of Fugitive Emissions Component

In order to totally resolve the redundancy in the cover and closed vent system and fugitive component requirements, the definition of "fugitive emissions component" in I.6 needs to be modified.

> Fugitive emissions component means any component that has the potential to emit fugitive emissions of methane or VOC at a well site or compressor station site, including but not limited to valves, connectors, pressure relief devices, open-ended lines, access doors, flanges, ~~closed vent systems, thief hatches or other openings on a storage vessels,~~ agitator seals, distance pieces, crankcase vents, blowdown vents, pump seals or diaphragms, compressors, separators, pressure vessels, dehydrators, heaters, instruments, and meters. Devices that vent as part of normal operations, such as natural gas-driven pneumatic controllers or natural gas-driven pumps, are not fugitive emissions components, insofar as the natural gas discharged from the device's vent is not considered a fugitive emission. Emissions originating from other than the vent, such as the seals around the bellows of a diaphragm pump, would be considered fugitive emissions.

API has several other suggestions related to this definition. While they are not shown here since they are not related to closed vent systems and covers, they are provided and discussed in Section 17.2.1.

16.3 Remove Section D.2

API recommends that all paragraphs of Section D.2 be removed. As shown in Table 16-2 every relevant requirement of D.2 will be addressed by referring to a requirement in Section I, or in the case of the bypass requirements, requirements in D.1. In many cases, moving to the OGI-based requirements will result in a more robust program to identify and repair leaks from closed vent systems and cover components.

Table 16-2 Side-by-Side Comparison of CTG Model Rule Section D.2 and Section I Closed Vent System and Cover Requirements

D.2	Section D.2 Requirement	I	Section I Requirement
(a)	CVS Joints, seams and other connectors - Initial M21 and annual visual inspections.	I.2 – I.4	All components – OGI monitoring initial and semi-annual
(b)	Other CVS components - Annual M21 and annual visual inspections		
(c)	Covers - Annual visual inspection		
(d)	Bypass	n/a	Not addressed in section I, but completely addressed in D.1(b)(3)
(e)	M21	not needed	Not needed
(e)(1)-(8)	M21 requirements		
(e)(9)	Repairs - First attempt within 5 days, repair within 15 days.	I.2(f)(1)	Repairs - Repair within 15 days.
(a)(2)	For CVS Joints, seams and other connectors only – monitor using M21 after repair/replacement	I.2(f)(2)	Resurvey (all components) using OGI or M21 within 15 days of repair
(e)(10)	Delay of repair - If technically infeasible without shutdown – do at next shutdown	I.2(j)(1)	If technically infeasible during operation of the unit, do at next shutdown or within 6 months, whichever is earlier
(e)(11)	Unsafe to inspect	n/a	Not necessary for OGI monitoring
(e)(12)	Difficult to inspect		
(e)(13)	Records	I.5(a)	Records

The related recommended rule changes throughout the CTG model rule to refer to the analogous sections of Section I rather than Section D.2 are provided in section 16.5.

16.4 The Requirements Do Not Need To Address Covers On Unconcontrolled Storage Vessels And Covers And Closed Vent Systems On Storage Vessels Subject To Legally And Practically Enforceable Requirements

The changes recommended by API above will eliminate the redundancy in requirements for covers and closed vent systems on centrifugal compressor, pneumatic pump, and storage vessel affected facilities under the CTG model rule.

Under the draft model rule scenario, covers on uncontrolled storage vessels would have been subject to the fugitive emissions requirements. These covers will not be subject to any leak monitoring and repair requirements under the changes recommended by API above. However, as discussed in the following, requiring these covers to be monitored would add no value. If a tank is uncontrolled (i.e. <6 tpy VOC uncontrolled) then leaks would be accounted for as part of the allowable emissions for the uncontrolled storage vessel. Thief hatches and pressure relief devices have an inherent leak rate since they are not welded shut. However, emissions from the thief hatch and pressure relief device are accounted for in the emission determined using EPA's AP-42 7.1 with TANKS 4.09 and when flash emissions are estimated.

Thief hatches that are weighted or spring tensioned serve as emergency overpressure relief devices in addition to providing a point of access for obtaining a sample of the material stored in the storage vessel or for gauging the liquid level. Thief hatches act in combination with the pressure/vacuum (P/V) relief devices to prevent overpressure and bursting of a tank. During normal operations, neither the P/V devices nor the thief hatch will open. In the rare occurrence of overpressure conditions, the P/V devices will open to vent tank vapors. If the P/V devices flow capacity is not sufficient to prevent further overpressure of the tank, then the thief hatch will open to provide additional venting capacity. Such an overpressure incident may be due to a rapid inflow of produced fluid/gas into the storage vessel if, for example, a separator "dump valve" sticks open or fails. The functionality of P/V devices and thief hatches as overpressure relief devices must be preserved to enable safe operation. If the storage vessel is not controlled, these devices are not acting as part of a closed vent system, but rather overpressure relief.

If the tank is controlled under another legally and practically enforceable mechanism like a state permit, the closed vent monitoring requirements for the storage system would be covered by the state, and thus would also be legally and practically enforceable.

16.5 Recommended Changes To NSPS Subpart OOOOa Related To Closed Vent System And Cover Fugitive Monitoring

As noted above, API's recommendation is to have the covers and closed vent requirements throughout the CTG model rule refer to the fugitive monitoring and repair requirements in Section I rather than the cover and closed vent system requirements in Section D. Following are the specific suggested regulatory changes.

> **I.1** (f) ~~For fugitive emissions components also subject to the repair provisions of sections D.2(e)(9) through (12) and (f)(4) through (7), those provisions apply instead to those closed vent system and covers, and the repair provisions of paragraphs (f)(1) and (2) of this section do not apply to those closed vent systems and covers~~. You must comply with the requirements of paragraphs (f)(1) and (2) of this section.
>
> **A.3**(e) You conduct the initial cover and closed vent system inspections required in section ~~D.2~~ I within 180 days after the effective date of this rule as established by your regulatory authority.
>
> **A.5(a)**
> (1) If required to reduce emissions by complying with section A.2(a), the records specified in paragraphs (a)(6) through (8) of this section and section ~~D.2~~ I.5(a), as applicable.
> (6) Records of each closed vent system inspection required under section ~~D.2(a) and (b)~~I.
> (7) A record of each cover inspection required under section ~~D.2(e)~~I.
> (8) If you are subject to the bypass requirements of section ~~D.2(d)~~D.1(b)(3), a record of each inspection or a record each time the key is checked out or a record of each time the alarm is sounded.
>
> **C.4**(a)(4) You conduct the initial cover and closed vent system inspections required in section ~~D.2~~I within 180 days after the effective date specified by your regulatory authority.
>
> **C.6(a)(1)**

(iii) Records of each closed vent system inspection required under section ~~D.2(a) and (b)~~I.
(iv) A record of each cover inspection required under section ~~D.2(c)~~I.
(v) If you are subject to the bypass requirements of section ~~D.2(d)~~D.1(b)(3), a record of each inspection or a record each time the key is checked out or a record of each time the alarm is sounded.
(vi) If you are subject to the closed vent system no detectable emissions requirements of section ~~D.2(a) and (b)~~I, a record of the monitoring in accordance with section ~~D.2(e).~~ I.5(a).

17.0 FUGITIVE EMISSIONS AT WELL SITES AND COMPRESSOR STATIONS

17.1 General

The following section addresses comments on EPA's proposed requirements for fugitive component emissions. Comments are organized around the following topics:

- Applicability
- Impacts, Emissions and Costs
- Work Practices and Inspections
- Testing and Monitoring
- Reporting and Recordkeeping.

17.2 Applicability

17.2.1 The Definition Of Fugitives Emissions Component Is Confusing, Which Leads To Duplicative Facility Applicability Requirements For Leak Detection And Closed Vent Systems

The definition of *fugitive emission component* is inconsistent with historical definitions for other leak detection programs. In those programs, including the one in Subpart OOOO and OOOOa for gas processing plants, fugitives emission components are defined as *Equipment*. While it may be appropriate to have a separate definition apart from that used in gas processing plants, it should be reflective of the Equipment definition and not be more expansive to include equipment that is neither a fugitive component nor part of another system. Our recommended text changes to the definition can be found at the end of this section (see Section 17.2.11).

The definition is also not consistent with the TSD for the rulemaking (Oil and Natural Gas Sector: Standards for Crude Oil and Natural Gas Facilities, Background Technical Support Document for the Proposed New Source Performance Standards. 40 CFR Part 60, subpart OOOOa, August, 2015). The TSD cites the white paper for the monitoring methods evaluated (Section 5.1 on page 47) and does not include blowdown lines in the description of "potential sources of fugitive emissions", but includes them in the definition of "fugitive emissions component". The white paper clearly states that emissions from blowdown lines/vents are "considered to be vented emissions and not leaks" for the purposes of the paper (page 13).

Furthermore, the types of fugitive emissions components that EPA has proposed is inconsistent with the types of components in Subpart W, which varies by reporting sector, but generally includes: valves, connectors, flanges, open-ended lines, pressure relief valves, control valves, block valves, orifice meters, regulators, pumps, and other (Tables W-1A through W-7 to Subpart W of Part 98). This will cause confusion between the two programs. Also, this definition is inconsistent with the definition used in NSPS Subparts VVa, KKK, and GGGa. Subpart VVa

defines Equipment as "*each pump, compressor, pressure relief device, sampling connection system, open-ended valve or line, valve, and flange or other connector in VOC service and any devices or systems required by this subpart*" (§60.481a). Under Subpart KKK, EPA defined Equipment as *"each pump, pressure relief device, open-ended valve or line, valve, compressor, and flange or other connector that is in VOC service or in wet gas service, and any device or system required by this subpart"* (§60.631). GGGa defines Equipment as "*each valve, pump, pressure relief device, sampling connection system, open-ended valve or line, and flange or other connector in VOC service. For the purposes of recordkeeping and reporting only, compressors are considered equipment*" (§60.591a).

Since these CTGs includes separate closed vent system monitoring requirements for what is essentially a collection of fugitive emission components, *closed vent system* requires its own definition so that closed vent system requirements can stand alone and are not subject to duplicative compliance requirements as currently proposed when also included in this definition. More detailed comments that address this issue for closed vent systems are found in Section 12.0. Other equipment inappropriately included in this definition includes:

"access doors, …, thief hatches or other openings on storage vessel, agitator seals, distance pieces, crankcase vents, blowdown vents, pump seals or diaphragms, compressors, separators, pressure vessels, dehydrators, heaters, instruments, and meters."

The equipment list above that should be excluded from the definition are not fugitive components, but rather parts of systems or equipment such as the separators, pressure vessels, dehydrators, and heaters that may have fugitive components, and fugitive component monitoring would be applicable when required. Thief hatches , which are part of closed vent systems, have complexities of operation and design, as discussed in section 16.0, thief hatch monitoring is NOT needed for storage vessels with no closed vent system since thief hatch design and operation is not important with low emission tank that already vents to atmosphere. Including thief hatches with CVS eliminates unnecessary monitoring under Section I of the model rule.

Vents are not fugitive components because they are designed to vent. Compressors are covered in their own section of this rule. Instruments and meters are not defined and some are designed to vent.

The following section in the definition also needs to be deleted as it is confusing and sets conditions upon which it may or may not be a fugitive component which creates a circular conundrum for a monitoring plan:

> ~~*"Devices that vent as part of normal operations, such as natural gas-driven pneumatic controllers or natural gas-driven pumps, are not fugitive emissions components, insofar as the natural gas discharged from the device's vent is not considered a fugitive emission. Emissions originating from other than the vent, such as the seals around the bellows of a diaphragm pump, would be considered fugitive emissions."*~~

With the section above in the definition, devices described are not fugitive components if it is not leaking as described. But if it is leaking, it is a fugitive component. Since it cannot be known ahead of time if it is leaking as described, there is no monitoring requirement because it is not a fugitive component until it is determined that it is leaking. These equipment types are not fugitive components, and other directed maintenance programs ensure that this equipment operates as designed.

API's requested revisions to the definition of Fugitive Emissions Component are provided at the end of this section (see Section 0).

17.2.2 States Should Have The Ability To Utilize Existing LDAR Regulations In Their SIPs Rather Than The EPA Model Rule

EPA did not consider the inconsistencies with state LDAR programs (CO, PA, WY, TX, CA, etc.). This creates duplicative and potentially conflicting requirements with no little environmental benefit. If a state has a leak program in place, the CTG should not impact or disrupt the existing state program. If the EPA has approved a SIP, then the state should be allowed to utilize their existing LDAR regulations rather than following the EPA CTG model rule since the EPA has already approved of the state's LDAR program as part of the SIP. This would eliminate duplicity and redundancy in the state and federal rules.

17.2.3 The 15 BOE Exemption In I.1(a) Recognizes Low Volume Production Being Lower Emission And Sensitive To Additional Cost Burden

Fugitive emissions do not correlate to production. A production rate gives no indication of the type or number of equipment that are located at the site. In addition, this exemption is irrelevant for new well sites which would not be economical to produce at 15 boe/day. This exemption might only be useful in the rare event of a modification to a stripper well.

API believes it more appropriate and would prefer that the CTG be based on the process equipment located at the site rather than a low production rate since fugitive emissions are based simply on the number of components associated with the process equipment.

API would prefer that the rule be based on the equipment located at the site rather than some arbitrary production rate. As indicated in Section 17.2.7, API believes that sites with equipment configurations or component counts less that the model plants should be exempt from the LDAR requirements, as based on EPA's analysis, LDAR is not cost effective at sites with fewer equipment/components.

17.2.4 The 15 BOE Exemption Is Not The Only Exemption To Consider

The 15 BOE/day exemption will generally not be useful for new sites since this level of production is consistent with a stripper well. Stripper wells represent wells near the end of their productive life not the beginning. Consequently, it would be rare for operators planning to construct well sites with initial production at this low level. The usefulness of this provision is at the end of a well's productive life as an off ramp to exempt being an affected facility much like being able to remove a control device at less than 4 tpy of storage vessel emissions. However, it would be useful for modified or reconstructed sources.

Another exemption is based on GOR. EPA recognizes that oil wells with little to no gas volumes should be exempt from REC requirements based on a low GOR of 300; this same GOR should also be another threshold to exempt well sites from leak detection. If gas volumes are so low that gas gathering is uneconomic, it is not cost effective to have leak detection requirements for little to no methane or natural gas reductions. Since VOC reduction alone is not cost effective, the lack of natural gas production should be a factor in affected facility exemptions.

Text change recommendation to reflect these comments are provided in Section 0.

17.2.5 The Definition Of Well Site For Fugitives Is Problematic And A New Definition For "Central Production Site" Is Needed

EPA has expanded the definition of a well site to include tank batteries not at a well site, as follows:

Well site means one or more areas that are directly disturbed during the drilling and subsequent operation of, or affected by, production facilities directly associated with any oil well, natural gas well, or injection well and its associated well site. For the purposes of the fugitive emissions standards at section I.1, well site also includes tank batteries collecting crude oil, condensate, intermediate hydrocarbon liquids, or produced water condensate from wells not located at the well site (e.g., centralized tank batteries). For the purposes of the fugitive emission requirements, a well site that only contains one or more wellheads is not subject to these requirements. (CTG I-8)

The proposed definition of "well site" includes both a well pad and other sites with process equipment that receives produced fluids from wells. The definition is problematic in that it can be interpreted to mean that all well pads connected to a tank battery or other centralized station can be aggregated as part of a single well site. This is unprecedented and appears to be an attempt to aggregate sites that are not otherwise contiguous or adjacent but instead functionally interrelated. This could lead to conflict with the Source Determination rule leading to potential permitting questions subject to variable interpretations. In Source Determination, courts have ruled against functional interrelatedness. In effect, EPA is applying Option 2 from the Source Determination proposal to define a source in NSPS. **It is inappropriate to aggregate sites.**

This erroneous definition change is being made to support the misconception that hydraulic fracturing increases fugitive emissions and constitutes a modification. The practical result of this error is that EPA's proposed definition of "well site" dissociates from the common sense and generally accepted and practically understood use of the term within industry. As well, tank batteries may or may not be tank batteries because of a false construct based on the activity at a distinctly separate surface site that has one or more wells. Additionally, the wellhead only exemption is rendered meaningless since aggregating separate surface sites into one means there will be no wellhead only well sites since wellhead only sites can produce to centralized tank batteries which would now be considered part of the wellhead only well site. EPA should instead consider a well site to be a distinct and separate surface site from a central processing site with no wellheads. API's recommended definition is provided in Section 0.

Another outfall of trying to define a well site other than in its generally accepted and common sense definition is that EPA assumes that any wellsite such as a wellhead only site produces to a central tank battery. This is not always true, there are other possibilities. A well could produce to a tank battery, a compressor station, or a tank battery combined with a compressor station, any of which may also happen to have one or more wells on the same surface site, making them well sites. Consequently, the collection of well sites that go to a central tank battery with no wells make the battery and the collection of well sites an aggregated single well site. But, if the central tank battery happens to include an onsite well, it is a separate well site, not an aggregated well site. These various operating scenarios complicate determinations of well site as proposed when a definition includes sites with no wells. This argues for each separate surface site to be evaluated independently for modifications without attempted aggregation.

As described in the previous paragraph, there are multiple centralized site configurations which complicate the applicability requirements. While the previous paragraphs discussed the issues with the definition of a "well site", a new definition is needed to more accurately account for

centralized sites. API recommends the terms "central production site" and "transmission compressor station" replace the use of the single term "compressor station". A central production site properly defined encompasses central gathering and boosting compressor stations, tank batteries, and combination tank batteries and compressor stations that have no wellheads located on the same surface site. Central production sites are located between a well site and natural gas processing plant or transmission pipeline. The recommended definition is found below at the end of this section.

17.2.6 EPA Must Exclude Co-Located Midstream Assets From Well Sites

In the final rule, EPA must clearly exclude co-located midstream assets from the fugitive emission monitoring program for well sites. As proposed, EPA's broad definition of "well site" and "fugitive emission component" could be interpreted to subject midstream assets to fugitive emission monitoring requirements simply because they are located in geographic proximity to a production facility. Such an approach is inconsistent both with the way that the oil and natural gas sector operates and with the CAA. Upstream natural gas production and midstream gas gathering and processing are fully distinct and sequential portions of the natural gas sector supply chain. Appropriate clarifications and changes to the proposed rule need to be addressed so that co-located midstream assets are not inadvertently included in fugitive emission monitoring requirements designed for well sites.

Including co-located midstream assets in the fugitive emissions monitoring program for well sites is inappropriate for a number of reasons. First, equipment owned, operated, or leased by midstream operators is legally distinct from equipment owned, operated, or leased by upstream producers. Given their separate and distinct legal status EPA must establish separate requirements for upstream and midstream equipment. It is arbitrary and capricious to include some midstream assets in the fugitive emissions monitoring program simply because they are co-located within the footprint of a well pad site while excluding other midstream equipment that is located on a separate parcel of land.

API believes that the recommended definition changes discussed above in section 17.2.5 will partially help alleviate this problem. However, API recommends that EPA should also limit well site requirements to the equipment owned or operator by the well operator. API notes that more detail on this issue is provided in comments submitted by the Gas Processors Association (GPA), along with recommended regulatory text.

17.2.7 Only Sites With Major Equipment (Such As Separator, Heater, Or Glycol Dehydrator) Should Be Subject. The Proposed Requirement To Exempt Sites With Only Wellheads Is Not Adequate

"For the purposes of this guideline, fugitive emissions recommendations would not apply to well sites that only contain wellheads." (CTG 9.1)

API agrees that a well site consisting only of wellheads should be exempt due to the small number of fugitive components. It would be overly burdensome, with little gain in emission reductions to broadly require LDAR programs at sites without process equipment located at the well site.

Similarly, API believes that additional exemptions should apply. EPA's Model Plants used in the Technical Support Document (TSD) for NSPS Subpart OOOOa are based on the following assumed equipment and component counts.

Table 17-1 EPA Model Well Site Equipment and Compressor Counts

	Assumed Equipment Counts		*Assumed Component Counts*	
Gas Well Sites	Wellheads	2	Valves	114
	Separators	2	Connectors	414
	In-line Heaters	1	OELs	14
	Dehydrators	1	PRVs	6
Oil Well Sites	Oil Wellheads	2	Valves	29
	Separators	1	Connectors	104
	Headers	1	OELs	1
	Heater/Treaters	1	PRVs	1

EPA uses these model well sites to establish the cost effective basis for the rule. Implementing LDAR is not cost effective at sites with component counts less than the model well sites. It is overly burdensome with little gain in emission reductions to broadly require LDAR programs at sites without process equipment located at the well site. API believes that any well site with equipment configurations or component counts less than the model well sites should be exempt from the LDAR requirements. This would exclude well sites with just wellheads, meter runs, pipeline risers, etc. and no production equipment, such as separators, heaters, and dehydrators.

There is a related inconsistency in the CTG text. Section 9.1 (Applicability) says that "for the purposes of this guideline, the emissions and programs to control emissions discussed herein would apply to the collection of fugitive emissions components at a well site … and compressor stations in the production segment". However, Section 9.4 (Recommended RACT Level of Control) refers to "RACT for the collection of fugitive emission components at well sites … and gathering and boosting stations".

17.2.8 Based On EPA's Estimates, LDAR Requirements For Oil Well Sites Are Not Cost Effective. Therefore, Oil Wells Should Be Exempt From The CTG LDAR Requirements

Similar to the proposed low producing well site exemption for fugitives, oil well sites should be exempt from the LDAR requirements as discussed earlier (Section 2.2). This is based on the costs, cost effectiveness, and benefits estimated for oil wells.

17.2.9 EPA Should Establish An Applicability Criteria Based On VOC Content Of The Gas Stream.

Unlike other equipment leak regulations, EPA neglected to include any kind of de minimis threshold concentration for VOC. For the CTG, since it is only related to VOC reduction guidance, it should provide a VOC threshold for LDAR as it does for tanks. API believes that the cost effectiveness calculation (see section 2.7 & 8) supports a VOC Threshold of 7% VOC by weight. API does not believe that even the 1% threshold used in the 1983 fugitive monitoring CTG for Natural Gas Processing Plants is supportable.

17.2.10 Components At Enhanced Oil Recovery Fields Must Be Exempted From The Fugitive Emissions Standards In Subpart OOOOa

Background on Enhance Oil Recovery

Crude oil development and production in U.S. oil reservoirs can include up to three distinct phases of recovery: primary, secondary, and tertiary recovery. During primary recovery, the natural pressure of the reservoir or gravity drive oil into the wellbore, combined with artificial lift techniques (such as pumps) which bring the oil to the surface. Secondary and tertiary recovery techniques, which are often referred to as Enhanced Oil Recovery, or EOR, extend a field's productive life generally by injecting water, gas, heat, or chemicals to displace oil and drive it to a production wellbore.

Examples of secondary EOR techniques includes water floods, and tertiary EOR techniques includes thermal recovery floods (e.g., steam), and gas injection floods (e.g., CO_2). These EOR oil recovery techniques are used in oil fields to improve oil recovery after reservoir gas has been produced, and reservoir pressure and primary oil production are very low (e.g., no reservoir energy). In addition, the reservoir gas is artificially or mechanically changed with inert gases. Inert gases include nitrogen, hydrogen sulfide (H_2S), and CO_2. These inert gases may be required to be gathered and process through specialty gas plants prior to sale. EOR is commonly found in older oil fields.

Water flooding is used to increase oil production by injecting a substantial amount of water into the oil reservoir rock voidage and increasing reservoir pressure. The injected water displaces the oil and carries the fluids to production wells. Water to oil ratios can be greater than 90%. In some EOR water floods, H_2S and other inert gases are generated in the reservoir. As a result, surface production equipment (i.e., plant) must be designed to handle high volumes of water and 3-phase fluids, and contain the potential "sour" and inert/contaminated gases for personnel safety reasons.

Thermal flooding is used to improve heavy oil recovery by injecting steam into the oil reservoir. Heavy oil has low viscosity, gas to oil ratio (GOR), and typically an API Gravity <18. The steam increases the heavy oil temperature reducing the viscosity allowing the oil to be produced from the well via artificial lift. The thermal surface equipment is designed to manage high volumes of water, heat the water, inject the steam, produce the hot oil, generally 2-phase separation of the fluids, and contain the low volumes of potential "sour" and contaminated gases for personnel safety reasons. Steam floods can generate substantial concentrations of hydrogen sulfide.

Gas injection (CO_2) flooding is used to improve oil recovery by injecting a miscible gas and water into the oil reservoir. The miscible gas, water, and increased reservoir pressure improves oil recovery and fluid sweep. Gas and water are injected into wells and the oil, water, and contaminated inert gas is recovered from production wells. The surface equipment is designed to manage high volumes of water, high pressure gas (e.g., CO_2 as a liquid), injection system, production/gathering system for the multi-phase liquids, high and low pressure separation of the fluids, and greater than 30% inert and potential "sour" gases. Due to the displacement characteristics of CO_2 and Immediately Dangerous to Life or Health (IDLH) for H_2S, the surface equipment is designed for personnel and public safety reasons.

EOR Gas Gathering Systems and Plants are designed to transport and process the volumes and EOR recovered gases that include CO_2, nitrogen (N_2) and H_2S.

EPA Did Not Consider EOR Operations

Oil production fields that utilize EOR have very different gas stream compositions and characteristics from the types of operations that EPA evaluated in the development of the proposed NSPS Subpart OOOOa and the CTGs. These differences have a significant impact on the VOC emissions. EPA's model plants and representative gas compositions used to evaluate the impacts that drove the regulatory decisions are derived from natural gas fields and natural gas processing plants, and these operations do not represent EOR operations. For example, EPA used a single nationwide gas composition to estimate fugitive emissions from all sources.[36] This gas composition includes 3.2% inerts by volume. In the limited time available during the public comment period, API did a very brief survey of member companies and found that the inert content of the gas streams in EOR fields ranged from 14% to over 64% by volume, depending on the type of EOR technique used. Obviously this significant difference in gas composition will have a tremendous impact on the baseline VOC and methane emissions and the emission reductions achieved by the fugitive emission requirements. And without a doubt, the decisions made by EPA regarding the reasonableness of the cost in relation to the VOC and methane emission reductions would not be applicable to EOR fields.

From a careful review of the background information for proposed NSPS Subpart OOOOa after which the CTGs are modeled, it appears that EPA did not consider EOR fields in any manner. A search of the September 18, 2015 preamble, the Background Technical Support Document, and the Regulatory Impact Assessment did not find a single mention of "enhanced oil recovery."

However, while EPA did not consider EOR operations in this rulemaking, clearly they are aware of these operations and the emissions. Subpart W of the GHG reporting program requires the reporting of GHG emissions from EOR operations and defines *enhanced oil recovery as follows:*

> *Enhanced oil recovery* (EOR) means the use of certain methods such as water flooding or gas injection into existing wells to increase the recovery of crude oil from a reservoir. In the context of this subpart, EOR applies to injection of critical phase or immiscible carbon dioxide into a crude oil reservoir to enhance the recovery of oil.

Further, subpart W requires reporting of GHG emissions from two specific EOR operations - EOR injection pump blowdown and EOR hydrocarbon liquids dissolved CO_2. Note that in both instances EPA only requires the reporting of CO_2, indicating EPA's expectation that little or no methane would be emitted. Therefore, not only was EPA aware of these EOR operations, EPA had available GHG data from the GHG reporting program that they could have utilized. But they chose to totally ignore this segment in the industry in all technical evaluations.

Conclusions and Recommendation

Following are the conclusions regarding EOR.

- EOR fields are very different from the types of operations EPA evaluated in the development of the proposed NSPS Subpart OOOOa requirements.

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[36] Memorandum. Brown, Heather P, EC/R Incorporated to Moore, Bruce, EPA/OAQPS/SPPD. Composition of Natural Gas for use in the Oil and Gas Sector Rulemaking. July 28, 2011.

- The gas streams at EOR fields have an inert gas content radically higher than the representative gas composition used by EPA in the evaluation of control options for Subpart OOOOa and the CTGs.
- These differences will have a significant impact on the VOC baseline emissions, emission reductions, and cost effectiveness.
- Based on the fact that EPA did not once mention EOR in the CTGs or background documents, it is clear that there was no evaluation conducted for this segment of the oil and natural gas industry.

Given these facts, EPA must include an exemption for EOR operations from the fugitive leak requirements in the CTGs. Recommended CTG changes are provided in Section 0.

If EPA elects not to incorporate the changes suggested by API above, EPA cannot require EOR fields to comply with the fugitive leak requirements in the CTGs without a full evaluation of emissions, controls, costs, and impacts specific to these unique operations in the oil and natural gas industry and a separate proposal that provides the rationale for any rulemaking for EOR operations. If EPA chooses to follow the path, API will work with EPA to gather accurate information for their analysis.

17.2.11 Produced Water Injection Facilities Should be Exempt from the Requirements

Injection well facilities receive produced water that has been physically treated to remove liquid hydrocarbons and natural gas before arriving at the facility. For the following reasons these facilities should not be included in the fugitive monitoring program:

- They contain operations and activities associated with produced water delivery, storage, and injection.
- These facilities are constructed to manage a producing field's water production.
- Natural gas is not typically associated with these facilities.
- There are limited liquid hydrocarbons present at these facilities. Thus, there are very limited emissions from the storage vessels therefore storage vessels vent to atmosphere and are not controlled.
- Hydrocarbons are removed from the water prior to arriving at the injection well facility to avoid loss of revenue.

There is little to no environmental benefit in subjecting these injection well facilities to LDAR requirements and requiring additional resources which could be used for a better purpose. If EPA had considered the cost effectiveness of LDAR on injection well facilities, the results would show a net negative benefit. Therefore, injection well facilities should be excluded from the LDAR requirements. The recommended regulatory change for this exemption is provided in Section 17.2.12.

17.2.12 Recommended Text And Definition Changes Based On Comments In This Section

I.1 Applicability

(a) The collection of fugitive emission components at a well site with wells that produce, on average, greater than 15 barrel equivalents per day.

(1)The fugitive emissions requirements of this section do not apply to well sites that only contain wellheads.

(2) The fugitive emissions requirements of this section do not apply to any well site or process unit with a GOR less than 300.

(3) The fugitive emissions requirements of this section do not apply to any oil well site requiring mechanical artificial lift such as a rod pump or submersible pump with no associated gas gathering system.

(4) The fugitive emissions requirements of this section do not apply to a well site with one or more wellheads that does not include installation of at least one of the following: a separator, heater, or glycol dehydrator.

(6) The fugitive emissions requirements of this section do not apply to a well site that produces oil with either an API gravity less than 18 °or a GOR less than 300 scf.

(7) The fugitive emissions requirements of this section do not apply to an EOR .

(8) The fugitive emissions requirements of this section do not apply to a water injection well.

(b) The collection of fugitive emission components at a central production site or a transmission compressor station ~~located from the wellhead to the point of custody transfer to the natural gas transmission and storage segment or to an oil pipeline~~.

Central production site means one or more contiguous surface sites with no wellheads and with a collection of either one or more gathering or boosting natural gas compressors, one or more crude oil or condensate storage vessels, or both that process crude oil or natural gas and located between a well site and natural gas processing plant or natural gas transmission line, but is not co-located with a well head.

Fugitive emissions component means each pump, pressure relief device, open-ended valve or line, valve, flange or other connector that is in VOC or natural gas service at a well site, central production site, or transmission compressor station but not including a natural gas processing plant process unit. ~~any component that has the potential to emit fugitive emissions of VOC at a well site or compressor station, , including but not limited to valves, connectors, pressure relief devices, open-ended lines, access doors, flanges, closed vent systems, thief hatches or other openings on a storage vessels, agitator seals, distance pieces, crankcase vents, blowdown vents, pump seals or diaphragms, compressors, separators, pressure vessels, dehydrators, heaters, instruments, and meters. Devices that vent as part of normal operations, such as natural gas-driven pneumatic controllers or natural gas-driven pumps, are not fugitive emissions components, insofar~~

~~as the gas discharged from the device's vent is not considered a fugitive emission. Emissions originating from other than the vent, such as the seals around the bellows of a diaphragm pump, would be considered fugitive emissions.~~

Well site means one or more contiguous surface sites~~areas~~ that are constructed for~~directly disturbed during~~ the drilling and subsequent operation of an oil or natural gas well, and any~~, or affected by,~~ production facilities directly associated with any oil well, natural gas well, or injection well. ~~and its associated well site. For the purposes of the fugitive emissions standards at section I.1, well site also includes tank batteries collecting crude oil, condensate, intermediate hydrocarbon liquids, or produced water condensate from wells not located at the well site (e.g., centralized tank batteries). For the purposes of the fugitive emission requirements, a well site that only contains one or more wellheads is not subject to these requirements.~~

17.3 Impacts, Emissions, and Costs

17.3.1 EPA Did Not Consider Key Costs To Industry In Assessing The Cost Effectiveness Of Leak Detection Requirements Proposed.

In its cost analysis for the proposed control strategy for fugitives emissions, EPA did not adequately capture all of the costs associated with implementation of such a program. Specifically, in the cost-effectiveness evaluation, EPA underestimated the costs associated with:

- Conducting leak surveys
- Completing repairs, and
- Maintaining the required recordkeeping, including the costs of developing and maintaining the corporate and site-specific monitoring plans.

Further, EPA did not include several aspects beyond the cost of the actual survey work in its cost analysis, including:

- Training of personnel
- Travel time and costs
- Equipment maintenance (e.g. monitoring device calibration)

The following sections expand on each of these topics in more detail and API provides revised costs that are more representative of actual costs anticipated to comply with the proposed rule. Utilizing the more representative costs along with EPA's current estimates of emission reductions expected from the rule, the cost effectiveness of the proposed semi-annual OGI monitoring increases from EPA's estimate of $2,230 per well site to over $6,400 per site. As such, the Well Site Program Weighted Average cost effectiveness values (under a Multi-pollutant Method) would increase significantly beyond the already marginal value of $4,979 per ton of VOC.

When the full costs of monitoring are considered, the leak detection program proposed is not cost effective for either methane or VOC. This finding is based solely on corrected costs and does not reflect any changes to the assumed emission reductions, which API believes have been overstated as well.

At a minimum, API recommends OGI-based surveys be no more frequent than an annual frequency for any affected sources.

The exception to this is oil wells. As discussed above in section 17.2.8 there is no scenario where oil wells are cost effective. EPA should totally abandon the regulation of fugitive emissions at oil wells.

17.3.2 EPA Underestimated The Costs Of The Leak Survey And Leak Repairs In The Cost-Effectiveness Evaluation.

In the cost estimation for implementing the LDAR requirements, EPA underestimated the cost of conducting a leak survey at the model well site. Although EPA estimated the model plant to consist of 2 wells per well site, they used cost data representing an OGI leak survey conducted by a contractor for a single well per well site ($600/single well battery37) as the basis of the leak survey costs. The cost of the survey based on the reference document would be higher than the value used in the analysis that represents a single well site ($600/single well battery) and lower than the value provided for a multiple well site ($1,200/multiple well battery) that represents on average 5 wells per site. A better estimate based on the reference document used would be a linear scaling between the given cost range which would result in an estimate of $720/model well site, representing 2 wells per well site. EPA also did not include any administrative costs for managing leak surveys conducted by contractors, as indicated in the reference document.

17.3.3 Many Additional Aspects Beyond The Cost Of The Actual Survey Not Considered By EPA Should Be Included In Cost-Effectiveness Evaluation (E.G., Training, Monitoring Device Calibration, Travel Costs, Etc.)

The start-up cost of a major monitoring program involves many costs not associated with the routine recurring costs of the regular survey, such as program design and set up. EPA's cost analysis also failed to consider costs associated with training, monitoring device calibration, data management, and transportation. These are significant costs and should be part of EPA's assessment of the costs of the proposed requirements.

API surveyed companies conducting voluntary LDAR programs and compared these costs to EPA's model well site costs for annual LDAR. EPA's well pad model plant costs for semi-annual OGI LDAR surveys. Using EPA's cost spreadsheet for OGI well pad costs posted to the docket,[38] API added or updated costs based on company information. API's cost estimate used the same assumptions as EPA's where company data were not available.Key differences in the costs include the following:

- EPA included the cost of a M21 monitoring device ($10,800), but excluded the cost of the data collection system. EPA's separate cost estimate for conducting M21 LDAR includes a cost of $14,500 for a data system in conjunction with the M21 monitoring device. It is not clear why EPA excluded this cost from the OGI LDAR estimate. EPA's estimate for developing monitoring plans does not indicate if it is

[37] Carbon Limits. *Quantifying cost-effectiveness of systematic LDAR Programs using IR cameras.* December 24, 2013. Available at http://www.catf.us/resources/publications/files/CATFCarbon_Limits_Leaks_Interim_Report.pdf.
[38] CTG_Section_9_OGI_Well_Pad_Model_Plant_Costs_7-7--2015.xlsx

for the corporate level plan, site level plans, or both. EPA's estimate is approximately one-half the cost provided by companies with voluntary programs.

- EPA's estimate of recordkeeping costs does not account for the need to purchase or expand a data collection system to store all the information associated with an ongoing LDAR program. EPA also does not consider the need for a data analyst to manage the information.
- EPA's costs do not consider the purchase of OGI equipment (~$100,000 per unit), annual calibration of each OGI unit, or the training required to operate each unit.
- EPA's costs do not consider travel to and from each site to conduct the semi-annual surveys and for additional travel to repair and resurvey components when the repair cannot be completed immediately following the survey.
- EPA assumed a cost of $2.00 to resurvey repaired components. This cost implies the use of soap bubbles under Section 8.3.3 of M21 to determine if the leak has been repaired. However, as written under §60.5397a (j)(2)(ii)(A), the proposed rule does not specify that soap bubbles can be used to determine if a leak is repaired [§60.5397a (j)(2)(ii)(A) - A fugitive emissions component is repaired when the M21 instrument indicates a concentration of less than 500 ppm above background.]. API's cost estimate for resurveying to determine if a leak is repaired is based on determining if the concentration is less than 500 ppm above background.

The following table compares cost information for semi-annual LDAR surveys and a 10,000 ppm leak definition based on data from companies conducting voluntary LDAR versus EPA's cost assumptions. Yellow highlighted cells indicate where costs are different and costs that EPA did not include in their analysis. Overall, API cost data indicate slightly lower well site costs ($1,590 based on API estimates compared to $2,096 from EPA's estimate shown in Table 17-2 Corrected Estimate of Monitoring Costs). However API's estimate includes recurring annual costs that were neglected in EPA's estimate and significantly higher company level costs. The resulting total annual cost estimate from API member companies is more than twice EPA's estimate.

Table 17-2 Corrected Estimate of Monitoring Costs

Item	API Annual Total Cost ($)	EPA Annual Cost ($)	Comment
One-Time Company Level Costs			
Read rule and instructions	$231.20	$231.20	Cost based on hours from PES Memorandum
Development of Equipment Leaks Monitoring Plan - Corporate Plan	$7,200.00	$3,468.00	API members estimate $7,200 to develop the initial corporate monitoring plan. EPA estimated cost based on average number of people and hours from PES Memorandum
Initial Activities Planning	$1,849.60	$1,849.60	EPA cost based on hours from PES Memorandum
Notification of Initial Compliance Status	$1,271.60	$1,271.60	Assumes that 1 hour is spent to prepare the notification for each well site for 22 well sites
FLIR Monitoring - Cost of OGI Equipment	$95,000	Excluded from EPA's analysis	API survey responses ranged from $90K-100K. API estimate conservatively assumes just 1 device is purchased.
FLIR Monitoring - Cost of Data Management System	$225,000.00		API survey responses ranged from $200K-250K

Item	API Annual Total Cost ($)	EPA Annual Cost ($)	Comment
FLIR certification Training	$2,000.00		API estimate conservatively assumes only one person is trained
M21 Monitoring and Data Collection System	$10,800	$10,800	EPA estimate includes cost of M21 monitoring device ($10,800) but excludes the cost of the data collection system ($14,500) that was assumed for M21
First Year Total Hours and Cost per Company	*$343,352*	*$17,620*	Sum of total company costs above
First Year Total Hours and Cost per Well Site	*$15,607*	*$801*	Assumes company owns 22 well sites

Table 17-3 Comparison of Monitoring Costs – Annual Costs

Item	API Annual Total Cost ($/yr)	EPA Annual Cost ($/yr)	Comment
RECURRING ANNUAL COSTS			
Annual Training	$2,000.00	Not included	API estimates for annual training ranged from $1,000 to $5,000. Conservatively assumed $2,000/yr
Data Analyst	$24,000.00	Not included	API estimate based on 10% resources of existing data analyst duties
Annual FLIR Device Calibration	$4,000.00	Not included	API estimates ranged from $3,000 - $5,000/camera. Conservatively assumed just one device is needed.
Annual transportation costs	$20,000.00	Not included	Per basin cost. API estimate assumes one basin requires 15,000 miles travel annually. Includes fuel and maintenance. Does not include the cost of purchasing a vehicle.
Recurring Annual Costs per Company	*$50,000.00*	*Not Included*	Sum of recurring annual costs above
Recurring Annual Costs per Well Site	*$2,272.73*	*Not Included*	Assumes company owns 22 well sites
Well Site Level Costs			
Subsequent Activities Planning	$63.05	$63.05	Based on hours from PES Memorandum. Total cost of planning divided by total number of well sites per company
Development of Site-specific Monitoring Plan	$120.00	Not Included	API estimate assumes 2 hours per site to develop the proposed site-specific monitoring plans
FLIR Survey cost	$462.40	$1,200.00	EPA cost from CL Report (outside contractor, well pad, $600 per survey). API estimate assumes 1 person and 4 hours to survey a well site using FLIR. Includes travel time.

Item	API Annual Total Cost ($/yr)	EPA Annual Cost ($/yr)	Comment
Repair Cost	$597.48	$597.48	Assumes 1.18% or 4 total leaks found per survey, 3 fixed online (3 * 0.17 hours *$66.24/hr) and 1 fixed offline (1 * 4.0 hours * $66.24/hr)
M21 Resurvey Costs	$115.60	$4.00	EPA's resurvey costs assume cost of $2.00 per component for offline component repair. API's resurvey cost assumes 2 hours are required to travel to/from the site and resurvey the fixed component.
Annual Report	$231.20	$231.20	Assumes that 4 hours are spent to prepare the annual report for each well site and includes storing/filing of records
Cost per Well Site (Well site level costs only)	*$1,590*	*$2,096*	Sum of well site level annual costs
Annual Cost per well site with Amortized Capital Cost	***$6,476***	***$2,230***	**Includes first year costs per company site from table above, cost amortized over 8 years at 7% interest**

17.3.4 EPA Did Not Account For The Limited Availability Of Trained Personnel And Equipment To Complete Monitoring

Section 9.4 of the draft CTG discusses the burden on the operators from the need to hire qualified contractors to perform the monitoring. Most API companies that have implemented voluntary LDAR programs for their upstream operations have performed their work internally with their own personnel. These companies took considerable time to train their initial core staff, and required in many cases, more than a year to have such a program fully operational.

Based on discussions with both OGI Instrument manufacturers and trainers, there is likely to be an initial delay in providing OGI instruments and training to meet demand. EPA should provide an initial compliance period of 1 year to allow LDAR detection equipment manufacturers and training organizations to meet the initial demand for equipment and training. In addition, API requests a one-year phase in be provided for the LDAR requirements to allow operators time to purchase monitoring devices, conduct training, and establish protocols.

17.3.5 EPA Did Not Consider Impacts Of Travel To/From Sites By Trained Personnel (Costs And Environmental Impacts)

Oil and natural gas production operations, gathering and boosting facilities, as well as transmission and storage compressor stations are geographically dispersed. Costs and impacts need to consider the time associated with traveling to and from sites, vehicle and fuel costs, and resulting vehicle emissions to conduct recurring LDAR. A company may have a third party contractor or specific in-house person doing the OGI monitoring that is different from the person doing the repairs. Although the majority of leaks are repaired when detected, there would be additional driving costs and impacts for leaks that cannot be repaired immediately and for conducting the resurvey after leaks are repaired.

According to survey data provided by 9 companies subject to Colorado Regulation 7, the average annual number of miles driven per basin for leak detection monitoring is 28,000, and the average

annual transportation cost per basin is $34,785. API members conducting voluntary LDAR programs indicated an average of 15,000 miles traveled per basin, with an average annual cost of $20,000 per basin. These costs do not include purchasing additional vehicles to accommodate the required travel. Neither transportation costs nor costs for purchasing additional vehicles were included in EPA's evaluation of cost effectiveness.

17.3.6 Recordkeeping Costs Are Significantly Underestimated

The Colorado Regulation 7 record keeping requirements are not as stringent as the proposed model rule requirements. Based on survey data provided by 9 companies subject to Colorado Regulation 7, the average record keeping cost per basin is $188,125 with a reccurring average annual cost of $39,444. That represents 41% of the average annual survey cost per basin.

Companies conducting voluntary LDAR surveys estimate their recording keeping costs at $60,000. Additionally companies that maintain a copy of OGI records estimate the data storage burden to be approximately 102 MB per survey per well. These costs represent approximately 26% of the average annual recurring LDAR costs per basin. These costs were not included in EPA's evaluation of cost effectiveness.

17.3.7 EPA Significantly Underestimated The Costs Of Developing And Maintaining The Corporate And Site-Specific Monitoring Plans

CTG I.2 and I.5 list the reporting, and recordkeeping requirements. Section I.2 describes companies developing both corporate-wide and site specific fugitives emissions monitoring plans with the alternative of doing a site specific plan with elements of both the corporate-wide and site specific fugitives emissions monitoring plan requirements. EPA did not fully evaluate the complexities or the costs for developing and maintaining the proposed requirements.

EPA has not included in the cost effective analysis for leak detection and repair any of the significant costs for developing and maintaining both a corporate-wide and site specific plans, particularly with respect to EPA's expectation that component counts are to be included in the monitoring plan. The cost estimate of $3,468 for the monitoring plan is greatly underestimated considering the great amount of detail required for the 2 different plans.

API member companies estimate the cost for developing a corporate monitoring plan to be $7,200, and the cost to develop each site-specific monitoring plans to be $120. Annual recurring costs to keep the plans up to date are estimated to range from $1,000 to $3,000.

To count and tag components at a compressor station, costs approximately $10,000. In a study performed by an API member company which compared three basic leak detection methods: Audio, Visual, and Olfactory (AVO), OGI, and M21. M21 was already being conducted, the additional cost of component counts was $15 to $58 per site. However, if done in conjunction with an OGI survey, the cost would be substantially higher. API members estimate a cost of $120 per well site to develop an initial component count (excluding travel costs), and a recurring annual cost of $60/site.

In addition, EPA provided no provision for an area-wide monitoring plan. Section I.2 recommends that companies either have a corporate-wide fugitive monitoring plan or a site specific monitoring plan. EPA provides no other options such as area wide plans for an operations area or basin. However, the information required in each plan is so detailed and specific, it will make it very difficult to write a plan that covers the various pieces of information for each separate area such as:

- Technique for determining fugitive emissions.
- The manufacturer and model number of the fugitive emissions detection equipment to be used. – Different equipment may be used in each area and over time depending if done internally or by a contractor.
- Procedures and timeframes for identifying and repairing fugitive equipment components from which fugitive emissions are detected. This will vary based on whether leak detection is done internally or by a contractor and by area.
- Procedures and timeframes for verifying fugitive emission component repairs. This will vary based on whether leak detection is done internally or by a contractor and by area
- Verification of the optical gas imaging equipment - Different equipment may be used in each area and over time depending if done internally or by a contractor.
- Procedures for determining the maximum view distance from the equipment – Each area may have different facility designs such as enclosed portions of the facility due to cold weather and physical locations such as on sides of cliffs that could limit or constrain the viewing distances.
- Procedures for conducting surveys – May vary by area or whether it is being done by contractors or internally.
- Training and experience needed prior to performing surveys – May depend on the equipment being used or whether the surveys in the area are being done internally or by contractors.
- Procedures for calibration and maintenance – Will vary based on the various equipment used by the area or contractors.

In some locations a company may choose to use contract services and other areas the same company may choose to conduct the surveys with internal staff. In addition, the variations in the development plans for different production areas may dictate different monitoring approaches. For example, an old declining field in one part of the country may have no sites or only a few sites subject to NSPS OOOOa which may require a company to handle the program differently than in another part of the country where they are drilling 30 wells or more a year that would be subject to NSPS OOOOa.

In some locations a company may choose to use contract services and other areas the same company may choose to conduct the surveys with internal staff. In addition, the variations in the development plans for different production areas may dictate different monitoring approaches. For example, an old declining field in one part of the country may require a company to handle the program differently than in another part of the country where active drilling is taking place.

The proposed requirement for site-specific monitoring plans, including the requirement to specify a walking path for each site, is unnecessary and the requirements are onerous. Many times production areas do not have site maps developed for each site. Development of a sitemap would be solely for this rule. The cost of developing site maps for every site was not included in the cost evaluation for LDAR. Furthermore, the requirement to specify a walking path for each site is unnecessary for oil and natural gas well sites and compressor stations. The person conducting the survey must be trained and have the knowledge and ability to use the monitoring device.

The elements required in both plans are extensive, requiring a great amount of detail with no added benefit. EPA should not require both plans. Furthermore, it is unnecessary for the plan to require many of the detailed information EPA is requesting for the site specific plans since these are small, dispersed, unmanned well sites and compressor stations. EPA should allow companies to create area monitoring plans in place of site-specific plans or as an option for corporate wide plans. Proposed rule revisions to address these issues are provided in (refer to Section 17.3.9).

17.3.8 Fugitive Emissions Program for Gross Emitters

In the preamble for proposed NSPS Subpart OOOO and OOOOa (80 FR 56637), EPA indicated that commenters on the white papers agreed that emissions from equipment leaks exhibit a skewed distribution, and pointed to other examples of data sets in which the majority of fugitive methane and VOC emissions come from a minority of components (e.g., gross emitters). Based on this information, EPA solicited comment on whether the fugitive emissions monitoring program should be limited to "gross emitters".

"Notably, we further identified that many studies have shown a skewed distribution for emissions related to leaks, where a majority of emissions come from a minority of sources. Commenters on the white papers agreed that emissions from equipment leaks exhibit a skewed distribution, and pointed to other examples of data sets in which the majority of VOC emissions from leaks come from a minority of components. Commenters noted that emitters are likely due to random occurrences of low-probability but high-emissions conditions." (CTG 9.4)

As EPA acknowledges, a growing body of research indicates a skewed emissions distribution for fugitive emission sources, where a small number of sources are responsible for a high percentage of emissions. The fugitive emission monitoring program under OOOOa should be targeted towards identifying and correcting these high emitting sources which results in the greatest cost-effective reductions, and produces significant reductions in emissions more quickly. API data on the leaks identified from recurring LDAR surveys indicates that annual LDAR is sufficient for identifying and correcting the relatively few fugitive sources with very high emission rates.

17.3.9 Recommended Rule Text Revisions Based On Comments In This Section.

(CTG I.2)

For fugitive emissions, VOC emission control requirements apply to the collection of fugitive emission components at a well site, central production site, and transmission compressor station (that is located from the wellhead to the point of custody transfer to the natural gas transmission and storage segment or to an oil pipeline), as specified in paragraphs (a) through (e) of this section for monitoring the collection of fugitive emission components. These requirements are independent of the closed vent system and control requirements in section D.

(b) You must develop corporate-wide or area-wide fugitive emissions monitoring plan that covers the collection of fugitive emission components at well sites and compressor stations in accordance with paragraph (c) of this section, ~~and you must develop a site-specific fugitive emissions monitoring plan specific to each collection of fugitive emission components at a well site and each collection of fugitive emission components at a compressor station in accordance with paragraph (d) of this section. Alternatively, you may develop a site-specific plan for each collection of fugitive emission components at a well site and each collection of fugitive emission components at a compressor station that covers the elements of both the corporate-wide and site-specific plans.~~

(c) Your corporate-wide or area-wide monitoring plan must include the elements specified in paragraphs (c)(1) through (c)(8) of this section, as a minimum.

(1) Frequency for conducting surveys. Monitoring surveys must be conducted at least as frequently as required by sections I.3 and section I.4 of this section.

(2) Technique for determining fugitive emissions.

(3) Manufacturer and model number of fugitive emission detection equipment to be used.

(4) Procedures and timeframes for identifying and fixing fugitive emission components from which fugitives are detected, including timeframes for fugitive emission components that are unsafe to repair. Your repair schedule must meet the requirements of paragraph (e) of this section at a minimum.

(5) Procedures and timeframes for verifying fugitive emission component repairs.

(6) Records that will be kept and the length of time records will be kept.

(7) Your plan must also include the elements specified in paragraphs (c)(7)(i) through (vii).

~~(i) Verification that your optical gas imaging equipment meets the specifications of paragraphs (c)(7)(i)(A) and (B) of this section. This verification is an initial verification and may either be performed by the facility, by the manufacturer, or by a third party. For purposes of complying with the fugitive emissions monitoring program with optical gas imaging, a fugitive emission is defined as any visible emissions observed using optical gas imaging.~~

~~(A) Your optical gas imaging equipment must be capable of imaging gases in the spectral range for the compound of highest concentration in the potential fugitive emissions.~~

~~(B) Your optical gas imaging equipment must be capable of imaging a gas that is half methane, half propane at a concentration of ≤10,000 ppm at a flow rate of ≥60 g/hr from a quarter inch diameter orifice.~~

~~(ii) Procedure for a daily verification check.~~

~~(iii) Procedure for determining the operator's maximum viewing distance from the equipment and how the operator will ensure that this distance is maintained.~~

(i~~v~~) Procedure for determining maximum wind speed during which monitoring can be performed and how the operator will ensure monitoring occurs only at wind speeds below this threshold.

(ii~~v~~) Procedures for conducting surveys, including the items specified in paragraphs (c)(7)(v)(A) through (C) of this section.

(A) How the operator will ensure an adequate thermal background is present in order to view potential fugitive emissions.

(B) How the operator will deal with adverse monitoring conditions, such as wind.

(C) How the operator will deal with interferences (e.g., steam).

(iii~~vi~~) Training and experience needed prior to performing surveys.

(iv~~ii~~) Procedures for calibration and maintenance. Procedures must comply with those recommended by the manufacturer.

~~(d) Your site-specific monitoring plan must include the elements specified in paragraphs (d)(1) through (d)(3) of this section, as a minimum.~~

~~(1) Deviations from your corporate-wide plan.~~

~~(2) Sitemap.~~

~~(3) Your plan must also include your defined walking path. The walking path must ensure that all fugitive emissions components are within sight of the path and must account for interferences.~~

Add to the definitions:

Optical gas imaging instrument means an instrument that makes visible emissions that may otherwise be invisible to the naked eye. Optical gas imaging equipment must be capable of imaging gases in the spectral range for the compound of highest concentration in the potential fugitive emissions imaging a gas that is half methane, half propane at a concentration of >10,000 ppm.

17.4 Work Practices/Inspections

17.4.1 Requiring An Initial Survey Requirement Within 30 Days Of Becoming Subject To The CTG Is Not Appropriate For A Number Of Reasons.

"(a) Each well site with a collection of fugitive emissions components must conduct an initial monitoring survey within 30 days of being subject to VOC emission control requirements of section I.
(b) Each compressor station site with a collection of fugitive emissions components must conduct an initial monitoring survey within 30 days of being subject to VOC emission control requirements of section I.2." (CTG Appendix I.3)

There are numerous problems with this requirement both in the language chosen to describe the requirement as well as the unique technical issues that arise as a result of trying to define a well site as something other than a surface site with a well. First, within 30 days of first well completion is inappropriate, as production doesn't always begin immediately after a well completion if for example gathering infrastructure is not yet available or construction of production facilities such as storage vessels, separators, heaters and control devices are not yet complete. There may also be use of temporary equipment because of well flow problems while trying to startup production or while permanent facility construction is being completed. Instead this requirement needs to be tied to the startup of production to be consistent with other requirements in the rule such as for storage vessels.

Within the first 30 days of startup of production, production rates for wells are evaluated to determine whether any storage vessels will be affected facilities. If so, control devices are required to be constructed and operational within 60 days from startup. As well, the first 30 days may exempt a wellsite altogether if production is less than 15 BOE/day. The point is that the first 30 days of production is an evaluation period for applicability of requirements, the second 30 days is allowed to complete construction of any required emissions control and closed vent system. And that is for true well sites with wells. The problem gets more complex by including central tank batteries in the definition of a wellsite rather than having its own definition as being part of a central production site that we recommended in Section 0.

Consider this realistic scenario. An operator wants to develop a new field of 20 wells that are planned to be drilled in succession, with potential plans to drill more. It is determined that it makes sense to construct a central tank battery that will become defined as a well site upon first production that will grow in size as each new well begins production and is aggregated to the central tank battery wellsite. The central tank battery is completed to enable startup of production of the first well with a capacity to eventually handle all 20 wells.. After startup of the battery, semi-annual leak monitoring is required within 30 days and is completed and leaks repaired. Shortly thereafter, the second well comes online and starts production to the central battery well site, and is a wellhead only site. Now, according to the CTG, the central battery must be surveyed

again a month after the initial survey because of the new well. This time no leaks are found. This 30 day monitoring pattern continues until all 20 wells are completed and will continue if more wells are immediately added or first wells are refractured for any reason. The wellhead only sites are also monitored each time since they are part of the central battery well site.

The point of the scenario is that the wellsite definition is not workable in terms of the how the initial monitoring requirements have been designed in this proposal. Instead of monitoring a central tank battery initially, then semi-annually, to hopefully annually as currently conceived in the proposal, the central production site and all wells tied into it will have to undergo monitoring at an unpredictable frequency based on changes that don't occur at the battery but rather wells tied into it. The battery will always require initial well monitoring as will all the wells tied to it within 30 days each time a new well is added or refracture occurs at an existing well. This is overly burdensome and costly. Again, API recommends dissociating central batteries from the well site definition to avoid this situation.

Instead of 30 days, the time period for the initial survey should be within 180 days after startup of production to allow sufficient time for completion of construction and the startup period, and scheduling the new site into the area leak detection plan. After the initial 60 days to complete construction of the control device, an additional 120 days should be allowed to work monitoring of the well into the next scheduled monitoring period that would include all the wells in the area. Calling out a contract crew to monitor one remote well site, when in a matter of a few weeks or couple months they may already be scheduled to monitor an entire area is not a cost efficient use of manpower. Such inefficient use of resources could put undue pressure on availability of crews for all operators.

Suggested regulatory revisions are provided at the end of this section (see Section 17.4.13).

17.4.2 API Members Find That Recurring LDAR Has A Diminishing Return.

EPA solicited comments on requiring monitoring survey on a quarterly basis. API members find that recurring LDAR has a diminishing return [currently proposed as semiannually]. The first survey identifies and corrects most of the leaks, but significantly fewer leaks are identified in subsequent surveys. The Colorado Regulation 7 data reduction assumptions are based on an assumption that annual inspections will yield an annual leaking component rate of 1.18%, 1.77% for facilities with quarterly inspection and 2.26% for facilities with monthly inspection schedules. These assumptions were based on the chemical manufacturing industry (Subpart VV) and do not fit with the LDAR data observed in the upstream oil and natural gas industry. API companies conducting voluntary LDAR programs have observed much lower initial leak rates , ranging from 0.18% to 0.84% leaks per component for annual LDAR.

Quarterly monitoring may not be possible in all areas. For example in some areas, particularly in western mountainous areas, winter weather makes it difficult to visit well sites that can be remote and widely scattered. It also may not be possible to utilize OGI methods in winter conditions, since visual detection of leaks requires a temperature difference between the leak and ambient air. Test data presented in Table 4-13 of EPA's draft Technical Support Document (TSD) *Optical Gas Imaging Protocol (40 CFR Part 60, Appendix K)*[39] shows that 5,000 ppm leaks were detected

[39] Reference: *Draft Technical Support Document for Optical Gas Imaging Protocol (40 CFR 60, Appendix K)*, Revision No. 5, August 11, 2015, EPA Contract No. EP-D-11-006 by Eastern Research Group, Inc., available at

with delta temperatures between the gas leak and background of around 1.4 to 1.9°C (2.5 to 3.4°F). However, the delta temperature is highly dependent on other factors, such as the wind conditions, hydrocarbon concentration, and mass emission rate.

In addition, even EPA's cost analysis found that the cost of monitoring/repair based on quarterly monitoring at well sites using OGI is not cost-effective for reducing VOC and methane emissions. Per page 56636 of FR version, EPA indicates: "In a previous NSPS rulemaking [72 FR 64864 (November 16, 2007)], **we had concluded that a VOC control option was not cost-effective at a cost of $5,700 per ton**. In light of the above, we find that the cost of monitoring/repair based on quarterly monitoring at well sites using OGI is not cost-effective for reducing VOC and methane emissions under either approach."

17.4.3 API Advocates A Fixed Initial Annual Frequency, Regardless Of The Percent Of Leaking Components.

EPA solicited comment on the proposed metrics of one percent and three percent and whether these thresholds should be specific numbers of components rather than percentages of components for triggering change in survey frequency discussed in this action.

> *"We recommend that the monitoring frequency be increased to quarterly in the event that two consecutive semiannual monitoring surveys detect fugitive emissions at 1.0 percent or more of the fugitive emissions components at a well site or at 1.0 percent or more of the fugitive emissions components at a compressor station. We also recommend that the monitoring frequency be decreased to annual in the event that two consecutive semiannual surveys detect fugitive emissions at less than 1.0 percent of the fugitive emissions components at a well site, or at less than 1.0 percent of the fugitive emissions components at a compressor station. We also recommend that you require that the monitoring frequency return to semiannual if an annual survey detects fugitive emissions between one and three percent of the fugitive emissions components at the well site, or between one and three percent of the fugitive emissions components at the compressor station, and return to quarterly if a survey detects fugitive emissions at greater than three percent of the fugitive emissions components at the well site, or greater than three percent of the fugitive emissions components at the compressor station."* (CTG 9.5.1)

API does not support the proposed metrics of one percent and three percent of components, respectively, as these metrics require maintaining a count of all fugitive components. API advocates a fixed initial annual frequency, regardless of the percent of leaking components.

To count and tag components at a compressor station, costs ~$10K and requires continual ever-greening. In a study performed by an API member company which compared three basic leak detection methods: AVO, OGI, and M21, component counts were made by a manual observer while on site. Because M21 was already being conducted, the additional cost of component counts was $15 to $58 per site. However, if done in conjunction with an OGI method, the cost would be substantially higher because individual components need not be individually located for the purposes of OGI monitoring. API companies estimate a cost of $120 per well site to count

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http://www.regulations.gov/contentStreamer?documentId=EPA-HQ-OAR-2010-0505-4949&disposition=attachment&contentType=pdf

components initially, with a recurring cost of $60 per well site to validate and update the counts annually.

17.4.4 Having The Same Frequency Of Monitoring As EPA's NSPS OOOOa Will Be Far Too Burdensome With The Large Number Of Existing Sites Which Are Almost All Unmanned, Dispersed Locations.

The draft August 2015 CTG (EPA-453/P-15-001) proposes semiannual fugitives monitoring of well sites greater than 15 boe/day and gathering/booster stations as RACT (page 9-31). The cost data presented in Table 9-11 shows a cost of $8,069/ton of VOC reduction for annual OGI inspections, while Table 9-12 shows a cost of $9,124/ton of VOC reduction for semi-annual OGI inspections. Despite a cost difference of $1,055/ton of VOC reduction or only 12.3% difference, EPA proposes semiannual OGI inspections as RACT. The small cost difference (based on EPA's analysis) between annual and semi-annual inspections does not justify the semi-annual inspections.

Also, the cost data on page 9-19 of the August 2015 CTG shows an OGI contractor cost estimate of $600 for a well site and $2,300 for a gathering/booster station, and repair costs of $299 for well sites and $3,436 for gathering/booster stations assuming 1.18% of the components leak and 75% are repaired online and 25% are repaired offline. EPA estimated the cost for resurveying components after offline repair based on $2.00 per component resurveyed and the assumption that a company purchases M21 instrumentation for $10,800 and is able to perform the resurveying without needing contractors. EPA assumed annual reports would take one person a total of 4 hours to complete at a cost of $231.

For comparison purposes, the costs from the Colorado Regulation 7 survey data were the following: OGI survey by contractor - $200-400 per well site, $1,321 for gathering/booster stations; excludes equipment rental, which is approximately $250 per site; Repair costs - $200 for well sites; Annual reports - $4,370 average annual report for a company's basin (note that Regulation 7 reports are required on a basin basis).

EPA assumes companies will use a third party for monitoring at $600 per site and does not include estimated costs for a company to buy and maintain a camera of their own (higher capital cost) or supervisory costs. In the report "Economic Analysis of Methane Emission Reduction Opportunities in the U.S. Onshore Oil and Natural Gas Industries" (March 2014, Prepared for Environmental Defense Fund by ICF International) a more representative cost analysis includes the camera purchase costs as well as transportation and recordkeeping, resulting in an annual cost of $191,000 (compared to $4,031 in the EPA OOOOa TSD, assuming quarterly OGI inspections as presented in Table 5-19). This analysis was updated in 2014 in which the annual cost (including cost of repairs inadvertently omitted from the previous analysis) was $193,000.

17.4.5 Proposed Approach To Allow Reduction In Monitoring Frequency Forces The Need To Develop Component Counts For Each Well Site In Order To Properly Document The Percentage Of Leaking Components. This Is Inconsistent With Subpart W Monitoring Program For Transmission And Storage.

"We recommend a monitoring survey of each collection of fugitive emissions components at a well site and collection of fugitive emissions components at a compressor station be conducted at least semiannually after the initial survey and that consecutive semiannual monitoring surveys be conducted at least four months apart. We recommend that the monitoring frequency be increased to quarterly in the

event that two consecutive semiannual monitoring surveys detect fugitive emissions at 1.0 percent or more of the fugitive emissions components at a well site or at 1.0 percent or more of the fugitive emissions components at a compressor station. We also recommend that the monitoring frequency be decreased to annual in the event that two consecutive semiannual surveys detect fugitive emissions at less than 1.0 percent of the fugitive emissions components at a well site, or at less than 1.0 percent of the fugitive emissions components at a compressor station. We also recommend that you require that the monitoring frequency return to semiannual if an annual survey detects fugitive emissions between one and three percent of the fugitive emissions components at the well site, or between one and three percent of the fugitive emissions components at the compressor station, and return to quarterly if a survey detects fugitive emissions at greater than three percent of the fugitive emissions components at the well site, or greater than three percent of the fugitive emissions components at the compressor station." (CTG 9.5.1)

API does not support the proposed metrics based on a direct count of all fugitive components, which can be time consuming and costly. If EPA elects to use a component count, API recommends that a simplified approach, such as the 40 CFR98 Subpart W upstream component count approach would be used [specified in §98.233(r)]; that method only requires a count of major pieces of equipment, which are combined with EPA assumptions on component counts per equipment.

See Section 17.3.8 regarding API's preference for annual monitoring.

17.4.6 API Opposes Performance-Based Frequency

EPA solicited comment on whether a performance-based frequency or a fixed frequency is more appropriate. API does not support a performance based approach. Tracking sites based on performance criteria is unnecessary and complex. A fixed annual frequency is sufficient for detecting and repairing leaks, as indicated in the comment above, and simplifies compliance. API members find that recurring LDAR has a diminishing return. The first survey identifies and corrects most of the leaks, but significantly fewer leaks are identified in subsequent surveys. API advocates a fixed annual frequency, regardless of the percent of leaking components.

17.4.7 API Suggests 30 Days An Appropriate Amount Of Time For Repair Of Sources Of Fugitive Emissions At Well Sites

EPA solicited comment on whether 15 days is an appropriate amount of time for repair of sources of fugitive emissions at well sites. Many leaks detected can be repaired on site with simple tightening of screwed connections, or replacement of small components carried by the maintenance team, when authorized maintenance personnel are available around the time of the survey. Fifteen days is adequate in these circumstances. However a few leaks require more time to repair due to safety issues, availability of replacement parts, availability of maintenance personnel, weather conditions, or other issues related to the sites being remote, dispersed, and unmanned facilities. Recent data from Colorado's Regulation 7 indicate that about 5% of

identified leaks required a delay of repair.[40] It is more reasonable to allow 30 days to do the repairs.

Proposed text revisions are provided in Section 17.4.13.

17.4.8 The current proposal does not allow for multiple attempts to repair identified leaks

In the proposed model rule, EPA requires discovered leaks to be repaired within 15 days. Multiple attempts to repair may be required to repair such that 15 days is not be adequate to make a successful repair. Provisions are needed to allow for occurrences where complex leaks cannot be fixed within 15 days. These may be situations where additional engineering and analysis is required to develop the safe and correct solution to repair the leak. There needs to be sufficient regulatory flexibility to address instances where several repair attempts are needed until the leak is repaired.

EPA should provide appropriate provisions to accommodate situations where multiple attempts are required to repair a leak. Proposed text revisions are provided in Section 17.4.13.

17.4.9 Forcing All Repairs Within 6 Months Is Unreasonable Due To True Cost Impacts

A minority of detected leaks require more time to be repaired because they require a full shutdown of the well in order to do the repair. For example, recent data from Colorado's Regulation 7 indicate that about 5% of identified leaks required a delay of repair.[41] Repairs on the well head itself require full shutdown of the well. Some repairs require a workover of the well. Also, many companies do not allow hot work to be performed on the well site due the risk of explosion or fire. The well must be shut in and the equipment purged in order to do any hot work such as welding for repairs. Many different issues must be assessed before a well is shut in and equipment purged for repairs. Shutting down the well could result in losing the well completely or damage to the formation that can reduce production. The emissions from shutting in the well and purging the equipment could result in more emissions than are being released from the leak. Also, EPA did not consider the cost of lost production during repairs in the cost analysis for fugitive leaks which can be significant.

Some repairs at compressor stations require the compressor station to be shut in which could require shutting in all the wells that feed into the compressor station as well. Most compressor stations in the gather system do not have a way to by-pass the compressor or parts of the system so work can be done. Bringing down the compressor station could result in shutting in parts of a field and losing the production from that portion of the field which is a huge cost.

The unreasonableness of the requirement to repair a leak within 6 months is even more apparent when applied to integrated production arrangements such as those on the North Slope of Alaska. Fields on the North Slope are arranged with multi-well pads feeding into a small number of centralized production stations where primary separation and some pre-treating and compression of gas occurs. Gas from these central production stations is routed to a gas processing facility, oil to the Trans-Alaska Pipeline, and produced water to reinjection. Dependent on where a leak occurs in this integrated production arrangement repairing a leak within 6 months may necessitate

[40] Colorado Air Quality Control Commission, Public meeting on October 15, 2015.
[41] Colorado Air Quality Control Commission, Public Meeting on October 15, 2015.

shutting down an entire section of a field feeding a particular central production station or perhaps a series of central production stations. Given the geographic and seasonal realities of the Alaskan North Slope, oil and gas operators schedule large separation facilities shutdowns during the summer months. With the litany of plausible scenarios that could result in a separation facility being required to shut down in order to fix a leak in late fall, winter, and early spring, such shutdowns will result in greater safety and integrity concerns. In addition, the flaring of between 250,000 MMscf and 500,000 MMscf of gas during shutdowns may be an unintended and unavoidable consequence of the proposed rule. Simply stated, the emissions release associated with shutting down a production facility; shutting in and freeze protecting wells; and depressuring and purging the necessary equipment will result in far greater emissions than are being released from the leak that could be repaired during the next scheduled process shutdown. In addition to the increased safety concerns and counter-productive flaring, implementing the repair requirements as currently drafted will also result in severe economic repercussions. Every day of a non-scheduled or non-summer shutdown will result in millions of dollars in lost revenue for the State of Alaska and the operators. Dependent on the length and extent of the shutdown required and difficulty restarting the wells and facilities, taking such an action may impact the domestic US supply of crude oil, particularly in the West Coast markets where most Alaska crude is shipped. It is clear that EPA did not contemplate such potential wide ranging and large impacts when considering the requirement for repair of a leak within 6 months. Although the North Slope is an extreme example due to the unique climate realities, similar impacts would occur on a smaller scale for other integrated production arrangements.

EPA should allow for delay of repair of fugitive components until the next shutdown. EPA has allowed for delay of repairs beyond 6 months and OOOOa should be less stringent that what is required under NSPS Subpart VVa. Subpart VVa under §60.482-9a allows for the following delay of repairs and NSPS OOOOa should allow for equivalent delay of repair:

§60.482-9a *(a) Delay of repair of equipment for which leaks have been detected will be allowed if repair within 15 days is technically infeasible without a process unit shutdown. Repair of this equipment shall occur before the end of the next process unit shutdown. Monitoring to verify repair must occur within 15 days after startup of the process unit.*

(b) Delay of repair of equipment will be allowed for equipment which is isolated from the process and which does not remain in VOC service.

(c) Delay of repair for valves and connectors will be allowed if:

- *(1) The owner or operator demonstrates that emissions of purged material resulting from immediate repair are greater than the fugitive emissions likely to result from delay of repair, and*
- *(2) When repair procedures are effected, the purged material is collected and destroyed or recovered in a control device complying with §60.482-10a.*

(d) Delay of repair for pumps will be allowed if:

- *(1) Repair requires the use of a dual mechanical seal system that includes a barrier fluid system, and*
- *(2) Repair is completed as soon as practicable, but not later than 6 months after the leak was detected.*

(e) Delay of repair beyond a process unit shutdown will be allowed for a valve, if valve assembly replacement is necessary during the process unit shutdown, valve assembly supplies have been depleted, and valve assembly supplies had been sufficiently stocked before the supplies were depleted. Delay of repair beyond the next process unit shutdown will not be allowed unless the next process unit shutdown occurs sooner than 6 months after the first process unit shutdown.

(f) *When delay of repair is allowed for a leaking pump, valve, or connector that remains in service, the pump, valve, or connector may be considered to be repaired and no longer subject to delay of repair requirements if two consecutive monthly monitoring instrument readings are below the leak definition."*

API was unable to gather and provide the typical times between shutdowns of well sites and compressor stations due to the short comment period on this rule.

Proposed text revisions are provided in Section 17.4.13.

17.4.10 Thresholds for M21 Leak Definition and Repair.

EPA requested comment on whether the fugitive emissions repair threshold for M21 monitoring surveys should be set at 10,000 ppm or whether a different threshold is more appropriate (including information to support such threshold). EPA also solicits comment on whether 500 ppm above background is the appropriate repair resurvey threshold when M21 instruments are used or if not, what the appropriate repair resurvey threshold is for M21.

Tables 9-14, 9-15, and 9-16 of the CTG draft show the summaries of the cost of control for VOC at each of the repair thresholds (i.e., 10,000, 2,500, and 500 ppm) for the three monitoring frequency options (i.e., annual, semiannual, and quarterly).

If M21 is used to repair the leak, then the leak definition should instead be 10,000 ppm instead of 500 ppm. A leak definition of 10,000 ppm is consistent with the leak definition used in NSPS Subpart KKK for valves at natural gas processing plants, which references NSPS Subpart VV. Also, OGI monitors detect leaks at approximately 10,000 ppm. In addition, API demonstrated in comments provided to Docket ID Number EPA–HQ–OAR–2010–0505 (Proposed Rulemaking – Oil and Natural Gas Sector Regulations Standards of Performance for New Stationary Sources: Oil and Natural Gas Production and Natural Gas Transmission and Distribution, November 30, 2011) that there is only a small incremental difference in emission reductions between a leak definition of 500 ppm and 10,000 ppm.

Based on data in a leak detection study that compared M21 to FLIR, approximately 85% of FLIR-found-leaks were over 0.1 scfh, as quantified by HiFlow. Using the correlation equation from the 1995 Protocol for Equipment Leak Emission Estimates and the average density of the field gas in the corresponding asset areas, 10,000 ppm corresponds to a leak rate range of 0.07 to 0.15 scfh depending on the component type leaking. Based on this, the study found that approximately 70% of FLIR-found-leaks were over 10,000 ppm.

Therefore, consistent with the valve leak detection provided in NSPS Subparts KKK and VV, and given that OGIs typically detect leaks over 10,000 ppm, the repair leak threshold should be set at 10,000 ppm.

Proposed text revisions are provided in Section 17.4.13.

17.4.11 API Supports Flexibility In The Methods Allowed For Resurveying Repaired Components.

"We recommend the implementation of a monitoring plan that includes semiannual monitoring using OGI and repair of components that are found to be leaking at well sites and compressor stations." (CTG 9.4)

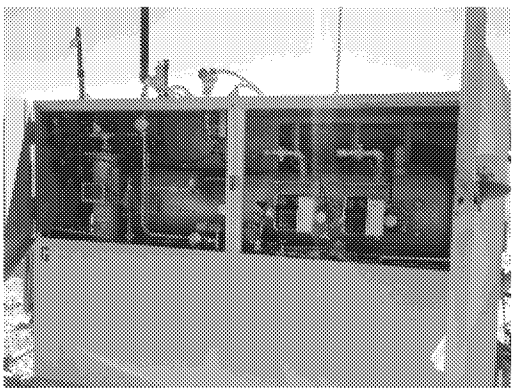
EPA solicited comments on whether either optical gas imaging or M21 should be allowed for the resurvey of the repaired components when fugitive emissions are detected with OGI. API supports flexibility in the methods allowed for resurveying repaired components. EPA should allow for the use of M21, OGI, or infrared laser beam illuminated instruments. In particular, M21 is preferred, as Section 8.3.3 of M21 allows the use of soap bubbles.

17.4.12 Monitoring Each Fugitive Component for Emissions

CTG I.2(e) – EPA is requiring that "*Each monitoring survey shall observe each fugitive emissions component for fugitive emissions.*" Having to look at each component with an OGI system is extremely time consuming. Furthermore, it is not necessary to look at each component for leaks with the OGI equipment. From a scan around the facility you should be able to easily see if there are any leaks, and then if there are, move in to identify the exact location of the leak. OGI does not work like M21 where you have to sniff each component to determine if it is leaking.

Also, it is not always feasible to look at each component. Several locations in the North have equipment inside buildings with components next to the wall making getting to each component with OGI equipment impossible. . Here is an example of what the sites look like:

Figure 17-1 Picture of Equipment Building



API recommends making this requirement more in line with how OGI equipment works and the fact that each component does not need to be scanned to require that each piece of equipment with fugitive monitoring components be observed. For instance, observe the separator or well head for leaking components.

Proposed text revisions are provided in Section 17.4.13.

17.4.13 Recommended Text Revisions Related To Work Practices/Inspections:

> I.2(e) Each monitoring survey shall observe each piece of equipment with fugitive emissions components for fugitive emissions.
>
> I.2(f)(1) Each identified source is required to monitor fugitive emission components as specified in section I.3 and I.4. Identified fugitive emissions shall be repaired or replaced as soon as practicable, ~~but~~ no later than ~~15~~30 calendar days after detection of the fugitive emissions. Where delays in acquiring replacement parts prevent completion of repairs

within 30 days, repairs must be completed within 30 days of acquiring parts. If the repair or replacement is technically infeasible or unsafe , or shutdown emissions are larger than what would be reduced~~ to repair during operation of the unit, to repair during operation of the unit~~, the repair or replacement must be completed during the next scheduled shutdown ~~or within 6 months, whichever is earlier~~.

(2) Each repaired or replaced fugitive emissions component must be resurveyed as soon as practical, but no later than ~~15~~30 days after completion of the repair or replacement, to ensure that there is no leak.

(i) For repairs that cannot be made during the monitoring survey when the fugitive emissions are initially found, the operator may resurvey the repaired fugitive emissions components using M21 or optical gas imaging no later than ~~15~~30 days of finding such fugitive emissions.

(ii)(A) A fugitive emissions component is repaired when the M21 instrument indicates a concentration of less than ~~500~~10,000 ppm above background.

I.3(a) Each well site with a collection of fugitive emissions components must conduct an initial monitoring survey within ~~30~~180 days of being subject to VOC emission control requirements of section I.
(b) Each compressor station site or central production site with a collection of fugitive emissions components must conduct an initial monitoring survey within ~~30~~180 days of being subject to VOC emission control requirements of section I.2.

(a) A monitoring survey of each collection of fugitive emissions components at a well site, a central production site, and a compressor station site subject to VOC emission control requirements under section I shall be conducted at least ~~semi~~annually after the initial survey. Consecutive ~~semi~~annual monitoring surveys shall be conducted at least nine ~~four~~ months apart.
~~(b) The monitoring frequency specified in paragraph (a) of this section shall be increased to quarterly in the event that two consecutive semiannual monitoring surveys detect fugitive emissions at greater than three percent of the fugitive emissions components at a well site or at greater than three percent of the fugitive emission components at a compressor station subject to VOC emission control requirements under section I.~~
~~(c) The monitoring frequency specified in paragraph (a) of this section may be decreased to annual in the event that two consecutive semiannual surveys detect no fugitive emissions at less than one percent of the fugitive emissions components at the well site, or less than one percent of the fugitive emissions components at a compressor station subject to VOC emission control requirements under section I. The monitoring frequency shall return to semiannual if a annual survey detects fugitive emissions between one and three percent of the fugitive emissions components at the well site, or between one and three percent of the fugitive emissions components at the compressor station, and shall return to quarterly if a survey detects fugitive emissions at greater than three percent of the fugitive emissions components at the well site, or greater than three percent of the fugitive emissions components at the compressor station.~~

17.5 Testing And Monitoring

17.5.1 EPA Should Provide Flexibility And Allowance For Technology Development.

Ongoing Research and Development Activities

The scale up of LDAR activities under the draft rule provides a strong incentive to bring down costs while enhancing leak detection effectiveness, and is already stimulating a substantial increase in R&D investment, as EPA notes in its proposal. We call to the Agency's attention two ongoing initiatives that aim to develop improved LDAR technologies for use by companies as they seek to comply with federal and state methane emissions reduction requirements: a public-private initiative and a partnership between a number of corporate actors and an environmental non-governmental organization. These initiatives may well demonstrate within the next several years, the commercial availability of substitute technologies, equipment and approaches that are more efficient and cost-effective than the continued use of M21 or OGI.

Department of Energy (DOE)/ Advanced Research Projects Agency – Energy (ARPA-E)

As of December 16, 2014, ARPA-E had selected eleven private sector projects involving methane observation networks with innovative technologies to obtain methane emissions reductions that would receive awards totalling some $35,000,000, (MONITOR Program). The objective is to catalyze and support the development of transformational, high impact energy technologies that can effectively promote methane emissions reduction. DOE's aim is to lower the cost of compliance through the development of low cost detection systems coupled with advanced modelling capabilities to pinpoint and quantify - major leaks and engage in mitigation prioritization with a focus on larger emitters. The proposed rule's approach, consistent with current technology, relies on detection alone as the criteria to define the need for repair without any prioritization based on the size of the leak. Generally the thrust of the work being supported by ARPA-E does not look at leaks from individual components, but will lead to examination of larger areas to identify significant leaks which can then be specifically identified and repaired.

ARPA-E is planning within 6-7 months to set up a testing facility intended to serve as a site for field tests to ensure that technologies are tested in a standardized, realistic environment outside of the laboratory. This would be followed by a second round of testing to assess previously undemonstrated capabilities and further technical gains. ARPA-E believes some of these technologies could become commercially available in from 2-3 years. The goal within 18 months to 2 years is to develop a methodology to demonstrate the superiority of one or more of these technologies to OGI that do not require the manpower, the fleets of trucks and other equipment and surveys that are time-consuming to undertake and dwarf the cost to the regulated community even of an expensive FLIR camera ($90,000). Each of ARPA-E's partners will need to demonstrate it can bring the costs down to $3,000 per site per year (many of which have multiple wells). The hope and expectation is that costs will be significantly lower, going down as to as little as $1,000 per site.

EDF Methane "Detectors Challenge" (MDC)

In June 2014, the Environmental Defense Fund (EDF) along with five private sector partners issued a request for a proposal intended to target innovators from universities, start-up companies, instrumentation firms, and diversified technology companies among others to develop continuous methane leak detection monitoring for the oil and natural gas industry. They also sought expressions of interest in becoming part of the lab and field tests that would lead to pilot

purchases and testing at oil and natural gas facilities. The initiative is intended to catalyze and expedite development and commercialization of low-cost, methane detection technologies that will help minimize emissions in the oil and natural gas industry. MDC is based upon the belief that shifting the methane emission detection paradigm from periodic to continuous will allow leaks to be found and fixed, more readily decreasing methane emissions significantly. The ideal system would serve as a "smart" alarm sending an alert to an operator when an increase in ambient methane is detected that reflects emissions beyond what one would normally expect to see. The "MDC program refers to cost as a critically important factor and EDF and its partners sought out technologies that could reasonably be expected to be sold for roughly $1,000 or less per well pad (or compressor site) when produced at scale over the following 2-5 years.

The MDC commenced with a set of laboratory tests of five different sensor technologies in 2014, called "Phase 1." Four of these five technologies were selected for further development and assessment in a follow-up effort referred to as "Phase 2" which tested each technology developer's entire system in controlled laboratory and outdoor settings in order to ensure that the systems performed as required prior to moving into industry pilots, which is the immediate next step.

We urge EPA to stay abreast of technological developments and closely track the results of research and testing through an open dialogue with experts in the private sector and government.

Recommendations

An optical gas imaging (OGI) instrument is defined in 40 CFR 60.18(g)(4) as "… an instrument that makes visible emissions that may otherwise be invisible to the naked eye." EPA's Technical Support Document (TSD) for Optical Gas Imaging Protocol (40 CFR Part 60, Appendix K)[42] provides a summary of the current state of the technology for two commercially available OGI cameras, the FLIR GF320 and Opgal EyeCGas, to detect equipment fugitive leaks by infrared thermographic imaging.

EPA should allow any new technology to be used that is equivalent to OGI or M21 in detecting fugitive leaks. Such new technologies should not be limited to meeting EPA's current definition of OGI (i.e. "… an instrument that makes visible emissions that may otherwise be invisible to the naked eye."). In addition, since OOOOa is not a quantification rule, such new technologies need only demonstrate that they can detect leaks; they do not need to quantify leaks.

17.5.2 The Regulation Should Allow Flexibility In The Methods Used To Detect Fugitive Emissions

The Agency has asked for comment on "criteria we can use to determine whether and under what conditions well sites operating under corporate fugitive monitoring programs can be deemed to be meeting the equivalent of the NSPS standards for well site fugitive emissions such that we can define those regimes as constituting alternative methods of compliance or otherwise provide appropriate regulatory streamlining."

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[42] Reference: *Draft Technical Support Document for Optical Gas Imaging Protocol (40 CFR 60, Appendix K)*, Revision No. 5, August 11, 2015, EPA Contract No. EP-D-11-006 by Eastern Research Group, Inc., available at http://www.regulations.gov/contentStreamer?documentId=EPA-HQ-OAR-2010-0505-4949&disposition=attachment&contentType=pdf

A study performed by an API member company compared three basic leak detection methods: AVO, OGI, and M21. In general, the M21 approach was the most labor and time intensive, and, therefore, the most costly. FLIR methods could be implemented for less than 20% of the cost of M21 approaches. The results showed that AVO, while the least costly method, was not generally effective when compared to M21. On average, AVO found only 9% of the well pad leaks found by M21, and only 12% of the well pad site emissions calculated from M21 leaks. At the compressor station, because of the high ambient noise and close proximity of equipment, AVO method was not effective at all, and found 0% of the leaks found by M21 methods. The FLIR technique, on the other hand, was more effective.

- At well pads, FLIR finds 41% of leaks found by any method, but FLIR finds 89% of the total well pad emissions identified by any method (i.e. FLIR finds more of the larger leaks). It is also important to note that FLIR finds additional leaks not found by M21. Conversely, M21 finds 89% of the leaks, but only 31% of the total emissions (i.e. M21 finds more of the smaller leaks).
- At compressor stations, FLIR finds 46% of all leaks found by any method, but FLIR finds 96% of the total compressor station emissions identified by any method. It is also important to note that FLIR finds additional leaks not found by M21. Conversely, M21 finds 75% of the leaks, but only 15% of the total emissions.

Although AVO was not effective in this particular study, there are locations with high H_2S concentrations where AVO is more effective than M21. Sites with high levels H_2S should be allowed to use AVO or H_2S monitoring systems to identify leaks at well pads.

17.5.3 Characterizing Performance Using Laser Technology

Subpart W allows the use of an infrared laser beam illuminated instrument for equipment leak detection [§98.234(a)(3)]. Any emissions detected by the infrared laser beam illuminated instrument is a leak unless screened with M21 monitoring, in which case 10,000 ppm or greater is designated a leak. However, since the CTGs do not require quantification, API does not advocate establishing a specific ppm threshold for determining a leak.

17.5.4 A Streamlined Approval Process Is Needed For Alternative Technologies As These Technologies Become More Prevalent.

EPA should build into its final rule an "on-ramp" that provides an alternative path for rapid substitution of new detection equipment and monitoring strategies once they are validated and shown to be effective. This should include a fast-track review process, with firm deadlines for decision-making so that alternatives to the current LDAR requirements can be approved without time-consuming amendments to the NSPS.

As a general matter, the rule should seek to establish a more streamlined "fast-track" process for approving new detection technology that can be substituted in lieu of OGI equipment whether its use does not require modification of the LDAR protocol, or is an entirely new approach (continuous monitoring).

Where a new technology has been adequately field tested and validated through the ARPA-E MONITOR or another program and meets performance specifications outlined by EPA, the rule should authorize its deployment following a review by the Agency. The review should be completed within 180-days following submission of a complete data package by the technology developer or an oil or gas company the Agency, and the technology should be deemed approved

for use unless it is disapproved by the Agency within that period. This deadline should be included in the rule itself to assure expedited action.

Detection level "equivalency" should not be required as EPA has required for using OGI versus M21. Because new detection equipment may have very different capabilities from existing technologies, it is critical to avoid a narrow "equivalence test for approving alternative methods. Moreover, the stringency of the process and "equivalency" testing has made it impossible to get other technologies approved. The excessive requirements EPA has put under the Alternative Leak Detection Program in §60.18(g) has made it so that no company is utilizing OGI.

Colorado Regulation 7[43] provides a process for approving new alternative Approved Instrument Monitoring Methods (AIMM) that could serve as a basis for OOOOa:

At a minimum, the technology must be able to pinpoint the general location of leaking or venting emissions. For non-quantifying devices, the device must be capable of detecting all hydrocarbons, and testing and certification must be repeatable. Colorado Regulation 7 also requires an indication of limitations, other applications, how the device works, how it will be used, the process for recordkeeping, and training required. Colorado Regulation 7 may also require comparative monitoring with either an IR Camera or M21.

API recommends that EPA allow for the use of alternative monitoring that detects leaks based on the following criteria:

- Occurs at least annually
- Pinpoints the general location of the leak
- Detects the hydrocarbons found at the sites
- Testing and certification must be repeatable
- Indication of limitations, other applications, how the device works, how it will be used, the process for recordkeeping, and training required.

17.5.5 Comment On Whether To Allow EPA M21 As An Alternative To OGI For Monitoring, Including The Appropriate EPA M21 Level Repair Threshold

The draft CTG implies that the initial leak surveys must be taken using an OGI. We recommend revising the requirements to specifically state that OGI, M21, or an equivalent method may be used for both the initial survey and repair leak surveys.

In addition, EPA should allow the use of soap bubbles for leak detection, since EPA approves M21 for repair confirmation and emissions quantification is not required. According to Section 8.3.3 of M21, leaks may be screened using the presence of soap bubbles. If bubbles are not observed, then the source is assumed to have no detectable emissions under M21. EPA allows the use of 8.3.3 for other industries including chemicals and refining. It should be allowed here too. The leaks may not be repaired by the same person doing the leak survey. Allowing the soap

[43] https://www.colorado.gov/pacific/sites/default/files/AP-BusIndGuidance-AIMMprocessmemo.pdf

bubble test would allow the person doing the repair to check the repair without requiring the leak survey person to have to go out to the site for a second time. This would reduce the time and expense required for doing repairs.

17.6 Reporting And Recordkeeping

17.6.1 The CTG Should Not Require A Separate Report For Each Well Site.

CTG I.5 (b) Annual reports shall be submitted for each collection of fugitive emissions components at a well site and each collection of fugitive emissions components at a compressor station subject to VOC emission control requirements under section I that include the information specified in paragraph (a) of this section for each monitoring survey conducted during the year. Multiple collection of fugitive emissions components at a well site or collection of fugitive emissions as a compressor station subject to VOC emission control requirements under section I may be included in a single annual report.

API interprets "each collection of fugitive emissions components" to refer to a single LDAR survey at a well site or compressor station. The requirement to provide a separate report for each well site, even where the report can combine multiple emission surveys at a well site, is onerous. API requests the option to combine reports for multiple wells sites or compressor stations submit the combined reports in one annual report.

17.6.2 The Requirement For Capturing Photo / Image Of Leaker Is Onerous And Of Limited/No Value.

CTG I.5(a)(6)(ii) One or more digital photographs of each required monitoring survey being performed. The digital photograph must include the date the photograph was taken and the latitude and longitude of the well site or compressor station subject to VOC emission control requirements under section I imbedded within or stored with the digital file. As an alternative to imbedded latitude and longitude within the digital photograph, the digital photograph may consist of a photograph of the monitoring survey being performed with a photograph of a separately operating GIS device within the same digital picture, provided the latitude and longitude output of the GIS unit can be clearly read in the digital photograph.

EPA is building on their alternative compliance requirement to submit photos of REC equipment for green completions by proposing to require a photograph of each affected well site or compressor station for each monitoring survey performed. Under the well completions portion of the rule, a photograph is offered as an alternative to the records required. However, for the CTG it does not appear to be offered as an alternative but just additional recordkeeping.

The photo must include the date the photograph was taken and the latitude and longitude of the well site imbedded within or stored with the digital file and must identify the affected facility. It is not clear what purpose photos of the affected well site or compressor station would serve. Photos of the well site or compressor are not going to show all of the surveyed components, does not show that a survey was done, and will not provide any indication that a leak was repaired.

A photo of a survey being performed does not provide any additional compliance assurance that the survey requirements were met. Relying on the operator's certification, procedure, and documentation of repairs provides the greatest amount of compliance assurance for an OGI survey. In addition, keeping records of all the photographs will require of the great amount of storage which EPA did not account for in the cost estimate.

In addition, photographs create a security risk such as terrorist activities, retaliation, and anti-competitive activities. Oil and natural gas production and gathering operations are generally un-manned and may not have security measures such as cameras, fences, or gates. The proposed photos of fugitive monitoring activities will inherently capture details that would otherwise not be available. If EPA chooses to require photographs in electronic reporting, these detailed photos will be centralized in the public domain. Individuals with no interest in fugitive monitoring activities will have interest in viewing the photographs. EPA and states will inevitably receive Freedom of Information Act (FOIA) requests for reasons unrelated to fugitive monitoring.

Finally, keeping records of all the photographs will require of the great amount of storage which EPA did not account for in the cost estimate. API members estimate the data storage requirement for these photos is approximately 100 MB per well site survey.

Photographs do not provide any additional environmental benefit and should not be required under Subpart OOOOa for fugitive emissions monitoring. API requests that EPA remove the requirement to take a photograph.

17.6.3 API Strongly Opposes Sending Digital Photographs And Logs To The Permitting Agencies.

EPA solicited comments on whether these [digital photographs and logs] records also should be sent directly to the permitting agency electronically to facilitate review remotely; and how to minimize recordkeeping and reporting burdens API strongly opposes sending digital photographs and logs to the permitting agencies. EPA's cost estimate did not account for the burden of data storage requirements and management of data that would be place on the states. There is no apparent benefit to requiring the state to manage and maintain copies of this information. And, as indicated previously, there is a real security risk putting photographs in the public domain that includes geo data for exact location of sites that are unmanned with little to no security.

17.6.4 EPA Needs To Greatly Reduce The Recordkeeping And Reporting Burden For Leaks

The recordkeeping and reporting requirements of Colorado Regulation 7 are significant, although the requirements are far less than EPA has proposed in this rule. Furthermore, they add burden to the operator without any environmental benefit. The recordkeeping and reporting requirements NSPS OOOO should be greatly reduced. Colorado Regulation 7 only requires that the following records be maintained:

> *"XVII.F.8.Recordkeeping: The owner or operator of each facility subject to the leak detection and repair requirements in Section XVII.F. must maintain the following records for a period of two (2) years and make them available to the Division upon request.*
> *XVII.F.8.a. Documentation of the initial approved instrument monitoring method inspection for new well production facilities;*
> *XVII.F.8.b. The date and site information for each inspection;*
> *XVII.F.8.c. A list of the leaking components and the monitoring method(s) used to determine the presence of the leak;*
> *XVII.F.8.d. The date of first attempt to repair the leak and, if necessary, any additional attempt to repair the leak;*
> *XVII.F.8.e. The date the leak was repaired;*
> *XVII.F.8.f. The delayed repair list, including the basis for placing leaks on the list;*

> *XVII.F.8.g. The date the leak was remonitored to verify the effectiveness of the repair, and the results of the remonitoring; and*
> *XVII.F.8.h. A list of components that are designated as unsafe, difficult, or inaccessible to monitor, as described in Section XVII.F.5., an explanation stating why the component is so designated, and the plan for monitoring such component(s)."*

API requests that minimal records be required to reduce the cost and burden of this rule similar to what Colorado Regulation 7 requires. Further information is not needed to ensure compliance with the leak detection and repair requirements.

Also, API requests that minimal reporting of the leaks be required. Colorado Regulation 7 simply requires that the following information be reported:

> *"XVII.F.9. Reporting: The owner or operator of each facility subject to the leak detection and repair requirements in Section XVII.F. must submit a single annual report on or before May 31st of each year that includes, at a minimum, the following information regarding leak detection and repair activities at their subject facilities conducted the previous calendar year:*
> *XVII.F.9.a. The number of facilities inspected;*
> *XVII.F.9.b. The total number of inspections;*
> *XVII.F.9.c. The total number of leaks identified, broken out by component type;*
> *XVII.F.9.d. The total number of leaks repaired;*
> *XVII.F.9.e. The number of leaks on the delayed repair list as of December 31st; and"*

17.6.5 Proposed Text Revisions Associated With Reporting and Recordkeeping Requirements.

I.5(a) Records for each monitoring survey shall be maintained as specified in paragraphs (a)(1) through (6) and must contain, at a minimum, the information specified in paragraphs (a)(1) through (a)(6). Records are required to be maintained onsite or at the nearest local field office for at least five years.

(1) Date of the survey.
(2) Location of the survey
(3) A list of leaking components
(4) The date of the first attempt to repair and additional attempts to repair
(5) The date the leak was repaired
(6) The delay of repair list including the basis for placing leaks on the list
(7)The date the leak was remonitored to verify the effectiveness of the repair

~~(2) Beginning and end time of the survey.~~

~~(3) Name of operator(s) performing survey. You must note the training and experience of the operator.~~

~~(4) Ambient temperature, sky conditions, and maximum wind speed at the time of the survey.~~

~~(5) Any deviations from the monitoring plan or a statement that there were no deviations from the monitoring plan.~~

~~(6) Documentation of each source of fugitive emissions (e.g. fugitive emissions component), including the information specified in paragraphs (a)(6)(i) through (iv) of this section.~~

~~(i) Location.~~

~~(ii) One or more digital photographs of each required monitoring survey being performed. The digital photograph must include the date the photograph was taken and the latitude and longitude of the well site or compressor station subject to VOC emission control requirements under section I imbedded within or stored with the digital file. As an alternative to imbedded latitude and longitude within the digital photograph, the digital photograph may consist of a photograph of the monitoring survey being performed with a photo graph of a separately operating GIS device within the same digital picture, provided the latitude and longitude output of the GIS unit can be clearly read in the digital photograph.~~

~~(iii) The date of the successful repair of the fugitive emission component.~~

~~(iv) The instrument used to resurvey a repaired fugitive emissions component that could not be repaired during the initial fugitive emissions finding.~~

(b) Annual reports shall be submitted for each collection of fugitive emissions components at a well site and each collection of fugitive emissions components at a central production site or transmission compressor station subject to VOC emission control requirements under section I that include the information specified in paragraph (a) of this section for each monitoring survey conducted during the year. Multiple collection of fugitive emissions components at a well site or collection of fugitive emissions as a central production site or transmission compressor station subject to VOC emission control requirements under section I may be included in a single annual report.

Attachment A

Technical Review of Western Climate Initiative Proposals to Meter Fuel and Control Gas

Technical Review of Western Climate Initiative Proposals to Meter Fuel and Control Gas

Prepared by: David A. Simpson, P.E.
MuleShoe Engineering

Prepared: February 16, 2010

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Technical Review of WCI Proposals to Meter Fuel and Control Gas

I. Executive Summary

The Western Climate Initiative (WCI) makes the assumption that Operators would be reporting the "most accurate" volumes if the gas was metered as a "fuel" stream and a "control" stream instead of applying theoretical factors and Engineering approaches to estimate these volumes. The reports make this assertion without discussing the technology that would be deployed to measure these streams to "provide the rigor required for either cap-and-trade or offset programs". The review below categorically rejects their basic assumption and asserts that the act of installing meters on the streams considered will provide a **false sense of security** and a **net deterioration in the quality of data reported**.

There is no gas measurement technology currently existing that would provide better data in the field than is currently being reported using manufacturer's numbers and theoretical calculations. In addition to making the data less representative of reality, the costs that would be imposed are staggering—industry would be required to spend billions of dollars to report gas emissions data that is demonstrably worse than the data they are reporting today.

A. Summary Expenditures

The "Per Company" column below assumes 2,000 wells per company, "Total WCI" column assumes 100,000 wells affected in the WCI States and Provinces (breakdown is included under "Cost of Implementation" below). Many wells cannot sustain either the increased operating cost or the capital expenditure so they would be plugged instead of spending this money—there is no way to predict this mix of expenditure vs. plugging.

	Per well ($k)	Per Company ($million)	Total WCI ($million)
RTU Replacement	$3.5	$7	$350
Host/Database		$15	$750
Site Modifications	$30.0	$60	$3.000
Total Capital	$33.5	$82	$4,100
Annual Operating Costs	$1.5	$3	$150

B. Author Biography

David Simpson has 30 years experience in Oil & Gas and is currently the Proprietor and Principal Engineer of MuleShoe Engineering. Based in the San Juan Basin of Northern New Mexico, MuleShoe Engineering addresses issues in Coalbed Methane, Low Pressure Operations, Gas Compression, Gas

Measurement, Field Construction, Gas Well Deliquification, and Produced Water Management.

A Professional Engineer with his Master's degree, David has had numerous articles published in professional journals, has contributed a chapter on CBM to the 2nd edition of Gas Well Deliquification, by Dr. James Lea, et al, and has spoken at various conferences, including the 2003 SPE *Annual Technical Conference and Exposition* in Denver. He has been a featured speaker at the bi-annual *Four Corners Oil & Gas* Conference for the last 6 years and is a regular instructor at short courses at the annual ALRDC *Gas Well Deliquification Workshop* in Denver. David was Program Chair for the highly successful SPE Advanced Technology Workshop titled "Managing the Performance of Low Pressure Gas Wells and Associated Facilities" held in Ft Worth, TX in October, 2008. His consulting practice includes clients in 10 countries.

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II. Discussion

The Western Climate Initiative has developed at least two documents that each reach the conclusion that gas consumed on wellsites must be measured to achieve adequate "accuracy" in accounting for emissions. The documents further require that gas used for pneumatic controls must be measured separately from gas burned because vented gas has a different "emissions factor" on the environment than burned gas has.

The industry has long said and demonstrated that measuring either fuel gas or control gas represents a very large cost for a very small return. The discussion below supports that position.

A. Magnitude of Gas Consumed

1. *Engine Fuel*

   The industry has an excellent understanding of engine fuel. Where engine fuel is measured, the theoretical correlations match very well with measured data. The added value of measuring this fuel-gas stream is not clear to most wellhead compressor operators; consequently it is rare to see a fuel meter on a wellhead compressor or pump jack. The various stakeholders in the gas production process (including regulatory agencies and mineral owners) have accepted that these volumes are both small and adequately represented by the theoretical usage factors.

   Engines utilized in field locations range from a single-cylinder Arrow running a pump jack (smallest is the Arrow C-46 which is rated at 6 hp at 500 rpm at sea level with 70,000 BTU/hp-hr fuel consumption) to a nominal 1,000 hp compressor (such as the Waukesha P48 GLD which is rated at 1,200 hp at 1,400 rpm at sea level with 7,720 BTU/hp-hr fuel consumption). This equates to a required measurement range of 5 MCF/day to 220 MCF/day (3.5 to 153 SCFM) assuming a pump jack at ½ load and a GLD at full load.

2. *Separator/Tank Heaters*

   I recently did a review of 536 tank and separator burners in the San Juan Basin. Burner nameplate capacity ranged from 50,000 BTU/hr to 500,000 BTU/hr. The average capacity was 340,000 BTU/hr. Since these burners only operate 5-6 months out of the year, this number equates to less than 170,000 BTU/hour on an annual basis. For some perspective, the on-demand hot water heater in my house is rated at 185,000 BTU/hour. This is a fair comparison since both devices are classed as "on demand" in that they will each turn off when conditions warrant—while in service, tank heaters only run a fraction of the time to maintain the tank at the set temperature.

   The current method of reporting fuel consumed in burners is to determine if the heater had gas to it during the month, if it did then most operators

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take the nameplate energy consumption times 24 hours per day for every day of the month. For a 340,000 BTU/hour burner this equates to 253 MMBTU in a 31 day month. I have worked with several operators who would report this number even if the burner only had gas to it for a single day.

In reality, the water or condensate entering a tank is usually substantially warmer than the burner set point so the burner will tend to run less than 15 minutes out of an hour on the coldest night. This means that if you shut your heater down at noon on April 1 you would have burned 1 MMBTU for the month and reported 253 MMBTU. Even if the burner has gas to it for an entire month, you burn the gas in the pilot for 744 hours in a 31 day month (typical pilot lights burn approximately 1,700 BTU/hr), but you only run the main burner for something like 186 hours—for a 340,000 BTU/hr burner you consume less than 70 MMBTU and report 253 MMBTU.

The main challenge of measuring the gas consumed in a burner is that the device must measure the pilot flow with the same level of uncertainty as you apply to the main burner flow. For a common 500,000 BTU/hr burner this means that you have to have a 294:1 "turndown ratio". Turndown ratio is a measure of ability of a measurement device to provide similar "accuracy" over the expected operating range. According to Wikipedia, a Square Edged Orifice meter has a turndown ratio of 3:1. Even a Diaphragm Meter (similar to residential gas meters) only has a turndown ratio on the order of 80:1. A meter that can measure full burner flow would register zero with pilot flow.

With burner on/off control, there is a rapid transient in the flow as the line fills upstream of the burner followed by steady flow. A device that could successfully capture both the transient and the steady flow would have to be able to go from "off " to the top end of its range in less than 1 second, and then hold steady for up to 15 minutes, then go to zero in a fraction of a second. There is so much uncertainty in this transient flow that any available gas measurement technology would yield a worse result than manufacturer's estimates and Engineering calculations.

Required measurement range 0.04 to 12 MSCF/day (0.02 to 8.3 SCFM).

3. *Dehydrator Reboilers, Heater/Treaters, and Line Heaters*

These devices are similar in specific energy-use to the tank/separator heaters, but they tend to run continuously.

Dehydrators are used to remove water-vapor from a gas stream. This water vapor is adsorbed to a liquid that must then be regenerated. Regeneration takes place in a reboiler that is used to add enough heat to the liquid to cook the water out (about 8,000 BTU/lbm of water on average). Since "rich" liquid (i.e., liquid containing high levels of water) is continuously entering the reboiler, the heater is always on.

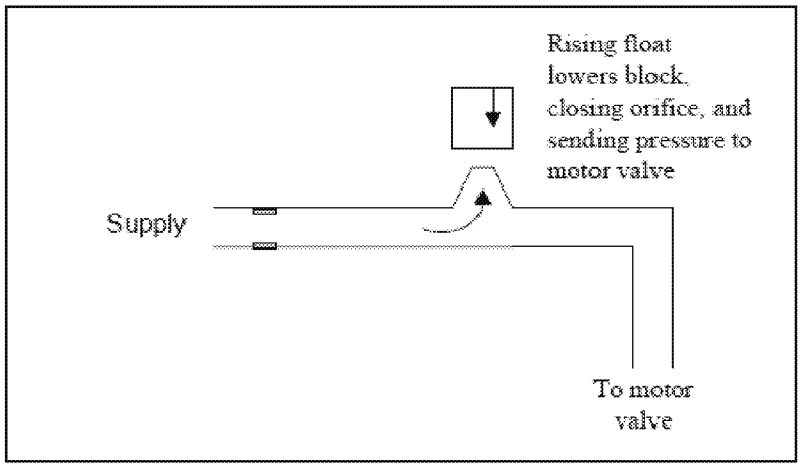
Both Heater/Treaters and Line heaters are designed to add heat to a process stream to control a process variable. For example, Line Heaters are often used in waxy crude to prevent precipitation of paraffin in the pipe causing a clogged line. A Heater/Treater is used to flash light hydrocarbons for further processing into Natural Gas and Natural Gas Liquids streams. Both of these classes of equipment have burners on the high end of the expected range for tank/separator heaters, and both operate around the clock, year-round.

Many technologies could be used to meter any of these streams with adequate repeatability and uncertainty. Whether you meter this stream or use engineering calculations, you will get very similar volumes burned.

4. *Pneumatic devices*

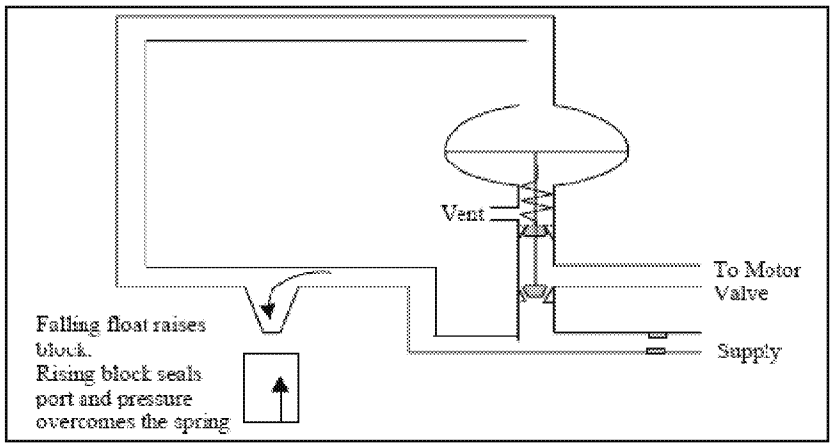
I did a study in the year 2000 (see SPE 61030) that quantified the gas used in high-bleed pneumatic devices. The project described in that paper was an economic success because we were able to replace high-bleed CEMCO throttling level-controllers with no-bleed, snap acting level controllers. The replacement controllers were markedly less effective, but they were marginally good enough and we were able to sell the gas that would have been vented in the CEMCO.

When talking about controllers (level, temperature, etc.), there are two parameters that have to be clarified: (1) Signal Type and (2) Bleed characteristics. Signal type is either "Throttling" or "Snap Acting". Bleed characteristic is either "continuous bleed" or "no bleed" An example of a Continuous Bleed, Throttling controller is shown below



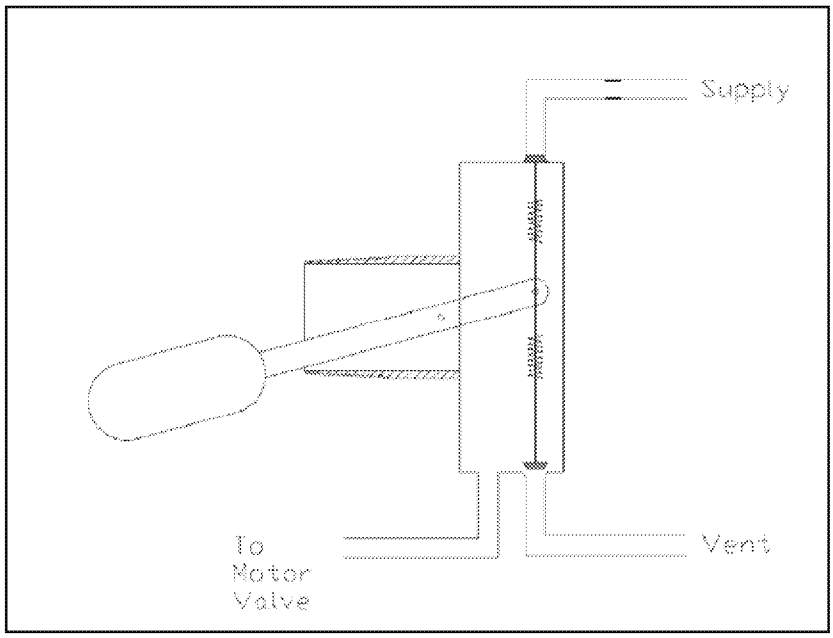
In this device, supply gas is provided through a restrictive orifice to the vent. As the block (attached to a level float for example) descends, it begins restricting the flow through the vent and sends pressure to the controlled device (a motor valve in this case). The beauty of this device is that it operates the controlled device very gently and tends to produce very stable performance. The downside is that you are venting gas anytime that the controlled device is other than fully open. Since many controlled

devices are shut most of the time (e.g. in the referenced study, we determined from a sample of over 4,000 wells that the average well cycled the separator dump valve 5 times per hour for 3 minutes each cycle) some operators have tried to reduce the amount of vented gas by turning the process over like:



In this case, the block closes the vent most of the time. When the fluid level increases, the vent opens some. When the vent is opened far enough to drop the pressure on top of the pilot below the spring setting, the pilot snaps open and sends gas to the motor valve very rapidly. At the end of the cycle, the pilot goes shut and vents the motor valve through the top valve seat. Instead of venting for 45 minutes each hour, it vents about 15 minutes per hour at the cost of throttling the flow.

A "No Bleed" controller would look something like:



This simplified example shows that when the float is down, the supply valve is shut tight and the vent valve is open. As the float starts rising, the

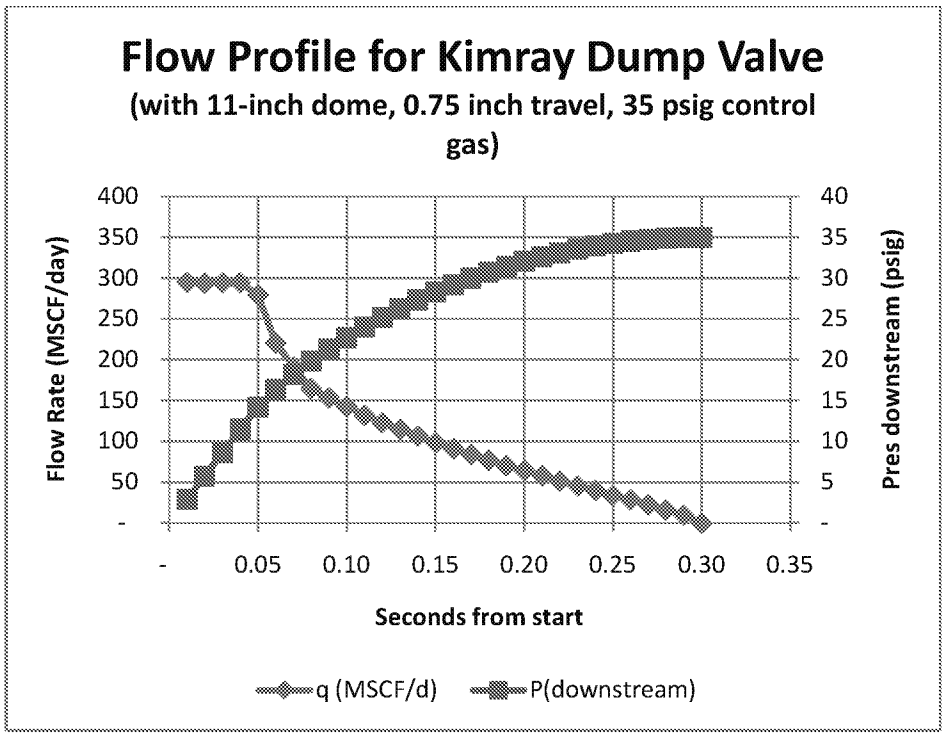
vent is closed. As it continues to rise it reaches a point where the spring tension is inadequate to hold the supply valve shut and it "snaps" open. At the end of the cycle the falling float reaches the point where it can close the supply. As it continues to fall it eventually reaches the point where the vent opens and the motor valve shuts. Most snap acting controllers are applied in service this simple and it is rare to require a pilot in this on/off service.

Notice in the description of the action of the no-bleed controller, the supply gas us used to operate the valve against a dead-end. At the end of the process the supply is shut off before the vent opens. The only gas that is vented in a no-bleed controller is the volume of the piping and the motor-valve bonnet. The supply system is never directly exposed to an open vent, so there is no ongoing "bleeding" of gas.

It is possible to throttle a controlled device with a no-bleed controller with an external pilot, but the control tends to be poor and can't be controlled very long (i.e., the devices used to sense an intermediate position are cumbersome and tend to have a "jerky" action). For practical purposes, when you decide to go to no-bleed you are locking the device into snap acting.

Continuous-bleed controllers are reasonably easy to meter the gas (a CEMCO continuous bleed, throttling level controller vents about 800 SCF/day at 35 psig supply pressure assuming that it is not venting or is venting at a reduced rate for 15 minutes per hour).

For a no-bleed controller, each time the dump valve cycles, control pressure is applied to a diaphragm to counteract spring tension and open the dump valve. At the end of the cycle, the line from the controller to the diaphragm and the diaphragm dome are vented to atmosphere. If we assume that the two devices are connected by 12 ft of 3/8 tubing (0.0092 ft^3) and the diaphragm dome is 0.04 ft^3 (assuming 11-inch diameter, and 0.75 inches of travel) then the volume vented each dump is 0.049 ft^3. At 35 psig and 60°F then this volume is 0.157 SCF/dump. At 5 dumps per hour this equates to 19 SCF/day (2% of a high-bleed device). The flow and pressure profile will look like:



Notice that the entire cycle takes something on the order of 0.3 seconds. This flow is made up of a period of sonic velocity (Reynolds Number 996,000) followed by a period of a significant fraction of sonic velocity (Reynolds Number ends up at 648,000 for 0.65 Mach), and finally a period of flow in a normal turbulent flow regime ending with a Reynolds Number of 10,000 just before the level control is closed. A measurement device would have to be able to go from offline to 294 MSCF/d within 5 ms, and be able to do a 100:1 turndown ratio. No meter ever made has that kind of latency or turndown ratio. Some meter technologies would give you numbers (most would never register), but none will give you measurement.

B. Gas Measurement Technologies

When I talked about "meter accuracy" above I always said "accuracy". "Accuracy" is an amazingly imprecise term that is never used by competent gas measurement professionals. The layman/advertising concept of "accuracy" is encompassed in the terms "repeatability" and "uncertainty" which have precise definitions that can be measured and used to compare the performance of a device relative to a standard or to another device.

"Repeatability" is a measure of a device's ability to report the same output for a given set of inputs. Many things can impact a device's repeatability. For example, turbine meters have the worst repeatability of all industrial gas measurement devices because gear lash is a random parameter that can change the speed of the turbine rotor by several percentage points independent of the magnitude of the change in measured input parameters. Acceptable

repeatability occurs when the standard deviation of the sample data is within ±0.05% of the mean value.

"Uncertainty" is the "dead band" of the instruments. Each component of a gas-measurement station has a defined uncertainty, usually expressed in a range around the device's calibrated span. For example, a digital pressure transducer may have a stated uncertainty of ±0.5% which means that if the device has a calibrated span of 0-10,000 psig and reads 450 psig then the reading represents a value between 400 and 500 psig. Recalibrating the same device to 0-500 psig would change the meaning of 450 psig to 447.5-452.5 psig. Uncertainty is just that—you do not know where the actual number resides within the uncertainty range. A gas-measurement device is generally considered acceptable if the cumulative effect of each end-devices' uncertainty is less than ±2.0% (this is based on government requirements which were set before digital instruments, about 1% of the total uncertainty is uncertainty in manual chart integration, 0.5% is from using average temperatures). Electronic Flow Measurement (EFM) devices and digital temperature/pressure instruments make normal uncertainty less than 0.5% in most square-edged orifice (AGA 3) stations today.

Another important gas-measurement concept is "latency". Latency is a measure of the time lag between a change in flow and that change being reliably represented in the measurement device output. Every technology has some amount of latency. For example, a stopped turbine meter requires flow to overcome static friction before it starts spinning, and once it starts spinning it will tend to spool up to a high angular velocity before coming back down to report the actual flow rate. Consequently, turbine meters perform best in very steady flows—putting a turbine on the gas line to a separator dump valve would result in the meter not registering most dump events and over ranging on the few that it does register.

All gas measurement technologies are "inferential" technologies. This means that the equations infer a flow rate from some unrelated, but measurable, parameter. For example, Square Edged Orifice Measurement uses the *Bernoulli Equation* published by Daniel Bernoulli in 1738 to relate the pressure drop across a known flow restriction to a velocity, and then uses specific correlations developed for gas measurement to convert the velocity into a volume flow rate at standard conditions. The first assumption in Mr. Bernoulli's development of his famous equation is that the fluid is both incompressible and inviscid. Neither of these assumptions is literally true in a gas flow, but the industry has proven that both assumptions are close enough to being true to allow meaningful flow rates to be estimated. At commercial velocities, highly compressible natural gas does indeed act like an incompressible fluid unaffected by fluid friction over short distances. As velocity increases toward the speed of sound or decreases to result in a Reynolds Number under 4,000 the incompressible assumption becomes progressively less valid and the uncertainty in a measurement device increases dramatically.

1. *Gas Analysis*

   Many states and the federal government have agreed that small wells (typically wells making less than 100 MCF/day) would be exempt from requirements for semi-annual analysis of the gas. This decision has not caused wholesale inaccuracies and I get the impression that all the stakeholders are satisfied with annual or even less frequent gas analysis.

   For the Western Climate Initiative to re-introduce semi-annual analysis requirements and to propose quarterly analysis on small streams is not a reasonable imposition.

2. *Square Edged Orifice Meters*

   The operating principle is to infer a flow rate from the differential pressure across a known restriction based on measured pressure and temperature. For a clean, well conditioned flow stream the uncertainty of the reported volume is on the order of 0.5-2%. Both uncertainty and repeatability are adversely affected by 2 phase flow, dirt, and changes in flow profile and in small-volume and/or intermittent service the uncertainty can exceed ±25%.

   These meters are the most common type of gas measurement in upstream gas operations. One of the reasons for their popularity is the extensive body of research that has gone into defining the meter configuration and operating limits. This research is documented in the series of reports collected into API 14.3 (also published as AGA 3).

   The standards indicate that Square Edged Orifice measurement is only appropriate in meter tubes equal to or greater than 2.000 inches internal diameter (ID) and for Reynolds Numbers above 4,000. This means that the smallest volume that can be reliably measured with this technology at 35 psig is 5 SCFM (7.2 MSCF/day).

   Latency in this technology is caused by the chaos in the flow as it moves to establish a pseudo-steady-state condition. I have evaluated carefully-controlled flows at the Colorado Engineering Experiment Station (CEESI) during start-up using instruments that record pressures 100 times per second and have found that reaching repeatable flow in a Square Edged Orifice Meter can take as much as 5 minutes from a dead stop.

3. *V-Cone Meters*

   The operating principle is to infer a flow rate from the differential pressure across a known restriction based on measured pressure and temperature. These meters are self-conditioning and tolerant of solids. The total uncertainty is on the order of 0.5-1%. Turndown is 10:1, and it is advertised to work down to Reynolds Numbers of 6,000 or greater.

   This device has potential, but the smallest meter (1/2" ID) would register zero during pilot flow and would have a dP less than 7 inH_2O (0.25 psi)

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while supplying gas to a 500,000 BTU/hr burner which would increase the uncertainty to several percent.

Latency of these meters is similar to Square Edged Orifice Meters.

4. *Turbine Meters*

The operating principle is to relate a rotor's angular velocity to a volume flow rate. Turbine meters assume reasonably steady flow with respect to time. Changes in rate take considerable time to steady out. Latency for a change to a flowing stream can be up to a minute, for a start/stop flow it can be many minutes.

Turbine meters rely on considerable mass to spin the rotors and they rarely provide adequate results in gas flows below 50 psig.

5. *Coriolis Meters*

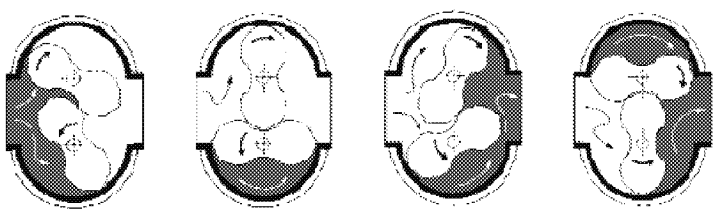
The operating principle is that the momentum of a flowing fluid will vibrate a piping loop, and that the frequency of the vibration is a function of the mass flow rate and density of the fluid. Low velocities and low pressures have a serious negative impact on uncertainty and repeatability. The MicroMotion division of Emerson has some fairly new instruments that can handle quite low flows, but the latency is similar to a turbine meter.

6. *Ultrasonic Meters*

The operating principle of Ultrasonic Meters is that there will be a Doppler Shift in the speed of sound as fluid moves away from a fixed sound-pickup point. The magnitude of this shift is a function of fluid density and fluid velocity. Low velocities and low pressures have a serious negative impact on uncertainty and repeatability.

7. *Roots Rotary Meters*

The operating principle of these positive displacement meters is to trap a fixed volume of gas within each revolution of a pair of lobes. Counting revolutions yields a volume.



This device is quite close to "measuring" gas volumes instead of "inferring" a volume from a tenuous mathematical relationship, but it is still counting revolutions instead of gas molecules.

Latency in Rotary Meters is very high due to having to start the rotors spinning again and leakage past the rotors before they start spinning.

8. *Diaphragm Meters*

   The operating principle of these positive displacement meters is to fill a resilient chamber to line pressure, then that chamber is shifted to the demand side while a second chamber is filled. Each time the meter shifts chambers it records a pulse that represents a known volume.

   The uncertainty, repeatability, and latency of these devices is excellent. Turndown ratio is on the order of 80:1. "Household quality" meters would handle the low flows, but materials of construction are generally inappropriate for field gas (e.g., they have considerable brass that is rapidly deteriorated by any H_2S in the flow; all of the Household meters have aluminum casings which have not stood up well to condensate service). "Industrial quality" meters are considerably more expensive and many of them still have inappropriate materials. A meter with no aluminum or "yellow metal" is difficult to find and is very expensive.

9. *Exotic/Laboratory instruments*

   The volume of gas discussed in this application kept leading me to devices like "Thermal Dispersion Meters" (this meter has two probes, one is heated and one is a temperature sensor, the dT can be correlated to a mass flow rate, very long latency); and laboratory quality devices that are absolutely intolerant of free liquids and/or solids. None of these devices has a published standard for construction, installation, and operation and none has a reasonable chance of success.

10. *Conclusion*

    In conclusion, the act of installing meters on the streams considered will provide a false sense of security and a net deterioration in the quality of data reported. Specifically:

    a) Engine fuel can be measured by dP inferential devices (either Square-Edged Orifice Meters or V-Cone meters), but the resulting metered volume will be very close to the theoretical data that is being collected today. Where the two numbers are significantly different I would expect that there is a measurement device error (such as an incorrect meter parameter or a backwards orifice plate) before I would expect the theoretical calculation is incorrect.

    b) No meter exists that can reliably measure both pilot flow and burner flow on a tank or separator heater if the burner is the only load on the system. If measuring these volumes becomes mandatory, then a diaphragm meter could be used to measure the pilot flow and either a Roots Meter or another diaphragm meter could be used for the burner flow. A fuel gas system with multiple engines and multiple burners could be metered with a V-Cone or Square-Edged orifice meter, but the burner volumes would only be able to be measured while the engine was consuming fuel—when the engine is not running, the burner is unlikely to register as an increment from zero.

The theoretical values for burners could be improved by putting a "valve open" clock on the supply line, which (in conjunction with manufacturer's data and Engineering analysis) would result in a better volume than attempting to meter the gas.

c) Heater/Treaters, Dehy Reboilers, and Line heaters are reasonably constant loads that could be metered by several of the technologies above (the diaphragm meter would be preferred, but the small V-cone and the smallest Corriolis meter would work), but again the data would be of a similar magnitude of the data being reported today.

d) No meter exists that can reliably measure the flow to a single dump valve or even a dozen dump valves off the same no-bleed controller. Even if a group of dump valves (three or more) were controlled off the same controller, the flow and pressure traverse would be similar to the one above and the meter would have to go from zero to 900 MCF/d in a few milliseconds then back to zero within about 1/3 second. It can't be done.

   The diaphragm meter comes the closest, but it will tend to either be over ranged for most of the flow period or will fail to register a significant portion of the tail. I would guess that the total uncertainty would be on the order of 20-30%.

   On the other hand, the flow to a continuous-bleed controller could be measured successfully with either a Roots meter or a diaphragm meter.

C. Wellsite Configurations

The reports from the Western Climate Initiative start with an assumption that there is something that can be reasonably termed a "standard" wellsite where fuel-gas measurement equipment can be "relatively easily" installed. This is patently false. The implication is that every site looks something like:

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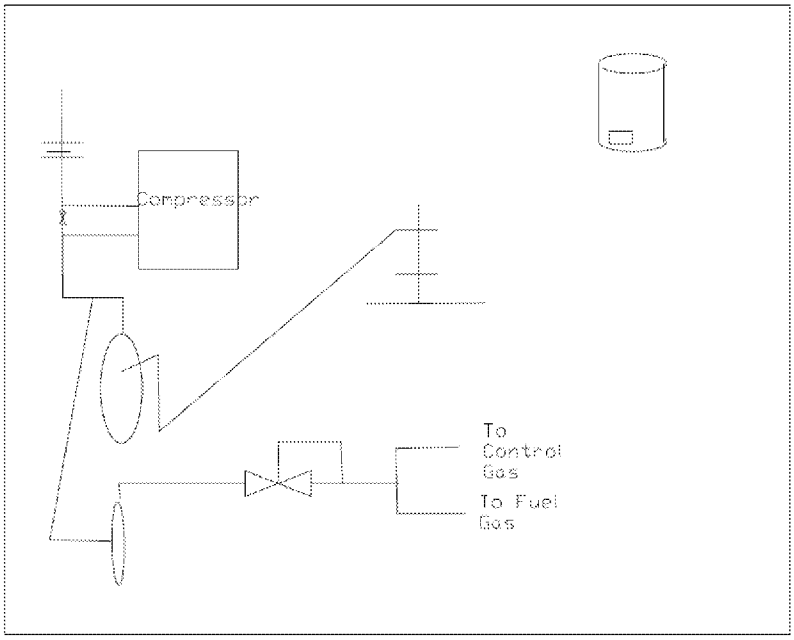
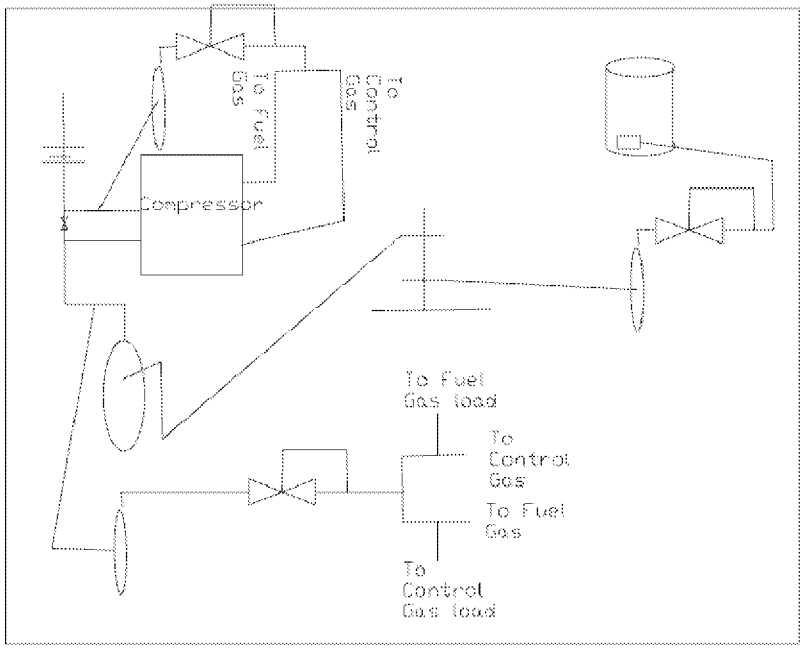


This layout brings gas from the wellbore tubing to a single separator, and then takes fuel gas off the separator outlet to supply both control requirements and fuel requirements. While there are wells that are configured like this, they are rare. A layout that would be equally as likely to occur would look like:



This layout did not suffer the expense of running a fuel gas line across the location to supply gas to the tank heater from the separator; it pulled that fuel stream from the casing valve and put a second fuel pot as a less expensive alternative to laying a line. Also, the compressor takes its fuel and control gas from an on-skid fuel-gas system. This is the normal configuration since

compressor-discharge gas is far better suited to both fuel gas and control gas applications than suction gas is.

This distributed fuel-gas supply scenario has evolved over the decades because the regulations in place at the time of site facilities-construction did not presume to tell operators how to build their sites.

III. Costs of Implementation

It is difficult to develop costs for a "typical" wellsite, "typical" automation system, or "typical" host/database modification because there is no such thing. There are companies within the WCI area of operation that don't have any automation or measurement on their wellsites today and use Excel spreadsheets to allocate sales volumes back to wells. There are companies with home-grown automation systems that have zero flexibility and cannot be retrofit for two additional volume calculations and would have to be discarded and replaced. There are companies with purchased systems that they do not have the license to modify. There are wellsites that will be trivial to retrofit. There are wellsites that will require laying new lines and replacing production equipment.

My approach to cost estimates is to try to address the wellsites, field automation equipment, and host/database systems that I've worked with at my clients operations over the years. I am certain that this technique will be representative of a large number of wellsites and a number of operators, but it will not be all encompassing because it is impossible to assess all of the permutations.

Accessing EIA data at http://www.eia.doe.gov/pub/oil_gas/petrosystem/petrosysog.html and CAPP data at http://www.capp.ca/GetDoc.aspx?DocID=146286 for 2006 (the last year that has both US and Canadian well counts) I get the following counts of wells (after deducting 31,000 wells from California to account for Kern County):

	Gas	Oil	Total
New Mexico	36,202	15,456	51,658
California	3,692	16,197	19,889
Utah	5,259	2,574	7,833
Montana	6,207	4,199	10,406
BC	6,608	1,122	7,730
Manitoba	0	2,692	2,692
			100,208

For the economic analysis I'll use 100,000 wells.

A. RTU costs

Looking at the specifications on a number of RTU's, there are high-end RTU's like the Fisher FloBoss 107/107E that can accept multiple gas-measurement inputs. These devices are not the norm for wellsite use. More common are units like the Kimray DACC 500 RTU that can only accept one flow calculation. At least 75% of the RTU's currently installed will need to be upgraded at a per-unit cost of $4,000-5,000. Assuming that 25% of the locations do not need RTU replacement then the average for the wells is approximately $3,500/site.

B. Host/Database costs

Host databases are very difficult to modify. Changing the Host requires that you: (1) have a place to put the new data; (2) change the data poling logic to pull the new data off the RTU to populate the new database fields; (3) add the new data to EFM editing programs; and (4) modify reporting systems to show the new data. I spent 12 years managing projects similar to this for Amoco and was involved when Amoco was making some significant changes to their host database. Amoco's changes were far less extensive than adding two measurement points that have to be reported to regulatory agencies and those changes cost $15 million and took almost 2 years. If the average impacted user has 2,000 wells then for 100,000 wells in WCI you could expect to spend $750 million.

C. Installation costs

After interviewing several operators and several roust-about service providers, modifying control and fuel gas systems to allow measurement and installing measurement equipment should be budgeted at 10 days of work per site. At $1,200/day that is $12,000/well labor. Jobs like this one are typically 60% materials (including the cost of a meter run of undecided technology) and 40% labor so total budgetary cost should be $30,000/well—100,000 wells would cost $3 billion.

This does not address the gas volume vented during the site blowdown and purge or the vented gas during semi-annual meter calibrations. To put that volume in perspective, for a small location without a compressor operating at 150 psig, the volume vented and later purged would be on the order of 2.5 MSCF—the same volume that would be vented in 131 days of operating a single no-bleed dump valve at 35 psig and 5 cycles/hour. The amount vented and purged during meter calibrations will depend on meter technology selected, but it is far from zero for any technology.

These costs also do not address the 2 weeks of lost production (call it 12 days at an average production rate of 100 MSCF/d) of something like 1,200 MSCF that was either deferred or more likely in competitive reservoirs was allowed to migrate to offset wells. At a $5/MMBTU sales price the cost of this lost production is $600 million across 100,000 wells.

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D. Operating costs

Operating costs are the easiest to assess. A measurement tech can handle approximately 200 meter stations. The cost of a measurement tech with vehicle and benefits is $150,000/year which works out to about $750/meter/year or $1,500/site/year.

IV. Conclusion

The idea that there would be any benefit to society from requiring gas measurement of control gas and fuel gas is patently false regardless of your position on the risk to society of gases being released to the atmosphere. A project to put this measurement in place would result in considerable vented gas, excessive capital expenditures, and excessive increases in operating costs. On the other hand the data from this expensive equipment would actually be less representative of the gases released than the current methods. In short, you would be implementing a very large cost to develop less precise data.

Message

From: Stephanie Meadows [Meadows@api.org]
Sent: 5/17/2017 12:38:15 PM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: Automatic reply: Invitation to Join API Committee Meeting on May 16, 2017 -- BUILDING ACCESS INFORMATION

I will be out of the office 5/17- 5/18, but will be checking email. Please contact Francis Weaver (weaverf@api.org) if you need immediate assistance. Stephanie

Message

From: Will Hupman [HupmanW@api.org]
Sent: 4/17/2017 12:40:04 PM
To: Washington, Valerie [Washington.Valerie@epa.gov]
CC: Patrick Kelly [kellyp@api.org]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: RE: RFS and the 2018 RVOs

Hi Valerie – I hope you had a great weekend. Just checking in on Mandy's availability for next week to meet with our API Fuels Group to discuss the 2018 RVOs for the RFS and the Point of Obligation issue. We're obviously happy to work around her schedule, but to get the ball rolling next Tuesday morning (4/25), Wednesday afternoon (4/26), or Thursday morning (4/27) work best on our end. I look forward to hearing from you. Thank you! Will

Will Hupman
Director – Federal Relations | American Petroleum Institute
desk: 202-682-8396 | cell: Ex. 6 Personal Privacy (PP) | hupmanw@api.org

From: Will Hupman
Sent: Tuesday, April 11, 2017 2:43 PM
To: 'Washington, Valerie'
Cc: Patrick Kelly
Subject: RE: RFS and the 2018 RVOs

Hi Valerie – I just wanted to circle back on the emails below to see if we could confirm a date, time, and location with Mandy? We'd be delighted to host her here at API (1220 L St. NW) with our Fuels Group on Tuesday morning (4/25), Wednesday afternoon (4/26), or Thursday morning (4/27). We're also happy to come to EPA if that's better. There will be roughly 20 folks total in our group. Thank you for your consideration. Will Hupman

Will Hupman
Director – Federal Relations | American Petroleum Institute
desk: 202-682-8396 | cell: Ex. 6 Personal Privacy (PP) | hupmanw@api.org

From: Will Hupman
Sent: Friday, April 07, 2017 8:56 AM
To: 'Gunasekara, Mandy'
Cc: Patrick Kelly; Washington, Valerie
Subject: RE: RFS and the 2018 RVOs

Thank you, Mandy!

Valerie – please let me know what additional information you need on my end. Will

Will Hupman
Director – Federal Relations | American Petroleum Institute
desk: 202-682-8396 | cell: Ex. 6 Personal Privacy (PP) | hupmanw@api.org

From: Gunasekara, Mandy [mailto:Gunasekara.Mandy@epa.gov]
Sent: Friday, April 07, 2017 12:41 AM
To: Will Hupman
Cc: Patrick Kelly; Washington, Valerie
Subject: RE: RFS and the 2018 RVOs

Hey Will,
I'd be happy to meet with the folks.
Valerie, can you set up a time and place for us to meet?
Thanks,
Mandy

From: Will Hupman [mailto:HupmanW@api.org]
Sent: Thursday, April 6, 2017 12:35 PM
To: Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>
Cc: Patrick Kelly <kellyp@api.org>
Subject: RFS and the 2018 RVOs

Hey Mandy – How's life at EPA so far? You're not busy at all, right?!? Haha. I'm sure it's been a whirlwind. I can only imagine…

I wanted to reach out on the 2018 RVOs for the RFS. We have our group of fuels experts in town in a few weeks, and I wanted to see if you'd be willing to join us at API to discuss potential volume numbers (and our justifications for recommendations)? Also, how those volumes may relate to the Point of Obligation issue. Would you potentially have any availability on Tuesday morning (4/25), Wednesday afternoon (4/26), or Thursday morning (4/27) to chat with us? We'll obviously work around your schedule if there's a better time during those days. And, if it's more convenient for us to come to you at EPA, we're happy to do that as well. The group should be roughly 20 folks total.

Please let me know if I can provide anything else on this in the interim. Appreciate your consideration, and hope to see you soon! Will

---

Will Hupman
Director – Federal Relations | American Petroleum Institute
desk: 202-682-8396 | cell: Ex. 6 Personal Privacy (PP) | hupmanw@api.org

Message

From: Szabo, Aaron L. EOP/OMB Ex. 6 Personal Privacy (PP)
Sent: 4/10/2017 3:40:53 PM
To: Hilary Moffett [moffetth@api.org]
CC: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: RE: Introduction

Hilary,

Thank you for the introduction.

Mandy,

It seems that our work is overlapping on some issues. Let me know if you have any time on your calendar to connect on CAA issues.

Aaron L. Szabo
Policy Analyst
Office of Information and Regulatory Affairs
Office of Management and Budget
Ex. 6 Personal Privacy (PP)

From: Hilary Moffett [mailto:moffetth@api.org]
Sent: Wednesday, April 5, 2017 1:47 PM
To: Szabo, Aaron L. EOP/OMB <Ex. 6 Personal Privacy (PP)>
Cc: gunasekara.mandy@epa.gov
Subject: Introduction

Hey Mandy and Aaron,

I hope this email finds you both well. I spoke to each of you about an intro and am finally getting around to it. I apologize for the delay.

Aaron, Mandy is over at EPA now doing a lot of the CAA issues. She and I worked together on EPW under Chairman Inhofe. She is really incredible at her job, and as a person in general.

Mandy, Aaron is over at OMB. He is working on a lot of the EO stuff currently, but focuses mainly on CAA. I thought you two should know each other in case there were opportunities to work together. Ex. 6 Personal Privacy (PP)
Ex. 6 Personal Privacy (PP)

Hope you two are able to connect and make great things happen!

Cheers,
Hilary

Hilary Moffett
Director, Federal Relations
American Petroleum Institute
202-682-8040 (desk)
Ex. 6 Personal Privacy (PP) (cell)
MoffettH@api.org

Message

From: Stephanie Meadows [Meadows@api.org]
Sent: 4/6/2017 12:09:02 PM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: RE: Invitation to Join API Committee Meeting on May 16, 2017

Mandy:

THANK YOU for getting back with me so quickly. Yes, I am free this afternoon and will plan on calling you at 1:15 p.m. Looking forward to meeting you.

Stephanie

From: Gunasekara, Mandy [mailto:Gunasekara.Mandy@epa.gov]
Sent: Wednesday, April 05, 2017 8:35 PM
To: Stephanie Meadows
Subject: Re: Invitation to Join API Committee Meeting on May 16, 2017

I'd be happy to do this. Let's chat tomorrow. Are you free at 1:15? If so, call my direct at 202.564.2314.

Sent from my iPhone

On Apr 5, 2017, at 3:18 PM, Stephanie Meadows <Meadows@api.org> wrote:

> Dear Ms. Gunasekara:
>
> I work for the American Petroleum Institute (API) in Washington, DC and am planning a day-long joint committee meeting on Tuesday, May 16, 2017 at API's offices for our Hydraulic Fracturing Issues Group and its parent committee, the E&P Environmental Subcommittee. Most of the members are a combination of policy and technical experts for their individual companies on environmental issues impacting E&P operations. Many cover air, waste, and water issues or some combination thereof. The Hydraulic Fracturing Issues Group had full responsibility for API's six year involvement with the EPA Final Assessment Report and continues to monitor and participate in induced seismicity activities across the country. As a part of the agenda on the 16th, I would like to include several presentations from outside guests, on activity associated with the committees' work. I received your name from my colleague, Hilary Moffett, as someone at EPA who could speak about priorities and activities across the agency in 2017! We are really trying to better understand how/where we can be helpful to EPA as a key stakeholder. At this point we are flexible in the timing of the presentation, but my draft agenda has EPA down at 1:00 p.m. – allowing for an hour (presentation, question and answers, and further discussion).
>
> I am happy to discuss the details of this with you at any time and am hopeful you will consider this invitation. If there is another colleague that I should be speaking to about this event, please let me know. I look forward to hearing back from you.
>
> Regards,
>
> Stephanie
>
> Stephanie R. Meadows
> Manager

Upstream and Industry Operations
American Petroleum Institute
1220 L Street, NW
Washington, DC 20005
Phone: 202-682-8578
Email: meadows@api.org

Message

From: Hilary Moffett [moffetth@api.org]
Sent: 4/5/2017 7:47:32 PM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: Sec to chat?

Hey lady,

I'm sure you're swamped, but do you have a second to chat today or tomorrow? Wanted to touch bases about Refinery Sector rule and CTGs.

Thanks,
Hilary

Hilary Moffett
Director, Federal Relations
American Petroleum Institute
202-682-8040 (desk)
Ex. 6 Personal Privacy (PP) (cell)
MoffettH@api.org

Message

From: Matthew Todd [ToddM@api.org]
Sent: 7/27/2017 8:26:22 PM
To: Dunham, Sarah [Dunham.Sarah@epa.gov]
CC: John Wagner [Wagner@api.org]; Hilary Moffett [moffetth@api.org]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Zenick, Elliott [Zenick.Elliott@epa.gov]; Page, Steve [Page.Steve@epa.gov]; Tsirigotis, Peter [Tsirigotis.Peter@epa.gov]; Culligan, Kevin [Culligan.Kevin@epa.gov]; Cozzie, David [Cozzie.David@epa.gov]
Subject: API Legal Comments on EPA's Proposed NSPS OOOOa Stay
Attachments: 2017 07 27 NSPS OOOOa Extension API Comment Letter.pdf

Importance: High

Ms. Sarah Dunham,

Today, API submitted the attached legal comments to the docket on the proposed rule to stay the compliance dates for certain portions of the New Source Performance Standards ("NSPS") 40 C.F.R. Part 60 Subpart OOOOa, "Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources: Stay of Certain Requirements" 82 Fed. Reg. 27645 (June 16, 2017). API submits these targeted comments on the legal authorities the Environmental Protection Agency possesses to issue a two-year stay of these provisions. Please contact John Wagner (202-682-8319) with any questions.

Sincerely,

Matthew Todd
API
202.682.8319

Matthew Todd
Senior Policy Advisor

Regulatory and Scientific Affairs

1220 L Street, NW
Washington, DC 20005-4070
USA
Telephone 202-682-8319
Fax 202-682-8270
Email toddm@api.org
www.api.org

July 27, 2017

The Honorable Scott Pruitt, Administrator
US Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

Attention: Docket ID No. EPA-HQ-OAR-2010-0505
Submitted to www.regulations.gov

Re: Environmental Protection Agency's (EPA's) "Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources: Stay of Certain Requirements at 82 FR 27645 (June 16, 2017)

Dear Administrator Pruitt:

The American Petroleum Institute ("API") is pleased to submit the attached comments on the proposed rule to stay the compliance dates for certain portions of the New Source Performance Standards ("NSPS") 40 C.F.R. Part 60 Subpart OOOOa, "Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources: Stay of Certain Requirements" 82 Fed. Reg. 27645 (June 16, 2017) ("Proposed Rule"). API submits these targeted comments on the legal authorities the United States Environmental Protection Agency ("EPA" or "Agency") possesses to issue a two-year stay of these provisions.

API members will be directly impacted by the Proposed Rule. API is a national trade association representing all aspects of America's oil and natural gas industry. API represents over 625 oil and natural gas companies, leaders of a technology-driven industry that supplies most of America's energy, supports more than 9.8 million jobs and 8 percent of the U.S. economy, and, since 2000, has invested nearly $2 trillion in U.S. capital projects to advance all forms of energy, including alternatives.

API will also be submitting separate comments that present the factual and policy reasons justifying the two-year stay by the August 9th deadline. Please contact John Wagner (202-682-8529) if you have any questions regarding the comment submittal.

Sincerely,

Matthew Todd

Attachment
cc: Mandy Gunasekara, USEPA
Elliott Zenick, USEPA
Sarah Dunham, USEPA
Steve Page, USEPA
Peter Tsirigotis, USEPA
Kevin Culligan, USEPA
David Cozzie, USEPA

API's Legal Comments on EPA's Proposed Rule, "Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources: Stay of Certain Requirements" 82 Fed. Reg. 27645 (June 16, 2017)

Docket ID No. EPA–HQ–OAR–2010–0505

I. Introduction and Background

The Proposed Rule is related to EPA's regulation of the oil and natural gas source category under section 111 of the Clean Air Act ("CAA" or "Act"). EPA listed the crude oil and natural gas production category in 1979 and issued NSPS pursuant to CAA § 111(b) for natural gas plants in 1985, promulgating these standards in 40 C.F.R. Part 60 Subparts KKK and LLL. *See* 50 Fed. Reg. 26,122 (June 24, 1985); 50 Fed. Reg. 40,158 (Oct. 1, 1985). CAA § 111(b)(1)(B) instructs EPA to review NSPS every 8 years, unless "such review is not appropriate in light of readily available information on the efficacy" of the NSPS. 42 U.S.C. § 7411(b)(1)(B). The statute only compels a review; EPA is not required to revise the NSPS unless EPA deems it is "appropriate" to do so. *Id.* EPA conducted this review in 2011 and issued a proposed rule to revise the NSPS. 76 Fed. Reg. 52,738, 52,740-41, 52,754 (Aug. 23, 2011). For new or modified oil and natural gas facilities, EPA proposed to copy the updated Subpart KKK and LLL regulations in new Subpart OOOO along with new standards that would cover additional new or modified oil and natural gas facilities. *Id.* at 52,745-46. EPA proposed to amend the titles for Subparts KKK and LLL to clarify that they will continue to apply for facilities already subject to them. *Id.* at 52,745. EPA issued a final revised NSPS in 2012: Oil and Natural Gas Sector: New Source Performance Standards and National Emission Standards for Hazardous Air Pollutants Reviews," 77 Fed. Reg. 49,490 (Aug. 16, 2012) ("2012 NSPS Rule"). EPA granted reconsideration of some portions of the 2012 NSPS Rule and issued

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another final rule in 2014: "Oil and Natural Gas Sector: Reconsideration of Additional Provisions of New Source Performance Standards," 79 Fed. Reg. 79,018 (Dec. 31, 2014) ("2014 NSPS Rule").

In 2015, EPA proposed to revise the oil and gas NSPS to add provisions for the regulation of methane emissions in Subpart OOOOa. "Oil and Natural Gas Sector: Emission Standards for New and Modified Sources," 80 Fed. Reg. 56,593 (Sept. 15, 2015). EPA finalized the new Subpart OOOOa and revisions to Subpart OOOO in 2016. "Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources; Final Rule," 81 Fed. Reg. 35,823 (June 3, 2016) ("Quad Oa Rule" or "2016 NSPS Rule"). Judicial challenges have been filed to all three of these recent rules. They are currently consolidated in *American Petroleum Institute v. EPA*, D.C. Cir. No. 13-1108.

On April 18, 2017, EPA Administrator Pruitt granted reconsideration of two narrow issues in the 2016 NSPS Rule: the fugitive emission requirements for low production well sites and the process related to the alternative means of emission limitations ("AMEL") for fugitive emission requirements. 82 Fed. Reg. at 25,731. In June, EPA granted reconsideration of two additional issues: (1) the standards for pneumatic pumps at well sites, and (2) the requirements for certification by a professional engineer. "Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources; Grant of Reconsideration and Partial Stay," 82 Fed. Reg. 25,730 (June 5, 2017). In this same Federal Register notice, EPA also granted a three-month stay, pursuant to CAA § 307(d)(7)(B), of the following three requirements in the 2016 NSPS Rule: (1) the fugitive emissions requirements (also referred to as leak detection and repair ("LDAR")), (2) the standards for pneumatic pumps at well sites, and (3) the requirements for certification by a professional engineer. EPA stayed the LDAR requirements because the

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reconsideration issues "determine the universe of sources that must implement the fugitive emissions requirements." *Id.* at 25,732. As such, a stay solely as to the LDAR portions under reconsideration would "generate" "uncertainties" "regarding the application and/or implementation of the fugitive emissions requirements." *Id.* at 25,733.

II. EPA Has Multiple Sources of Legal Authority to Extend the Compliance Deadlines.

A. EPA Should Extend the Relevant Compliance Deadlines (Rather Than Issue a Stay), Pursuant to Its Authority Under CAA § 111.

EPA has authority under CAA § 111(b) to extend compliance deadlines and/or establish future effective compliance dates. Section 111(b) sets a timeline for when initial NSPS must be done, when EPA must review the NSPS, and when revised NSPS are effective. Section 111(b) does not, however, instruct when compliance with NSPS must be achieved. Also, there are no time requirements for when EPA conducts a voluntary or ahead-of-schedule review of the NSPS.

EPA has authority under the plain language of CAA § 111(b) to extend compliance deadlines. Standards of performance are effective upon promulgation. 42 U.S.C. § 7411(b)(1)(B). But the effective date of a rule can differ from the compliance dates in a rule. For example, section CAA § 112(i) specifically instructs when a rule becomes effective, and separately instructs when compliance is required. 42 U.S.C. § 7412(i). This provision shows that Congress does not consider the terms "effective date" and "compliance date" to be synonymous. *See* 42 U.S.C. § 7412(d). Section 111 specifies when a rule must be effective but, unlike Section 112, does not state when regulated sources must achieve compliance with the NSPS. This leaves EPA with authority under Section 111 to establish a reasonable compliance period after the effective date of a rule.

The provisions EPA proposes to stay here were promulgated in the 2016 NSPS Rule, which EPA undertook *after* it completed the 2012 NSPS Rule, which satisfied the required 8-

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year review of the oil and natural gas NSPS. 42 U.S.C. § 7411(b)(1)(B) (requiring EPA to review NSPS every 8 years, unless "such review is not appropriate in light of readily available information on the efficacy" of the NSPS). The next 8-year review is not required until at least 2020. Thus, extending the relevant compliance deadlines will not interfere in any way with the mandatory schedule for review and possible revision of this standard.

Alternatively, EPA may effectively extend the relevant compliance deadlines by making future-effective BSER determinations. The Act defines "standard of performance" as "a standard for emissions of air pollutants which reflects the degree of emission limitation achievable through the application of the best system of emission reduction which (taking into account the cost of achieving such reduction and any nonair quality health and environmental impact and energy requirements) the Administrator determines has been adequately demonstrated." 42 U.S.C. § 7411(a)(1). Determining the best system of emission reduction, or BSER, is the core instruction Congress gave to EPA in section 111. In charging EPA with determining BSER, Congress delegated EPA the corresponding authority to craft appropriate compliance deadlines that correspond to BSER.

The D.C. Circuit has recognized that EPA has authority to set future effective BSER. *See Lignite Energy Council v. EPA,* 198 F.3d 930 (D.C. Cir. 1999); *Portland Cement Association v. EPA*, 486 F.2d 375 (D.C. Cir. 1973). This is a viable approach for providing more compliance time for the narrow Quad Oa reconsideration issues. For instance, the proposed rule would stay the LDAR requirements in 40 C.F.R. § 60.5397a for two years after the final rule is published in the Federal Register. Under the LDAR program, sources can delay repair or replacement of a source of fugitive emissions for specified reasons, such as technical infeasibility or safety concerns. 40 C.F.R. § 60.5397a(h)(2). This provision generally allows delays up to two years,

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except for repairs or replacements for compressor stations, which must occur after the next compressor station shutdown. *Id.* But the shutdown of a compressor station does not necessarily cure issues of technical infeasibility, meaning that the delay of repair provision for compressor stations either requires operators to do the impossible (repair a compressor station when such repair is technically infeasible) or bear untold costs from leaving the compressor station out of operation until repair is feasible. *See also* Petition for Administrative Reconsideration by GPA Midstream, at 10-11 (discussing duplicative nature of LDAR requirements for compressor stations). Because this requirement does not satisfy BSER at the current time, a two-year delay is appropriate under CAA § 111 and D.C. Circuit precedent.

EPA included such future effective compliance deadlines in the original Quad O Rule. *See* 77 Fed. Reg. 49,490, 49,517-19 (Aug. 16, 2012) (establishing phased requirements for REC equipment based on availability and cost considerations); *id.* at 49,500, 49,525-26 (establishing a one-year phase-in period for storage vessel controls); *see also* API's Comments, EPA-HQ-OAR-2010-0505-4266 at 31-35 (Nov. 30, 2011). EPA took a similar approach in at least two prior rules. *See* 70 Fed. Reg. 28,606 (May 18, 2005) (establishing mercury standards under CAA § 111 for coal-fired electric utility steam generating units using a two-step compliance program, which were later vacated on other grounds by *New Jersey v. EPA*, 517 F.3d 574 (D.C. Cir. 2008)); 73 Fed. Reg. 3568 (Jan. 18, 2008) (finalizing NSPS for stationary spark ignition internal combustion engines including delayed compliance dates).

In sum, EPA may lawfully extend compliance dates by two years for the issues under reconsideration and related parts of the 2016 NSPS Rule. Alternatively, EPA may effectively extend the compliance deadlines by making future-effective BSER determinations for the relevant standards. Either way, an extension is reasonable under these circumstances,

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particularly as EPA re-evaluates whether these provisions should be revised through the pending reconsideration proceeding.

B. A Stay Pending Judicial Review Is Warranted Under APA § 705.

APA § 705 states that "[w]hen an agency finds that justice so requires, it may postpone the effective date of action taken by it, pending judicial review." 5 U.S.C. § 705. An APA § 705 stay is warranted here, as litigation is pending and justice requires EPA to stay the rule until the case is decided or settled.

Litigation is Pending: Judicial challenges to the 2012 NSPS Rule, 2014 NSPS Rule, and 2016 NSPS Rule are currently pending before the D.C. Circuit, consolidated in *American Petroleum Institute v. EPA*, D.C. Cir. No. 13-1108. This criterion obviously is met.

Justice Requires a Stay: As explained below in subparagraph 3, the challenges to the 2016 NSPS Rule are likely to succeed. There are significant procedural and substantive flaws with the 2016 NSPS Rule. EPA already has announced its intent to undertake a rulemaking to address these issues. Requiring compliance with the 2016 NSPS Rule in the meantime would cause substantial harm to regulated entities. They would incur significant costs in complying with standards that almost certainly will be changed or eliminated. They also would face potential enforcement liability for provisions that are unwarranted and unlawful. At the same time, immediate implementation would not produce environmental benefits that are commensurate with the costs and potential legal liabilities. Lastly, EPA's stay is narrowly tailored to the most time-sensitive and burdensome requirements. For these reasons, justice compels EPA to stay the 2016 NSPS Rule.

1. Relief under APA § 705 is available regardless of whether the effective date for a compliance obligation has passed.

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The APA speaks of "postponing" the effective date of an agency action pending judicial review. 5 U.S.C. § 705. EPA has argued in the past that the term "postpone" must be interpreted to be forward looking, such that an APA § 705 stay is available only when the relevant effective date has not yet passed. That interpretation is incorrect. The word "postpone" does not have a single, unambiguous meaning. For example, Roget's suggests a wide range of synonyms for the word "postpone," including delay, defer, adjourn, shelve, table, and put on hold. [1] Most of these terms are not necessarily forward looking – e.g., a past effective date easily can be "put on hold" during the pendency of litigation. Thus, APA § 705 can reasonably be construed to authorize a stay even when the effective date of the given rule has passed.

2. APA § 705 does not require applying the four-factor preliminary injunction test.

The U.S. District Court for the District of Columbia held that an agency cannot issue a stay under APA § 705 without evaluating the four factors for a preliminary injunction. *Sierra Club v. Jackson*, 833F. Supp. 2d 11 (D.D.C. 2012). This case does not bind the D.C. Circuit, however, which should hear any challenge to an EPA decision to grant an APA § 705 stay. Because the 2016 NSPS Rule is a regulation of nationwide effect, challenges to the 2016 NSPS Rule are being heard in the D.C. Circuit, which has exclusive jurisdiction. Any action EPA takes to amend the 2016 NSPS Rule likewise would be heard in the D.C. Circuit. And a challenge to an APA § 705 stay of the 2016 NSPS Rule also would be jurisdictionally limited to the D.C. Circuit because allowing any other court to adjudicate the validity of an APA § 705 stay would threaten the D.C. Circuit's exclusive jurisdiction final rules of national scope and effect. *Telecommunications Research & Action Center v. FCC*, 750 F. 2d 70, 72 (DC Cir. 1984)

[1] Thesaurus.com. Roget's 21st Century Thesaurus, Third Edition. Philip Lief Group 2009, http://www.thesaurus.com/browse/postpone.

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("Where a statute commits final agency action to review by the Court of Appeals, the appellate court has exclusive jurisdiction to hear suits seeking relief that might affect its future statutory power of review."). As such, the district court's decision does not bind the court who will evaluate EPA's action.

Further, this decision was incorrectly decided. The plain language of the APA does not require an agency to consider these factors. Irreparable injury is mentioned only for a judicial stay, not a stay granted by an agency:

> When an agency finds that justice so requires, it may postpone the effective date of action taken by it, pending judicial review. On such conditions as may be required and to the extent necessary to prevent irreparable injury, the reviewing court, including the court to which a case may be taken on appeal from or on application for certiorari or other writ to a reviewing court, may issue all necessary and appropriate process to postpone the effective date of an agency action or to preserve status or rights pending conclusion of the review proceedings.

5 U.S.C. § 705. This makes logical sense. Congress could not have intended to force agencies to act the same as courts when issuing stays. A court is a neutral third party and is uniquely positioned to objectively assess the legal viability of pending claims. But the agency is not neutral because it will have issued the rule in question. Requiring the four-factor test disadvantages the agency in litigation because it would require EPA to determine that the challenger has a likelihood of success on the merits, which typically would be a finding against its own interest.

3. Even if the four-factor test applies, it is met.

"A plaintiff seeking a preliminary injunction must establish that he is likely to succeed on the merits, that he is likely to suffer irreparable harm in the absence of preliminary relief, that the balance of equities tips in his favor, and that an injunction is in the public interest." *Winter v. NRDC*, 555 U.S. 7, 20 (2008). "Importantly, '[t]he party seeking a preliminary injunction need

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not prevail on each factor.'" *R.J. Reynolds Tobacco Co. v. FDA*, 823 F. Supp. 2d 36, 43 (D.D.C. 2011) (quoting *Smoking Everywhere, Inc. v. FDA,* 680 F. Supp. 2d 62, 66 (D.D.C. 2010)). Courts may apply these factors on a "sliding scale." *Id.*; *see also id.* (stating that "'a greater likelihood of [the movant's] success will militate for a preliminary injunction unless particularly strong equities favor the [non-moving] parties'") (quoting *FTC v. Whole Foods Mkt., Inc.,* 548 F.3d 1028, 1035 (D.C. Cir. 2008)). The movant must "demonstrate a likelihood of success on the merits and some injury" because the "basis of injunctive relief in the federal courts has always been irreparable harm." *Save Jobs USA v. U.S. Dep't of Homeland Sec.*, 105 F. Supp. 3d 108, 112 (D.D.C. 2015) (internal citation and quotations omitted).

Likelihood of Success on the Merits: API explained some of the procedural and substantive problems with these provisions—as well as other parts of the 2016 NSPS Rule—in its petition for administrative reconsideration. *See also* Petition for Administrative Reconsideration by IPAA, at 5-7 (discussing disproportionate harm that LDAR requirements will have on small entities); *id.* at 6 ("The marginal profitability will mean that many wells will be shut in instead of making the investment to conduct LDAR surveys."); *id.* at 8 (noting costs, lack of benefits, and technical infeasibility of professional engineer certification requirements). EPA acknowledged some of these problems when it granted administrative reconsideration. *See* Pruitt Letter; 82 Fed. Reg. 25,730 (June 5, 2017); 82 Fed. Reg. 27,645 (June 16, 2017). These contested provisions do not properly account for compliance costs, do not factor in issues of technical infeasibility, present compliance problems, and/or do not supply appreciable emissions reductions. *See also* EPA Opp'n Pets' Emergency Mot., ECF No. 1679831, No. 17-1145, at 22-24 (D.C. Cir. filed June 15, 2017) (noting that EPA failed to account for implementation issues and costs for the professional engineer certification and pneumatic pump requirements); Petition

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for Administrative Reconsideration by GPA Midstream, at 13 (discussing harm from being required to comply with duplicative LDAR requirements for compressor stations).

Further, the Petitioners challenging the 2016 NSPS Rule have alleged additional legal flaws with the 2016 NSPS Rule. As shown in their non-binding statements of issues, API and other Petitioners are poised to raise issues in litigation that would demonstrate that EPA's threshold legal justification for the 2016 NSPS is flawed. *See* Attachment A (non-binding statement of issues filed by API and other petitioners challenging the 2016 NSPS Rule). There is a significant likelihood that, if litigation proceeds to the merits, API and the other petitioners would succeed in overturning the rule in its entirety. The fact that EPA has chosen to have a narrow, targeted stay does not diminish the legal risk to the 2016 NSPS Rule from litigation. There are procedural and substantive errors in the 2016 NSPS Rule that would likely vacate some or all of the 2016 NSPS Rule, meeting this factor.

Likelihood of Irreparable Harm to Regulated Entities: A stay of the 2016 NSPS Rule is necessary to prevent irreparable harm. Requiring compliance with these provisions will impose significant regulatory burdens and compliance costs, as API explained in its comments on the proposed Quad Oa Rule and its petition for administrative reconsideration. For instance, the delay of repair provision for compressor stations, 40 C.F.R. § 60.5397a(h)(2), requires facilities to undertake repairs that are technically infeasible or leave the compressor station shutdown until the repairs are feasible. But for some sources, extended periods of shutdown for compressor stations are effectively not possible because they will significantly disrupt operations and/or create safety issues.

Balance of the Equities: The balance of the equities clearly favors the affected facilities. The stayed requirements do not produce significant environmental benefits. As several states

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have pointed out, the LDAR requirements are duplicative of state-level regulations in the states with the greatest amount of oil and natural gas activity. *See* North Dakota's and Texas' Brief as Amicus Curiae, ECF No. 1680710, No. 17-1145 (D.C. Cir. filed June 21, 2017); *see also* EPA Opp'n Pets' Emergency Mot., ECF No. 1679831, No. 17-1145, at 19-21 (D.C. Cir. filed June 15, 2017) (noting issues with alternative means of emission limitation provisions in the 2016 NSPS Rule and noting that they "serve the important interest of ensuring that the NSPS complemented existing state programs and encouraged use of emerging technology"). These duplicative regulations do, however, impose costs and pose safety threats. In fact, two of the stayed requirements result in no emissions reductions and do not benefit any other party. *See* EPA Opp'n Pets' Emergency Mot., ECF No. 1679831, No. 17-1145, at 22-23 (D.C. Cir. filed June 15, 2017) (noting that Petitioners objecting to EPA's three-month stay failed "to even attempt to show that EPA's stay of the professional engineer certification requirements or pneumatic pump requirements will result in irreparable harm").

The Public Interest: The public's interest also favors a stay. The public has an interest reasonable cost effective regulations and in the safe, economic production of energy. It is not in the public interest to require facilities to comply with regulations that are legally flawed, overly costly, infeasible, and duplicative of other regulations and voluntary actions. *See* EPA Opp'n Pets' Emergency Mot., ECF No. 1679831, No. 17-1145, at 7, 28 (D.C. Cir. filed June 15, 2017) (noting that methane emission reductions from three-month stay would constitute "just 0.046% of the annual methane emissions from the oil and gas industry" or 0.368% extended to a two year stay); *id.* at 29-31 (discussing the public's interest in economic growth, meaningful public comment and reasonable regulations).

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C. EPA's General Rulemaking Authority Under CAA § 301(a) Authorizes a Stay of the Proposed Provisions for Two Years.

CAA § 301 grants EPA authority to issue regulations as "necessary to carry out" its obligations under the Act. Here, there is no more specific statutory provision in the Clean Air Act, nor is there any other statutory bar to EPA using its authority under CAA § 301. A two-year stay is necessary for EPA to meet the statutory standard under CAA § 111 and respect the process enshrined in CAA § 307. As such, EPA's use of CAA § 301 here is appropriate.

CAA § 301(a)(1) is "sufficiently broad to allow the promulgation of rules that are necessary and reasonable to effect the purposes of the Act." *NRDC v. EPA*, 22 F.3d 1125, 1148 (D.C. Cir. 1994) (agreeing that EPA had authority under § 301 to issue binding basic inspection and maintenance programs rules); *Specialty Equipment Market Ass'n v. Ruckelshaus*, 720 F.2d 124, 138 (D.C. Cir. 1983) (holding that EPA had authority under § 301 to create a reimbursement scheme for vehicle manufacturers "even though the statute does not specifically authorize such a scheme."); *Citizens to Save Spencer Cty. v. EPA*, 600 F.2d 844, 873 (D.C. Cir. 1979) (upholding EPA's use of rulemaking, on the basis of CAA § 301(a)(1), to resolve a conflict between two provisions of the Act). Provided Congress has not written a "clear impediment to the issuance" of a regulation, *NRDC v. EPA*, 22 F.3d 1125, 1148 (D.C. Cir. 1994), or there is other "statutory language on point," *NRDC v. EPA*, 749 F.3d 1055, 1063 (D.C. Cir. 2014), EPA may look to CAA § 301 to issue regulations that are necessary for it to carry out its duties under the Act. *See also North Carolina v. EPA*, 531 F.3d 896, 922 (D.C. Cir.), *on reh'g in part*, 550 F.3d 1176 (D.C. Cir. 2008) (EPA may only use its CAA § 301 authority when the rulemaking is "necessary" to some goal under the Act, and CAA § 301 does not provide EPA with "Carte blanche authority to promulgate any rules, on any matter relating to the Clean Air Act, in any manner that the [EPA] wishes" (internal quotations omitted)).

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All of these requirements are met here. EPA's use of CAA § 301 is necessary for EPA to fulfill its requirements under CAA § 111. Specifically, it would undermine the statutory purpose and text of CAA § 111 for EPA to require current compliance with regulations that are duplicative of state requirements, provide little or no extra environmental protection, impose significant compliance costs and burdens on regulated entities, and/or cannot be said to constitute BSER. There is nothing in the Act that is a "clear impediment" to staying the relevant compliance dates here. *NRDC v. EPA*, 22 F.3d at 1148.

Nor is there any other statutory language in the Act that is on point. *NRDC v. EPA*, 749 F.3d at 1063. CAA § 307(d) cannot be deemed a more specific provision. The D.C. Circuit recently held that the three-month stay in CAA § 307(d) only applies to mandatory reconsideration proceedings and that EPA's reconsideration proceedings here do not meet the criteria for mandatory reconsideration. *Clean Air Council v. EPA*, No. 17-1145 (D.C. Cir. July 3, 2017). Even assuming that that case is overturned on rehearing, the stay under CAA § 307(d) is limited to 90 days, which will not cover the period necessary for EPA to make the changes that may be required by the rule. As such, CAA § 307(d) does not apply here. APA § 705 cannot be deemed a more specific provision because it is a portion of a different statute and therefore sheds no light on EPA's CAA rulemaking authority.

EPA's use of CAA § 301 is not barred by *NRDC v. Reilly*, 976 F.2d 36, 40 (D.C. Cir. 1992). In that case, the D.C. Circuit was evaluating whether EPA was allowed to stay emission standards for radionuclides based on CAA § 112(d)(9). The Court held that CAA § 112(d)(9) did not authorize EPA to stay the effectiveness of the radionuclide emission standards because it set specific deadlines for when EPA must issue the regulation, which would have effectively been exceeded by the stay. EPA mentioned CAA § 301 as a possible alternative source of

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authority for the stay. The Court rejected this argument, holding that CAA § 301 could not override the express rulemaking deadlines in CAA § 112.

This proposed Quad Oa stay is not governed by *NRDC v. Reilly* because EPA's proposed two-year extension would not violate any statutory deadline. As previously explained, EPA completed the required 8-year review in 2012, and the next review is not required until at least 2020. 42 U.S.C. § 7411(b)(1)(B). The provisions EPA proposes to stay here were promulgated in the 2016 NSPS Rule, which EPA undertook *after* it completed its required 8-year review of the oil and natural gas NSPS. At the earliest, the next mandatory review is not required until 2020. By staying certain provisions of the 2016 NSPS Rule, EPA would not be circumventing this review cycle, as the Agency was found to have done in *NRDC v. Reilly*.

Lastly, dicta in *NRDC v. Reilly* suggested that CAA § 307 is the only avenue for a stay of already promulgated standards. *NRDC v. Reilly*, 976 F.2d 36, 41 (D.C. Cir. 1992). These statements were unnecessary for the judgment, as there was a more specific provision—the deadlines in CAA § 112—that was the crux of the Court's decision. The case did not concern whether CAA § 307 prevented use of CAA § 301, and as such, those statements are dicta and not part of the holding.

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Message

From: Hunton Andrews Kurth LLP [info@huntonak.com]
Sent: 10/26/2018 3:59:27 PM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: Thank you: Insights into Environmental Law & Policy: A Conversation with Key Regulators

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THANK YOU

HUNTON
ANDREWS KURTH

Hunton Andrews Kurth LLP would like to thank you for joining the conversation with key regulators in Washington, DC.

Each year we strive to make this event as informative and as engaging as possible.

Please take a moment to let us know how we can make next year's fifth annual conversation the best one yet.

COMPLETE SURVEY

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Message

From: Aaron P. Padilla [PadillaA@api.org]
Sent: 8/14/2017 11:49:12 PM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: Automatic reply: NAFTA & North American Energy Documents

I will be out of the office Monday-Tuesday 14-15 August. I will have only limited access to e-mail and will respond as soon as I can. If you need immediate assistance, please call Maria Fial at Ex. 6 Personal Privacy (PP)

Message

From: Hilary Moffett [moffetth@api.org]
Sent: 5/3/2017 2:56:50 PM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: FW: Reconsideration of the Final Rule - Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources (NSPS OOOOa)
Attachments: 2017 05 01 NSPS OOOOa Letter to EPA Administrator Pruitt Final.pdf

Hey Mandy,

Wanted to make sure you saw this letter that we sent to EPA on Monday. Do you have 5 mins to chat over the phone? Would like to walk you through what we see as the highlight of the letter.

Let me know when you have a moment to breath.

Thanks
Hilary

Howard J. Feldman
Senior Director

Regulatory and Scientific Affairs

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May 1, 2017

Administrator Scott Pruitt
US Environmental Protection Agency
Washington, DC 20460

Dear Administrator Pruitt,

Thank you for your April 18, 2017 letter to the American Petroleum Institute[1] and others, communicating the agency's intent to convene a proceeding for reconsideration of the Final Rule, "Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources," which was published on June 3, 2016 (81 FR 35824). As you are aware, technological innovations and industry leadership have propelled the oil and gas industry forward despite the unprecedented level of federal regulatory actions targeting our industry during the previous administration. Consistent with President Trump's stated objectives of American energy independence and economic growth, EPA and other federal agencies should ensure that regulations are achievable and cost-effective. API supported previous EPA regulatory reviews to relieve the burdens imposed by EPA rules in 2011 and 2015, while continuing to promote public health, safety and the environment as industry and citizens support.

In addition to granting reconsideration of the fugitive emission requirements under §60.5397a and associated provisions, EPA's letter also states its intent to exercise its authority under CAA Section 307 to issue a 90-day stay of the compliance date for these requirements. API's members look forward to EPA moving expeditiously with this temporary relief. API's members would benefit from additional guidance, either in the notice of the stay or in supplemental documents, concerning the scope of the stay and how it affects inter-related leak monitoring and repair requirements. To maximize its effect, the agency should begin this 90-day period at or near the June 3rd deadline to comply with the requirements of §60.5397a and associated provisions. In advance of this, EPA should quickly review and, if appropriate, grant reconsideration of other technical issues API raised in our administrative petition submitted to Administrator McCarthy in August, 2016 (Attached).

[1] The American Petroleum Institute (API) is the only national trade association representing all facets of the oil and natural gas industry, which supports 9.8 million U.S. jobs and 8 percent of the U.S. economy. API's more than 625 members include large integrated companies, as well as exploration and production, refining, marketing, pipeline, and marine businesses, and service and supply firms.

The previous 2012 standards, developed in collaboration with industry, driven by industry's incentive to capture more of what we sell, are already effectively reducing emissions. We are encouraged by EPA's April 4, 2017 announcement to review the 2016 standards, and API supports revision of those standards. We have worked cooperatively with EPA staff and will continue to work with them to identify emission control measures that cost-effectively reduce VOC emissions and methane as a co-benefit. Additionally, as described below, we recommend that EPA act quickly to modify the rule and extend the rapidly approaching compliance deadlines while the agency reconsiders the rule.

In our petition, API raised issues on many components of the final rule that, barring additional timely action by the agency, will require our members to continue preparations and capital investment on aspects of the rule that are likely to change. Therefore, to address all of these issues and avoid unintended impacts, we urge the EPA to take the following steps:

1. Review the issues raised in API's administrative petition for reconsideration and, as appropriate, grant reconsideration and begin a rulemaking to make any appropriate changes to the rule.
2. Initiate an expedited rule amendment, to be completed within the 90-day stay period, to modify and extend, by a minimum of one year, all appropriate compliance deadlines for the petition issues (e.g., fugitive emissions, pneumatic pump, professional engineer (PE) certifications) for which EPA may grant reconsideration.

By following these actions, sufficient time will be afforded beyond the 90-day stay for stakeholders and EPA to engage and work through all reconsideration issues. We look forward to working with the agency on this important rulemaking.

Sincerely,

Howard J Feldman

Attachment
cc: Sarah Dunham, USEPA
Peter Tsirigotis, USEPA
David Cozzie, USEPA
Ryan Jackson, USEPA
Samantha Dravis, USEPA
Mandy Gunasekara, USEPA

Howard J. Feldman

Senior Director, Regulatory and Scientific Affairs

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August 2, 2016

The Honorable Gina McCarthy, Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

Re: Request for Administrative Reconsideration EPA's Final Rule "Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources"

Dear Administrator McCarthy:

The American Petroleum Institute ("API") hereby submits this petition for administrative reconsideration of the final rule entitled "Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources," published at 81 Fed. Reg. 35824 (June 3, 2016) ("Subpart OOOOa").

Pursuant to section 307(d)(7)(B) of the Clean Air Act ("CAA"), 42 U.S.C. § 7607(d)(7)(B), where it is impracticable to raise an objection during the period of public comment or if the grounds for such an objection arise after the public comment period (but within the time specified for judicial review), and if such objections are of central relevance to the outcome of the rule, the U.S. Environmental Protection Agency ("EPA" or "Agency") is required to reconsider a rule.

API represents over 650 oil and natural gas companies, leaders of a technology-driven industry that supplies most of America's energy, supports more than 9.8 million jobs and 8 percent of the U.S. economy, and, since 2000, has invested nearly $2 trillion in U.S. capital projects to advance all forms of energy, including alternatives. Most of our members conduct oil and gas development and production operations and, thus, will be directly impacted by this final rule.

This document is divided into two parts. In the first part, we present the issues for which we believe that administrative reconsideration is warranted. In the second part, we present a number of additional issues where we believe changes to the rule are needed, but where we are not asking for administrative reconsideration. These additional issues are included because we believe it would be efficient for EPA to make these changes in the rulemaking that the Agency undertakes to accomplish administrative reconsideration of the first set of issues

We look forward to continuing to work with the Agency on improving the rule and are submitting this request for reconsideration to address a number of key issues identified in the finalized rule.

Thank you for your consideration of this request for administrative reconsideration. Please do not hesitate to contact me (202.682.8340) if you have questions or need more information.

Sincerely,

Howard J. Feldman

CC: Janet McCabe, EPA
Steve Page, EPA
Peter Tsirigotis, EPA
David Cozzie, EPA
Bruce Moore, EPA

API Request for Administrative Reconsideration EPA's Final Rule "Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources"

August 2, 2016

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I. ISSUES FOR WHICH WE REQUEST ADMINISTRATIVE RECONSIDERATION

1. The requirements for Certification by Professional Engineer finalized in §60.5411a(d) for closed vent systems and §60.5393a for pneumatic pump technical infeasibility determination at brownfield sites should be removed and stayed pending reconsideration.

The final rule includes requirements for a professional engineer (PE) to certify closed vent system designs for storage vessels and centrifugal compressors as well as certify when it is not possible to control an affected pneumatic pump at a brownfield site. The provisions requiring PE certification were not included in the proposed rule and should be reconsidered, given the inability to raise an objection during the public comment period, and stayed pending reconsideration to allow a full notice and comment process. Comments presented here would have been provided to EPA during the proposal comment period, if we were provided proper notice and comment ability. Our objection is of central relevance to the outcome of the rule because it provides substantial support for the need to revise the rule to eliminate the PE certification requirement.

Companies will be burdened with the additional costs and project delays for a third party PE to design and certify closed vent systems as few companies have an adequate staff of in-house PEs. While API appreciates EPA's recognition of some of the challenges of having such PE reviews completed, including extending the compliance date for affected pneumatic pumps from 60 days to 180 days following publication, there are still fundamental problems with EPA's approach and no extension was provided for storage vessels and centrifugal compressors. Other issues associated with the requirement to have PE certification include the following:

- The PE certification process does not add any significant value and EPA has not justified the extra expense and burden of PE certifications when there are provisions in place for compliance report submittals approved by a certifying official.
  - There is already a 'general duty obligation' in § 60.11(d) for owners and operators to ensure proper operation, and maintenance of equipment. PE certification does not relieve companies of this duty.
  - The certifying official is already required to sign off on a company's compliance with all applicable provisions.
  - There is no quantifiable benefit to the environment from this additional review, while there is significant expense involved.
  - There are direct costs associated with the PE certification process, whether companies support in house licensure of engineers or leverage third parties. However, no costs associated with obtaining PE approval were considered or provided for review during the proposal process.
- Development of in-house PE capacity will take several years. Development of a sufficient number of in-house licensed PEs to cover all states where a company operates will take considerable time. Meanwhile, though EPA has determined third-party PE certification is unnecessary, many operators will have to depend heavily on outside consultant PEs in the foreseeable future. This will add additional cost and delays to projects that EPA has not accounted for.

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- It takes at least four years of experience plus additional time to satisfactorily pass required testing to obtain a PE license.
- At present, most company engineers are not PEs, and PE licensure is not a condition of employment or career development. While trained and qualified and with years of experience in the design of production facilities, these engineers are not called upon to formally certify equipment designs.
- EPA's allowance of PEs not licensed in the state where certification is needed conflicts with state and PE licensure requirements that a PE must be licensed in the state where they practice. Consequently, a PE cannot ethically certify closed vent system design or technical infeasibility based on EPA's standard, which is inconsistent and contradictory to PE licensure rules of practice. This limitation invalidates the Subpart OOOOa definition of *Qualified Professional Engineer.*

Therefore, EPA should reconsider the PE certification requirement and remove it entirely from the rule to relieve the redundancy it creates relative to each company's existing general duty obligations and the certifying official's acknowledgment. At a minimum, EPA should broaden the requirements and allow alternatives to PE Certification such as to require all designs to undergo engineering review and approval. A general duty to properly design CVS or determine technical infeasibility should be adequate for enforcement.

An administrative stay of the PE certification requirement pending the outcome of the reconsideration proceeding is needed and justified because, even though the effective date of the requirement for affected pneumatic pumps has been extended to 180 days after publication of the rule, it is highly unlikely that EPA will complete reconsideration prior to that date. As a result, absent a stay, companies will confront the costs, uncertainties and compliance barriers described above – all of which can and should be avoided through amendment of the rule.

2. Coincident with PE certification requirements for pneumatic pump technical infeasibility determinations, EPA introduced but inadequately defined "greenfield" site as there is no clarity with respect to determining when a greenfield site transitions to a brownfield site. As well, it is inappropriate to categorically prohibit a claim of technical infeasibility for greenfield sites.

The terms "greenfield" and "brownfield" sites and the use of these terms in determining compliance obligations were not proposed. Therefore, industry had no opportunity to comment. In addition, this issue is of central relevance to the outcome of the rule because, for the reasons described below, changes to the final rule are needed. Consequently, administrative reconsideration of this issue is justified.

Without a clear definition with respect to the boundary of when greenfield ends and brownfield begins, operators will be put in an untenable situation if "greenfield" is considered synonymous with "new" for NSPS thereby removing future technical infeasibility determinations for the entire life of a well site. Initial design for construction of a greenfield site may not require installation of a pneumatic pump or a control device for the early operational period of a well site. At some point later in the life of a well (which could be years), site design requirements may change where a new control and/or pump is installed and a technical infeasibility determination is justified but not available if the site is considered

greenfield throughout the life of the site. Even for a new site, process or control device design requirements may not be compatible with controlling pneumatic pump emissions.

For example, a new site design only requires installation of a high pressure flare to handle emergency and maintenance blowdowns. It may not be feasible for a low pressure pneumatic pump discharge to be routed to a high pressure flare.

Another and likely more common example would be if a new greenfield site design calls for installation of a pneumatic diaphragm pump but no control device is present. Rather, only a process heater or boiler is present. The design and operation of a given pneumatic pump and co-located process heater or boiler may not be compatible. The heater and boiler will be designed based on the process it needs to support without regard to the additional capacity or operational need to control a pneumatic pump. More specifically, due to the small size (generally 125,000 Btu per hour to 2.5 mmBtu per hour) of many heaters/boilers used at well sites, burner capacity may be insufficient to compensate for emission combustion of additional large pneumatic diaphragm pump discharge and may result in frequent safety trips and burner flame instability (i.e. high temperature limit shutdowns, loss of flame signal, etc.). Additionally, industry guidelines (i.e. NFPA 86) would prohibit the use of boilers/heaters as control devices where the following criteria are not met: the operating temperature being a minimum of 1400°F, presence of emission source safety interlocks, etc.

In summary, a process heater or boiler may only operate a few weeks or months per year or the fuel use rating of the heater may be insufficient to handle the additional capacity of a pump discharge or both. While this issue could be dealt with at "brownfield" sites as technically infeasible, there is no such allowance for this capacity issue at "greenfield" sites.

Without a technical infeasibility option, having to design and build a process heater or boiler around the capacity needs to adequately and safely control a pneumatic pump when it otherwise wouldn't be designed with this feasibility in mind is equivalent to requiring installation of a new control device, and additional cost will unnecessarily be incurred. This concept is contradictory to the rule not requiring installation of a control device or process equipment for the sole purpose of controlling a pneumatic pump.

EPA should allow for technical infeasibility determinations at all well sites and not attempt to segregate sites by greenfield or brownfield. Use of greenfield and brownfield needs to be deleted from the rule. If the two terms remain, API recommends that EPA add a timeline which defines when "greenfield site" ends and brownfield begins. API believes brownfield begins after startup of production at new well sites.

3. Clarification is required regarding location of separator finalized in §60.5375a for well completion operations.

In NSPS OOOOa, a requirement was added in §60.5375a(a)(1)(iii) "*You must have a separator onsite during the entirety of the flowback period, except as provided in paragraphs (a)(1)(iii)(A) through (C) of this section*" that was not included in the proposed regulation. Comments presented here would have been provided to EPA during the proposal comment period, if we were provided proper notice and

comment ability. Our objection is of central relevance to the outcome of the rule because it provides support for the need to revise the rule to accurately reflect EPA's intent.

The rule does not provide a definition of "on-site". For wells that flow to centralized facilities or well pads, there will not be gas gathering or flowlines that go to the well head, only the centralized facility or well pad. Also, there would not be equipment located with the well to use the gas as fuel; therefore, there would be no where to send the recovered gas except to a flare.

In VI.E.1 of the Preamble to Subpart OOOOa, EPA discusses the issue of the requirement to have a separator onsite for subcategory 1 wells. An excerpt is provided here (emphasis added):

> *"… we do not have sufficient data to consistently and accurately identify the subcategory or types of wells for which these circumstances occur regularly or what criteria would be used as the basis for an exemption to the REC requirement such that a separator would not be required to be onsite for these specific well completions. In order to accommodate these concerns raised by commenters, the final rule requires a separator to be onsite during the entire flowback period for subcategory 1 wells (i.e., non-exploratory or non-delineation wells, also known as development wells), but does not require performance of REC where a separator cannot function. We anticipate a subcategory 1 well to be producing or near other producing wells. We therefore anticipate REC equipment (including separators) to be* ***onsite or nearby, or that any separator brought onsite or nearby can be put to use.*** *For the reason stated above, we do not believe that requiring a separator onsite would incur cost with no environmental benefit."*

In the above discussion, it is clear that EPA recognizes the intent to allow use of a nearby separator as part of an inline or reduced emission completion. However, the requirement in §60.5375a((a)(iii) only references "separator onsite", which is inconsistent with EPA's intent that the separator does not necessarily have to be located on the specific wellsite in order to satisfy requirements of the rule.

EPA should amend the text in §60.5375a(a)(1)(iii) to also include reference to separators both onsite or nearby clarifying that operators may opt to use production separators at a nearby production site, and the separator does not need to be located at the specific well site being hydraulically fractured. EPA should update §60.5375a(a)(1)(iii) as noted below.

§60.5375a(a)(1)(iii):

> *You must have a separator onsite <u>or otherwise available for use nearby during the entirety of the flowback period.</u>*

4. The requirements in the final rule to document and report claims of technical infeasibility related to capturing of emissions during a well completion were not proposed and should be removed from the final rule.

Dating from the proposed edits to Subpart OOOO of July 17, 2014[1], EPA provided an additional three options for the disposition of flowback gas beyond routing to a gas flow line or collection system.

[1] 79 FR 41756

Specifically, Subpart OOOO has allowed for gas to also be *"re-injected into the well or another well, used as an onsite fuel source, or used for another useful purpose that a purchased fuel or raw material would serve"*.

These three alternate options are very rarely utilized, if ever. API members are not aware of any scenarios where gas has been re-injected into the well undergoing hydraulically fracturing or injected into another well. Beyond that, these alternatives are not utilized because the gas is not of sufficient quality to rely on as onsite fuel source or raw material for another useful purpose.

API did not previously raise concerns with these alternatives when they were introduced in 2014 as they were only potential alternatives. However, under the recordkeeping requirement in §60.5420a (c)(1)(iii)(A), EPA finalized additional requirements.

§60.5375a in the Proposed Subpart OOOOa read:

> *(2) All salable quality recovered gas must be routed to the gas flow line as soon as practicable. In cases where salable quality gas cannot be directed to the flow line due to technical infeasibility, you must follow the requirements in paragraph (a)(3) of this section.*
>
> *(3) You must capture and direct recovered gas to a completion combustion device, except in conditions that may result in a fire hazard or explosion, or where high heat emissions from a completion combustion device may negatively impact tundra, permafrost or waterways. Completion combustion devices must be equipped with a reliable continuous ignition source.*

When EPA finalized Subpart OOOOa, these two paragraphs of §60.5375a were revised to read:

> *(2) [Reserved]*
>
> *(3) If it is technically infeasible to route the recovered gas as required in § 60.5375a(a)(1)(ii), then you must capture and direct recovered gas to a completion combustion device, except in conditions that may result in a fire hazard or explosion, or where high heat emissions from a completion combustion device may negatively impact tundra, permafrost or waterways. Completion combustion devices must be equipped with a reliable continuous pilot flame.*

Under the proposed language (and the language which preceded it in the rule), operators were authorized to route gas to a completion combustion device if salable quality gas could not be directed to the flow line due to technical infeasibility. Optionally, operators could also re-inject gas into the well or another well, use the gas as an onsite fuel source, or use it for another useful purpose that a purchased fuel or raw material would serve.

Under the finalized language, operators must try all four options provided by EPA prior to routing gas to a completion combustion device and also document the infeasibility of each of the four options as described below.

The text in red in the excerpt below was not in the proposed rule, but was added to the final version of the rule.

§60.5420a (c)(1)(iii)(A):

> *For each well affected facility required to comply with the requirements of §60.5375a(a), you must record: The location of the well; the United States Well Number; the date and time of the onset of flowback following hydraulic fracturing or refracturing; the date and time of each attempt to direct flowback to a separator as required in §60.5375a(a)(1)(ii); the date and time of each occurrence of returning to the initial flowback stage under §60.5375a(a)(1)(i); and the date and time that the well was shut in and the flowback equipment was permanently disconnected, or the startup of production; the duration of flowback; duration of recovery and disposition of recovery (i.e., routed to the gas flow line or collection system, re-injected into the well or another well, used as an onsite fuel source, or used for another useful purpose that a purchased fuel or raw material would serve); duration of combustion; duration of venting; and specific reasons for venting in lieu of capture or combustion. The duration must be specified in hours. In addition, for wells where it is technically infeasible to route the recovered gas to any of the four options specified in §60.5375a(a)(1)(ii), you must record the reasons for the claim of technical infeasibility with respect to all four options provided in that subparagraph, including but not limited to; name and location of the nearest gathering line and technical considerations preventing routing to this line; capture, reinjection, and reuse technologies considered and aspects of gas or equipment preventing use of recovered gas as a fuel onsite; and technical considerations preventing use of recovered gas for other useful purpose that that a purchased fuel or raw material would serve.*

The comments presented here would have been provided to EPA during the proposal comment period, if we were provided proper notice and comment ability. Our objection is of central relevance to the outcome of the rule because it provides substantial support for the need to revise the rule.

API believes there is a burden from the final rule language that was not considered during the proposal. More importantly, the requirement for operators to record technical infeasibility with respect to each of the four alternatives provided in the rule provides no benefit since these are not true, viable alternatives. The only scenario that should require documentation of infeasibility is the routing of recovered gas to a flow line.

Therefore, API requests EPA to modify the final rule language as follows:

§60.5375a to read:

> *(2) [Reserved]*
>
> *(3) If it is technically infeasible to route salable quality gas to a flow line or collection system, then you must capture and direct recovered gas to a completion combustion device, except in conditions that may result in a fire hazard or explosion, or where high heat emissions from a completion combustion device may negatively impact tundra, permafrost or waterways. Completion combustion devices must be equipped with a reliable continuous pilot flame.*

§60.5420a (c)(1)(iii)(A) to read:

> *(A) For each well affected facility required to comply with the requirements of §60.5375a(a), you must record: The location of the well; the United States Well Number; the date and time of the*

onset of flowback following hydraulic fracturing or refracturing; the date and time of each attempt to direct flowback to a separator as required in §60.5375a(a)(1)(ii); the date and time of each occurrence of returning to the initial flowback stage under §60.5375a(a)(1)(i); and the date and time that the well was shut in and the flowback equipment was permanently disconnected, or the startup of production; the duration of flowback; duration of recovery and disposition of recovery (i.e., routed to the gas flow line or collection system, re-injected into the well or another well, used as an onsite fuel source, or used for another useful purpose that a purchased fuel or raw material would serve); duration of combustion; duration of venting; and specific reasons for venting in lieu of capture or combustion. The duration must be specified in hours. In addition, for wells where it is technically infeasible to route the recovered gas ~~to~~ from the separator into a gas flow line or collection system, ~~as specified in §60.5375a(a)(1)(ii),~~ you must record the reasons for the claim of technical infeasibility. ~~with respect to all four options provided in that subparagraph, including but not limited to; name and location of the nearest gathering line and technical considerations preventing routing to this line; capture, reinjection, and reuse technologies considered and aspects of gas or equipment preventing use of recovered gas as a fuel onsite; and technical considerations preventing use of recovered gas for other useful purpose that that a purchased fuel or raw material would serve.~~

5. Flares for control of Subpart OOOO affected facilities Should Not be Subject to 40 CFR § 60.18 retroactively.

In its Final Rulemaking of both NSPS Subparts OOOO and OOOOa, EPA removed the exemption from compliance with 40 CFR § 60.18 for flares in Table 3 General Provisions. By this action, it could be interpreted that EPA has perhaps inadvertently and certainly improperly imposed a retroactive application of the standards for the design and operation of flares under 40 CFR § 60.18 used to control Subpart OOOO affected facilities, including those associated with maximum velocity restrictions. As indicated by the preambles to both the proposed and final rulemakings, EPA did not consider the potential retroactive effect of this change as it pertains to flares used to control all Subpart OOOO affected facilities, specifically including, but not limited to, flares used to control vapors from process unit affected facilities at onshore natural gas processing plants subject to NSPS Subpart OOOO. In addition, EPA confounds the issue further by its suggestion that the removal of the prior exemption under Subpart OOOO stands only as a clarification of its intent in response to petitions for reconsideration received under that rule.[2] Regardless of EPA's claimed basis for the removal of the exemption and if the changes are interpreted to apply retroactively, EPA's final rulemaking fails to adequately consider the impact the change has on operators who have designed and installed high velocity flares (e.g. sonic) based on the prior exemption in Table 3 at onshore natural gas processing plants to control Subpart OOOO process unit affected facilities between August 24, 2011 and September 18, 2015.

EPA suggests that changes to Subpart OOOO do not constitute a retroactive change of standards and references section VI.H of the preamble for more information regarding this issue.[3] In the proposed rulemaking, EPA acknowledged it was aware of flares used to control Subpart OOOO affected facilities

[2] See Chapter 14 of EPA's Response to Comments - Amendments to Subpart OOOO at page 14-3.
[3] Id.

that are not able to meet the maximum velocity requirements under 40 CFR 60.18 during periods of startup, shutdown, emergency and/or maintenance activities.[4] However, in section VI.H.5 of the preamble to the final rule, EPA dismisses the effect of the rule on flares at gas processing plants which cannot meet the subject velocity requirements during startup, shutdown, emergency or maintenance, and focuses only on flares used to control storage vessels, pneumatic pump, centrifugal or reciprocating compressors, which EPA suggests are able to be routed by closed vent system to low pressure flares.[5] EPA's dismissal on this point doesn't address the use of existing flares subject to NSPS Subpart OOOO by virtue of the flares' usage at gas processing plants to control both maintenance/upset emissions from relief valves and fugitive emissions from these same relief valves that are subject to leak detection and repair (LDAR) regulations under Subpart OOOO. These relief valves cannot be routed to a low pressure flare as these valves operate with either low/no flow (fugitive emissions control) or extremely high flow (maintenance/upset emissions control). During the high flow events, data suggests the flares used to control Subpart OOOO process units at onshore natural gas processing plants can potentially exceed the maximum velocity restrictions of 40 CFR § 60.18 (b) and (c).

An interpretation of retroactive application of 40 CFR § 60.18 in Subpart OOOO for high velocity flares constructed between August 24, 2011 and September 18, 2015 to control process unit equipment leaks and pressure relief events while exempt from §60.18 as specifically listed in Table 3, would create an immediate compliance burden that will result in significant costs to replace these flares. There is no other compliance alternative available. For this reason, API respectfully requests the EPA reconsider the retroactive application of 40 CFR § 60.18 for flares in Table 3 and retain the exemption in Subpart OOOO.

[4] 80 FR 56593, 56646 .
[5] 81 FR 35824, 35866-35867.

II. ADDITIONAL ISSUES

1. Clarification is required for boilers and process heaters used to reduce emissions, particularly as used for pneumatic pumps.

A. There must be a clear definition of control device and recognition that boilers and process heaters are not control devices that are subject to control design requirements in Subpart OOOOa.

Under Subpart OOOOa, the provisions related to "control device" and "routed to a process" or "route to a process" are inconsistent, confusing, and in some instances, conflicting. This is particularly the case with regard to boilers and process heaters in the context of controlling pneumatic pumps. Sections 13 and 24 of our December 4, 2015 comments discussed these issues in detail.

In Chapter 5 of its Response to Comments, EPA's explanation for not making API's requested changes relies primarily on its requirement that control of pumps does not need to meet the 95% control efficiency (§60.5393a(b)(4)) and that allowances have been made for technical infeasibility. However, at greenfield sites, EPA disallows technical infeasibility in the final rule and mandates 95% control efficiency (§60.5393a(b)(1)), making the agency's rationale only partially correct in its discussion of control efficiency and technical infeasibility allowances (see issue Item 2 of this letter for greenfield/brownfield sites). At brownfield sites, EPA requires reporting of design control efficiency if less than 95% (§60.5420a(b)(8)(i)(C)).

Inferring from the final rule, EPA appears to distinguish the issue of whether a boiler/heater is a control or process device by where the vent stream to be combusted is placed. §60.5413a(a)(3) exempts a boiler/heater from testing requirements if the vent stream is tied into the primary fuel or is the primary fuel for the heater firebox. This exemption indicates that EPA treats boilers/heaters as a process device. Conversely, if the vent stream is directed at the flame zone, then the boiler/heater appears to be considered a control device under the rule per §60.5412a(a)(1)(iv).

Boilers and process heaters are not designed as control devices regardless of where the vent stream is placed and are not purchased and put into service based on any inherent control efficiency design. Consequently, boilers and process heaters, at least with respect to pneumatic pumps, should only be considered as process devices, which is inherent of their operational use. If EPA intends to have these devices considered for reducing emissions from diaphragm pneumatic pumps, there should be no associated control efficiency listed in §60.5393a(b), and there should be no efficiency design requirement in §60.5420a(b)(8).

B. The control efficiency determination for boilers and heaters is not practically feasible and the requirement should be removed.

Control efficiency for pneumatic pumps is a rather meaningless number because of the variable operating conditions associated with pumps and boilers/heaters.

Pumps and boilers/heaters can be operated seasonally or on an episodic, seasonal, or otherwise intermittent basis which may not compliment the need to continually combust an affected source's emissions. A boiler or process heater may be offline at the time pump discharge is sent to the heater or boiler for combustion. In other words, it can be "hit or miss" with respect to any single pump discharge being combusted. If a boiler or heater operates only seasonally but a pump is used year round, long periods of time will occur where combustion of the pump discharge will not occur. The intermittent nature of some well site process heaters and boilers makes designed control efficiency a meaningless data point since there could be frequent periods where emission reduction of pump discharge does not occur.

Failing a definition of control device under Subpart OOOOa that eliminates the treatment of boilers and process heaters as controls, at least with respect to control of pneumatic pumps emissions, EPA should at least clarify that operators are only required to specify the level of emission reduction expected when a given control device, heater, or boiler, is in normal operation.

C. Technical infeasibility determination for boilers and heaters should be simplified.

While the technical infeasibility issue is addressed in more detail in Item I.2 with respect to greenfield and brownfield sites, EPA should explicitly list in the rule those common situations that would meet the technical infeasibility determination.

If any of these situations were to occur at a site with an affected pneumatic pump, no certifications should be required to document why pump emissions are not being controlled by a device present onsite:

- Presence of boilers and process heaters not regularly operated (e.g. seasonally used equipment).
- Flare, heater, or boiler has a rated heat capacity that would be exceeded if the discharge of pump were to be sent to it.
- Presence of only a high pressure flare(s).
- Retro-fit to existing equipment may require manufacturer certification, nameplate update and/or void equipment / emissions warranty for purchased or rental equipment.
- Minimal space allotted for emission gas routing and heater/boiler system integration.

If the requirement to certify technical infeasibility remains, then, for the above situations, which will be some of the most common, operators should only be required to document and not certify the cause of the infeasibility. This approach would also be consistent with API's comments above that PE certifications should be removed from the rule and stayed pending reconsideration. As discussed in Item I.1, API believes the PE certification adds burden while not adding emission reductions and, as is the case with all required PE certifications in the rule, this requirement was not proposed originally and thus we were not provided proper notice and comment ability.

2. The compliance assurance requirements for a closed vent system (CVS) routing emissions from a pneumatic pump to a control device should be aligned to the requirements for storage vessels and not centrifugal and reciprocating compressors as currently finalized.

As noted in our December 4, 2015 comment letter on the proposed Subpart OOOOa, the compliance provisions related to the capturing of emissions from pneumatic pumps should be consistent with the requirements associated with closed vent systems for storage vessels and not those for wet seal centrifugal compressors and reciprocating compressors. Pneumatic pumps are most often located at well sites and small compressor stations that are more likely to have control devices installed to control emissions from storage vessels.

However, as finalized, the rule currently requires the same monitoring as required of affected centrifugal and reciprocating compressors – i.e. annual method 21 in addition to OGI monitoring for determination of fugitive leaks for closed vent systems for pneumatic pumps. These requirements are inappropriate, unduly burdensome, and duplicative. The costs for this requirement were not included in the cost analysis, and the negligible amount of emissions from pneumatic pumps does not justify this additional expense. The olfactory, visual, and auditory (OVA) inspection requirements associated with storage vessel closed vent systems are more appropriate.

The requirements for inspection and monitoring of closed vent systems associated with pneumatic pump affected sources should be moved from §60.5416a(a) & (b) (centrifugal and reciprocating compressors)[6] to §60.5416a(c) to be consistent with the requirements for affected storage vessels. Alternatively, EPA could simplify all closed vent system inspection and monitoring requirements to have all systems subject to the provisions of §60.5416a(c).

3. There should be a pathway to reduce LDAR survey frequency to annual for well sites and semi-annual for compressor stations.

In comments on the proposed Subpart OOOOa, API explained why a fixed annual frequency would be the appropriate frequency for well sites and compressor stations. Cost effectiveness determinations did not correctly capture costs and subsequent benefits. The model plant used for the cost effectiveness determination did not adequately reflect that most well sites are much smaller than the model plant used in the EPA's analysis, which results in misrepresentation of smaller sites in the cost effectiveness determination. New industry data collected by an API member company (See Attachment A), shows that leak rates can remain well below the target leak threshold of 1% that was proposed with a fixed annual survey program.

EPA should update the model plant basis to be more reflective of actual well sites and revise cost effectiveness since the original analysis was based on unrealistic prices and emission reduction potentials. EPA should also consider evaluating the monitoring data becoming available from various new state programs to better inform the basis of assumptions throughout the analysis. (See section 27.3 of API's December 4, 2015 comments.) At a minimum, EPA should only initially require semi-annual or quarterly surveys for 2 years and then allow annual surveys for sites that do not have leaking a significant number of leaking components.

[6] Note also that there is no reference in §60.5393a for the CVS provisions required in §60.5416a(a); only §60.5416a(b) is listed. This leaves confusion as to EPA's intent regarding whether §60.5416a(a) would apply to a CVS routing emissions from a pneumatic pump.

API recommends providing an optional threshold of six (6) leaking components to allow monitoring frequency to be reduced since six leaking components represents 1% of components in EPA's model plant for gas well sites. Note that with a six leaking component threshold, survey frequency is more stringent for sites equal to or larger than the model plant and less stringent for the smaller sites, which were not properly represented on the cost effectiveness determination.

4. There should be an exemption from LDAR requirements for new low production wells and a pathway to discontinue LDAR at new wells that become low production wells.

In the preamble of the rule proposal, EPA solicited comment on the air emissions associated with low production wells, and the relationship between production and fugitive emissions. Specifically, EPA was interested in the relationship between production and fugitive emissions over time. EPA also solicited comment on the appropriateness of this threshold for applying the standards for fugitive emissions at well sites, in addition to whether EPA should include low production well sites for fugitive emissions and if these types of well sites are not excluded, should they have a less frequent monitoring requirement.

While the amount of production through a particular facility does not directly impact the amount of fugitive emissions, the number of fugitive components at that facility can increase if additional equipment is added to handle an increase in production (for instance a new well brought online with an additional train of process equipment), and can decrease substantially as production declines if production equipment is either disconnected or removed from the site so that it may be utilized elsewhere or sold. Typically, stripper wells have decreased in production to the point where there may be minimum equipment on site compared to average higher production wells for which EPA's model plant was based. (Note: the average oil stripper well in the U.S. averages approximately 2 BOPD, even though one threshold for classification as a stripper well is 15 BOEP).

As indicated in Section 27.2.4 of our December 4, 2015 comments, sites with equipment configurations or component counts significantly less than EPA's model plants should be exempt from the LDAR requirements based on cost effectiveness. EPA is not correct in their Response to Comments (EPA-HQ-OAR-2010-0505-6983, Excerpt 17) that suggests the model plant cost analysis should equate to all well sites, even those with significantly fewer components, since there are larger well sites that have more components. The best system of emission reduction (BSER) is not based on a calculated average value, but rather it establishes a threshold limit where controlling a source above the threshold is considered cost effective and controlling a source below the threshold is not. One example of this is found in 40 CFR Part 60, subpart JJJJ where applicability and levels of control are linked directly to rated horsepower, which is generally proportional to potential emissions. There is a threshold (e.g. rated horsepower) where technology limits are cost effective and below which they are not. As communicated to the Agency previously, API continues to recommend EPA apply a similar approach for low production wells in regards to LDAR because the typical count of components at those facilities is substantially less than the EPA's model plant analysis.

In addition, low production sites typically have lower operating pressures than average high production sites. Most low production sites operate with a gas gathering system operating at relatively low pressures (<50 psig) because the depleted well cannot provide enough pressure to get into a typical gas gathering pressure of 125 to 200 psig. The number of fugitive components and operating pressure are the two variables that determine leak rates from fugitive components. While production rate does not

directly affect the amount of fugitive emissions from a site, it is an appropriate surrogate in the case of low production wells because higher production sites typically have enough wellhead pressure to operate at the higher pressures needed to get into a 125 to 200 psig gas gathering system.

EPA should revise the rule to provide an exemption for low production wells [15 BOED (stripper well)] as requested in API's prior comments. API suggests low production wells be considered wells with < 15 barrels oil equivalent production per day (BOED), also known as stripper wells. Additionally, EPA should provide a mechanism to cease LDAR surveys when production from well sites drops below 15 BOED. The cessation of LDAR after production drops is analogous to the ability the rule provides to remove a control device after emissions from a storage vessel drop.

5. Oil wells should be exempt from the LDAR requirements.

Based on EPA's estimates from the rule proposal, LDAR requirements for oil well sites were not cost effective. Accordingly, API commented that oil wells should be exempt from the Subpart OOOOa LDAR requirements in Section 27.2.8 of our December 4, 2015 comments.

While finalizing the rule, EPA revised the model plant assumptions for oil well sites significantly. This is described in Section 4.2.2.3 of the Final Technical Support Document (TSD). As described in the TSD, EPA created two oil well site model plants, one representing oil well sites with < 300 GOR and one for sites with greater than 300 GOR. The less than 300 GOR oil well site model plant is essentially the same as the model plant proposed. However, for the greater than 300 GOR oil well site model plant, EPA arbitrarily added components to the site. EPA stated:

> *"To develop the model plant for oil well sites with a gas-to-oil ratio greater than 300 standard cubic feet of gas per stock barrel of oil (greater than 300 GOR), three meters/piping were added to the equipment counts included for the less than 300 GOR model plant to account for the handling of the natural gas from the well."*

There are several problems with the approach EPA took in updating the model plant.

- EPA made significant changes to fundamental assumptions regarding the component counts. These changes resulted in large changes to the cost effectiveness values as the emissions per site more than doubled due to the change.
- EPA is assuming that an oil well model plant with greater than 300 GOR would look exactly like a gas well in terms of the numbers of components associated with metering and piping. In fact, the gas well site assumptions were used directly for the greater than 300 GOR oil well sites.
- EPA is treating "meters/piping" as if it is a single piece of equipment and scaling the number of "meters/piping" based on the assumed number of wells present. In reality, there are many cases where no gas metering occurs at a well site. Further, it is even more infrequent for there to be a need to add proportionally more piping or meters as more wells are brought on line at a given site. The sharing of equipment is a key benefit of multi-well sites.

EPA's updated analysis, indicates, that for oil wells greater than 300 GOR, the costs per ton of methane and per ton of VOC were 2 times higher than for gas wells. Further, for oil wells less than 300 GOR costs per ton were 4 ½ times higher than for gas wells. Therefore, at a minimum, EPA should exempt oil well

sites less than 300 GOR from the leak detection and repair requirements, as control of these facilities is still not cost-effective.

6. The timing of LDAR Surveys should be updated to allow for integration into existing LDAR programs.

The final rule states that an initial survey must be completed within 60 days of start of production for a well site or within 60 days from startup or modification of a compressor station. Subsequent surveys then are to take place on a semiannual basis for wells sites and a quarterly basis for compressor stations. The implementation of LDAR programs is not trivial; there are numerous challenges to building a robust program. While API appreciates EPA's recognition of this by providing for a one-year phase in for the LDAR requirements, there remain challenges with the required timing of initial inspections. Given the significant distances between many oil and gas sites, the requirement to have an initial inspection within 60 days creates significant burden for very little benefit when the initial inspection could easily be rolled into the next periodic inspection for the other sources in that area. Furthermore, many sites are located in extremely cold climates in the intermountain west or Alaska that may not be reachable to do the LDAR surveys within 60 days (see also item immediately below).

API recommends EPA allow 180 days for the initial survey. It is noted that this timing is not expected to result in significantly more emissions. If a 180 day period were allowed, on average, half the sites would likely be surveyed at less than 90 days and half would likely be surveyed between 90 to 180 days.

7. The LDAR requirements must include adequate provisions to account for extreme weather in cold climates.

The temperatures on the Alaskan North Slope, and certain other areas throughout the country, are bitterly cold during winter months and adequate provisions must be considered in applying the LDAR provisions in the Subpart OOOOa.

A. The operations on the Alaskan North Slope should be categorically exempt from the LDAR requirements.

EPA set this precedent within Subpart OOOO and now Subpart OOOOa by allowing for an exemption from LDAR in §60.5401(e) and §60.5401a(e) for natural gas processing plants located on the Alaskan North slope. EPA should consider similar exemptions from LDAR for well sites and compressor stations since these operations experience the same harsh conditions.[7]

In the final Subpart OOOOa, the minimum requirement between the semi-annual surveys is 4 months for well sites. The semi-annual surveys on the Alaskan North slope could only be conducted in May/June and September/October due to sustained low winter time temperatures (approximately five consecutive months with average temperature below 0 degrees Fahrenheit). While EPA acknowledged

that an exemption was needed for compressor stations and provided a waiver for quarters where the ambient temperatures are below 0 degrees Fahrenheit, the same was not done for well sites. EPA described the rational for this by assuming there would be no 6-month period where all months were below 0 degrees Fahrenheit average. The rule requires an OGI on newly affected sites within 60 days of completion, which is not practical on the Alaskan North Slope five months of the year. For example, if a well is completed at the end of November, an OGI would be required by the end of January. This would not be possible as the ambient temperatures in mid-November through mid-April are very rarely above 0 degrees Fahrenheit on the Alaskan North Slope. Moreover, the 30-day repair window does not accommodate the reality on the Alaska North Slope that parts (custom parts designed for Arctic environment) may be unavailable, and there is no delay of repair provision for this issue.

EPA should consider an exemption for operations on the Alaskan North Slope. At a minimum, EPA should allow for a waiver at well sites similar to the provisions provided for in §60.5397a(g)(5) for compressor stations and extend the initial survey frequency to 8 months (240 days) to adequately account for weather conditions in this region. Extension of the initial survey timing would allow for the survey to coincide with semi-annual survey frequencies. In addition, it would be appropriate to include as a reason for delay of repair, parts unavailability for the Alaska North Slope.

B. Inclement Weather Considerations for completing LDAR are necessary.

For other parts of the country in the Lower 48 that experience sustained inclement weather (Wyoming, North Dakota, Colorado, etc.), EPA should provide an additional extension of time to complete the initial and subsequent surveys due to possible road closures, accessibility of the site and safety of personnel. For example, it is common in states like Wyoming and North Dakota for a snow storm to cover the ground in multiple feet of snow, which would prevent access to many remote well site and compressor station locations. Extended periods of high winds are also common and similarly impact ability to complete surveys.

At a minimum, a 30 day extension should be granted to adequately handle unforeseen inclement weather events.

8. There should be a simple process for determining State Equivalency for the LDAR requirements at the State level; not just the process outlined in §60.5398a for Alternative Means of Emissions Limitations.

The Alternative Means of Emission Limitation (AMEL) process described in §60.5398a and §60.5402a are conceptually helpful, but the process appears to be limited in terms of true practical benefit. EPA's intent is not explicitly clear. For example, once an AMEL has been approved, can it be used by anyone operating in that particular state? While this should be the case, it is not clear. It is inefficient to have multiple operators petitioning for the same equivalency if all operators in a state are subject to the same state requirements. The inefficiency of individual operator petitions will lead to extensive delays of petition approval. EPA's language in the Subpart OOOOa seems to indicate that only owners/operators can apply; however, the potential for various trade groups to petition on behalf of its members in a state would avoid duplicative work by individual operators and burden on EPA. Additionally, under the proposed approach, it is not clear exactly what happens if the state subsequently revises its LDAR

requirements. Would the AMEL become invalid? Would there be a grace period to request an update to the equivalency determination?

EPA should consider additional AMEL processes or provide guidance to reduce burden on operators and EPA. For example, EPA should consider allowing trade associations to petition on behalf of operators. At a minimum, EPA must clarify that upon approval of any request for a particular state, all operators in that state can immediately rely upon that equivalency determination.

9. The definition of modification for LDAR should only include wells that are hydraulically refractured in combination with the installation of new production equipment on site.

As mentioned in our December 4, 2015 comments regarding exemption of low production wells from LDAR, the amount of production, in and of itself, does not increase or decrease the amount of fugitive emissions emitted from a site with the relative same number of fugitive components and same approximate operating pressure. A well that is refractured typically does not require additional production equipment and does not typically operate at a pressure higher than before the refracturing since that pressure is set by the gas gathering system pressure. Therefore, as long as a significant piece of processing equipment is not constructed along with the refracture, there is no emissions increase and there is no "modification" as defined in CFR Part 60.2

API recommends that EPA make the following revisions:

- Revise the last sentence in §60.5365a(a): … *However, hydraulic refracturing of a well, with the construction of additional permanent process equipment (storage vessel, separator, compressor, heater treater, or meter-run), constitutes a modification of the well site for purposes of paragraph (i)(3)(iii) of this section, regardless of affected facility status of the well itself.*
- Revise §60.5365a(i)(3)(iii): *A well at an existing well site is hydraulically refractured and additional permanent process equipment is constructed (storage vessel, separator, compressor, heater treater, or meter-run).*

10. The digital photo/video requirements associated with LDAR provision in §60.5420a should be removed.

As documented in EPA's Response to Public Comment document (see EPA-HQ-OAR-2010-0505-6924), EPA responded to a request from the State of Arkansas seeking removal of the requirement to keep photograph records by stating: *"The date-stamped digital photograph serves as a record that someone performed a monitoring survey at the site. In the traditional LDAR scenario, the owner or operator tags all of the equipment that must be monitored, and when the Method 21 operator subsequently inspects the affected facility, the operator scans each component's tag and notes the component's instrument reading. This log serves as a documentation of the LDAR monitoring survey. In the fugitive emissions program under subpart OOOOa, we are not requiring owners and operators to document readings for each component, but we still need a compliance assurance mechanism to document that a monitoring survey was performed. We believe that keeping a digital photograph from the survey is a quick and easy way to fulfill this requirement."*

There are two major issues with EPA's logic in requiring these records. First, a digital photo technically only proves that someone was present on site and not the completion of an emission survey. Second, EPA continues to equate the sources covered under OOOOa with sources covered by "traditional LDAR". Chemical plants and refineries with traditional LDAR programs have full-time dedicated staff on site to manage the significant demands associated with running a "traditional LDAR" program. This is very different from un-manned remote production facilities.

API believes that records of repair and tagging of leaks in addition to general recordkeeping validates completion of surveys. EPA should remove the digital photo/video requirement for each OGI survey. At a minimum, EPA should modify the rule to make the photo requirement optional similar to that for REC recordkeeping, where the use of photographs is an alternative to other recordkeeping requirements.

11. Monitoring plan observation path and sitemap requirements under §60.5397a(d) are excessive and should be removed.

A company monitoring plan will cover all the relevant material needed for an effective LDAR program. While EPA eliminated the need for site-specific plans, the requirements for inclusion of site-specific information within the plan remain. There is no added benefit and there is significant added cost of developing hundreds and up to thousands of site-specific details to be included in monitoring plans.

The proposed requirement for site-specific monitoring plans, including the requirement to specify an observation path for each site, is unnecessary and the requirements are onerous. Many times, production areas do not have site maps developed for each site. Development of a sitemap would be solely for this rule. The cost of developing site maps for every site was not included in the cost evaluation for LDAR. Furthermore, the requirement to specify an observation path for each site is unnecessary for oil and natural gas well sites and compressor stations. The person conducting the survey must be trained and have the knowledge and ability to use the monitoring device.

Therefore, EPA should remove the requirements listed under §60.5397a(d)(1) and (2).

12. Delay of Repair Provisions require additional clarity.

In the Preamble of the final rule (FR 35858), EPA states:

> *We also agree that a complete well shutdown or a well shut-in may be necessary to repair certain components, such as components on the wellhead, and this could result in greater emissions than what would be emitted by the leaking component. The EPA does not agree that unavailability of supplies or custom parts is a justification for delaying repair (i.e., beyond the 30 days for repair provided in this final rule) since the operator can plan for accessible or obtaining the parts within 30 days after finding the fugitive emissions.*
>
> *Based on available information, it may be two years before a well is shut-in or shutdown. Therefore, to avoid the excess emissions (and cost) of prematurely forcing a shutdown, we are amending the rule to allow 2 years to fix a leak where it is determined to be technically infeasible*

> *to repair within 30 days; however, if an unscheduled or emergency vent blowdown, compressor station shutdown, well shutdown, or well shut-in occurs during the delay of repair period, the fugitive emissions components would need to be fixed at that time. The owner or operator will have to record the number and types of components that are placed on delay of repair and record an explanation for each delay of repair.*

§60.5397a(h)(2) states:

> *If the repair or replacement is technically infeasible, would require a vent blowdown, a compressor station shutdown, a well shutdown or well shut-in, or would be unsafe to repair during operation of the unit, the repair or replacement must be completed during the next compressor station shutdown, well shutdown, well shut-in, after an unscheduled, planned or emergency vent blowdown or within 2 years, whichever is earlier.*

This language was not in the proposed rule. The proposed rule for delay of repair was as follows:

> *If the repair or replacement is technically infeasible or unsafe to repair during operation of the unit, the repair or replacement must be completed during the next scheduled shutdown or within 6 months, whichever is earlier. (from page FR 56611)*

While API appreciates EPA's recognition that it was not appropriate to require a shutdown after a maximum of six (6) months as EPA originally proposed, the language finalized in Subpart OOOOa requires more clarity. Additional clarity is needed because the language in §60.5397a(h)(2) presumes that various shut down events and well shut-ins would necessarily result in the blow down of all equipment located on site (including the leaking component on delay of repair). This is not accurate. For example, during a well shut-in, some equipment on site may remain isolated, but under pressure (such as the line pressure leaving a well pad).

Further, there are commonly occurring, brief events that could be interpreted as well shutdowns or shut-ins, but should not be. These include: short interruptions in production to control reservoir pressure and manage well life such as plunger lift, pump rod, and manual intermittent well flow control. In addition to these events being very short, some are automated. The events are driven by the need to react to field conditions and, in most cases, they are not possible to predict and plan repairs of leaking components around.

While EPA recognizes that wellhead components may need leak repair, a leak in the master valve or connections below the master valve or at the bradenhead is a special situation that EPA needs to consider. Above the master valve of the Christmas tree, a leak can be repaired provided the master valve or other valve below or behind the leak doesn't leak when closed. Christmas trees are configured differently depending on the expected pressure and flow of the well, and high pressure trees may have dual master shut-in valves while low pressure trees may have only one. However, the lowest master valve is the isolation valve of last resort. If it is the source of the leak or the valve will not close properly to allow shut in of the well if needed to isolate it from the wellhead leak, or the bradenhead connection below the master valve is the source of the leak, a workover will most likely be needed to set a plug downhole to isolate the well so that a wellhead leak can be repaired. If the leak needing repair is small and not a safety concern, then mandating a leak repair within 2 years would not seem appropriate as a needed workover is a significant cost in addition to the cost of repairing or replacing the leaking component. For this situation, a delay of repair for a wellhead should be conditionally based on when a

workover is needed for other downhole work and should not be subject to a 2 year limitation. A workover may be less than 2 years in some cases, but it can also be more.

In some cases, such as on the Alaska North Slope, the shutdown of a facility or a group of facilities in the winter can pose significant risks, including potentially the lack of primary electricity generation and space heating, and the potential for idle flow lines to gel or freeze. Backup diesel power generation is available only in limited capacities, and has higher emissions than gas turbines. In such extreme cases, bringing critical facilities back on line should not be delayed for relatively minor repairs for fugitive methane emissions. The rule should allow for such overriding considerations and not put the operator in a position of having to elect between regulatory compliance and prudent facility operations.

API proposes revising the language found at §60.5397a(h)(2) to read:

> *If the repair or replacement is technically infeasible, would require a vent blowdown, a compressor station shutdown, a well shutdown ~~or well shut-in~~, or would be unsafe to repair during operation of the unit, the following special provisions apply. For wellhead component repair or replacement that requires a workover for downhole work to isolate the well from the wellhead leak, repair must be made not later than the next scheduled workover to repair or re-condition the well. Otherwise, the repair or replacement must be completed during the next event requiring a blowdown of the equipment on which the leak was detected, with the shutdown lasting more than one day (e.g. compressor station shutdown, well shutdown, ~~well shut-in,~~ or after a ~~n unscheduled,~~ planned ~~or emergency vent~~ blowdown) or within 2 years, whichever is earlier.*

13. Issues with Compliance Demonstration Requirements for Combustion Devices and Flares Not Addressed.

EPA has failed to adequately respond to and understand concerns that API raised in our December 4, 2015 comments on the control device testing and monitoring compliance assurance related to measuring the volumetric flow rate as required under §60.5413a(b)(2) and under §60.18(f)(4) from storage vessels. Using Method 2, 2A, 2C, or 2D is not technically feasible[8].

EPA's response to comment, copied in below, did not fully address API's comments, nor did EPA cite aa specific meter a specific scenario where EPA has performed testing using Method 2, 2A, 2C, or 2D at a well pad. Specifically, EPA has not adequately shown resolution of the technical challenge of directly measuring the volume of material resulting from the flash of materials in storage vessels that occurs only when the separator dumps condensate to the storage vessel.

The impact to environmental emissions controls is that flow to the control device varies from essentially zero to high flow rates and quickly back to zero rapidly and often. This highly variable, non-steady state flow mandates equipment to be sized larger than ideal steady state conditions would dictate and makes flow measurement infeasible, particularly to meet the requirement to accurately measure such volume

[8] See Comments 12.1, 12.3, and 12.5 of API's December 4, 2015 comments on Subparts OOOO and OOOOa.

within ±2 percent. Industry has found no such flow meter available that can handle the variable flow which occurs with many of our combustion devices.

EPA has not provided industry with information of such a meter either. A turbine meter with a flow totalizer can be used, however if the upper or lower ranges are exceeded during the 1-hour test, the accuracy of the totalizer may be compromised. For a pitot tube, only a finite number of traverse sets can be collected during a 1-hour period, and can only be used if there is a constant flow, which is not the case with tank flash.

Aside from the technical challenges of obtaining an accurate flow reading for a performance test, there are safety risks for testing personnel due to the need to access the flow line feeding the control device while equipment is operation and flow to device is occurring. To adequately mitigate these risks, a facility shutdown, potentially including the shut-in of numerous wells would need to occur. It is not believed this was EPA's intent as these costs were not considered in rule development. Otherwise, a permanent flow meter would have to be installed, which EPA also did not include in the cost of the control device.

The following excerpt is from EPA's discussion of this in Response to Public Comments Document (Chapter 11):

> *Response: Concerning the portion of the comment related to auto-ignition devices, see response to DCN EPA-HQ-OAR-2010-0505-6808, Excerpt 17. Concerning the portion of the comment related to sonic flares, see response to DCN EPA-HQ-OAR-2010-0505-6846, Excerpt 1.*
>
> *The EPA agrees with the commenter on the ambiguity in regards to the requirements for flares used to control storage vessel emissions. We have revised the final rule to make our intent clear that flares are an acceptable control options under §60.5412(d) and §60.5412a(d) and to add applicable performance requirements for these flares.*
>
> *We are not providing an exemption for low-pressure flares to operate outside of the requirements of §60.18 during malfunction events. The restrictions in §60.18 ensure that the flare will achieve the desired destruction efficiency. The standard for destruction efficiency applies at all times, even during startup, shutdown, and malfunction. Allowing an exemption during these times provides no compliance assurance that the standard is achieved.*
>
> *We disagree that a performance test for flares is unnecessary or burdensome. The performance test ensures that the flare maintains a high destruction efficiency. Determining volumetric flowrate is a simple demonstration. While we acknowledge that engineering calculations can be a valuable tool for demonstrating compliance, actual measurements are necessary to demonstrate the accuracy of the engineering calculations. Actual measurements are also a useful tool for correlating and adjusting engineering calculations.*
>
> *We do not believe that there is a technical infeasibility issue in measuring the gas flow to the flare. While we believe that there will be a high enough flow to the flares to easily measure the flow as the performance test should only be performed at representative conditions, we note that the EPA flow methods are capable of handling low, intermittent and non-steady flow conditions.*

> *Finally, we note that the commenter previously stated that the EPA was incentivizing flare use by requiring measurement of gas flow on enclosed combustion devices, even though an enclosed combustor "yields higher destruction efficiencies than flares". The commenter further stated, "It is counterproductive for the environment to disadvantage enclosed combustors". While the EPA is not requiring a particular control device in Subpart OOOOa, in light of the commenters previous statement about not disadvantaging enclosed combustors, we do not believe that it is prudent to remove compliance demonstrations from flares when enclosed combustors are subject to such a requirement. All control devices should perform a demonstration that they are capable of achieving what they are required to achieve.*

Also, EPA has failed to justify why compliance for a MACT standard (NESHAP HH) is cost effective and necessary under an NSPS for small, dispersed, unmanned facilities in response to Comment 12.2.

The compliance demonstration requirements are still on a mass basis versus a volume basis which the standards are set at as API noted previously[9].

EPA had proposed revisions to the outlet concentration compliance method of §60.5412a(d)(1)(iv)(B) raising the TOC (minus methane and ethane) level from 20 ppmv to 600 ppmv; however, in the final rule this value was changed to 275 ppmv without the opportunity to comment.

API requests that EPA review this issue further and revise the performance testing criteria accordingly. At a minimum, API requests that EPA provide language in the rule to allow for the option to petition for an alternative compliance demonstration for flares and non-certified enclosed combustors.

14. Requiring use of the Compliance and Emissions Data Reporting Interface (CEDRI) if EPA releases the electronic reporting form 90 days prior to the report due date is insufficient for compliance.

As mentioned in our December 4, 2015 comments, it is inappropriate for EPA to require electronic reporting under the Subpart OOOOa before the system is demonstrated capable of accommodating the unique nature of the oil and natural gas industry. The electronic reporting system is not proven generally at this time. Further, the system will require configuration to allow the current area based reporting versus facility by facility. In the past, system revisions have resulted in significant IT challenges, and appropriate time needs to be allowed for the agency to develop, QA/QC, user test and train reporters on the new system. Operators need a significant amount of time to update internal systems to efficiently use CEDRI.

A poorly designed form without adequate testing is likely to result in additional burden to industry with no environmental benefit. Without a final CEDRI rule, more time may be needed to resolve issues in the final rule through the petition process. Finally, EPA cannot require industry to regularly monitor the EPA website for the availability of the CEDRI functionality required in the Subpart OOOOa.

EPA should amend the final rule language to formally allow for continuation of the initial reporting approaches from Subpart OOOO for three years to allow for rollout of the electronic reporting system. In addition, EPA should have a beta test period for CEDRI form before finalizing the form for industry

[9] Comment 12.4 of API's December 4, 2015 comments on Subparts OOOO and OOOOa.

use. At a minimum, EPA should amend the rule language to require CEDRI reporting only if the form is available for a minimum of 1 year prior to required reporting, not the 90 days as required in the current rule.

15. The definition of Capital Expenditure should be removed in §60.5430 of Subpart OOOO as it could be interpreted to imply retroactivity and the OOOOa procedure for calculating capital expenditure should be revised.

In its final rulemaking, EPA added a definition for "capital expenditure" to both Subpart OOOO and Subpart OOOOa claiming to "update[ ] the formula to reflect the calendar year that subpart OOOO was proposed, as well as specified that the B value for subpart OOOO is 4.5"[10]. The rule could be interpreted to impermissibly and retroactively alter the definition under Subpart OOOO. Under such an interpretation, EPA's revision to the Subpart OOOO definition, while cloaked as an update, would apply a legally impermissible retroactive calculation of "capital expenditures". EPA has not demonstrated that the CAA authorizes EPA to retroactively promulgate capital expenditure rules for evaluating modifications. See Bowen v. Georgetown University Hosp., 488 U.S. 204, 471 -72. (1988) ("Retroactivity is not favored in the law." "The power to require readjustments for the past is drastic."). Before EPA can make retroactive changes to Subpart OOOO, it must establish that the CAA allows for retroactive rulemaking. Id. ("it is axiomatic that an administrative agency's power to promulgate legislative regulations is limited to the authority delegated by Congress."). EPA has not done this. Moreover, EPA states that "our intent was not to recreate a retroactive requirement by revising subpart OOOO." [11]

Subpart OOOO previously did not separately define "capital expenditure" leaving the only applicable definitions as those included in 40 CFR § 60.2 and/or NSPS Subpart VV.[12] Prior to the rulemaking, (specifically from August 23, 2011 through September 18, 2015), if an operator of an onshore natural gas processing plant had a project at a process unit at the plant, which resulted in a physical or operational change that might be considered a modification, they had to rely upon the provisions associated with NSPS VV. A determination would have been made as to whether a facility change was a modification, i.e. resulted in a physical or operational change that caused an increase of emissions and required a capital expenditure. By changing the definition in Subpart OOOO, it could be interpreted that EPA appears to force operators to re-evaluate prior applicability determinations. Such a scenario would be unreasonable. In EPA's response to comments (section VI.H of preamble and Chapter 14 of Response to Public Comment document), this issue is lumped in with other reconsideration items and does not appear to have been considered adequately by itself.

Additionally, the formula provided by EPA in the definition for Capital Expenditure under Subpart OOOO does not work for a process unit constructed during 2011. For a project where capital expenditure was

[10] 81 FR 35867.
[11] 81 FR 35866.
[12] Previously, for all terms not otherwise specifically defined, Subpart OOOO incorporated by reference the definitions found in the Clean Air Act, in Subpart A and Subpart VVa of 40 CFR Part 60. Subpart VVa's definition of a "capital expenditure" was stayed effective June 2, 2008. See 73 FR 31376 (June 2, 2008); and 73 FR 31379 (June 2, 2008). Thus, as NSPS Subpart KKK cross referenced NSPS Subpart VV, in order to analyze whether a "capital expenditure" occurred for purposes of determining whether a project was exempt from being a modification under 40 CFR § 60.14, an operator employed the terms as defined under 40 CFR § 60.2 and Subpart VV.

being considered, the formula results in the need to take the log(0), which mathematically can only be represented by negative infinity.

EPA must remove the definition of Capital Expenditure from Subpart OOOO to resolve the potential enforcement interpretation of its retroactive applicability, and to comply with Supreme Court rulings on impermissible retroactive application. Bowen, 488 U.S. 204; *Greene v. United States,* 376 U.S. 149, 160, 84 S.Ct. 615, 621–622, 11 L.Ed.2d 576 (1964); *Claridge Apartments Co. v. Commissioner,* 323 U.S. 141, 164, 65 S.Ct. 172, 185, 89 L.Ed. 139 (1944); *Miller v. United States,* 294 U.S. 435, 439, 55 S.Ct. 440, 441–442, 79 L.Ed. 977 (1935); *United States v. Magnolia Petroleum Co.,* 276 U.S. 160, 162–163, 48 S.Ct. 236, 237, 72 L.Ed. 509 (1928).

Further, API believes that the definition of Capital Expenditure (and the equation listed in OOOOa) is unrepresentative of current economic conditions. It was meant to model inflation in the late 1970s and early 1980s, as stated in EPA-FR-1984-Vol 49 No 105, P 22603.

API requests that EPA utilize a ratio of Consumer Price Indices (CPI), as noted in our original comments and as used in the "Civil Monetary Penalty Inflation Adjustment Rule" published in the Federal Register on July 1, 2016 and located at **http://federalregister.gov/a/2016-15411**.

Moving forward, the definition under Subpart OOOOa with our recommended changes will ensure consideration of the definition as we think EPA intended for determination of applicability to modifications.

16. EPA should clarify that coil tubing cleanouts and screenouts are not subject to the provisions in §60.5430a.

API submitted a letter to EPA on June 13, 2016 seeking clarification regarding "screenouts" and "coil tubing cleanouts". As EPA has previously acknowledged in its September 28, 2012 letter to API, there are necessary processes performed during hydraulic fracturing that are not associated with flowback following hydraulic fracturing and thus not subject to Subpart OOOO. With Subpart OOOOa, EPA must clarify that screenouts and coil tubing clean outs are not subject to the requirements in §60.5375a.

API is proposing to address this issue by adding clarification of the definition of "flowback" §60.5375a as noted below.

> *Flowback* means the process of allowing fluids and entrained solids to flow from a well following a treatment, either in preparation for a subsequent phase of treatment or in preparation for cleanup and returning the well to production. The term flowback also means the fluids and entrained solids that emerge from a well during the flowback process. The flowback period begins when material introduced into the well during the treatment returns to the surface following hydraulic fracturing or refracturing. The flowback period ends when either the well is shut in and permanently disconnected from the flowback equipment or at the startup of production. The flowback period includes the initial flowback stage and the separation flowback stage. Screenouts and coil tubing clean out activities on a well are not considered part of the flowback process.

17. Additional Technical Corrections

A. §60.5393a(b)(3)(ii)

In §60.5393a(b)(3)(ii)there is reference to a paragraph that does not exist. API believes EPA intended for this section to reference (b)(3)(i) instead as follows:

> *"If you subsequently install a control device or have the ability to route to a process, you are no longer required to comply with paragraph ~~(b)(2)(i)~~ (b)(3)(i) of this section..."*

B. §60.5397a(d)(4)

> "Your plan must also include the written plan developed for all of the fugitive emission components designated as difficult-to-monitor in accordance with paragraph (g)(3)(i) of this section, and the written plan for fugitive emission components designated as unsafe-to-monitor in accordance with paragraph ~~(g)(3)(ii)~~ (g)(4)(ii) of this section."

C. Pneumatic Pump Affected Facilities Outside a Natural Gas Processing Plant

As explained in the preamble (81 FR 35850), EPA has decided to finalize pneumatic pump requirements only for well sites, and not for the gathering and boosting, and transmission and storage segments. This decision was reflected in the final rule by limiting the scope of pneumatic pump affected facilities to pumps "located at a well site", which is a change from the language in the 9/18/2015 proposed rule about pumps "not located at a natural gas processing plant." However, the phrase "not located at a natural gas processing plant" still remains in several paragraphs in the final rule, including: §§60.5410a(e)(2), (3), (4), and (5). This phrase should be replaced with "at a well site."

D. Fugitive Emissions - Timeframe for Resurvey

In the introductory paragraph §60.5397a(h)(3), a resurvey following the repair or replacement of a component is required to be conducted as soon possible, but no later than 30 days "after being repaired." However, §60.5397a(h)(3)(i) requires the resurvey be conducted within 30 days "of finding such fugitive emissions." To be consistent with the introductory paragraph, §60.5397a(h)(3)(i) should be revised as follows:

§60.5397a(h)(3)(i)

> *For repairs that cannot be made during the monitoring survey when the fugitive emissions are initially found, the operator may resurvey the repaired fugitive emissions components using either Method 21 or optical gas imaging within 30 days after being repaired ~~of finding such fugitive emissions~~.*

E. Table 3 Reference

Table 3 of Subpart OOOOa states that §60.8 applies with the explanation of "Performance testing is required for control devices used on storage vessels, centrifugal compressors and pneumatic pumps."

API believes that pneumatic pumps should be removed from this listing as control devices for pumps are not subject to performance testing.

F. Pump Closed Vent System Issues

As described in Item II.2. above, the compliance assurance requirements for a closed vent system (CVS) routing emissions from a pneumatic pump to a control device should be aligned to the requirements for storage vessels and not centrifugal and reciprocating compressors as currently finalized. Updating the rule language to reflect this will resolve API's primary issue.

However, the language and references under §60.5410a will require close review and updates as well to ensure the proper intent is reflected. For example, currently, under §60.5410a(e)(2), the rule references complying with the closed vent system requirements under §60.5411a(a) and (d). §60.5411a(a) includes pneumatic pumps in the list of applicable equipment. However, §60.5411a(d) refers to the PE certification requirements that appear to apply to storage vessels in §60.5411a(d)(1).

Separately, in §60.5410a(e)(5), the rule language repeats §60.5410a(e)(2) for control devices not able to achieve 95% control (§60.5393a(4)) but says the closed vent system must comply with §60.5411a(c) and §60.5411a(d). §60.5411a(c) only applies to storage vessels. Therefore, in the current rule, it appears that §60.5410a(e)(5) mistakenly references §60.5411a(c) instead of §60.5411a(a).

Again, API believes that pump closed vent system should be aligned with the requirements for storage vessels and not the requirements for affected compressors. The above inconsistencies in the current rule text are provided here to highlight the need to ensure complete and clear updates occur throughout Subpart OOOOa to reflect this change.

Attachment A
Leak Survey Data (Colorado & Barnett Shale)

2015 Colorado Reg 7 - Production Sites - AIMM Summary (Production sites, Annual Surveys (< 12 TPY))

LDAR INSPECTION AREA	COUNTY	TYPE OF FACILITY	Leaking Valves	Total Est. Valve Count per location	Total Leak % for valves (total leaks / total valves inspected area)	Leaking Connectors	Total Est. Connector Count per location	Total Leak % for Connectors (total leaks / total connectors inspected area)	Leaking Flanges	Total Est. Flange Count per location	Total Leak % for flanges (total leaks / total flanges inspected area)	Leaking Pump Seals	Total Pump Seal Count per location	Total Leak % for pumps (total leaks / total pumps inspected area)	Leaking PRD	Total Est. PRD Count per location	Total Leak % for PRDs (total leaks / total PRDs inspected area)	Type of Site	Totals sites inspected
Raton	Las Animas	Single Well Production	75	80	0.19%	41	220	0.038%	13	120	0.022%	0	1	0.0%	4	40	0.020%	Single Well Pads	490
Raton	Las Animas	Compressor Station	1	410	0.02%	14	250	0.400%	1	860	0.008%	0	5	0.00%	0	40	0.000%	Comp Station	14
Durango	La Plata	Single Well Production	214	80	1.76%	159	220	0.475%	16	120	0.088%	0	1	0.0%	2	40	0.033%	Single Well Pads	152

	Component total	Site Count	Leaker Count		Average Comp/site	Average Leakers/site	Average % Comp leaking
Single well pad component count	225890		133		461	0.3	0.06%
well count raton		490					
Comp station component count	21910		16		1565	1.1	0.07%
staiton count		14					
Single well pad component count	70072		391		461	2.6	0.56%
well count durango		152					
Total	317872	656	540				
% Leakers (all site types)	0.17%						

2015	Components	Leakers	% Leaking	Frequency Comments
Colorado	317,876	540	0.17%	Annual
Barnett Shale Production	20,768	159	0.77%	Annual voluntary
Barnett Shale Midstream	77,672	130	0.17%	Annual voluntary
Total	416,316	829	0.20%	

% Leakers	0.20%

Notes:

Barnett Shale Midstream is based on 28 sites and component count half of Longhorn at (0.5*5548 per site)
Barnett Shale Production is based on 176 sites inspected * 118
Colorado based on actual counts

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Message

From: Brian Johnson [johnsonb@api.org]
Sent: 8/14/2017 9:27:34 PM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
CC: Khary Cauthen [cauthenk@api.org]; Stephen Comstock [comstocks@api.org]; Chris Kelley [KelleyC@api.org]; Aaron P. Padilla [PadillaA@api.org]
Subject: NAFTA & North American Energy Documents
Attachments: API - Energy Benefits of NAFTA - 11Aug2017.pdf; North American Energy_2017Data.pdf

Mandy,

I hope all is well. We wanted to touch base before the first round of NAFTA negotiations and provide some updated information.

Who is the best contact at EPA that is a liaison with USTR and/or Commerce? I wanted to share the below and attached information.

We have completed a new *Energy Benefits of NAFTA* 1-pager (front and back), which is attached and now live on our website. This new document speaks to NAFTA and emphasizes the energy benefits to the US, and it is a companion to the other 1-pager on *North American Energy*, which is also attached.

You can also find our updated ISDS one-pager online, which is of great importance to the industry.

Please feel free to share this with your other colleagues and copy us if that is easier.

Thanks,

Brian

Brian M Johnson MPA
Director – Federal Relations, *Tax & Trade Portfolio*

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This e-mail is intended only for the individual to whom it is addressed and may contain information that is privileged, confidential, or exempt from

Energy Benefits of NAFTA

energy API
AMERICAN PETROLEUM INSTITUTE

North American energy markets are highly integrated and interdependent (see API backgrounder North American Energy). The North American Free Trade Agreement (NAFTA) has played a critical role supporting and growing North American energy integration, interdependence and energy security by eliminating tariffs for crude oil, gasoline, kerosene-type jet fuel and other refined products, and for energy-intensive manufactured goods. NAFTA also has liberalized energy trade, provided investment protection and served as the foundation for recent access to Mexico's hydrocarbon reserves.

U.S. NORTH AMERICAN ENERGY EXPORTS

FIGURE 1. NORTH AMERICA ENERGY EXPORTS, 2016

4 REASONS U.S. NEEDS NAFTA

Oil production from shale resources, made available by hydraulic fracturing and horizontal drilling, has led a U.S. revolution in crude oil production. As a result, imports of crude oil by the U.S. decreased from 9,213 thousand barrels per day (Kb/d) in 2010 to 7,363 Kb/d in 2015.

#1 SUPPORTS JOBS

- **10.3 million** U.S. natural gas and oil industry jobs
- Maintains robust demand for energy-intensive manufactured goods – such as plastics, petrochemicals and fertilizers – with natural gas as a heat and raw material source.
- Supports U.S. refining sector and its jobs through supplies of Canadian and Mexican heavy crude oil.

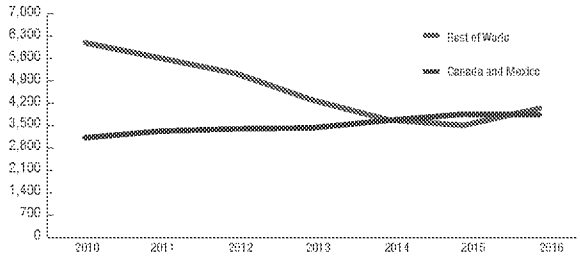
#2 BENEFITS CONSUMERS

- North America's integrated energy market is more efficient than separate markets, resulting in more affordable energy for consumers in all three countries.

#3 STRENGTHENS OUR ENERGY SECURITY

- North America is nearing energy self-sufficiency. According to EIA, the production of petroleum and other liquids by the U.S., Canada and Mexico soon will outpace their consumption.
- North America is less reliant on other suppliers and less subject to potential supply disruptions because of free and safe energy trade.
- U.S. has become the "swing producer" in global energy markets, making them less subject to suppliers who would use energy as a political weapon.
- Thanks to free trade, Mexico is the No. 1 export market for U.S. natural gas and refined products and the No. 4 export market for upstream oil and gas equipment.

FIGURE 2. U.S. CRUDE OIL IMPORTS, 2010–2016
(Thousand Barrels per Day, Annual Average)



#4 HELPS OPEN MARKETS

- U.S. direct oil and natural gas investments in Canada totaled **$4.5 billion** in 2015 for extraction and **$8.8 billion** in petroleum refining.
- Free and integrated energy markets, easing restrictions on foreign investment, have been solidified in Canada, and there is the potential for the same investment climate in Mexico.

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ENERGY BENEFITS OF NAFTA

NAFTA AND THE U.S. REFINING SECTOR

A total of 81 U.S. refineries imported crude oil from either Canada or Mexico in 2016, turning that crude into products Americans use every day. These refineries are configured to process heavy crudes from Canada and Mexico, supporting thousands of U.S. jobs. Canada is the United States' No. 1 source for imported crude oil, and imports of Canadian crude have increased 61 percent over the past five years. U.S. refineries that import Mexican crude also supply refined products to the domestic market, as well as exports back to Mexico.

U.S. NORTH AMERICAN ENERGY EXPORTS

FIGURE 3. NORTH AMERICA ENERGY EXPORTS, 2016

FOUR REFINERIES, FOUR CASE STUDIES

A number of U.S. refineries rely on supplies of crude oil from Canada and Mexico – which they turn into beneficial products we use daily, supporting domestic jobs and economic growth. A look at four facilities helps illustrate these points:

#1 EXXONMOBIL JOLIET, ILL.

- WORKERS: 600
- INFLOW ARROW FROM CANADA: 250,000 BPD
- OUTLFLOW ARROW TO U.S.: 9 MILLION GALLONS GASOLINE/DIESEL FUEL DAILY

#2 BP WHITING, IND.

- WORKERS: 1,650
- INFLOW ARROW FROM CANADA: 320,000 BPD
- OUTFLOW ARROWS TO U.S.: GAS/DIESEL PRODUCTION FOR REFINERY: 14 MILLION GALLONS

#3 SHELL/PEMEX DEER PARK, TEXAS

- WORKERS: 1,500
- INFLOW ARROW FROM MEXICO: 170,000 BPD
- OUTFLOW TO U.S.: GAS/DIESEL TO U.S.: 6 MILLION GALLONS
- OUTFLOW TO MEXICO: 136,000 BPD

#4 CHEVRON PASCAGOULA, MISS.

- WORKERS: 1,593
- INFLOW ARROW FROM MEXICO OR APPROXIMATION: 48,000 BPD
- OUTFLOW ARROW TO U.S.: 8 MILLION GALLONS FOR GASOLINE/DIESEL PRODUCTION

Statistics compiled by: [illegible]

Figure 3: Economic Impacts of the Natural Gas and Oil Industry
Table 4 – Crude Imports of the 10 top North Oil Refiners in the U.S. Economy by Sub sector, 2016, Page 12
http://www.api.org/~/media/Files/Statistics/Economic-and-Jobs-2016/Economic-Impacts-Oil-Gas-2017-17-2017.pdf
1. ExxonMobil Joliet, IL: http://www.fuelfocus.com/news/exxonmobil-completes-modernization-at-joliet-refinery.html
2. BP Whiting, IND.: http://www.bp.com/en_us/bp-us/what-we-do/refining/whiting.html
3. Shell – Deer Park: http://www.shell.us
4. Chevron Pascagoula, Miss: http://www.pascagoulachevron.com
Refinery Products: http://www.pascagoula.chevron.com/productsforfuelsandlubricants/refineryproducts.aspx
What to Do: http://www.pascagoula.chevron.com/productsforfuelsandlubricants/whattodo.aspx
Crude Oil Transportation & Storage: http://www.pascagoula.chevron.com/productsforfuelsandlubricants/crudeoil.aspx

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North American ENERGY

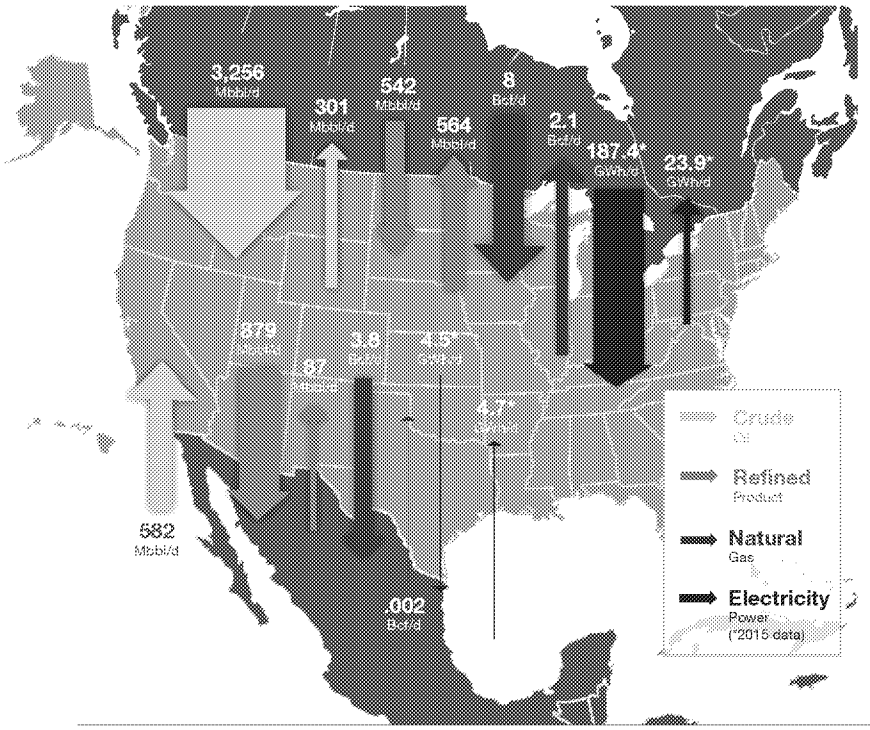
energy API
AMERICAN PETROLEUM INSTITUTE

Today's highly integrated and interdependent North American energy markets (oil, natural gas, electricity) benefit the United States by expanding the size of our energy markets which create economies of scale that attract private investment, lower capital costs, and reduce energy costs for consumers. Energy system integration enhances U.S. energy security by enabling North American energy self-sufficiency and by providing export markets for the U.S. as the world's largest producer of oil and natural gas.

NORTH AMERICAN ENERGY FLOWS

North American energy markets (oil, natural gas, electricity) are integrated and interdependent with energy infrastructure and trade crossing the borders of the U.S., Canada and Mexico. The trade in crude oil, natural gas, refined products such as gasoline and petrochemicals, and electricity between the U.S., Canada and Mexico is multi-directional.

FIGURE 1. NORTH AMERICA ENERGY FLOWS BY COMMODITY, 2016



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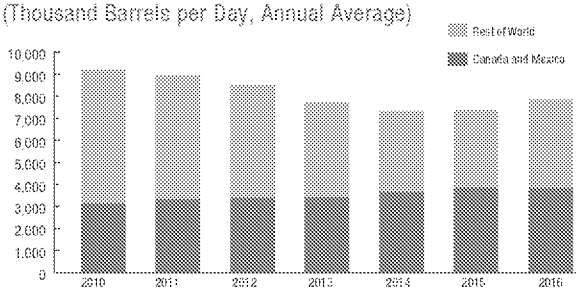
CRUDE OIL

Oil production from shale resources, made available by hydraulic fracturing and horizontal drilling, has led a U.S. revolution in crude oil production. As a result, imports of crude oil by the U.S. decreased from 9,213 thousand barrels per day (Kb/d) in 2010 to 7,877 Kb/d in 2016. At the same time, imported crude oil from Canada and Mexico now account for a larger percentage of total U.S. imports, growing from 33.9% in 2010 to 48.7% in 2016.

Canada is a major producer of heavy crude oil, which is suited for the complex refineries in the U.S. Midwest and Gulf regions. Canada supplies virtually all of the heavy oil processed at Midwest refineries and a large percentage of the heavy oil processed at Gulf Coast refineries. Mexico also produces heavier crude oil, which is well-suited for U.S. refineries.

FIGURE 2. U.S. CRUDE OIL IMPORTS, 2010–2016
(Thousand Barrels per Day, Annual Average)



NATURAL GAS

The U.S. is a net importer of natural gas from Canada, although at declining rates, and the U.S. is a net exporter of natural gas to Mexico. The U.S. produces 90% of the natural gas it uses, importing most (97%) of the rest from Canada.[1] Natural gas pipeline constraints have made Canadian imports of natural gas more cost effective for U.S. customers in certain U.S. markets, especially in the Northern U.S. In addition to consumer benefits, the interconnectedness of the Canadian and U.S. and Mexican natural gas markets enhances system flexibility and reliability.

U.S. and Mexican natural gas markets are also becoming more interconnected: U.S. pipeline capacity for natural gas exports to Mexico has rapidly expanded in the past few years and currently stands at 7.3 billion cubic feet per day (Bcf/d) and is expected to nearly double in the next three years.[2] Mexico is also a new market for U.S. liquefied natural gas (LNG), with 27,845 Mcf of natural gas shipped from the U.S. in 2016. Mexico's energy reforms, strong growth in natural gas demand in the power sector, declining domestic production, and the lower prices of U.S. pipeline gas compared with more expensive LNG imports have all created an opportunity to increase energy trade between the U.S. and Mexico.

REFINED PRODUCTS

The United States, Canada, and Mexico form a highly-integrated products market, which allows for greater efficiency in responding to local advantages (such as lower cost energy sources) and constraints – both natural and artificial. For instance, access to abundant natural gas for refining and processing operations provides an advantage for U.S. refineries in the Gulf Coast, which are increasing diesel production for export to Mexico and to other South American destinations. The EIA reports the U.S. is the source for most of Mexico's refined product imports, and at the same time the destination for most of Mexico's crude oil exports.

FIGURE 3. NORTH AMERICA REFINED PRODUCT FLOWS, 2016

PRODUCT – 1,000 B/D	U.S. TO CANADA	U.S. FROM CANADA	U.S. TO MEXICO	U.S. FROM MEXICO
Finished Motor Gasoline	30	31	329	-
Motor Gasoline Blending Components	29	149	73	14
Distillate Fuel Oil	33	104	182	1
Kerosene-Type Jet Fuel	37	9	33	-
Petroleum Coke	22	1	52	-

New England relies heavily on imported energy. Shipping products from the U.S. Gulf Coast requires Jones Act vessels, which generally make these products more costly[4] than foreign imports. Canada's largest refinery, located 65 miles north of the border, sends over 80% of its production to the U.S., accounting for a large portion of U.S. gasoline imports. And most U.S. imports of distillate fuel are supplied into the East Coast from Canada.

ELECTRICITY & LINKAGES TO NATURAL GAS

The United States and Canada benefit from a relatively seamless border that allows electricity grid managers to optimize electricity generation assets on both sides of the border in order to improve electric reliability and efficiency. Currently, there are more than 30 active major transmission connections (69 kilovolts or greater) between the two countries.

Although the predominant flow of trade moves from north to south, it is not entirely one-sided. Canada is an overall net exporter of energy to the United States, but the roles are reversed in certain regions, particularly where there are infrastructure constraints. The U.S. and Mexico trade a smaller amount of electricity currently along the border regions where Mexico imports some power from California and Texas. However, **Mexico's recent energy reforms present a huge opportunity for electricity and natural gas trade with the U.S.** Mexico's growth in its domestic electricity market has largely been met with generation from new natural gas-fired plants, driving the increase in U.S. natural gas exports to Mexico.

NORTH AMERICAN ENERGY SELF-SUFFICIENCY

North America is on the verge of achieving energy self-sufficiency with respect to liquid fuels, when measured by production of liquid fuels exceeding consumption of the same across the U.S., Canada and Mexico. According to the U.S. Energy Information Administration 2017 Annual Energy Outlook, a benchmark publication of potential future energy needs, the quantity of petroleum and other liquid energy sources produced by the U.S., Canada and Mexico[5] will soon outpace the quantity of petroleum and other liquid energy sources that those countries will consume. In fact, according to the EIA, this will happen as soon as 2020.

TABLE 1. NORTH AMERICA LIQUIDS PRODUCTION VS. CONSUMPTION, 2015-2040

	Petroleum and Other Liquids Production					Petroleum and Other Liquids Consumption			
mb/d	United States (50 states)	Canada	Mexico and Chile	NAFTA Supply	NAFTA Supply - NAFTA Demand	United States (50 states)	Canada	Mexico and Chile	NAFTA Demand
2015	14.99	4.55	2.66	22.19	-2.05	19.55	2.39	2.30	24.24
2016	14.64	4.88	2.62	22.14	-2.15	19.59	2.39	2.32	24.29
2019	16.64	5.33	2.52	24.49	-0.44	20.19	2.39	2.36	24.93
2020	17.01	5.42	2.49	24.92	0.02	20.14	2.39	2.38	24.90
2025	17.61	5.38	2.44	25.43	0.93	19.77	2.38	2.36	24.51
2030	17.72	5.55	2.49	25.76	1.73	19.13	2.39	2.50	24.02
2035	17.34	5.73	2.80	25.87	1.76	19.00	2.44	2.67	24.11
2040	17.47	6.00	3.26	26.73	2.02	19.34	2.51	2.87	24.72

Sources: Compiled by API's Stats Directorate, Kate Eda, Manuel Rodriguez, Bryan Jude, Monica Kubitz and Aaron Padilla
Figure 1: U.S. Energy Information Administration (EIA), Petroleum & Other Liquids Exports by Destination and U.S. Imports by Country of Origin, Refined Products Exports by Destination and U.S. Imports by Country of Origin, U.S. Natural Gas Exports and Re-Exports by Country and U.S. Natural Gas Imports by Country, Canada National Energy Board (NEB) for Canada U.S. Electricity Flows, Mexico Centro Nacional de Control de Energia (CENACE) for Mexico-U.S. Electricity Flows.
Figure 2: Energy Information Administration, Petroleum & Other Liquids, U.S. Imports by Country of Origin.
Figure 3: U.S. Energy Information Administration (EIA) Refined Products Exports by Destination and U.S. Imports by Country of Origin

Table 1: Energy Information Administration, Annual Energy Outlook 2017, Appendix A, Table A2c. Chile is a small producer and consumer, accounting for 0.3% of combined production and 1.4% of combined consumption. NAFTA Supply includes Chile. Also, due to logistical issues, some imports and exports outside of NAFTA will remain necessary in the EIA projection.
[1] Government of Canada, Canada vs. U.S. Residential Energy – Natural Gas
[2] Energy Information Administration (EIA), 1 December 2016, New U.S. pipeline-connecting capacities bring south gas to more regions in Mexico.
[3] U.S. Department of Energy, October 2016, LNG Monthly, FTO Data
[4] U.S. Energy Information Administration (EIA), 2010, Potential Impacts of Reductions in Refinery Activity on Northeast Petroleum Markets
[5] The EIA data group Mexico and Chile, although Chile is a minimal producer and small consumer compared to Mexico

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Message

From: Brian Johnson [johnsonb@api.org]
Sent: 3/26/2017 1:15:00 PM
To: Elizabeth.Corey@lockelord.com
CC: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: Introduction

Good morning two of my favorite female attorneys! I wanted to introduce you two because 1) you're both awesome and 2) I think it could be a produce use of time to grab coffee when Elizabeth is up in DC.

Elizabeth is a dear friend of mine and used to intern at API and Oxy before and during law school. She's now an environmental attorney with Locke Lord based in Houston.

Mandy is the best and in addition to Ex. 6 Personal Privacy (PP), she's Ex. 6 Personal Privacy (PP) Ex. 6 Personal Privacy (PP) and a kick ass rockstar policy mover in DC. She's a senior policy advisor at EPA and one of the few who report directly to the Administrator.

Well, my job is done. I hope this connection proves beneficial to you both.

Brian

Brian M Johnson MPA
Director, Federal Relations
American Petroleum Institute

Please pardon brevity, sent via iPhone

Message

From: Hilary Moffett [moffetth@api.org]
Sent: 6/29/2017 2:08:13 PM
To: Dominguez, Alexander [dominguez.alexander@epa.gov]
CC: Atkinson, Emily [Atkinson.Emily@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Lewis, Josh [Lewis.Josh@epa.gov]
Subject: Re: Methane Meeting request

Thank you Emily and Alex.

Let's schedule 10 am on the 18th for one hour. If we can confirm that, I will see which members of our team will be available to attend and can get you a list of attendees. I will also send you relevant documents as soon as possible.

Thanks again,
Hilary

On Jun 29, 2017, at 9:28 AM, Dominguez, Alexander <dominguez.alexander@epa.gov> wrote:

> Mandy is open during that window as well so works on our end. Please send the invite to Brittany Bolen and Samantha Dravis as well so they are aware.
>
> Hilary – I defer to you on how much time you think is necessary. Also, if you can let Emily know who will be attending from your side and any other information or materials that should be reviewed beforehand.
>
> Appreciate your help in setting this up Emily. Anything else just let me know.
>
> Alex
>
> **Alex Dominguez**
> *Policy Analyst to the Senior Advisors to*
> *the Administrator for Air and Water*
> U.S. Environmental Protection Agency
> Work: 202-564-3164 | Cell: Ex. 6 Personal Privacy (PP)
>
> ---
>
> **From:** Atkinson, Emily
> **Sent:** Thursday, June 29, 2017 8:56 AM
> **To:** Dominguez, Alexander <dominguez.alexander@epa.gov>
> **Cc:** Hilary Moffett <moffetth@api.org>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Lewis, Josh <Lewis.Josh@epa.gov>
> **Subject:** RE: Methane Meeting request
>
> Hi Alex and Hilary,
>
> OAR is happy to host this on the 5th floor and to send the meeting invite. Our list of participants is outlined below.
>
> The best window for us is the morning of Tuesday, July 18 between 9am – 12pm. Please let me know how long you are looking to schedule this for and if there is a specific time in this window that works best for you, as well as if anyone else besides Mandy from your office needs an invite.

OAR, OAQPS and OGC: Sarah Dunham, Josh Lewis, Reid Harvey, Steve Page, Mike Koerber, Peter Tsirigotis, Dave Cozzie, Elliott Zenick

Thanks.
Emily

Emily Atkinson
Management Analyst/Office Manager
Immediate Office of the Acting Assistant Administrator
Office of Air and Radiation, USEPA
Room 5412B, 1200 Pennsylvania Avenue NW
Washington, DC 20460
Voice: 202-564-1850
Email: atkinson.emily@epa.gov

From: Lewis, Josh
Sent: Thursday, June 29, 2017 7:58 AM
To: Dominguez, Alexander <dominguez.alexander@epa.gov>
Cc: Hilary Moffett <moffetth@api.org>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Atkinson, Emily <Atkinson.Emily@epa.gov>
Subject: RE: Methane Meeting request

Yes we can do this. Adding Emily who can respond to this group with a suggested time, etc.

Josh Lewis
Chief of Staff
EPA/Office of Air and Radiation
Office: 202 564 2095
Cell: Ex. 6 Personal Privacy (PP)

From: Dominguez, Alexander
Sent: Wednesday, June 28, 2017 3:44 PM
To: Lewis, Josh <Lewis.Josh@epa.gov>
Cc: Hilary Moffett <moffetth@api.org>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>
Subject: FW: Methane Meeting request

Hey Josh,

Mandy requested I loop you in on this in hopes of setting up a videoconfrence with RTP in OARs conference room and having you and Sarah Dunham sit in as well. She is pretty open right now on July 18/19 and just let me know what you need on my end to help facilitate this. Appreciate it.

Alex

Alex Dominguez
Policy Analyst to the Senior Advisors to
the Administrator for Air and Water
U.S. Environmental Protection Agency
Work: 202-564-3164 | Cell: Ex. 6 Personal Privacy (PP)

From: Hilary Moffett [mailto:moffetth@api.org]
Sent: Tuesday, June 27, 2017 3:48 PM
To: Dominguez, Alexander <dominguez.alexander@epa.gov>
Subject: Methane Meeting request

Hi Alex,

I hope this email finds you well. API was working with Mandy on the NSPS methane issue, and we would like to come in for a meeting with API, Mandy, and Peter (and others at RTP). We thought it would be helpful before we go down to RTP to discuss ways in which we believe the rule can be improved. Our team has spent a lot of time working through the details, and we would like to share those with you all and with RTP, via phone or videoconference.

Do you and Mandy have availability on July 18/19?

Thanks,
Hilary

Message

From: Will Hupman [HupmanW@api.org]
Sent: 3/23/2017 1:05:36 PM
To: Gunasekara, Amanda [gunasekara.amanda@epa.gov]
Subject: RE: Phone Number

Hey Mandy – Absolutely. My direct is 202-682-8396 and my cell is Ex. 6 Personal Privacy (PP) Both are good. Look forward to catching up. Will

Will Hupman
Director – Federal Relations | American Petroleum Institute
desk: 202-682-8396 | cell: Ex. 6 | hupmanw@api.org

From: Gunasekara, Amanda [mailto:gunasekara.amanda@epa.gov]
Sent: Thursday, March 23, 2017 8:42 AM
To: Will Hupman
Subject: Phone Number

Hey Will,

What's your direct? Or cell? I need to touch base with you on a few things.

Best,
Mandy

Message

From: Hilary Moffett [moffetth@api.org]
Sent: 5/1/2017 7:51:56 PM
To: Matthew Todd [ToddM@api.org]
CC: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: emails

Jackson, Ryan jackson.ryan@epa.gov

gunasekara.mandy@epa.gov

Hilary Moffett
Director, Federal Relations
American Petroleum Institute
202-682-8040 (desk)
Ex. 6 Personal Privacy (PP) (cell)
MoffettH@api.org

Message

From: Will Hupman [HupmanW@api.org]
Sent: 4/24/2017 9:44:28 PM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
CC: Washington, Valerie [Washington.Valerie@epa.gov]; Patrick Kelly [kellyp@api.org]
Subject: Re: See you tomorrow at 11 am

Thank you! Will do. See you tmrw.

Will Hupman
Director – Federal Relations
American Petroleum Institute
desk: 202-682-8396
cell: Ex. 6 Personal Privacy (PP)
hupmanw@api.org

On Apr 24, 2017, at 5:32 PM, Gunasekara, Mandy <Gunasekara.Mandy@epa.gov> wrote:

> Yes – please come to WJC NORTH entrance. Once you get through security, give Valerie a call at: 202.564.1016. She'll come down to escort you up.
>
> Best,
> Mandy
>
> **From:** Will Hupman [mailto:HupmanW@api.org]
> **Sent:** Monday, April 24, 2017 5:12 PM
> **To:** Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>
> **Cc:** Washington, Valerie <Washington.Valerie@epa.gov>; Patrick Kelly <kellyp@api.org>
> **Subject:** See you tomorrow at 11 am
>
> Hey Mandy – I hope you're having a good (albeit rainy) Monday. We'll look forward to seeing you tomorrow at 11 am at EPA (North building, I presume??). My cell is Ex. 6 if anything comes up between now and then. See you tomorrow! Will
>
> PS Valerie, we'll plan to give your name at the security desk unless you instruct me differently. Thank you!
>
> Will Hupman
> Director – Federal Relations | American Petroleum Institute
> desk: 202-682-8396 | cell: Ex. 6 | hupmanw@api.org

Message

From: Will Hupman [HupmanW@api.org]
Sent: 9/25/2018 8:45:23 PM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: Joint Letter from API and AFPM to the President on the E15 Waiver
Attachments: API and AFPM letter to POTUS -- 9-25-18.pdf

Hey Mandy – I hope you're having a good week. Please find attached a joint letter from API and AFPM to the President on the E15 waiver issue. We look forward to continue working with you on this and other issues. If we can provide additional information or materials, please let me know. Thank you, Will

Will Hupman
Director – Federal Relations | American Petroleum Institute
office: 202-682-8396 | cell: Ex. 6 Personal Privacy (PP) | hupmanw@api.org

September 25, 2018

The President
The White House
Washington, DC 20500

Dear Mr. President,

We write to express our opposition to an extension of the one-pound Reid Vapor Pressure (RVP) waiver to E15 fuel. The industries we represent support approximately 10.3 million U.S. jobs and add approximately $1.3 trillion annually to the nation's economy.

Recent reports indicate that the Environmental Protection Agency is preparing to extend the RVP waiver to E15 with minor changes to Renewable Identification Number (RIN) market trading. Such an approach is insufficient for refiners and inconsistent with your long-standing commitment to finding a solution that meets the needs of both the biofuels and refining industries. We urge you to not move forward.

Meaningful reforms to the Renewable Fuel Standard (RFS) are integral in any discussion about E15. Without corresponding reductions of mandated biofuel volumes, more E15 could be forced into the market, increasing the risk of consumer misfuelling. In fact, nearly three out of every four cars on the road today are not designed for E15, and several automakers have said that E15 could void car warranties. E15 is also incompatible in classic cars, motorcycles, boats, lawnmowers, and power equipment engines.

Refiners have engaged in a constructive and proactive approach to find workable reforms to the RFS. We remain committed to the goal of consensus reforms that that can and should work for all RFS stakeholders including consumers, farmers, biofuel producers, and refinery workers across the country.

Sincerely,

Mike Sommers
President and Chief Executive Officer
American Petroleum Institute

Chet Thompson
President
American Fuel & Petrochemical Manufacturers

Message

From: Matthew Todd [ToddM@api.org]
Sent: 9/24/2018 5:44:12 PM
To: Tsirigotis, Peter [Tsirigotis.Peter@epa.gov]
CC: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Cozzie, David [Cozzie.David@epa.gov]; Stoneman, Chris [Stoneman.Chris@epa.gov]; Nizich, Greg [Nizich.Greg@epa.gov]
Subject: API Letter re: EPA's Tribal Lands Federal Implementation Plan
Attachments: 2018 09 24 API Tribal Lands FIP Letter Final.pdf

Importance: High

Dear Mr. Peter Tsirigotis,

On August 2, 2015, the American Petroleum Institute filed a petition with the Administrator of the U.S. EPA seeking changes to the Federal Implementation Plan for True Minor Sources in Indian Country in the Oil and Natural Gas Production and Natural Gas Processing Segments of the Oil and Natural Gas Sector. 81 Fed. Reg. 35944 (June 3, 2016). Through subsequent discussions with the agency, we have concluded the FIP can be improved to provide greater clarity through minor modifications of the FIP and clarifying interpretations of key provisions. By this letter, we seek your consideration of the issues described and how EPA may incorporate these changes through additional guidance or FIP amendments.

Thank you for your attention and please feel free to contact me at 202-682-8319 with any questions regarding the content of the letter.

Sincerely,

Matt

Matthew Todd
API
202.682.8319

Matthew Todd
Senior Policy Advisor

Regulatory and Scientific Affairs

1220 L Street, NW
Washington, DC 20005-4070
USA
Telephone 202-682-8319
Email toddm@api.org
www.api.org

September 24, 2018

Mr. Peter Tsirigotis, Director
Office of Air Quality Planning and Standards
U.S. Environmental Protection Agency
Mail Code: D205-01
109 T. W. Alexander Drive
Durham, NC 27709

Re: Federal Implementation Plan for True Minor Sources in Indian Country in the Oil and Natural Gas Production and Natural Gas Processing Segments of the Oil and Natural Gas Sector

Dear Mr. Peter Tsirigotis:

On August 2, 2015, The American Petroleum Institute ("API") filed a petition with the Administrator of the U.S. Environmental Protection Agency ("EPA" or "Agency") seeking changes to the Federal Implementation Plan for True Minor Sources in Indian Country in the Oil and Natural Gas Production and Natural Gas Processing Segments of the Oil and Natural Gas Sector ("FIP"). 81 Fed. Reg. 35944 (June 3, 2016). Through subsequent discussions with the agency, we have concluded the FIP can be improved to provide greater clarity through minor modifications of the FIP and clarifying interpretations of key provisions. By this letter, we seek your consideration of the issues described below and how EPA may incorporate these changes through additional guidance or FIP amendments.

API is the only national trade association representing all facets of the oil and natural gas industry, which supports 10.3 million U.S. jobs and nearly 8 percent of the U.S. economy. API's more than 625 members include large integrated companies, as well as exploration and production, refining, marketing, pipeline, and marine businesses, and service and supply firms. They provide most of the nation's energy and are backed by a growing grassroots movement of more than 40 million Americans. Many of our members are directly impacted by the FIP.

Endangered Species Act and National Historic Preservation Act Screening

We continue to believe the EPA should revise the FIP to eliminate the requirement for case-by-case consideration of the ESA and NHPA. The FIP is no different than myriad other EPA CAA regulations that allow for implementation by affected sources yet do not require ESA or NHPA review. For example, when a new source is constructed that is covered by a maximum achievable control technology ("MACT") standard (under CAA section 112), there is no obligation for ESA or NHPA review. Similarly, when the construction or modification of an affected facility triggers the applicability of a New Source Performance Standard ("NSPS" under CAA section 111), no ESA or NHPA review is required. Like the FIP, these are EPA-issued regulations that apply directly to affected sources or facilities.

In the spirit of compromise and to resolve the ESA/NHPA review issue, API proposes the following modification to the current FIP to streamline the approval process.

Recommendation: EPA should revise existing Section 49.104(a)(2) and (a)(2)(ii) to streamline the ESA/NHPA process. The regulatory language states that the Part 1 Registration Form for a project cannot be submitted until EPA confirms by letter that the ESA/NHSM screening procedure has been satisfactorily completed. The purpose for this limitation seems to be to ensure that construction does not commence until the screening process is complete.

EPA can meet its underlying goal while avoiding unnecessary delays by amending the language of 49.104 to allow sources to submit the Part 1 form at the same time as or shortly after submitting the screening assessment so that the 30 days for the registration and screening assessment occur simultaneously. EPA should clarify that construction cannot begin until the 30 days for review of the screening assessment has lapsed, unless EPA requests additional information. If EPA does request additional information to the screening assessment, the time period between the EPA request and the submittal by the operator of additional information will be added to the 30 days before construction can occur or until EPA provides a letter stating that the screening procedures have been satisfied.

There are instances where equipment (e.g., engine) may be replaced that should not trigger an initial ESA/NHPA screening assessment or warrant revision of an existing ESA/NHPA screening assessment. API requests clarification that these scenarios would not trigger new or additional screening.

Recommendation: EPA should provide a written response to clarify that the following circumstances will not trigger ESA/NHPA screening:

1. The replacement of equipment (e.g., engine) that doesn't result in an increase of emissions would not trigger a new ESA/NHPA screening requirement.
2. The replacement of equipment (e.g., engine) where there is an increase in emissions but where an ESA/NHPA screening assessment has been previously conducted that has sufficiently considered the new engine configuration.

Streamlined Synthetic Minor Permitting in Indian Country

API continues to believe the EPA should allow for the creation of synthetic minor sources. We believe that the FIP provides adequate permitting authority review because permitting authorities may request case-by-case review if they determine that the FIP is not adequate for a given project where the source seeks to establish itself as a synthetic minor. In any event, EPA's concerns about the need for greater permitting authority involvement can easily be resolved by issuing a parallel general permit for oil and gas sources. With a synthetic minor general permit, sources could begin construction as long as they meet the General Permit terms, and then obtain an operating permit under Title V, if needed. This allows industry to have predictable permitting timetables while also ensuring EPA oversight of facilities that trigger Title V operating permit conditions. Provisions for synthetic minor sources provide a level playing field between tribal lands and surrounding state lands and give operators flexibility to use more efficient operational configurations (such as shared equipment) and to lessen their environmental footprint by building fewer well pads.

Recommendation: API encourages EPA to pursue the development of a permitting mechanism for synthetic minor sources.

We appreciate your review and consideration of the issues that have been raised above. Please contact me at toddm@api.org or 202-682-8319 with any additional questions regarding the content of this submittal.

Sincerely,
/s/
Matthew Todd

cc: Mandy Gunasekara, USEPA
David Cozzie, USEPA
Chris Stoneman, USEPA
Greg Nizich, USEPA

ED_002719_00009211-00003

Message

From: Gunasekara, Mandy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=53D1A3CAA8BB4EBAB8A2D28CA59B6F45-GUNASEKARA,]
Sent: 3/26/2018 9:13:03 PM
To: Khary Cauthen [cauthenk@api.org]
Subject: Re: FYI: Final Comments Re: PES Settlement

Thanks, Khary!

Sent from my iPhone

On Mar 26, 2018, at 1:40 PM, Khary Cauthen <cauthenk@api.org> wrote:

> Mandy- Hope that all is well with you. Please find attached to this email, API comments to the proposed Consent Decree and Environmental Settlement Agreement between the United States and PES Holdings, LLC. The comments cover two related issues; first, the requirements for obligated parties under the RFS, and second, PES' claims of economic hardship caused by the RFS. Please let me know if I can provide you with any additional information or materials.
>
> Best- Khary
> 202-682-8209 o
> Ex. 6 Personal Privacy (PP) c

From: Patrick Kelly
Sent: Monday, March 26, 2018 4:01 PM
To: pubcomment-ees.enrd@usdoj.gov
Subject: In re PES Holdings, LLC., et al., D.J. Ref. No. 90–5–2–1–10993/1.

In re *PES Holdings, LLC., et al.*, D.J. Ref. No. 90–5–2–1–10993/1.

Please see the attached comments from the American Petroleum Institute.

Regards,

Patrick G. Kelly

American Petroleum Institute
1220 L Street, NW Washington, DC 20005
Office: 202-682-8192|email: kellyp@api.org
<image001.jpg>

<PES Settlement Comment .pdf>

Message

From: Gunasekara, Mandy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=53D1A3CAA8BB4EBAB8A2D28CA59B6F45-GUNASEKARA,]
Sent: 3/20/2018 4:19:50 PM
To: moffetth@api.org
Subject: Fwd: Excellent Photos

You look fab!

This EPA action saves
$11.5 million per
...for American job

Message

From: Gunasekara, Mandy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=53D1A3CAA8BB4EBAB8A2D28CA59B6F45-GUNASEKARA,]
Sent: 9/29/2017 4:58:44 PM
To: Hilary Moffett [moffetth@api.org]
Subject: Re: NSPS Delay

Thank you for the update!

Sent from my iPhone

On Sep 29, 2017, at 11:57 AM, Hilary Moffett <moffetth@api.org> wrote:

> Hi Mandy!
>
> Happy Friday. I just wanted to let you know that I've reached out to OMB to request a meeting on the two-year delay for NSPS. We do not have it scheduled yet, but hope to go in as early as next week to discuss the importance of the stay.
>
> Good luck with your big performance at the wedding this weekend!
>
> Cheers,
> Hilary
>
> Hilary Moffett
> Director, Federal Relations
> American Petroleum Institute
> 202-682-8040 (desk)
> Ex. 6 Personal Privacy (PP) (cell)
> MoffettH@api.org

Message

From: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Sent: 5/24/2017 3:17:16 AM
To: Hilary Moffett [moffetth@api.org]
CC: Washington, Valerie [Washington.Valerie@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]
Subject: Re: Ozone Meeting Request

Happy to meet and discuss.

Valerie, can you please find a time that works to meet With API either June 14, 15 or 16?

Thank you,
Mandy

Sent from my iPhone

On May 23, 2017, at 10:31 AM, Hilary Moffett <moffetth@api.org> wrote:

> Hey there! Great to see you over the weekend. Wanted to check back in and see if you were free in mid-June. We have worked through the timelines for ozone options and think that having this conversation sooner rather than later is important. Just want to walk you through some options and what those timelines need to be to see results before bump ups.
>
> Let me know if you have some time the week of June 19?
>
> ---
>
> **From:** Hilary Moffett
> **Sent:** Monday, May 15, 2017 10:48 AM
> **To:** 'gunasekara.mandy@epa.gov'
> **Subject:** Ozone Meeting Request
>
> GOOOOOOOOOD Morning,
>
> Happy (belated) Mother's Day!! I hope you and your kiddos had a great day yesterday!!
>
> I wanted to reach out on ozone and request a meeting for mid-June. The Appropriations language contains a requirement that EPA submit a report to Congress in 90 days (From May 5) that details ways in which states and EPA can work together to lessen the burden of overlapping standards. API has been working to prepare ways in which we believe EPA can do that. We'd like to come in and share with you our ideas before the report is due. I suggest mid-June so it leave EPA more than 45 days to prepare the report, but we are more than happy to accommodate your schedule.
>
> Please let me know if there is a time that works best! Let's get together soon—I miss you!
>
> Cheers,
> Hilary
>
> Hilary Moffett
> Director, Federal Relations
> American Petroleum Institute
> 202-682-8040 (desk)
> Ex. 6 Personal Privacy (PP) (cell)
> MoffettH@api.org

Message

From: Gunasekara, Mandy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=53D1A3CAA8BB4EBAB8A2D28CA59B6F45-GUNASEKARA,]
Sent: 5/17/2017 12:38:06 PM
To: Stephanie Meadows [Meadows@api.org]
Subject: RE: Invitation to Join API Committee Meeting on May 16, 2017 -- BUILDING ACCESS INFORMATION

Thank you, Stephanie. I appreciate the opportunity and already have some follow-up meetings with a few of the folks in the room. Also, thank you for letting my husband crash the party.

API is great and I look forward to working with you on all these fun issues!

Best,
Mandy

From: Stephanie Meadows [mailto:Meadows@api.org]
Sent: Wednesday, May 17, 2017 8:18 AM
To: Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>
Subject: RE: Invitation to Join API Committee Meeting on May 16, 2017 -- BUILDING ACCESS INFORMATION

Mandy:

Good morning. I wanted to thank you again for joining my joint committee meeting yesterday at API's offices. The information you shared was EXTREMELY helpful in letting us understand the direction of the EPA and where we might be helpful in the near term. Great discussion!

I realize you have so much going on....taking the time to meet with the oil and natural gas industry is greatly appreciated! My members were very impressed.

I look forward to working with you in the future.

Stephanie

From: Gunasekara, Mandy [mailto:Gunasekara.Mandy@epa.gov]
Sent: Thursday, May 11, 2017 5:46 PM
To: Stephanie Meadows
Subject: RE: Invitation to Join API Committee Meeting on May 16, 2017 -- BUILDING ACCESS INFORMATION

Thank you for the info. I don't have any power point slides. Look forward to seeing you next week.
Best,
Mandy

From: Stephanie Meadows [mailto:Meadows@api.org]
Sent: Thursday, May 11, 2017 3:35 PM
To: Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>
Subject: RE: Invitation to Join API Committee Meeting on May 16, 2017 -- BUILDING ACCESS INFORMATION

Mandy:

I am sharing some building access information for Tuesday. API is located at 1220 L Street, near the McPherson Square metro stop. We are on the corner of 13th and L Streets, Northwest. You will need to check in with the security guard on

the first floor, who will give you access to the elevators. Please come to the 12th floor and check in with our receptionist. I will be in a conference room on that floor, so I will come out to get you when you arrive. If others are accompanying you, please let me know so I can add their names to the security list.

We will have about 20 people in the room and likely another 10 or so listening on the phone. In order to assist those dialing in, if you are planning any PowerPoint slides, it would great to have those on Monday afternoon for advance distribution. If that is impossible, I can pass them on when you join the group or later.

Thank you. I look forward to meeting you on Tuesday. Please let me know if you have any questions.

Stephanie

From: Gunasekara, Mandy [mailto:Gunasekara.Mandy@epa.gov]
Sent: Wednesday, April 05, 2017 8:35 PM
To: Stephanie Meadows
Subject: Re: Invitation to Join API Committee Meeting on May 16, 2017

I'd be happy to do this. Let's chat tomorrow. Are you free at 1:15? If so, call my direct at 202.564.2314.

Sent from my iPhone

On Apr 5, 2017, at 3:18 PM, Stephanie Meadows <Meadows@api.org> wrote:

> Dear Ms. Gunasekara:
>
> I work for the American Petroleum Institute (API) in Washington, DC and am planning a day-long joint committee meeting on Tuesday, May 16, 2017 at API's offices for our Hydraulic Fracturing Issues Group and its parent committee, the E&P Environmental Subcommittee. Most of the members are a combination of policy and technical experts for their individual companies on environmental issues impacting E&P operations. Many cover air, waste, and water issues or some combination thereof. The Hydraulic Fracturing Issues Group had full responsibility for API's six year involvement with the EPA Final Assessment Report and continues to monitor and participate in induced seismicity activities across the country. As a part of the agenda on the 16th, I would like to include several presentations from outside guests, on activity associated with the committees' work. I received your name from my colleague, Hilary Moffett, as someone at EPA who could speak about priorities and activities across the agency in 2017! We are really trying to better understand how/where we can be helpful to EPA as a key stakeholder. At this point we are flexible in the timing of the presentation, but my draft agenda has EPA down at 1:00 p.m. – allowing for an hour (presentation, question and answers, and further discussion).
>
> I am happy to discuss the details of this with you at any time and am hopeful you will consider this invitation. If there is another colleague that I should be speaking to about this event, please let me know. I look forward to hearing back from you.
>
> Regards,
>
> Stephanie
>
> Stephanie R. Meadows
> Manager
> Upstream and Industry Operations
> American Petroleum Institute

1220 L Street, NW
Washington, DC 20005
Phone: 202-682-8578
Email: meadows@api.org

Message

From: Gunasekara, Mandy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=53D1A3CAA8BB4EBAB8A2D28CA59B6F45-GUNASEKARA,]
Sent: 4/7/2017 4:43:01 AM
To: Hilary Moffett [moffetth@api.org]
Subject: RE: Just tried you back

I'll try tomorrow. If you don't here from by 5 – call my cell: Ex. 6 Personal Privacy (PP)

From: Hilary Moffett [mailto:moffetth@api.org]
Sent: Thursday, April 6, 2017 2:13 PM
To: Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>
Subject: Just tried you back

Call whenever!!

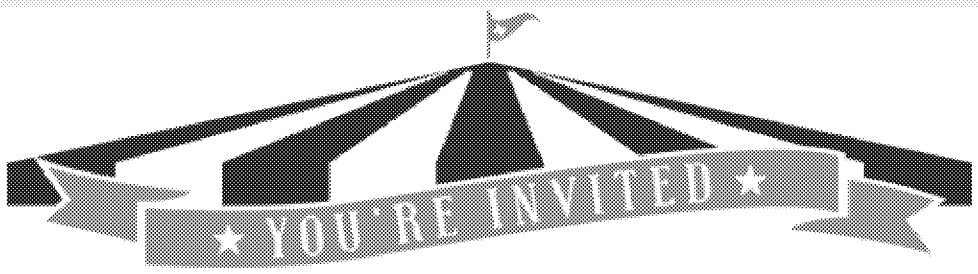
Hilary Moffett
Director, Federal Relations
American Petroleum Institute
202-682-8040 (desk)
Ex. 6 Personal Privacy (PP) (cell)
MoffettH@api.org

Message

From: Hunton Andrews Kurth LLP [info@huntonak.com]
Sent: 6/26/2019 8:20:08 PM
To: Idsal, Anne [idsal.anne@epa.gov]
Subject: You're Invited: Reception following the Texas Environmental Superconference hosted by Hunton Andrews Kurth

You're Invited: Reception following the Texas Environmental Superconference hosted by Hunton Andrews Kurth

If you have problems viewing this email, click here to view it online.



Please join
Hunton Andrews Kurth's Environmental Practice
for cocktails and hors d'oeuvres
during the

Texas Environmental Superconference

Thursday, August 1, 2019
5:30 pm

Four Seasons Hotel Austin
Stone's Crossing Room
98 San Jacinto Blvd
Austin, TX 78701

RSVP

Questions? Contact Emily Day at
+1 202 955 1979 or eday@HuntonAK.com.

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ANDREWS KURTH

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Message

From: Gonzales, Gilbert [Gilbert.Gonzales@haynesboone.com]
Sent: 7/9/2018 2:12:55 PM
To: Janet Anderson [janderson@integral-corp.com]; 'dbaker@bakerwotring.com' [dbaker@bakerwotring.com]; 'megan.berge@bakerbotts.com' [megan.berge@bakerbotts.com]; jbb@blackburncarter.com; 'anthony.cavender@pillsburylaw.com' [anthony.cavender@pillsburylaw.com]; Cook, Steven [cook.steven@epa.gov]; 'ken.cross@oag.state.tx.us' [ken.cross@oag.state.tx.us]; 'jdelafuente@lglawfirm.com' [jdelafuente@lglawfirm.com]; 'ldyar@winstead.com' [ldyar@winstead.com]; 'JCruden@bdlaw.com' [JCruden@bdlaw.com]; 'ramiro.garcia@tceq.texas.gov' [ramiro.garcia@tceq.texas.gov]; sarah@pocca.com; Pam.Giblin@bakerbotts.com; 'kg@kgstrategies.com' [kg@kgstrategies.com]; 'booker.harrison@tceq.texas.gov' [booker.harrison@tceq.texas.gov]; 'tholcomb@velaw.com' [tholcomb@velaw.com]; Idsal, Anne [idsal.anne@epa.gov]; 'kelly.keellinden@tceq.texas.gov' [kelly.keellinden@tceq.texas.gov]; 'mlawless@mcguirewoods.com' [mlawless@mcguirewoods.com]; Leopold, Matt (OGC) [Leopold.Matt@epa.gov]; 'David.Lear@dell.com' [David.Lear@dell.com]; 'ilevin@environmentalintegrity.org' [ilevin@environmentalintegrity.org]; 'jeff.lindner@hcfcd.org' [jeff.lindner@hcfcd.org]; 'debbra.mamula@ltgov.texas.gov' [debbra.mamula@ltgov.texas.gov]; Mendoza, Mary S. [Mary.Mendoza@haynesboone.com]; 'kim.mickelson@houstontx.gov' [kim.mickelson@houstontx.gov]; 'dmiller@kempsmith.com' [dmiller@kempsmith.com]; 'matthew.morrison@pillsburylaw.com' [matthew.morrison@pillsburylaw.com]; 'tsalem@tceq.texas.gov' [tsalem@tceq.texas.gov]; 'jsroseman@jonesday.com' [jsroseman@jonesday.com]; 'seals@guidaslavichflores.com' [seals@guidaslavichflores.com]; 'bryan.shaw@tceq.texas.gov' [bryan.shaw@tceq.texas.gov]; 'Tobias.Smith@clarkhillstrasburger.com' [Tobias.Smith@clarkhillstrasburger.com]; 'sue@envirowaterminerals.com' [sue@envirowaterminerals.com]; Wehrum, Bill [Wehrum.Bill@epa.gov]; 'Connie.Westfall@clarkhillstrasburger.com' [Connie.Westfall@clarkhillstrasburger.com]; 'swightman@martenlaw.com' [swightman@martenlaw.com]; 'timothy.wilkins@bracewelllaw.com' [timothy.wilkins@bracewelllaw.com]; 'awood@HuntonAK.com' [awood@HuntonAK.com]
CC: Lozano, Marti [Marti.Lozano@haynesboone.com]
Subject: Reminder: Paper submission DEADLINE for Superconference 2018 is approaching.

This is a friendly reminder that bios, papers and PowerPoints are due by July 13, 2018. Your cooperation in meeting the deadline is greatly appreciated. If you have already done so please disregard this reminder.
Thank you and have a good day.

haynes*boone*
Gilbert Gonzales
Administrative Services Clerk
gilbert.gonzales@haynesboone.com

Haynes and Boone, LLP
600 Congress Avenue
Suite 1300
Austin, TX 78701-3285

(t) 512.867.8480
(f) 512.867.8623

vCard | Website

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Message

From: Idsal, Anne [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B1BECA8121FB47A08E82B6BF2247A79B-IDSAL, ANNE]
Sent: 5/29/2019 5:50:31 PM
To: Smythe Anderson [AndersonS@api.org]
CC: Dominguez, Alexander [dominguez.alexander@epa.gov]; Jacks, Susan [Jacks.Susan@epa.gov]
Subject: RE: Contact Info

Good afternoon Smythe,

I'd be happy to meet to discuss OAR priorities. I've CC'd Susan Jacks to help with scheduling. Thanks for reaching out and hope you had a good Memorial Day weekend.

Best,
Anne

From: Smythe Anderson <AndersonS@api.org>
Sent: Wednesday, May 29, 2019 10:09 AM
To: Idsal, Anne <idsal.anne@epa.gov>
Cc: Dominguez, Alexander <dominguez.alexander@epa.gov>
Subject: RE: Contact Info

Anne –

Great to meet you, too, and look forward to working with you in your new capacity at EPA.

On behalf of API's member companies, I would like to request a meeting to provide an overview of industry's OAR priorities. I defer to your judgment on who else, if anyone, should be included for this introductory engagement. I expect to be joined by member company representatives and API staff. Are there any dates during the weeks of June 3, June 10 or June 24 that work well on your end?

Thanks in advance for your consideration,
Smythe

From: Idsal, Anne <idsal.anne@epa.gov>
Sent: Tuesday, April 30, 2019 9:28 AM
To: Idsal, Anne <idsal.anne@epa.gov>
Subject: Contact Info

Good morning,

It was a pleasure meeting all of you over the past week and I wanted to take this opportunity to email you with my contact information. I look forward to working with you on OAR related issues and being in touch.

Best,
Anne

Anne L. Idsal
Principal Deputy Assistant Administrator
U.S. EPA – Office of Air and Radiation
(202)564-6685 (direct)

Ex. 6 Personal Privacy (PP) (cell)

Appointment

From: Dravis, Samantha [dravis.samantha@epa.gov]
Sent: 1/15/2018 9:14:06 PM
To: Dravis, Samantha [dravis.samantha@epa.gov]; 'moffetth@api.org' [moffetth@api.org]; Jackson, Ryan [jackson.ryan@epa.gov]; Brown, Byron [brown.byron@epa.gov]; Willis, Sharnett [Willis.Sharnett@epa.gov]
CC: Inge, Carolyn [Inge.Carolyn@epa.gov]; Irving, Verna [Irving.Verna@epa.gov]; Kime, Robin [Kime.Robin@epa.gov]; Germann, Sandy [Germann.Sandy@epa.gov]

Subject: Meeting with API
Location: 3530 WJCN

Start: 3/7/2017 4:00:00 PM
End: 3/7/2017 4:45:00 PM
Show Time As: Tentative

Topic: Meeting with API
Date: March 7
Time: 11:00 – 11:45
Location: 3500 WJC (10 attendees are expected)
Required: moffetth@api.org
Cc: Kime, Robin <Kime.Robin@epa.gov>; Germann, Sandy Germann.Sandy@epa.gov;

Notes:

Directions: Please use the William Jefferson Clinton North Entrance located on your right as you exit the Federal Triangle Metro Station. Please arrive 20 minutes prior to the meeting with photo IDs to clear Security.

EPA Contact: Robin Kime (202) 564-6587 or the main OP line (202) 564-4332

Contact:
Hilary Moffett
Director, Federal Relations
American Petroleum Institute
202-682-8040 (desk)
Ex. 6 Personal Privacy (PP) (cell)
MoffettH@api.org

Message

From: Stephanie Meadows [Meadows@api.org]
Sent: 3/22/2019 7:18:05 PM
To: Jackson, Ryan [jackson.ryan@epa.gov]
Subject: [SPAM-Sender] API-IPAA Letter of Support for SOGRE Approach to the RCRA Subtitle D Consent Decree
Attachments: API-IPAA Letter Supporting SOGRE Proposal.pdf

Dear Mr. Jackson:

On March 13, 2019 the Groundwater Protection Council (GWPC) and the Interstate Oil and Gas Compact Commission (IOGCC) sent a letter to Administrator Wheeler offering to assist EPA with its evaluation of the sufficiency of state regulations relating to the management of oil and gas production wastes under RCRA Subtitle D. The American Petroleum Institute (API) and the Independent Petroleum Association of America (IPAA) support the initiative set forth by the GWPC and IOGCC and wanted to make you aware that we sent our own letter to the Administrator this afternoon. A copy of our joint letter of support is attached.

Please let me know if you have any questions or would like to discuss this further.

Thank you.

Stephanie

Stephanie R. Meadows
Manager
American Petroleum Institute
Upstream and Industry Operations
200 Massachusetts Avenue, NW
Washington, DC 20001
USA
Phone: 202-682-8578
www.api.org

March 22, 2019

The Honorable Andrew Wheeler
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Dear Administrator Wheeler:

The consent decree driven deadline is approaching for the U.S. Environmental Protection Agency (EPA) to decide whether it needs to take steps under Subtitle D of the Resource Conservation and Recovery Act (RCRA) with regard to oil and gas production wastes. The American Petroleum Institute (API) and the Independent Petroleum Association of America (IPAA) continue to believe that state regulatory programs properly and effectively manage these wastes. Consequently, the two organizations believe EPA should conclude that additional federal action under Subtitle D is unnecessary and could be counterproductive.

State primacy in managing oil and gas production wastes has been well established since EPA recognized their effective programs in its 1998 Regulatory Determination that Subtitle C regulation of these wastes was inappropriate. States continue to demonstrate their commitment to maintaining their primary role. In this regard, API and IPAA strongly support the initiatives set forth in the letter submitted to you by the Interstate Oil & Gas Compact Commission (IOGCC) and the Ground Water Protection Council (GWPC) through their joint effort, the State Oil and Gas Regulatory Exchange (Exchange). Their offer to use the Exchange to assist EPA by compiling data and information on recent state actions to strengthen their regulatory programs and to update that information annually will provide EPA with the material it needs to conclude that federal action is unwarranted and provide the ongoing flow of material to allow EPA meet its triennial requirement to make future Subtitle D determinations.

Resolving this issue now by supporting this state-based effort will prevent further efforts to inappropriately push EPA into actions that interfere with the state-federal relationship that has worked effectively since the 1988 Regulatory Determination. This reliable understanding of the regulatory balance is important for American oil and natural gas producers who need a stable regulatory framework to plan and execute the development of American resources.

Thank you.

Erik Milito
Vice President
Upstream and Industry Operations
American Petroleum Institute

Lee O. Fuller
Executive Vice President of Government Relations
Independent Petroleum Association of America

Message

From: Mike Sommers [registrar@api.org]
Sent: 1/8/2019 5:03:14 PM
To: Jackson, Ryan [jackson.ryan@epa.gov]
Subject: Live Now: 2019 State of American Energy

Watch Live: The State of American Energy

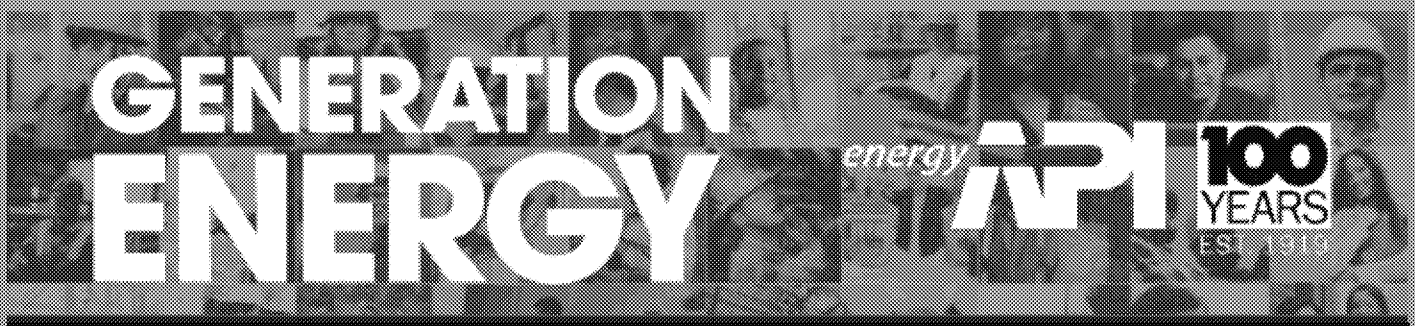
If you were unable to attend API's State of American Energy 2019 event today, you don't have to miss it! Simply watch the event live.

We encourage you to join the conversation on Twitter using #SOAE2019.

powered by cvent

Message

From: Mike Sommers [registrar@api.org]
Sent: 12/19/2018 3:29:11 PM
To: Jackson, Ryan [jackson.ryan@epa.gov]
Subject: You're Invited to API's State of American Energy 2019



The American Petroleum Institute invites you to

The 2019 State of American Energy luncheon – celebrating Generation Energy

We are in the midst of Generation Energy. More natural gas and oil is produced in the United States than any other country in the world. At the same time, U.S. carbon dioxide emissions are at their lowest levels in a generation, largely because of the growing role played by clean natural gas. Our industry is an economic engine, supporting 10.3 million jobs – to produce, deliver and refine natural gas and oil – as well as jobs associated with energy development and the personal spending of our workers.

Guided by smart policies and regulations that unleash innovation and progress, natural gas and oil are playing a powerful role in America's economic progress and will for generations to come.

Join me and industry leaders from coast to coast at the 2019 State of American Energy luncheon.

Sincerely,

MIKE SOMMERS
President and CEO, API

RSVP

BY DECEMBER 31st
This invitation is non-transferable.

WHEN

TUESDAY, JANUARY 8, 2019
11:30 A.M.– 1:30 P.M.

WHERE

RONALD REAGAN BUILDING AND INTERNATIONAL TRADE CENTER
ATRIUM BALLROOM
1300 PENNSYLVANIA AVENUE, NW
WASHINGTON, DC 20004
Please use entrance on 14th Street

energy API | POWER PAST IMPOSSIBLE.ORG

This event has been designed to comply with the gifts and ethics rules of the U.S. Senate and House of Representatives as a "widely attended event." Employees of the executive branch may wish to consult their Designated Agency Ethics Official about any rules that may apply to their attendance at this event.

powered by cvent

Message

From: Mike Sommers [registrar@api.org]
Sent: 12/17/2018 3:40:26 PM
To: Jackson, Ryan [jackson.ryan@epa.gov]
Subject: You're Invited to API's State of American Energy 2019

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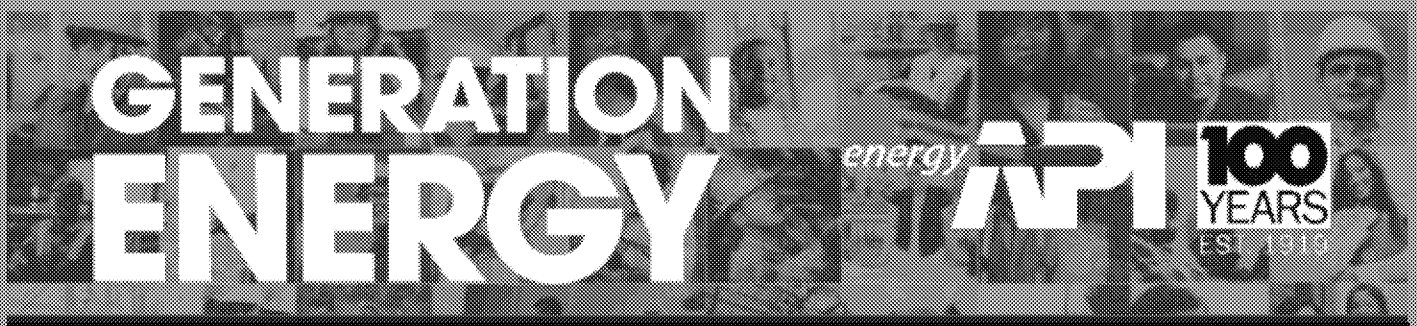
Message

From: Mike Sommers [registrar@api.org]
Sent: 12/13/2018 3:42:36 PM
To: Jackson, Ryan [jackson.ryan@epa.gov]
Subject: You're Invited to API's State of American Energy 2019



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Message

From: Mike Sommers [registrar@api.org]
Sent: 12/10/2018 2:43:34 PM
To: Jackson, Ryan [jackson.ryan@epa.gov]
Subject: You're Invited to API's State of American Energy 2019

The American Petroleum Institute invites you to

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Message

From: Mike Sommers [registrar@api.org]
Sent: 11/27/2018 4:11:52 PM
To: Jackson, Ryan [jackson.ryan@epa.gov]
Subject: You're Invited to API's State of American Energy 2019

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powered by cvent

Message

From: Mike Sommers [registrar@api.org]
Sent: 12/3/2018 3:47:11 PM
To: Jackson, Ryan [jackson.ryan@epa.gov]
Subject: You're Invited to API's State of American Energy 2019

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Message

From: Susan Tackish [tackishs@api.org]
Sent: 10/23/2018 7:17:34 PM
To: Jackson, Ryan [jackson.ryan@epa.gov]
Subject: RE: telephone call

Ryan – Mike left you a voice message on your cell at 3:00pm. He's free until 3:30pm if you want to call him back at Ex. 6 Personal Privacy (PP) Ex. 6 Personal Privacy (PP) Thanks! Susan

---

From: Jackson, Ryan <jackson.ryan@epa.gov>
Sent: Tuesday, October 23, 2018 12:14 PM
To: Susan Tackish <tackishs@api.org>
Subject: Re: telephone call

How about today at 3?

It's nothing policy related. I actually wanted to ask him about a couple of personnel issues.

I can also be reached anytime on my cell at Ex. 6 Personal Privacy (PP)

Ryan Jackson
Chief of Staff
U.S. EPA
Ex. 6 Personal Privacy (PP)

On Oct 23, 2018, at 10:52 AM, Susan Tackish <tackishs@api.org> wrote:

> Hi Ryan – Mike has availability today at 3:00pm or Thursday from 11:00-11:45am or 3:30-4:30pm. If none of those times work for you, let me know a couple of times that do and I'll try to adjust the schedule on our end. Is there a particular subject you want to discuss that I can give Mike a heads up on? Thanks, Susan
>
> **Susan A. Tackish**
> EA to the President & CEO
>
> API | 1220 L Street, NW | Washington, DC 20005
> 202.682.8502 P | 202.682.8110 F | tackishs@api.org
>
> ---
>
> **From:** Jackson, Ryan <jackson.ryan@epa.gov>
> **Sent:** Tuesday, October 23, 2018 10:32 AM

To: Susan Tackish <tackishs@api.org>
Subject: telephone call

Susan, I wanted to see if I could set up a time to talk with Mike for 10 or 15 minutes. Much appreciated.

Ryan Jackson
Chief of Staff
U.S. Environmental Protection Agency
Ex. 6 Personal Privacy (PP)

Message

From: Susan Tackish [tackishs@api.org]
Sent: 10/23/2018 4:28:30 PM
To: Jackson, Ryan [jackson.ryan@epa.gov]
Subject: RE: telephone call

Thanks Ryan. I'll have Mike call your cell at 3:00pm today. Susan

---

From: Jackson, Ryan <jackson.ryan@epa.gov>
Sent: Tuesday, October 23, 2018 12:14 PM
To: Susan Tackish <tackishs@api.org>
Subject: Re: telephone call

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Chief of Staff
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> **Susan A. Tackish**
> EA to the President & CEO
>
> API | 1220 L Street, NW | Washington, DC 20005
> 202.682.8502 P | 202.682.8110 F | tackishs@api.org
>
> ---
>
> **From:** Jackson, Ryan <jackson.ryan@epa.gov>
> **Sent:** Tuesday, October 23, 2018 10:32 AM
> **To:** Susan Tackish <tackishs@api.org>
> **Subject:** telephone call

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Ryan Jackson
Chief of Staff
U.S. Environmental Protection Agency
Ex. 6 Personal Privacy (PP)

Message

From: Chris Kelley [KelleyC@api.org]
Sent: 10/3/2018 7:58:17 PM
To: Jackson, Ryan [jackson.ryan@epa.gov]
CC: Will Hupman [HupmanW@api.org]
Subject: Good meeting you and Intro

Ryan,

It was good to meet you last night and you've got a great friend in John Blount. He's been very helpful to me on several issues over the years and is a great guy.

Thanks also for your conversation about several ongoing oil and natural gas issues that you're well familiar with. I focus on trade and international issues for API and I'd be glad to help with anything you need on those fronts.

I'd also like to introduce you to my colleague, Will Hupman, copied here who handles downstream issues and EPA related that is fuels/additive for us. I'm sure you two have crossed paths before but an extra introduction never hurts.

Thanks again for the opportunity to chat and please let me know if I can ever be helpful to you.

Chris

Chris Kelley
Director – Federal Relations

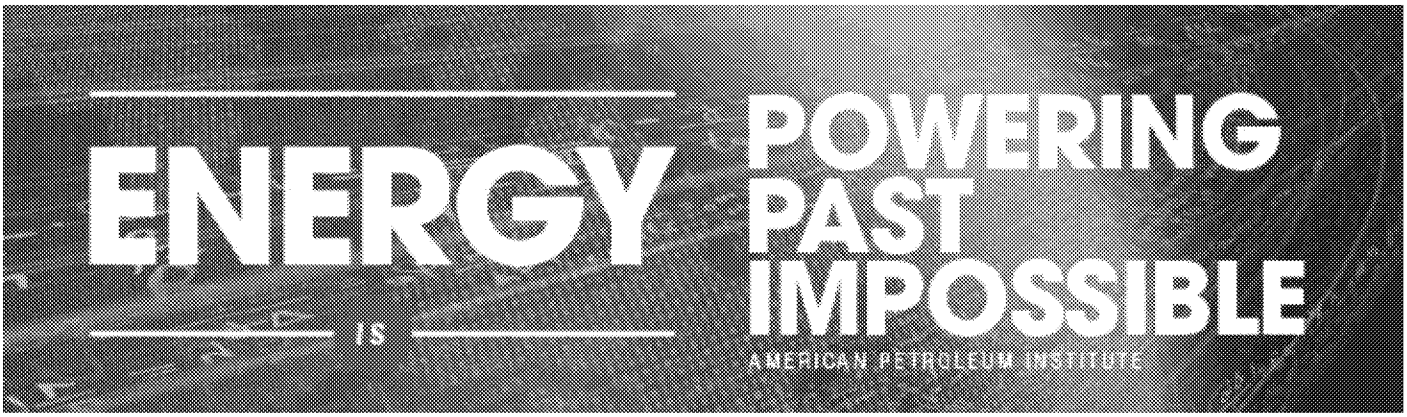
Direct: 202-682-8406 | KelleyC@api.org | API | 1220 L Street NW | Washington, DC 20005

energy API

AMERICAN PETROLEUM INSTITUTE

Message

From: Jack Gerard [registrar@api.org]
Sent: 12/11/2017 4:02:08 PM
To: Jackson, Ryan [jackson.ryan@epa.gov]
Subject: You're Invited to API's State of American Energy 2018



STATE OF AMERICAN ENERGY 2018 | HOW NATURAL GAS & OIL ARE POWERING PAST IMPOSSIBLE

Please join us for the American Petroleum Institute's 2018 State of American Energy luncheon. As the midterm election year begins we will remind lawmakers, policymakers and the public that America's domestic energy abundance is helping to meet the ever-growing demand for energy, but also how those same resources are the building blocks for many of the products that make our modern society safer, advance the medical arts, and spur creativity and scientific innovation through our Power Past Impossible advertising campaign.

From energy that keeps our homes, offices, and schools lit and warm, to the modern fuels that not only power our vehicles but also help to improve our environment, to the modern pharmaceuticals that improve the health and well-being of millions. Power Past Impossible makes the connection between natural gas, oil and their derived products and their fundamental role in our society, which is essential to positively advance the national energy policy discussion.

Sincerely,

RSVP
BY DECEMBER 22ND

This invitation is non-transferable.

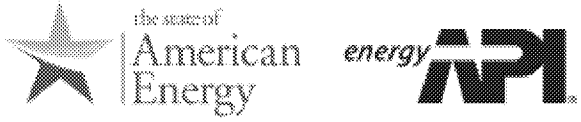
YES | NO

When
TUESDAY, JANUARY 9, 2018
11:30 A.M.-1:00 P.M.

Where
Ronald Reagan Building and
International Trade Center
Atrium Ballroom
1300 Pennsylvania Avenue, NW
Washington, DC 20004

Please use entrance on 14th Street

JACK N. GERARD
President and CEO, API



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cvent

Message

From: Khary Cauthen [cauthenk@api.org]
Sent: 1/19/2018 9:05:18 PM
To: Jackson, Ryan [jackson.ryan@epa.gov]
CC: Lyons, Troy [lyons.troy@epa.gov]; Hilary Moffett [moffetth@api.org]
Subject: Re: Continuation of operations.

Thank you, had some questions from companies and saw DOE's announcement regarding their plans for Monday.
Have a good weekend.

Sent from my iPhone

> On Jan 19, 2018, at 4:03 PM, Jackson, Ryan <jackson.ryan@epa.gov> wrote:
>
> Well we have to employees and contractors.
>
> We are staying open for the next week full strength. All obligated funds for contractors and contractor work will continue. But we will not enter new contracts nor finalize new grants. However, all new travel has to be approved by the Administrator's office. Personnel already on travel need to finish the purpose of their travel instead of abruptly cancelling the remainder of their trip.
>
> -----Original Message-----
> From: Khary Cauthen [mailto:cauthenk@api.org]
> Sent: Friday, January 19, 2018 2:56 PM
> To: Jackson, Ryan <jackson.ryan@epa.gov>; Lyons, Troy <lyons.troy@epa.gov>
> Cc: Hilary Moffett <moffetth@api.org>
> Subject: Continuation of operations.
>
> Ryan/Troy: has EPA released official guidance to stakeholders in the event the Senate does not move forward this evening?
>
> Sent from my iPhone
>

Message

From: Susan Tackish [tackishs@api.org]
Sent: 9/10/2018 10:30:55 PM
To: Dickerson, Aaron [dickerson.aaron@epa.gov]; Frank Macchiarola [MacchiarolaF@api.org]
CC: Jackson, Ryan [jackson.ryan@epa.gov]
Subject: RE: Meeting Request- Mike Sommers API
Attachments: EPA Meeting Request Form - Acting Administrator Wheeler.docx

Hi Aaron - attached is the completed form. Please let me know if you need anything further. Thanks, Susan

-----Original Message-----
From: Dickerson, Aaron [mailto:dickerson.aaron@epa.gov]
Sent: Monday, September 10, 2018 4:36 PM
To: Susan Tackish; Frank Macchiarola
Cc: Jackson, Ryan
Subject: RE: Meeting Request- Mike Sommers API

Hi Susan/Frank

Can you fill out the attached meeting request form and return to me? I will then be in touch regarding a possible meeting. Thank you.

Aaron Dickerson
Office of the Administrator
U.S. EPA

-----Original Message-----
From: Susan Tackish [mailto:tackishs@api.org]
Sent: Monday, September 10, 2018 4:31 PM
To: Frank Macchiarola <MacchiarolaF@api.org>; Dickerson, Aaron <dickerson.aaron@epa.gov>
Cc: Jackson, Ryan <jackson.ryan@epa.gov>
Subject: RE: Meeting Request- Mike Sommers API

Aaron - below is my full contact information in the event you prefer to call. I look forward to hearing from you. Best, Susan

Susan A. Tackish
EA to the President & CEO

API | 1220 L Street, NW | Washington, DC 20005
202.682.8502 P | 202.682.8110 F | tackishs@api.org

-----Original Message-----
From: Frank Macchiarola
Sent: Monday, September 10, 2018 9:12 AM
To: Dickerson.aaron@epa.gov
Cc: Jackson.ryan@epa.gov; Susan Tackish
Subject: Meeting Request- Mike Sommers API

Aaron,
I am writing to request a meeting with Acting Administrator Wheeler for Mike Sommers, API's new President and CEO and me at your convenience. I am also copying Susan Tackish, Mike's Executive Assistant here.
Thank you for your consideration.
Best,
Frank Macchiarola

ACTING ADMINISTRATOR ANDREW WHEELER
MEETING REQUEST FORM
U.S. Environmental Protection Agency

Today's Date::	*September 10, 2018*
Proposed Meeting Date and Time:	*First available*
Requesting Individual / Affiliation:	*Mike Sommers, President & CEO, American Petroleum Institute (API)*
Location of meeting:	*EPA by default; if off-site, provide address, parking instructions, etc.*
Is the Above Date Flexible?	*Yes*
Purpose of the Meeting	*RFS/Regulatory Issues*
Does the topic of the meeting include any area under litigation? If so, name the litigation.	*No*
Role of the Acting Administrator:	*meeting participant*
List all attendees and their affiliation:	*Mike Sommers, President & CEO, API* *Frank Macchiarola, Group Director Downstream, API* *Will Hupman, Director of Federal Relations, API*
Requestor(s)' Relationship to EPA:	*none*
Does the organizer/host personally know the Acting Administrator? If so, what is the nature of the relationship and its length?	*Yes, professional relationship, 5 years*
Has the organizer/host met previously with the Acting Administrator? If so, which dates?	*No*
Point of Contact:	*Frank Macchiarola (Issues) 202-682-8167* *Susan Tackish (Schedule) 202-682-8502*

Please return this completed form to Aaron Dickerson at dickerson.aaron@epa.gov.

ED_002719_00013741-00001

Message

From: Dickerson, Aaron [dickerson.aaron@epa.gov]
Sent: 9/10/2018 8:35:52 PM
To: Susan Tackish [tackishs@api.org]; Frank Macchiarola [MacchiarolaF@api.org]
CC: Jackson, Ryan [jackson.ryan@epa.gov]
Subject: RE: Meeting Request- Mike Sommers API
Attachments: EPA Meeting Request Form - Acting Administrator Wheeler.docx

Hi Susan/Frank

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Aaron Dickerson
Office of the Administrator
U.S. EPA

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Cc: Jackson, Ryan <jackson.ryan@epa.gov>
Subject: RE: Meeting Request- Mike Sommers API

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Susan A. Tackish
EA to the President & CEO

API | 1220 L Street, NW | Washington, DC 20005
202.682.8502 P | 202.682.8110 F | tackishs@api.org

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Sent: Monday, September 10, 2018 9:12 AM
To: Dickerson.aaron@epa.gov
Cc: Jackson.ryan@epa.gov; Susan Tackish
Subject: Meeting Request- Mike Sommers API

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Best,
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ACTING ADMINISTRATOR ANDREW WHEELER
MEETING REQUEST FORM
U.S. Environmental Protection Agency

Today's Date:: _____

Proposed Meeting Date and Time: _____

Requesting Individual / Affiliation: _____

Location of meeting: *EPA by default; if off-site, provide address, parking instructions, etc.*

Is the Above Date Flexible? _____

Purpose of the Meeting _____

Does the topic of the meeting include any area under litigation? If so, name the litigation. _____

Role of the Acting Administrator: *E.g. meeting participant, roundtable, panel, attendance*

List all attendees and their affiliation: _____

Requestor(s)' Relationship to EPA: _____

Does the organizer/host personally know the Acting Administrator? If so, what is the nature of the relationship and its length? _____

Has the organizer/host met previously with the Acting Administrator? If so, which dates? _____

Point of Contact: _____

Please return this completed form to Aaron Dickerson at dickerson.aaron@epa.gov.

ED_002719_00013743-00001

Message

From: Will Hupman [HupmanW@api.org]
Sent: 2/16/2018 12:39:59 PM
To: Khary Cauthen [cauthenk@api.org]
CC: Jackson, Ryan [jackson.ryan@epa.gov]; Dickerson, Aaron [dickerson.aaron@epa.gov]
Subject: Re: Scheduling Request: American Petroleum Institute Downstream Executives 6 March

Thanks, Ryan. Among other topics, our Execs hope to discuss the small refinery exemptions under the RFS and the RVP waiver for E15. On small refineries, our folks are urging for a level playing field regardless of facility size and location. On RVP for E15, we understand y'all are conducting an internal review and would like to check on that. Happy to provide any additional materials or information. Will

---

Will Hupman
Director – Federal Relations
American Petroleum Institute
desk: 202-682-8396
cell: Ex. 6 Personal Privacy (PP)
hupmanw@api.org

On Feb 16, 2018, at 7:31 AM, Khary Cauthen <cauthenk@api.org> wrote:

Ryan: I've also copied Will Hupman who can elaborate on the topic of small refinery exemption and our work with the Congress on the RFS.

From: Jackson, Ryan [mailto:jackson.ryan@epa.gov]
Sent: Thursday, February 15, 2018 8:09 PM
To: Khary Cauthen
Cc: Dickerson, Aaron
Subject: RE: Scheduling Request: American Petroleum Institute Downstream Executives 6 March

Ok. Can you shoot me the topics?

You also should get a call from the WH.

From: Khary Cauthen [mailto:cauthenk@api.org]
Sent: Thursday, February 15, 2018 11:49 AM
To: Jackson, Ryan <jackson.ryan@epa.gov>
Subject: Scheduling Request: American Petroleum Institute Downstream Executives 6 March

Ryan: Good afternoon, hope that all is well with you. The American Petroleum Institute Downstream Executives will be in town on March 6th and would like the opportunity to sit down with you to discuss fuel policy- namely the Renewable Fuels Standard. The committed attendees for the day are listed below and other meetings while they are in town include Congressmen Shimkus, Flores and Senator Cornyn as well as a meeting with the EPA.

Right now, we have Hill meetings scheduled for after lunch with the morning wide open. Ideally I would like to have them visit with in the morning then have them remain on the Hill the rest of their visit but of course want to be flexible to your schedule.

Thanks for considering this request and look forward to meeting with you on March 6th.
Khary

202-682-8209 o
Ex. 6 Personal Privacy (PP) C

Attendees
Dale Walsh – President, Chevron Products Americas
Dave Brownell – Senior Vice President, Global Operations, ExxonMobil Fuels & Lubricants
Don Templin – President, Marathon Petroleum Corporation

Message

From: Khary Cauthen [cauthenk@api.org]
Sent: 2/16/2018 2:05:34 AM
To: Jackson, Ryan [jackson.ryan@epa.gov]
CC: Dickerson, Aaron [dickerson.aaron@epa.gov]
Subject: Re: Scheduling Request: American Petroleum Institute Downstream Executives 6 March

Topics include
1. Discussion on our continuing work with the Hill on RFS legislation.
2. Small refinery exemption and related RFS provisions.

Sent from my iPhone

On Feb 15, 2018, at 8:09 PM, Jackson, Ryan <jackson.ryan@epa.gov> wrote:

> Ok. Can you shoot me the topics?
>
> You also should get a call from the WH.
>
> ---
>
> **From:** Khary Cauthen [mailto:cauthenk@api.org]
> **Sent:** Thursday, February 15, 2018 11:49 AM
> **To:** Jackson, Ryan <jackson.ryan@epa.gov>
> **Subject:** Scheduling Request: American Petroleum Institute Downstream Executives 6 March
>
> Ryan: Good afternoon, hope that all is well with you. The American Petroleum Institute Downstream Executives will be in town on March 6th and would like the opportunity to sit down with you to discuss fuel policy- namely the Renewable Fuels Standard. The committed attendees for the day are listed below and other meetings while they are in town include Congressmen Shimkus, Flores and Senator Cornyn as well as a meeting with the EPA.
>
> Right now, we have Hill meetings scheduled for after lunch with the morning wide open. Ideally I would like to have them visit with in the morning then have them remain on the Hill the rest of their visit but of course want to be flexible to your schedule.
>
> Thanks for considering this request and look forward to meeting with you on March 6th.
> Khary
> 202-682-8209 o
> Ex. 6 Personal Privacy (PP) C
>
> Attendees
> Dale Walsh – President, Chevron Products Americas
> Dave Brownell – Senior Vice President, Global Operations, ExxonMobil Fuels & Lubricants
> Don Templin – President, Marathon Petroleum Corporation

Message

From: Jackson, Ryan [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=38BC8E18791A47D88A279DB2FEC8BD60-JACKSON, RY]
Sent: 6/20/2018 11:02:40 PM
To: Khary Cauthen [cauthenk@api.org]
Subject: Re: Administrator Pruitt Phone Call Request with API CEO and President Jack Gerard

Yes we can. Let me work on this.

Ryan Jackson
Chief of Staff
U.S. EPA
Ex. 6 Personal Privacy (PP)

On Jun 20, 2018, at 6:13 PM, Khary Cauthen <cauthenk@api.org> wrote:

> Ryan: Good evening, I hope that all is well with you. Would like to formally request a quick telephone conversation between my boss Jack Gerard and Administrator Pruitt.
>
> The topic for the conversation is general catch up and ongoing fuels policy.
>
> I don't imagine the phone call's length being longer than 15 minutes and Mr. Gerard is open to taking the call at the Administrator's earliest convenience.
>
> Khary Cauthen
> Senior Director, Federal Relations
> 202-682-8209 o
> Ex. 6 Personal Privacy (PP) C

Appointment

From: Broome, Shannon S. [SBroome@hunton.com]
Sent: 11/30/2017 4:35:21 PM
To: Broome, Shannon S. [SBroome@hunton.com]; Letendre, Daisy [letendre.daisy@epa.gov]

Subject: Meet with Chemical Safety Advocacy Group
Location: 2200 Pennsylvania Ave., N.W., Suite 900

Start: 12/1/2017 3:00:00 PM
End: 12/1/2017 4:00:00 PM
Show Time As: Busy

Recurrence: (none)

Appointment

From: Letendre, Daisy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B691CCCCA6264AE09DF7054C7F1019CB-LETENDRE, D]
Sent: 11/30/2017 8:53:37 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]; Hilary Moffett [moffetth@api.org]

Subject: Lunch!
Location: TBD

Start: 12/1/2017 4:30:00 PM
End: 12/1/2017 5:30:00 PM
Show Time As: Busy

Appointment

From: Letendre, Daisy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B691CCCCA6264AE09DF7054C7F1019CB-LETENDRE, D]
Sent: 8/25/2017 2:11:41 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]; Khary Cauthen [cauthenk@api.org]; Hilary Moffett [moffetth@api.org]; Stephanie Meadows [Meadows@api.org]; Sachs, Robert [Sachs.Robert@epa.gov]; Sharpe, Kristinn [Sharpe.Kristinn@epa.gov]; Shaw, Nena [Shaw.Nena@epa.gov]; Corona, Elizabeth [Corona.Elizabeth@epa.gov]
CC: EPA Smart Sectors [sectors@epa.gov]

Subject: API/ EPA's Sector Strategies
Location: 1220 L Street NW

Start: 9/13/2017 3:00:00 PM
End: 9/13/2017 4:00:00 PM
Show Time As: Busy

Appointment

From: Letendre, Daisy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B691CCCCA6264AE09DF7054C7F1019CB-LETENDRE, D]
Sent: 11/30/2017 6:51:11 PM
To: Broome, Shannon S. [SBroome@hunton.com]

Subject: Accepted: Meet with Chemical Safety Advocacy Group
Location: 2200 Pennsylvania Ave., N.W., Suite 900

Start: 12/1/2017 3:00:00 PM
End: 12/1/2017 4:00:00 PM
Show Time As: Busy

Appointment

From: Letendre, Daisy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B691CCCCA6264AE09DF7054C7F1019CB-LETENDRE, D]
Sent: 11/30/2017 8:53:39 PM
To: Hilary Moffett [moffetth@api.org]

Subject: Lunch!
Location: TBD

Start: 12/1/2017 4:30:00 PM
End: 12/1/2017 5:30:00 PM
Show Time As: Tentative

Appointment

From: Letendre, Daisy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B691CCCCA6264AE09DF7054C7F1019CB-LETENDRE, D]
Sent: 8/25/2017 2:11:43 PM
To: Khary Cauthen [cauthenk@api.org]; Hilary Moffett [moffetth@api.org]; Stephanie Meadows [Meadows@api.org]; Sachs, Robert [Sachs.Robert@epa.gov]; Sharpe, Kristinn [Sharpe.Kristinn@epa.gov]; Shaw, Nena [Shaw.Nena@epa.gov]; Corona, Elizabeth [Corona.Elizabeth@epa.gov]

Subject: API/ EPA's Sector Strategies
Location: 1220 L Street NW

Start: 9/13/2017 3:00:00 PM
End: 9/13/2017 4:00:00 PM
Show Time As: Tentative

Appointment

From: Stephanie Meadows [Meadows@api.org]
Sent: 8/25/2017 2:14:28 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]

Subject: Accepted: API/ EPA's Sector Strategies
Location: 1220 L Street NW

Start: 9/13/2017 3:00:00 PM
End: 9/13/2017 4:00:00 PM
Show Time As: Busy

Recurrence: (none)

Appointment

From: Letendre, Daisy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B691CCCCA6264AE09DF7054C7F1019CB-LETENDRE, D]
Sent: 2/6/2018 2:35:54 PM
To: Hilary Moffett [moffetth@api.org]

Subject: Accepted: Don't schedule here
Location: Tbd

Start: 2/16/2018 5:30:00 PM
End: 2/16/2018 7:00:00 PM
Show Time As: Busy

Appointment

From: Howard Feldman [Feldman@api.org]
Sent: 1/30/2019 8:26:23 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]

Subject: Accepted: FW: API/EPA 2019 Check-in
Location: 1220 L Street NW

Start: 2/8/2019 4:00:00 PM
End: 2/8/2019 5:00:00 PM
Show Time As: Busy

Recurrence: (none)

Appointment

From: Smythe Anderson [AndersonS@api.org]
Sent: 1/30/2019 8:15:33 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]

Subject: Accepted: API/EPA 2019 Check-in
Location: 1220 L Street NW

Start: 2/8/2019 4:00:00 PM
End: 2/8/2019 5:00:00 PM
Show Time As: Busy

Recurrence: (none)

Appointment

From: Stephanie Meadows [Meadows@api.org]
Sent: 1/30/2019 6:55:29 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]

Subject: Accepted: API/EPA 2019 Check-in
Location: 1220 L Street NW

Start: 2/8/2019 4:00:00 PM
End: 2/8/2019 5:00:00 PM
Show Time As: Busy

Recurrence: (none)

Appointment

From: Letendre, Daisy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B691CCCCA6264AE09DF7054C7F1019CB-LETENDRE, D]
Sent: 1/30/2019 6:52:21 PM
To: Shaw, Nena [Shaw.Nena@epa.gov]; Sharpe, Kristinn [Sharpe.Kristinn@epa.gov]; Sachs, Robert [Sachs.Robert@epa.gov]; Corona, Elizabeth [Corona.Elizabeth@epa.gov]; Stephanie Meadows [Meadows@api.org]

Subject: API/EPA 2019 Check-in
Location: 1220 L Street NW

Start: 2/8/2019 4:00:00 PM
End: 2/8/2019 5:00:00 PM
Show Time As: Tentative

Appointment

From: Letendre, Daisy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B691CCCCA6264AE09DF7054C7F1019CB-LETENDRE, D]
Sent: 1/30/2019 6:52:19 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]; Shaw, Nena [Shaw.Nena@epa.gov]; Sharpe, Kristinn [Sharpe.Kristinn@epa.gov]; Sachs, Robert [Sachs.Robert@epa.gov]; Corona, Elizabeth [Corona.Elizabeth@epa.gov]; Stephanie Meadows [Meadows@api.org]
CC: Smythe Anderson [AndersonS@api.org]

Subject: API/EPA 2019 Check-in
Location: 1220 L Street NW

Start: 2/8/2019 4:00:00 PM
End: 2/8/2019 5:00:00 PM
Show Time As: Busy

Appointment

From: Letendre, Daisy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B691CCCCA6264AE09DF7054C7F1019CB-LETENDRE, D]
Sent: 1/30/2019 6:52:19 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]; Shaw, Nena [Shaw.Nena@epa.gov]; Sharpe, Kristinn [Sharpe.Kristinn@epa.gov]; Sachs, Robert [Sachs.Robert@epa.gov]; Corona, Elizabeth [Corona.Elizabeth@epa.gov]; Stephanie Meadows [Meadows@api.org]

Subject: API/EPA 2019 Check-in
Location: 1220 L Street NW

Start: 2/8/2019 4:00:00 PM
End: 2/8/2019 5:00:00 PM
Show Time As: Busy

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Sent: 1/30/2019 6:52:19 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]; Shaw, Nena [Shaw.Nena@epa.gov]; Sharpe, Kristinn [Sharpe.Kristinn@epa.gov]; Sachs, Robert [Sachs.Robert@epa.gov]; Corona, Elizabeth [Corona.Elizabeth@epa.gov]; Stephanie Meadows [Meadows@api.org]
CC: Smythe Anderson [AndersonS@api.org]; Howard Feldman [Feldman@api.org]

Subject: API/EPA 2019 Check-in
Location: 1220 L Street NW

Start: 2/8/2019 4:00:00 PM
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Show Time As: Busy

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To: Letendre, Daisy [letendre.daisy@epa.gov]; Shaw, Nena [Shaw.Nena@epa.gov]; Sharpe, Kristinn [Sharpe.Kristinn@epa.gov]; Sachs, Robert [Sachs.Robert@epa.gov]; Corona, Elizabeth [Corona.Elizabeth@epa.gov]; Stephanie Meadows [Meadows@api.org]
CC: Smythe Anderson [AndersonS@api.org]; Howard Feldman [Feldman@api.org]

Subject: API/EPA 2019 Check-in
Location: 1220 L Street NW

Start: 2/8/2019 3:00:00 PM
End: 2/8/2019 4:00:00 PM
Show Time As: Busy

Appointment

From: Letendre, Daisy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B691CCCCA6264AE09DF7054C7F1019CB-LETENDRE, D]
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To: Letendre, Daisy [letendre.daisy@epa.gov]; Shaw, Nena [Shaw.Nena@epa.gov]; Sharpe, Kristinn [Sharpe.Kristinn@epa.gov]; Sachs, Robert [Sachs.Robert@epa.gov]; Corona, Elizabeth [Corona.Elizabeth@epa.gov]; Stephanie Meadows [Meadows@api.org]
CC: Smythe Anderson [AndersonS@api.org]; Howard Feldman [Feldman@api.org]

Subject: API/EPA 2019 Check-in
Location: 1220 L Street NW

Start: 2/8/2019 3:00:00 PM
End: 2/8/2019 4:00:00 PM
Show Time As: Busy

Appointment

From: Hilary Moffett [moffetth@api.org]
Sent: 2/5/2018 11:21:18 PM
To: Hilary Moffett [moffetth@api.org]; Anna Burhop [anna.burhop@bracewell.com]; Letendre, Daisy [letendre.daisy@epa.gov]

Subject: EPW Ladies Lunch
Location: Ex. 6 Personal Privacy (PP)

Start: 2/16/2018 7:00:00 PM
End: 2/16/2018 8:30:00 PM
Show Time As: Busy

Recurrence: (none)

Appointment

From: Letendre, Daisy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B691CCCCA6264AE09DF7054C7F1019CB-LETENDRE, D]
Sent: 11/30/2017 8:53:37 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]; Hilary Moffett [moffetth@api.org]

Subject: Lunch!
Location: TBD

Start: 12/1/2017 4:30:00 PM
End: 12/1/2017 5:30:00 PM
Show Time As: Busy

Appointment

From: Broome, Shannon S. [SBroome@hunton.com]
Sent: 11/30/2017 4:35:21 PM
To: Broome, Shannon S. [SBroome@hunton.com]; Letendre, Daisy [letendre.daisy@epa.gov]

Subject: Meet with Chemical Safety Advocacy Group
Location: 2200 Pennsylvania Ave., N.W., Suite 900

Start: 12/1/2017 3:00:00 PM
End: 12/1/2017 4:00:00 PM
Show Time As: Busy

Recurrence: (none)

Appointment

From: Letendre, Daisy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B691CCCCA6264AE09DF7054C7F1019CB-LETENDRE, D]
Sent: 8/25/2017 2:11:41 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]; Khary Cauthen [cauthenk@api.org]; Hilary Moffett [moffetth@api.org]; Stephanie Meadows [Meadows@api.org]; Sachs, Robert [Sachs.Robert@epa.gov]; Sharpe, Kristinn [Sharpe.Kristinn@epa.gov]; Shaw, Nena [Shaw.Nena@epa.gov]; Corona, Elizabeth [Corona.Elizabeth@epa.gov]
CC: EPA Smart Sectors [sectors@epa.gov]

Subject: API/ EPA's Sector Strategies
Location: 1220 L Street NW

Start: 9/13/2017 3:00:00 PM
End: 9/13/2017 4:00:00 PM
Show Time As: Busy

EPA Attendees: Daisy Letendre, Bob Sachs, Nena Shaw, Elizabeth Corona, Kristinn Sharpe

Message

From: Stephanie Meadows [Meadows@api.org]
Sent: 3/29/2019 8:43:26 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]
Subject: Automatic reply: update on oil and gas snapshot

I will be out of the office on Friday, March 29, 2019. I will have limited access to email, so my response will be delayed. Stephanie

Appointment

From: Stephanie Meadows [Meadows@api.org]
Sent: 2/8/2019 1:01:27 AM
To: Letendre, Daisy [letendre.daisy@epa.gov]

Subject: Accepted: API/EPA 2019 Check-in
Location: 1220 L Street NW

Start: 2/8/2019 3:00:00 PM
End: 2/8/2019 4:00:00 PM
Show Time As: Busy

Recurrence: (none)

Message

From: Morehouse, Bob [RMorehouse@hunton.com]
Sent: 10/17/2017 9:21:31 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]
CC: Morehouse, Bob [RMorehouse@hunton.com]
Subject: RE: Air Permitting Forum and Auto Industry Forum

Daisy:

I've mentioned your availability to meet with our Forum members and they look forward to a discussion on the Smart Sectors program on either Nov 29 or 30. What day works best for you?

Thanks,
Bob

From: Morehouse, Bob
Sent: Monday, October 02, 2017 4:01 PM
To: letendre.daisy@epa.gov
Cc: Morehouse, Bob
Subject: Air Permitting Forum and Auto Industry Forum

Daisy:

Thank you for your time today. As I mentioned, the Air Permitting Forum has been around a long time. Initially our focus was on implementation of the Title V requirements, but we currently engage with EPA on a broad range of air regulatory implementation issues. Within the Air Permitting Forum is the Auto Industry Forum (AIF). We represent the auto industry on all stationary source issues; the Auto Alliance focuses on fuel-related issues.

Our team, under the leadership of Shannon Broome and Chuck Knauss, has a long history of working productively with Agency staff on regulatory activities. I currently serve as the Director of the two Forums.

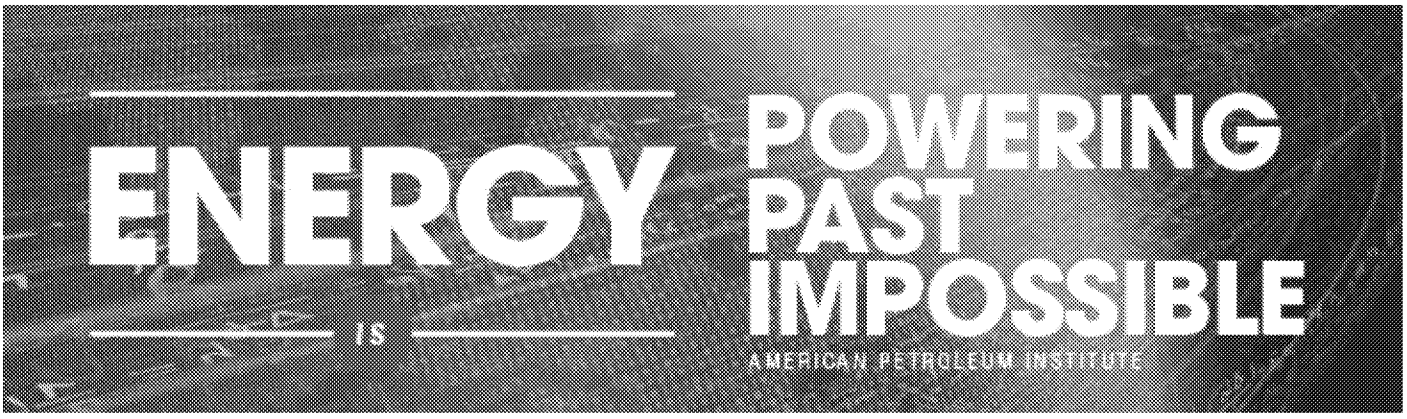
We are having our annual meeting in Washington on November 29 (afternoon) and November 30 (morning). I believe, since our members will be in town, that it would be a great opportunity to learn more about the Smart Sectors program and to discuss opportunities for engagement with auto manufacturers (e.g., GM, Ford, BMW, Fiat Chryser...).

Please let me know your availability to meet on one of those days, and who else from the Agency would join us.

Thanks,
Bob Morehouse

Message

From: Jack Gerard [registrar@api.org]
Sent: 1/9/2018 5:32:06 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]
Subject: Watch Live: API's State of American Energy 2018

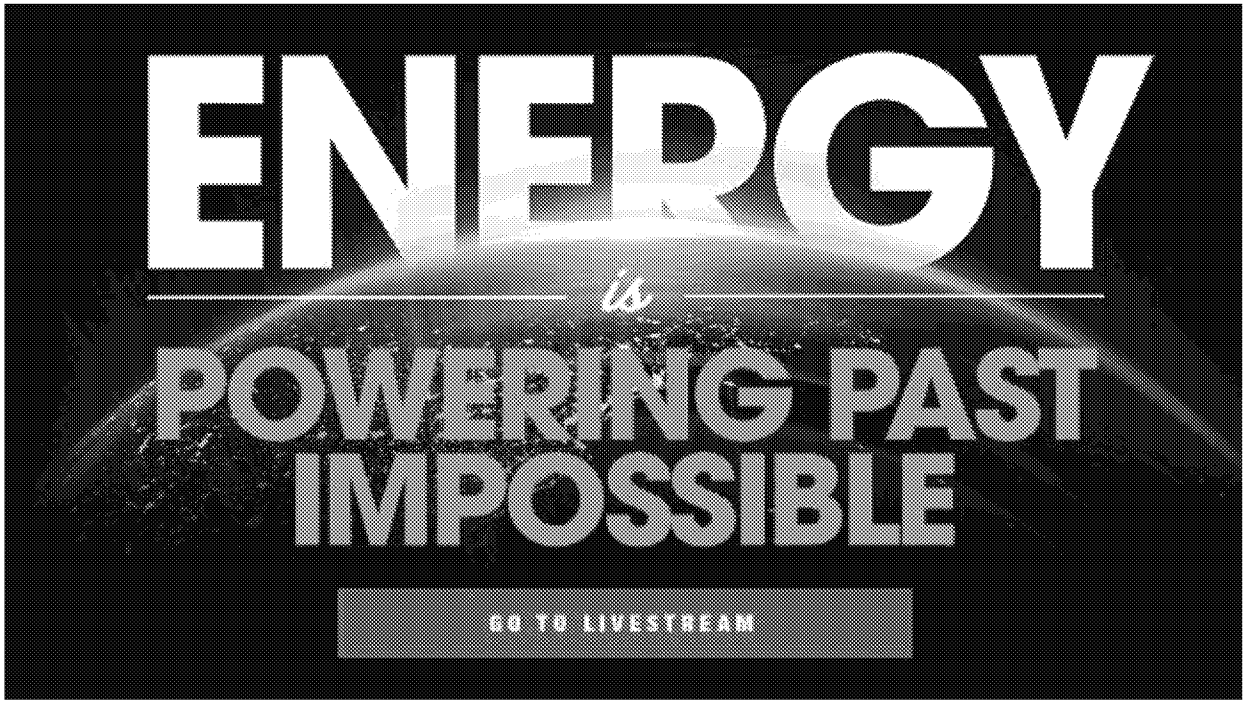


STATE OF AMERICAN ENERGY 2018 | HOW NATURAL GAS & OIL ARE POWERING PAST IMPOSSIBLE

Watch Live: The State of American Energy

If you were unable to attend API's State of American Energy 2018 event today, you don't have to miss it! Simply watch the event live.

We encourage you to join the conversation on Twitter using #SOAE2018.



This event has been designed to comply with the gifts and ethics rules of the U.S. Senate and House of Representatives as a "widely attended event." Employees of the executive branch may wish to consult their Designated Agency Ethics Official about any rules that may apply to their attendance at this event.

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Message

From: Jack Gerard [registrar@api.org]
Sent: 12/20/2017 3:02:07 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]
Subject: Last Chance to Register for The State of American Energy 2018

STATE OF AMERICAN ENERGY 2018
HOW NATURAL GAS & OIL ARE POWERING PAST IMPOSSIBLE

Today is the **last chance to register** for API's 2018 State of American Energy luncheon on **Tuesday, January 9, 2018** from 11:30 A.M.-1:00 P.M. Please RSVP at Registrar@api.org if you have any questions.

Sincerely,

JACK N. GERARD,
President and CEO, API

YES | NO

This event has been designed to comply with the gifts and ethics rules of the U.S. Senate and House of Representatives as a "widely attended event." Employees of the executive branch may wish to consult their Designated Agency Ethics Official about any rules that may apply to their attendance at this event.

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Appointment

From: Howard Feldman [Feldman@api.org]
Sent: 2/5/2019 9:18:53 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]

Subject: Accepted: API/EPA 2019 Check-in
Location: 1220 L Street NW

Start: 2/8/2019 3:00:00 PM
End: 2/8/2019 4:00:00 PM
Show Time As: Busy

Recurrence: (none)

Appointment

From: Smythe Anderson [AndersonS@api.org]
Sent: 2/5/2019 7:08:07 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]

Subject: Accepted: API/EPA 2019 Check-in
Location: 1220 L Street NW

Start: 2/8/2019 3:00:00 PM
End: 2/8/2019 4:00:00 PM
Show Time As: Busy

Recurrence: (none)

Message

From: Jack Gerard [registrar@api.org]
Sent: 12/14/2017 4:02:08 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]
Subject: You're Invited to API's State of American Energy 2018

STATE OF AMERICAN ENERGY 2018 | HOW NATURAL GAS & OIL ARE POWERING PAST IMPOSSIBLE

Please join us for the American Petroleum Institute's 2018 State of American Energy luncheon. As the midterm election year begins we will remind lawmakers, policymakers and the public that America's domestic energy abundance is helping to meet the ever-growing demand for energy, but also how those same resources are the building blocks for many of the products that make our modern society safer, advance the medical arts, and spur creativity and scientific innovation through our Power Past Impossible advertising campaign.

From energy that keeps our homes, offices, and schools lit and warm, to the modern fuels that not only power our vehicles but also help to improve our environment, to the modern pharmaceuticals that improve the health and well-being of millions. Power Past Impossible makes the connection between natural gas, oil and their derived products and their fundamental role in our society, which is essential to positively advance the national energy policy discussion.

Sincerely,

RSVP

BY DECEMBER 22ND

This invitation is non-transferable.

When

TUESDAY, JANUARY 9, 2018
11:30 A.M.-1:00 P.M.

Where

Ronald Reagan Building and
International Trade Center
Atrium Ballroom
1300 Pennsylvania Avenue, NW
Washington, DC 20004

Please use entrance on 14th Street

JACK N. GERARD
President and CEO, API

This event has been designed to comply with the gifts and ethics rules of the U.S. Senate and House of Representatives as a "widely attended event." Employees of the executive branch may wish to consult their Designated Agency Ethics Official about any rules that may apply to their attendance at this event.

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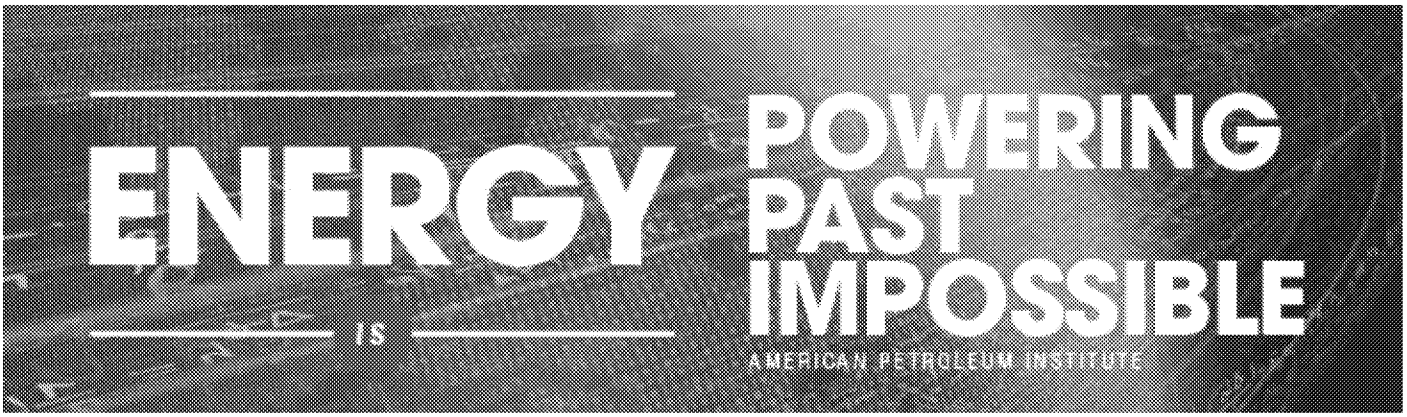
cvent

Message

From: Jack Gerard [registrar@api.org]
Sent: 12/11/2017 4:02:18 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]
Subject: You're Invited to API's State of American Energy 2018



STATE OF AMERICAN ENERGY 2018 | HOW NATURAL GAS & OIL ARE POWERING PAST IMPOSSIBLE

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From energy that keeps our homes, offices, and schools lit and warm, to the modern fuels that not only power our vehicles but also help to improve our environment, to the modern pharmaceuticals that improve the health and well-being of millions. Power Past Impossible makes the connection between natural gas, oil and their derived products and their fundamental role in our society, which is essential to positively advance the national energy policy discussion.

Sincerely,

RSVP
BY DECEMBER 22ND

This invitation is non-transferable.

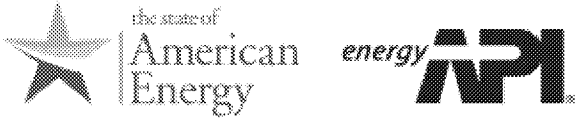
YES | NO

When
TUESDAY, JANUARY 9, 2018
11:30 A.M.-1:00 P.M.

Where
Ronald Reagan Building and
International Trade Center
Atrium Ballroom
1300 Pennsylvania Avenue, NW
Washington, DC 20004

Please use entrance on 14th Street

JACK N. GERARD
President and CEO, API



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cvent

Message

From: Hilary Moffett [moffetth@api.org]
Sent: 12/4/2017 4:21:23 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]; Sharpe, Kristinn [Sharpe.Kristinn@epa.gov]
Subject: Checking In

Good Morning Ladies,

I hope you all had a great weekend! We have a lot of action happening over here, so I just wanted to send a short note to update our Smart Sector Reps on all the great stuff.

Meetings:
On Wednesday, a group of API staff and member companies will meet with David Harlow, Mandy, and Justin to discuss NSR reform. Next week, we will come back in to have a high level intro meeting with Bill Wehrum to talk big picture priorities and ways that industry can be helpful. Finally, next Friday (12/15) we will come in again to meet with David and Mandy for 45 minutes to talk about changes in the Greenhouse Gas Inventory and how those changes could fail to accurately represent the emissions reductions industry has worked hard to achieve. We are looking forward to some robust discussions on important topics.

Voluntary Program:
Tomorrow, API is officially launching The Environmental Partnership. This is a voluntary program aimed at further reducing methane emissions. We met with EPA's politic team about this a few weeks ago, and Matt Todd met with Sarah last Friday to go over the details. More to come.

If you all need anything from my end, please don't hesitate to reach out.

Thanks,
Hilary

Hilary Moffett
Director, Federal Relations
American Petroleum Institute
202-682-8040 (desk)
Ex. 6 Personal Privacy (PP) (cell)
MoffettH@api.org

Appointment

From: Hilary Moffett [moffetth@api.org]
Sent: 11/30/2017 8:58:35 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]

Subject: Accepted: Lunch!
Location: TBD

Start: 12/1/2017 4:30:00 PM
End: 12/1/2017 5:30:00 PM
Show Time As: Busy

Recurrence: (none)

Message

From: Jack Gerard [registrar@api.org]
Sent: 11/29/2017 3:32:22 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]
Subject: You're Invited to API's State of American Energy 2018

STATE OF AMERICAN ENERGY 2018 | HOW NATURAL GAS & OIL ARE POWERING PAST IMPOSSIBLE

Please join us for the American Petroleum Institute's 2018 State of American Energy luncheon. As the midterm election year begins we will remind lawmakers, policymakers and the public that America's domestic energy abundance is helping to meet the ever-growing demand for energy, but also how those same resources are the building blocks for many of the products that make our modern society safer, advance the medical arts, and spur creativity and scientific innovation through our Power Past Impossible advertising campaign.

From energy that keeps our homes, offices, and schools lit and warm, to the modern fuels that not only power our vehicles but also help to improve our environment, to the modern pharmaceuticals that improve the health and well-being of millions. Power Past Impossible makes the connection between natural gas, oil and their derived products and their fundamental role in our society, which is essential to positively advance the national energy policy discussion.

Sincerely,

RSVP

BY DECEMBER 22ND

This invitation is non-transferable.

When

TUESDAY, JANUARY 9, 2018
11:30 A.M.-1:00 P.M.

Where

Ronald Reagan Building and
International Trade Center
Atrium Ballroom
1300 Pennsylvania Avenue, NW
Washington, DC 20004

Please use entrance on 14th Street

JACK N. GERARD
President and CEO, API

This event has been designed to comply with the gifts and ethics rules of the U.S. Senate and House of Representatives as a "widely attended event." Employees of the executive branch may wish to consult their Designated Agency Ethics Official about any rules that may apply to their attendance at this event.

powered by cvent

Message

From: Kyle Isakower [Isakowerk@api.org]
Sent: 11/13/2017 10:10:59 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]
Subject: Automatic reply: Need info for Dallas refining meeting

I will be out of the office Friday afternoon, November 10th through Tuesday morning the 14th. If your need is urgent, please contact my assistant, Maria Fial at 202-682-8166. Thanks.

Kyle Isakower
Vice President, Regulatory and Economic Policy
American Petroleum Institute
1220 L Street, NW
Washington, DC 20005
202-682-8314
isakowerk@api.org

Message

From: Khary Cauthen [cauthenk@api.org]
Sent: 10/25/2017 5:16:39 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]
CC: Forsgren, Lee [Forsgren.Lee@epa.gov]
Subject: Re: Clean Water Act Small Vessel NPDES General Permit

Awesome thanks

Sent from my iPhone

On Oct 25, 2017, at 12:56 PM, Letendre, Daisy <letendre.daisy@epa.gov> wrote:

Thanks Lee – looping you in with Khary Cauthen from API.

Khary, Lee is our Deputy AA in the Office of Water. His desk # is 202-564-0311, he'll be able to get you the full answer.

From: Forsgren, Lee
Sent: Wednesday, October 25, 2017 12:46 PM
To: Letendre, Daisy <letendre.daisy@epa.gov>; Greenwalt, Sarah <greenwalt.sarah@epa.gov>
Subject: RE: Clean Water Act Small Vessel NPDES General Permit

Daisy,
Which small vessel permit is Kim talking about. There are two that apply to his vessels. One permit is issued by R10 and expires soon the other applies to all vessels in the United States above 72' (which Alyeska's are) and may, Congress doesn't fix the problem expire at the end of the year. Have Kim contact me and I will answer whichever issue she is talking about.

Lee

From: Letendre, Daisy
Sent: Wednesday, October 25, 2017 10:12 AM
To: Greenwalt, Sarah <greenwalt.sarah@epa.gov>; Forsgren, Lee <Forsgren.Lee@epa.gov>
Subject: FW: Clean Water Act Small Vessel NPDES General Permit

Hi Sarah and Lee – do either of you know the answer to this?

From: Khary Cauthen [mailto:cauthenk@api.org]
Sent: Tuesday, October 24, 2017 4:47 PM
To: Letendre, Daisy <letendre.daisy@epa.gov>
Subject: Clean Water Act Small Vessel NPDES General Permit

Daisy: good afternoon, hope that all is well with you. do you know the answer to this question?

From: Harb, Kim [mailto:Kim.Harb@alyeska-pipeline.com]
Sent: Tuesday, October 24, 2017 4:21 PM
To: Khary Cauthen
Subject: Clean Water Act Small Vessel NPDES General Permit

Hey Khary - the temporary fix on this expires @ December 18. Is there anything in the works to extend it - or to do a permanent fix?

Kim

Kim Harb
Alyeska Pipeline Service Co.
Office: 202-466-3866
Mobile: Ex. 6 Personal Privacy (PP)

Message

From: Mara E. Zimmerman [ZimmermanM@api.org]
Sent: 10/16/2018 9:52:05 PM
To: Lovell, Will (William) [lovell.william@epa.gov]; Letendre, Daisy [letendre.daisy@epa.gov]
Subject: RE: EPA Speaker for API Meeting on 10/23 (or 10/22)

Thanks, Will! I will confirm the attendees and send you the list ASAP. We will plan for Brittany to be there at 10:00 am, and I will send you the logistical information for that as well.

Mara Zimmerman
API
(202) 682-8253

From: Lovell, Will (William) <lovell.william@epa.gov>
Sent: Tuesday, October 16, 2018 12:36 PM
To: Mara E. Zimmerman <ZimmermanM@api.org>; Letendre, Daisy <letendre.daisy@epa.gov>
Subject: RE: EPA Speaker for API Meeting on 10/23 (or 10/22)

Mara,

10 am works on 10/23. Could you please provide an agenda and a list of folks in attendance?

Thank you!
Will

From: Mara E. Zimmerman [mailto:ZimmermanM@api.org]
Sent: Monday, October 15, 2018 11:11 AM
To: Letendre, Daisy <letendre.daisy@epa.gov>
Cc: Lovell, Will (William) <lovell.william@epa.gov>
Subject: RE: EPA Speaker for API Meeting on 10/23 (or 10/22)

Thanks, Daisy!

Will – if you could let me know if any of the slots below work for Brittany, that would be great. Thanks!

Mara Zimmerman
API
(202) 682-8253

From: Letendre, Daisy <letendre.daisy@epa.gov>
Sent: Monday, October 15, 2018 11:03 AM
To: Mara E. Zimmerman <ZimmermanM@api.org>
Cc: Lovell, Will (William) <lovell.william@epa.gov>
Subject: RE: EPA Speaker for API Meeting on 10/23 (or 10/22)

Hi Mara – sorry for the delay in getting back to you. I spoke with Brittany Bolen about this last week and she is interested in the opportunity and in addition to discussing Smart Sectors would be able to discuss our Fall Regulatory agenda and EPA regulatory reform initiatives. I've added Will Lovell to the email so as to ensure Brittany's calendar can accommodate these time slots.

Thanks!

Daisy C. Letendre
Letendre.Daisy@epa.gov

From: Mara E. Zimmerman [mailto:ZimmermanM@api.org]
Sent: Monday, October 15, 2018 10:55 AM
To: Letendre, Daisy <letendre.daisy@epa.gov>
Subject: FW: EPA Speaker for API Meeting on 10/23 (or 10/22)

Hi Daisy –

I just wanted to check one more time on whether EPA was able to send a speaker on the Smart Sectors program for an upcoming API meeting. I am in the process of finalizing our agenda, and the committee would definitely appreciate a chance to hear from EPA on this topic. If there was anyone available between 10:00 am and 11:30 am on Tuesday, October 23rd, or between 1:00 p.m. and 3:30 p.m. on Monday, October 22nd and could come over to API to speak, that would be great!

Thanks again,
Mara

Mara Zimmerman
API
(202) 682-8253

From: Mara E. Zimmerman
Sent: Wednesday, October 3, 2018 10:03 AM
To: 'Letendre.daisy@epa.gov' <Letendre.daisy@epa.gov>
Subject: EPA Speaker for API Meeting on 10/23 (or 10/22)

Hi Daisy –

Thanks for speaking with me a few days ago about potential EPA speakers on the Smart Sectors program for an API meeting! I just wanted to touch base with you to see if you had determined if anyone would be available the morning of Tuesday, October 23rd, anytime between 9:00 a.m. and 11:30 a.m. (or, alternatively, the afternoon of Monday, October 22nd, anytime between 1 – 3:30 p.m.). If you need more information, please don't hesitate to let me know.

Best regards,
Mara

Mara E. Zimmerman
Senior Counsel

API
1220 L Street, NW
Washington DC 20005
Phone: +1 202 682 8253
Fax: +1 202 682 8033

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Message

From: Hilary Moffett [moffetth@api.org]
Sent: 5/16/2018 3:28:48 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]
Subject: RE: RMP event

Last thing -- we just had a new intern start with us. If you need another body in the room, I can bring him. No pressure -- but I just wanted to offer in case you need more folks to fill the space!

-----Original Message-----
From: Hilary Moffett
Sent: Wednesday, May 16, 2018 9:19 AM
To: Letendre, Daisy <letendre.daisy@epa.gov>
Subject: Re: RMP event

Coughlinl@api.org

Awesome!

> On May 16, 2018, at 9:18 AM, Letendre, Daisy <letendre.daisy@epa.gov> wrote:
>
> Yes! We'd love to have both of you, as always!
>
> I'll send an email here in a bit with arrival instructions etc. is lauren's email LCoughlin@api.org?
>
> Daisy C. Letendre
> Letendre.Daisy@epa.gov
>
> -----Original Message-----
> From: Hilary Moffett [mailto:moffetth@api.org]
> Sent: Tuesday, May 15, 2018 8:39 PM
> To: Letendre, Daisy <letendre.daisy@epa.gov>
> Subject: RMP event
>
> Hi Daisy,
>
> I hope you're well! Ron mentioned the RMP event and will not be able to attend. I'd like to come and bring one of our downstream policy advisors, Lauren Coughlin. Is there space for both of us? Please let me know if you have any more details.
>
> Thanks,
> Hilary

Message

From: Broome, Shannon S. [SBroome@hunton.com]
Sent: 5/14/2018 5:22:53 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]
Subject: RE: RMP

Ex. 6 Personal Privacy (PP) Call anytime before 3 or after 4.

Best Regards,

HUNTON ANDREWS KURTH

Shannon S. Broome
Partner/Office Managing Partner San Francisco
sbroome@HuntonAK.com
p 415.975.3718
202.955.1912
m Ex. 6 Personal Privacy (PP)

bio | vCard |

Hunton Andrews Kurth LLP
50 California Street
Suite 1700
San Francisco, CA 94111

2200 Pennsylvania Avenue, NW
10th Floor
Washington, DC 20007
HuntonAK.com

This communication is confidential and is intended to be privileged pursuant to applicable law. If the reader of this message is not the intended recipient, please advise by return email immediately and then delete this message and all copies and backups thereof.

From: Letendre, Daisy [mailto:letendre.daisy@epa.gov]
Sent: Monday, May 14, 2018 11:45 AM
To: Broome, Shannon S.
Subject: RMP

Hey Shannon – what's the best number to reach you at? Just wanted to discuss upcoming RMP action.

Daisy C. Letendre
Senior Advisor for Policy and Strategic Communications
U.S. Environmental Protection Agency
Office of the Administrator
Office of Policy
202.564.0410 (O)
Ex. 6 Personal Privacy (PP) (C)

Message

From: Khary Cauthen [cauthenk@api.org]
Sent: 3/12/2018 10:05:27 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]
CC: Hilary Moffett [moffetth@api.org]
Subject: Re: Tomorrow's 11:30AM NSR Memo Signing @ EPAHQ

Great thanks for the invitation. I won't be able to make it because I've got a conflict but will certainly make the next one.

Sent from my iPhone

On Mar 12, 2018, at 5:57 PM, Letendre, Daisy <letendre.daisy@epa.gov> wrote:

> Hey API/AFPM – just wanted to let you know that Marathon and Valero will have someone at this signing tomorrow.
>
> Wanted to include you on the email so you knew the details and could coordinate press if desired. Geoff and Hilary, I know you're tied up, but Khary you're more than welcome to join us – no pressure if you're not available.
>
> All best,
>
> **Daisy C. Letendre**
> *Letendre.Daisy@epa.gov*
>
> ---
>
> **From:** Letendre, Daisy
> **Sent:** Monday, March 12, 2018 5:26 PM
> **To:** Ford, Hayley <ford.hayley@epa.gov>
> **Cc:** Bennett, Tate <Bennett.Tate@epa.gov>; Block, Molly <block.molly@epa.gov>; Gordon, Stephen <gordon.stephen@epa.gov>
> **Subject:** Tomorrow's 11:30AM NSR Memo Signing @ EPAHQ
>
> Hi Folks,
>
> Administrator Pruitt is looking forward to seeing you tomorrow morning at 11:30AM. While the signing will be closed to press, I have cc'd Molly Block from our press shop on this email - if your office would like to coordinate press releases (which is always great) feel free to reach out to either of us.
>
> See directions to the building below and please plan to arrive early.
>
> You can reach me on my cell Ex. 6 Personal Privacy (PP) if you have questions or concerns.
>
> Looking forward to seeing you tomorrow,
>
> **Daisy C. Letendre**
> *Senior Advisor for Policy and Strategic Communications*
> U.S. Environmental Protection Agency
> Office of the Administrator
> Office of Policy
> 202.564.0410 (O)
> Ex. 6 Personal Privacy (PP) (C)

EPA Arrival Instructions

We are located at 1200 Pennsylvania Ave NW, directly above the Federal Triangle metro station. Please arrive to the South building lobby approximately 10 minutes prior to your meeting time to allow time for security. If being dropped off, the best drop-off point is on the west side of 12th St NW, halfway between Pennsylvania and Constitution Ave, directly across from the Starbucks in the Trump Hotel. Please walk towards the EPA and metro entrance. The South building is to your left. When you enter the lobby, please tell them you are here for a meeting with the Administrator. You will need to show ID and go through security. They will alert us and we will send someone to escort you up to the Administrator's office.

Message

From: Hunton Andrews Kurth LLP [info@huntonak.com]
Sent: 7/10/2018 6:47:02 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]
Subject: Shannon Broome Named Among Top Women Lawyers in California

If you have problems viewing this email, click here to view it online.

Click here to forward this email.

ANNOUNCEMENT

HUNTON
ANDREWS KURTH

July 10, 2018

Shannon Broome Named Among Top Women Lawyers in California

Hunton Andrews Kurth Partner Shannon Broome was named to the *Daily Journal*'s 2018 list of 100 Top Women Lawyers in California. This prestigious ranking recognized women lawyers who have made a difference to their clients, their firms and their profession in the past year. This is the second year in a row that Broome has been bestowed this honor and the third time to date.

Broome is Hunton Andrews Kurth's San Francisco office managing partner and leads the California environmental practice. Among other representations, the *Daily Journal* spotlighted her representations of a major oil and gas company in controversial cases claiming that certain oil companies have created a nuisance under common law due to claimed climate change impacts.

Shannon S. Broome
San Francisco
sbroome@HuntonAK.com
+1 415 975 3718
vCard

Environmental

Hunton Andrews Kurth LLP
50 California Street, Suite 1700
San Francisco, CA 94111

Visit HuntonAK.com.

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Hunton Andrews Kurth LLP, 200 Park Avenue, New York, NY 10166

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Message

From: Khary Cauthen [cauthenk@api.org]
Sent: 7/3/2018 12:57:42 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]
Subject: Re: 8:30 instead of 9?

Great just got here. Just inside the door.

Sent from my iPhone

On Jul 3, 2018, at 8:44 AM, Letendre, Daisy <letendre.daisy@epa.gov> wrote:

> Perfect see you at old ebbitt shortly!
>
> Sent from my iPhone
>
> On Jul 3, 2018, at 8:33 AM, Khary Cauthen <cauthenk@api.org> wrote:
>
>> 9 still works see you soon
>>
>> ---
>>
>> **From:** Letendre, Daisy <letendre.daisy@epa.gov>
>> **Sent:** Tuesday, July 3, 2018 8:11 AM
>> **To:** Khary Cauthen <cauthenk@api.org>
>> **Subject:** Re: 8:30 instead of 9?
>>
>> I have an 8:30 unfortunately. I can do later this am if 9 is no good...
>>
>> Sent from my iPhone
>>
>> On Jul 3, 2018, at 7:59 AM, Khary Cauthen <cauthenk@api.org> wrote:

Message

From: Khary Cauthen [cauthenk@api.org]
Sent: 7/3/2018 12:32:43 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]
Subject: RE: 8:30 instead of 9?

Cool heading there now will be there in 10min

Sent from Mail for Windows 10

From: Letendre, Daisy <letendre.daisy@epa.gov>
Sent: Tuesday, July 3, 2018 8:12:54 AM
To: Khary Cauthen
Subject: Re: 8:30 instead of 9?

Just saw your gmail. Can do old ebbitt if you're starving!

Sent from my iPhone

On Jul 3, 2018, at 7:59 AM, Khary Cauthen <cauthenk@api.org> wrote:

Message

From: Smythe Anderson [AndersonS@api.org]
Sent: 6/18/2019 4:52:47 PM
To: Sharpe, Kristinn [Sharpe.Kristinn@epa.gov]
CC: Letendre, Daisy [letendre.daisy@epa.gov]
Subject: RE: update on oil and gas snapshot

Perfect. Thanks!

From: Sharpe, Kristinn <Sharpe.Kristinn@epa.gov>
Sent: Tuesday, June 18, 2019 12:21 PM
To: Smythe Anderson <AndersonS@api.org>
Cc: Letendre, Daisy <letendre.daisy@epa.gov>
Subject: RE: update on oil and gas snapshot

That's perfect! I'll call you at 202-682-8040, unless you'd prefer I'd ring a different number.

Thank you,
Kristinn

From: Smythe Anderson <AndersonS@api.org>
Sent: Tuesday, June 18, 2019 12:19 PM
To: Sharpe, Kristinn <Sharpe.Kristinn@epa.gov>
Cc: Letendre, Daisy <letendre.daisy@epa.gov>
Subject: RE: update on oil and gas snapshot

Kristinn – I am in ND through Thursday. Would Friday at 11:00am work for you?

Thanks,
Smythe

From: Sharpe, Kristinn <Sharpe.Kristinn@epa.gov>
Sent: Tuesday, June 18, 2019 12:13 PM
To: Smythe Anderson <AndersonS@api.org>
Cc: Letendre, Daisy <letendre.daisy@epa.gov>
Subject: RE: update on oil and gas snapshot

Hi Smythe!

I was wondering if you might have some time (30 minutes max) to chat about the oil and gas sector snapshot this week or next. Here is some availability that works for me:

Today from 3:30-5:30
Tomorrow from 4-5:30
Thursday from 9:30-10, 2-5
Friday from 9-5

6/24: 11-noon
6/26: 9-11:30, 1:30-5
6/27: 9-11, 4-5

Let me know if you need me to send additional dates/times.

Thanks so much,
Kristinn

Kristinn L. Sharpe
Smart Sectors Program
Lead for Agriculture and Electronics/Technology
U.S. Environmental Protection Agency
Office: (202) 343-9062
Mobile: Ex. 6 Personal Privacy (PP)
www.epa.gov/smartsectors

SMART SECTORS
A PROGRAM OF U.S. EPA

From: Smythe Anderson <AndersonS@api.org>
Sent: Monday, April 01, 2019 9:38 AM
To: Stephanie Meadows <Meadows@api.org>; Letendre, Daisy <letendre.daisy@epa.gov>; Howard Feldman <Feldman@api.org>
Cc: Shaw, Nena <Shaw.Nena@epa.gov>; Sharpe, Kristinn <Sharpe.Kristinn@epa.gov>; Reid Porter <porterr@api.org>; Sabrina Fang <fangs@api.org>
Subject: RE: update on oil and gas snapshot

Thanks, Daisy! Look forward to coordinating with you around the release. Smythe

---

From: Stephanie Meadows <Meadows@api.org>
Sent: Saturday, March 30, 2019 9:47 AM
To: Letendre, Daisy <letendre.daisy@epa.gov>; Smythe Anderson <AndersonS@api.org>; Howard Feldman <Feldman@api.org>
Cc: Shaw, Nena <Shaw.Nena@epa.gov>; Sharpe, Kristinn <Sharpe.Kristinn@epa.gov>; Reid Porter <porterr@api.org>; Sabrina Fang <fangs@api.org>
Subject: RE: update on oil and gas snapshot

Thank you, Daisy. We all appreciate the update. Have a great weekend and we look forward to hearing any news. Good luck next week at the auto show!

Stephanie

Stephanie R. Meadows
Manager
American Petroleum Institute
Upstream and Industry Operations
200 Massachusetts Avenue, NW
Washington, DC 20001
USA
Phone: 202-682-8578
www.api.org

From: Letendre, Daisy <letendre.daisy@epa.gov>
Sent: Friday, March 29, 2019 4:43 PM
To: Smythe Anderson <AndersonS@api.org>; Stephanie Meadows <Meadows@api.org>; Howard Feldman <Feldman@api.org>
Cc: Shaw, Nena <Shaw.Nena@epa.gov>; Sharpe, Kristinn <Sharpe.Kristinn@epa.gov>
Subject: update on oil and gas snapshot

Smythe, Stephanie, Howard – I wanted to shoot you a quick note to let you know that the Sectors team has decided to hold off on releasing the Oil and Gas Sector snapshot. Wheeler is speaking at the DC Auto Show next week so we're going to release the Auto Manufacturing Snapshot on it's own and think through more appropriate timing for Oil and Gas.

I apologize for the late notice, and hope this okay with you all. I'll circle back next week!

Have a great weekend.

Daisy C. Letendre
Senior Advisor for Policy and Strategic Communications
U.S. Environmental Protection Agency
Office of the Administrator
Office of Policy
202.564.0410 (O)
Ex. 6 Personal Privacy (PP) (C)

Message

From: Sharpe, Kristinn [Sharpe.Kristinn@epa.gov]
Sent: 4/25/2019 5:30:51 PM
To: Smythe Anderson [AndersonS@api.org]; Letendre, Daisy [letendre.daisy@epa.gov]
Subject: RE: EPA Smart Sectors regional launch today (& request for quote)

Thanks all!

From: Smythe Anderson <AndersonS@api.org>
Sent: Thursday, April 25, 2019 1:18 PM
To: Letendre, Daisy <letendre.daisy@epa.gov>; Sharpe, Kristinn <Sharpe.Kristinn@epa.gov>
Subject: Fwd: EPA Smart Sectors regional launch today (& request for quote)

Daisy – That's perfectly fine. Thanks!

Smythe Anderson
API

From: Letendre, Daisy <letendre.daisy@epa.gov>
Sent: Thursday, April 25, 2019 9:50:21 AM
To: Smythe Anderson; Sharpe, Kristinn
Subject: RE: EPA Smart Sectors regional launch today (& request for quote)

Smythe - Below are the quotes we have from our region 9 oil and gas sector partners. We thought I might be nice to include an API quote as our main oil and gas smart sectors partner at the HQ level, but if there's no leeway we will probably just move forward with the below. I hope that's alright.

Ex. 5 Deliberative Process (DP)

Daisy C. Letendre
Letendre.Daisy@epa.gov

From: Smythe Anderson <AndersonS@api.org>
Sent: Thursday, April 25, 2019 9:27 AM

To: Sharpe, Kristinn <Sharpe.Kristinn@epa.gov>
Cc: Letendre, Daisy <letendre.daisy@epa.gov>
Subject: RE: EPA Smart Sectors regional launch today (& request for quote)

Good morning – Sorry, but our comms team has not given any leeway to change the quote. Let me know if this still works for you.

From: Sharpe, Kristinn <Sharpe.Kristinn@epa.gov>
Sent: Thursday, April 25, 2019 9:23 AM
To: Smythe Anderson <AndersonS@api.org>
Subject: FW: EPA Smart Sectors regional launch today (& request for quote)

Checking in on Daisy's addition – ok with Mike? (Worried you may have written Daisy back directly and I wasn't on copy…) Thanks!

From: Letendre, Daisy
Sent: Wednesday, April 24, 2019 5:23 PM
To: Smythe Anderson <AndersonS@api.org>; Sharpe, Kristinn <Sharpe.Kristinn@epa.gov>
Subject: RE: EPA Smart Sectors regional launch today (& request for quote)

Hey Smythe, would it be possible to include a plug for smart sectors in the quote? Let me know if this works.

Ex. 5 Deliberative Process (DP)

Daisy C. Letendre
Letendre.Daisy@epa.gov

From: Smythe Anderson <AndersonS@api.org>
Sent: Wednesday, April 24, 2019 3:37 PM
To: Sharpe, Kristinn <Sharpe.Kristinn@epa.gov>
Cc: Letendre, Daisy <letendre.daisy@epa.gov>
Subject: RE: EPA Smart Sectors regional launch today (& request for quote)

Kristinn – Please see below from our press team. The quote can be attributed to Mike Sommers. Thanks for reaching out.

Smythe

Ex. 5 Deliberative Process (DP)

Ex. 5 Deliberative Process (DP)

From: Sharpe, Kristinn <Sharpe.Kristinn@epa.gov>
Sent: Wednesday, April 24, 2019 3:06 PM
To: Smythe Anderson <AndersonS@api.org>
Cc: Letendre, Daisy <letendre.daisy@epa.gov>
Subject: EPA Smart Sectors regional launch today (& request for quote)

Hi Smythe!

I hope all is well with you. Our Region 9 office (the Pacific Southwest – covering Arizona, California, Hawaii, Nevada, the Pacific Islands & 148 Tribes) is launching a regional Smart Sectors initiative today in LA and has asked for assistance developing a press release. I know it's a quick turnaround, but is there any chance you can please help me secure a quote from your leadership about the importance of the Smart Sectors Program today or tomorrow? The first sector they are focusing on is the oil and gas sector.

Thank you –and again apologies for the quick turnaround!
Kristinn

Kristinn L. Sharpe
Smart Sectors Program
Lead for Agriculture and Electronics/Technology
U.S. Environmental Protection Agency
Office: (202) 343-9062
Mobile: Ex. 6 Personal Privacy (PP)
www.epa.gov/smartsectors

SMART SECTORS
A PROGRAM OF U.S. EPA

Message

From: Howard Feldman [Feldman@api.org]
Sent: 3/29/2019 8:46:57 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]; Smythe Anderson [AndersonS@api.org]; Stephanie Meadows [Meadows@api.org]
CC: Shaw, Nena [Shaw.Nena@epa.gov]; Sharpe, Kristinn [Sharpe.Kristinn@epa.gov]
Subject: RE: update on oil and gas snapshot
Attachments: ATT00001.txt

Thanks for the update, Daisy.

Howard J. Feldman
Senior Director
Regulatory & Scientific Affairs
200 Massachusetts Ave NW
Washington, DC 20001
USA
Telephone 202-682-8340
E-mail feldman@api.org

From: Letendre, Daisy <letendre.daisy@epa.gov>
Sent: Friday, March 29, 2019 4:43 PM
To: Smythe Anderson <AndersonS@api.org>; Stephanie Meadows <Meadows@api.org>; Howard Feldman <Feldman@api.org>
Cc: Shaw, Nena <Shaw.Nena@epa.gov>; Sharpe, Kristinn <Sharpe.Kristinn@epa.gov>
Subject: update on oil and gas snapshot

Smythe, Stephanie, Howard – I wanted to shoot you a quick note to let you know that the Sectors team has decided to hold off on releasing the Oil and Gas Sector snapshot. Wheeler is speaking at the DC Auto Show next week so we're going to release the Auto Manufacturing Snapshot on it's own and think through more appropriate timing for Oil and Gas.

I apologize for the late notice, and hope this okay with you all. I'll circle back next week!

Have a great weekend.

Daisy C. Letendre
Senior Advisor for Policy and Strategic Communications
U.S. Environmental Protection Agency
Office of the Administrator
Office of Policy
202.564.0410 (O)
Ex. 6 Personal Privacy (PP) (C)

Message

From: Sharpe, Kristinn [Sharpe.Kristinn@epa.gov]
Sent: 3/15/2019 8:00:44 PM
To: Sabrina Fang [fangs@api.org]
CC: Letendre, Daisy [letendre.daisy@epa.gov]; Smythe Anderson [AndersonS@api.org]; Howard Feldman [Feldman@api.org]; Stephanie Meadows [Meadows@api.org]
Subject: Re: API quote Smart Sector

Thank you, Sabrina. We will be able to share it no later than April 3 and hopefully a few days before that.

I really appreciate your early response.

Sincerely,
Kristinn

On Mar 15, 2019, at 3:05 PM, Sabrina Fang <fangs@api.org> wrote:

> Hi Kristinn,
>
> I work in the Coms shop at API and am a colleague of Reid Porter who was the initial press contact for this inquiry. Please find our quote below from API Senior Director of Regulatory and Scientific Affairs Howard Feldman. When will we be able to see a draft of the EPA release?

Ex. 5 Deliberative Process (DP)

> Kind regards,
>
> Sabrina Fang
> Sr. Communications Associate
> The American Petroleum Institute
> 200 Massachusetts Ave, NW
> Washington, DC 20001
> 202-682-8122 (work)
> Ex. 6 Personal Privacy (PP) (cell)
>
> API Media Line: 202.682.8114

<image002.png>

Message

From: Sharpe, Kristinn [Sharpe.Kristinn@epa.gov]
Sent: 3/14/2019 6:53:41 PM
To: Stephanie Meadows [Meadows@api.org]; Smythe Anderson [AndersonS@api.org]
CC: Letendre, Daisy [letendre.daisy@epa.gov]; Reid Porter [porterr@api.org]
Subject: RE: Please provide press release quote by 3/21/19

Terrific! Thank you!

From: Stephanie Meadows <Meadows@api.org>
Sent: Thursday, March 14, 2019 2:52 PM
To: Sharpe, Kristinn <Sharpe.Kristinn@epa.gov>; Smythe Anderson <AndersonS@api.org>
Cc: Letendre, Daisy <letendre.daisy@epa.gov>; Reid Porter <porterr@api.org>
Subject: [SPAM-Sender] RE: Please provide press release quote by 3/21/19

Thank you, Kristinn. I am including Reid Porter in this email so he has the heads up!

SRM

Stephanie R. Meadows
Manager
American Petroleum Institute
Upstream and Industry Operations
200 Massachusetts Avenue, NW
Washington, DC 20001
USA
Phone: 202-682-8578
www.api.org

From: Sharpe, Kristinn <Sharpe.Kristinn@epa.gov>
Sent: Thursday, March 14, 2019 2:49 PM
To: Smythe Anderson <AndersonS@api.org>; Stephanie Meadows <Meadows@api.org>
Cc: Letendre, Daisy <letendre.daisy@epa.gov>
Subject: Please provide press release quote by 3/21/19

Hi Stephanie and Smythe:

For our upcoming oil and gas sector snapshot, EPA will be issuing a press release similar to the last one we released in September of last year (attached) on 4/4/19. and we are hoping to secure a quote from your leadership **by next Thursday, 3/21/19**. You will have another opportunity to review your quotes in context before the release goes out on April 4th, but we need to obtain initial association executive quotes by next week in order to get our draft through our internal approval process.

Please don't hesitate to reach out to Daisy or me if you have any questions/concerns.

Thank you,
Kristinn

Kristinn L. Sharpe
Smart Sectors Communications Director
U.S. Environmental Protection Agency

Office: (202) 343-9062
Mobile: Ex. 6 Personal Privacy (PP)
www.epa.gov/smartsectors

SMART SECTORS
A PROGRAM OF U.S. EPA

Message

From: Sharpe, Kristinn [Sharpe.Kristinn@epa.gov]
Sent: 3/14/2019 6:48:34 PM
To: andersons@api.org; meadows@api.org
CC: Letendre, Daisy [letendre.daisy@epa.gov]
Subject: Please provide press release quote by 3/21/19
Attachments: EPA Releases Interactive Sector Snapshots FINAL PR 9-6-18.docx

Hi Stephanie and Smythe:

For our upcoming oil and gas sector snapshot, EPA will be issuing a press release similar to the last one we released in September of last year (attached) on 4/4/19. and we are hoping to secure a quote from your leadership **by next Thursday, 3/21/19**. You will have another opportunity to review your quotes in context before the release goes out on April 4th, but we need to obtain initial association executive quotes by next week in order to get our draft through our internal approval process.

Please don't hesitate to reach out to Daisy or me if you have any questions/concerns.

Thank you,
Kristinn

Kristinn L. Sharpe
Smart Sectors Communications Director
U.S. Environmental Protection Agency
Office: (202) 343-9062
Mobile: Ex. 6 Personal Privacy (PP)
www.epa.gov/smartsectors

SMART SECTORS
A PROGRAM OF U.S. EPA

EPA Releases Interactive Sector Snapshots of Industry Environmental and Economic Performance

First Snapshots Showcase Iron and Steel, Chemical Manufacturing, and Utilities and Power Generation Industries

09/06/2018
Contact Information:
EPA Press Office (press@epa.gov)

WASHINGTON – Today, the U.S. Environmental Protection Agency (EPA) released a new interactive, web-based tool that provides information about the environmental and economic performance of industry sectors. Developed by EPA's Smart Sectors Program, the sector snapshots application shows comprehensive, historical environmental and economic performance on a sector basis and allows users to visualize the data over the last 20 years.

"The sector snapshots released today show in a transparent and accessible way how a specific industry's environmental and economic performance has changed over the last two decades," **said EPA Acting Administrator Andrew Wheeler.** "This type of data can help the public, the regulated community, and EPA gain a common understanding of sector performance that will better inform environmental improvement strategies moving forward."

"The Smart Sectors Program is dedicated to improving the way EPA engages with different sectors of the economy," **said EPA Acting Deputy Administrator Henry Darwin.** "As the Agency pursues better environmental outcomes, it is important to present measurable, understandable data."

The first modules to be released showcase three sectors: iron and steel, chemical manufacturing, and utilities and power generation. The program plans to release modules for other sectors participating in the Smart Sectors program on a rolling basis.

"We are pleased to collaborate with EPA in showcasing the iron and steel sector's commitment to strong environmental performance and working toward a smarter, more sensible regulatory framework," **said American Iron and Steel Institute President and CEO Thomas J. Gibson**. "The domestic steel industry, which supports more than two million American jobs, continues to strive toward the goal of protecting human health and the environment. These data demonstrate that this goal is being realized."

"The Smart Sectors program is illustrating the positive environmental and economic impact of 21st century steelmaking," **said Steel Manufacturers Association President Philip K. Bell.** "I

am incredibly proud of our partnership with EPA in the development of the sector snapshot, which provides the public with easily accessible information about how the iron and steel industry safely and sustainably operates while continuing to improve its performance."

"America's chemical manufacturers are leaders in providing materials and technologies that enhance sustainability while helping our economy grow," **said American Chemistry Council Vice President of Regulatory and Technical Affairs Michael Walls**. "We are equally committed to making strides in our own operations, as reflected in our participation in Responsible Care®, the industry's environmental, health, safety and security performance initiative. EPA's new sector snapshot will be a valuable tool to help guide future efforts to 'connect the dots' between environmental and economic progress."

"SOCMA is a strong supporter of the Smart Sectors Program, and we applaud EPA on the new online tool that will serve as a visual benchmark for key trends within the specialty chemical sector," **said Society of Chemical Manufacturers and Affiliates President & CEO Jennifer Abril**. "SOCMA appreciates the collaboration we have with Smart Sectors on a variety of issues and believe this new tool is another step in the right direction. It will be instrumental in helping the public understand the positive economic impact the chemical industry has on our society, as well as showcasing the significant strides our sector continues to make in environmental stewardship."

"The Edison Electric Institute (EEI) appreciates EPA's Smart Sectors program, which highlights the electric power industry's progress in environmental protection and the significant contributions our industry makes to the U.S. economy," **said EEI Vice President of Environment and Natural Resources Quin Shea.** "The electric power industry contributes 5 percent to our nation's GDP; we call this the first 5 percent of the American economy because virtually every other sector of the economy depends, to a significant degree, on safe, reliable, affordable, and increasingly clean energy delivered by the men and women of the electric power industry. As a whole, the industry supports more than 7 million jobs in communities across the United States. Our industry has made tremendous progress to transition to a cleaner generating fleet, reducing greenhouse gas emissions 27 percent below 2005 levels as of the end of 2017, while providing affordable and reliable energy for all customers. Additionally, our industry has reduced emissions of nitrogen oxides by 84 percent and sulfur dioxide by 92 percent compared to 1990 levels."

"EPA's Smart Sectors snapshot highlights the electric utility industry as a powerful economic engine that is making great strides to improve our environmental performance, **"said Delia Patterson, American Public Power Association's Senior Vice President of Advocacy & Communications and General Counsel.** "The industry provides public power utility jobs to 93,000 people (in addition to the 387,000 private-sector jobs identified in this snapshot). As community-owned, not-for-profit electric utilities, public power is committed to serving our customers with reliable, affordable, and environmentally responsible power,"

"Today's manufacturing is cleaner, more efficient and more responsible than ever—as this new tool illustrates so well," **said Ross Eisenberg, Vice President of Energy and Resources Policy, National Association of Manufacturers**. "Working with the EPA and the public, manufacturers

are driving innovation and keeping our promise to be good stewards of the environment and supporters of our communities. The NAM appreciates the EPA's work to provide the public the best data available on the manufacturing sector's environmental performance."

The sector snapshots tool uses public data from EPA and other federal sources. The application offers users access to information about general sector characteristics, environmental performance indicators, and economic data through interactive graphics. Users can select environmental and economic indicators individually, or paired combinations of indicators, to view trends over time.

EPA Smart Sectors is a partnership program that provides a platform to collaborate with regulated sectors and develop sensible approaches that better protect the environment and public health. To learn more about the program, visit: www.epa.gov/smartsectors.

To access the snapshots, visit: https://epa.gov/smartsectors/sector-snapshots.

Message

From: Sharpe, Kristinn [Sharpe.Kristinn@epa.gov]
Sent: 9/26/2017 9:46:33 PM
To: cauthenk@api.org; wohlschlegelE@api.org
CC: Letendre, Daisy [letendre.daisy@epa.gov]
Subject: RE: EPA Smart Sectors Program press release draft/quote

Hi Eric and Khary,

I am just re-sending this email to see if you by chance will have a quote for us soon.

Thanks so much,
Kristinn

From: Sharpe, Kristinn
Sent: Tuesday, September 19, 2017 4:27 PM
To: 'wohlschlegelE@api.org' <wohlschlegelE@api.org>; 'cauthenk@api.org' <cauthenk@api.org>
Cc: Letendre, Daisy <letendre.daisy@epa.gov>
Subject: EPA Smart Sectors Program press release draft/quote

Dear Eric and Khary:

We're looking forward to having Kyle Isakower attend EPA's Smart Sectors Program launch with Administrator Pruitt on October 3 and would like to coordinate press. I've attached our draft, embargoed EPA press release for your reference. We intend to distribute this at 3 p.m. on the day of the event. If you would like have a quote from your association featured in the release, please send me a quote from Kyle by September 26th.

It would be great if your quote can focus on your particular sector's contributions to the economy and environment – as well as your enthusiasm about this new collaboration and open dialogue with the Agency. The key messages we have been using to talk about EPA's Smart Sectors Program at a very high level include: building productive relationships with industry partners; ensuring that environmental protection supports economic growth; and improving business practices and streamlining operations.

Closer to the event, I will send you some draft social media using the #EPASmartSectors hashtag and would appreciate it if you could help get the word out about the new program in that capacity. We are also planning to invite a reporter from a business-forward publication (reporter and outlet TBD) to cover the event exclusively and wanted to give you a head's up on that as well.

Thank you,
Kristinn

Kristinn L. Sharpe
Smart Sectors Program Liaison
Administrator's Office of Policy, Immediate Office
U.S. Environmental Protection Agency
Office: (202) 343-9062 | Mobile: Ex. 6 Personal Privacy (PP)

Message

From: Susan Tackish [tackishs@api.org]
Sent: 9/21/2017 9:40:28 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]; Khary Cauthen [cauthenk@api.org]
CC: Kyle Isakower [Isakowerk@api.org]
Subject: RE: Smart Sectors Launch w/ Administrator Pruitt (please RSVP)

Thanks Daisy. Best, Susan

From: Letendre, Daisy [mailto:letendre.daisy@epa.gov]
Sent: Thursday, September 21, 2017 5:33 PM
To: Susan Tackish; Khary Cauthen
Cc: Kyle Isakower
Subject: RE: Smart Sectors Launch w/ Administrator Pruitt (please RSVP)

Hi Susan – I wanted to let you know that this event has been moved to 2:00PM instead of 3:00PM.

And Khary, as we discussed, the Administrator would like to extend the invite to one of your member company CEOs. I know that timelines are tight but if you could pass along contact info for a couple companies that would be extremely helpful.

Thanks so much!

From: Susan Tackish [mailto:tackishs@api.org]
Sent: Monday, September 18, 2017 1:15 PM
To: Letendre, Daisy <letendre.daisy@epa.gov>
Cc: Kyle Isakower <Isakowerk@api.org>
Subject: RE: Smart Sectors Launch w/ Administrator Pruitt (please RSVP)

Hi Daisy –

Unfortunately Mr. Gerard will be out of town for a speaking event on October 3rd but Kyle Isakower, our Vice President of Regulatory and Economic Policy, will attend on behalf of API. Thank you for your outreach and please let me know if you need any additional information.

Kind regards,
Susan

Susan A. Tackish
EA to the President & CEO

API | 1220 L Street, NW | Washington, DC 20005
202.682.8502 P | 202.682.8110 F | tackishs@api.org

From: Letendre, Daisy [mailto:letendre.daisy@epa.gov]
Sent: Friday, September 15, 2017 2:59 PM
To: Susan Tackish
Subject: Smart Sectors Launch w/ Administrator Pruitt (please RSVP)

Dear Susan:

On behalf of U.S. Environmental Protection Agency Administrator Scott Pruitt, I would like to invite Mr. Gerard to attend the launch of EPA's Smart Sectors Program. The event will be held at 3:00 PM on October 3, 2017 at EPA Headquarters in the William Jefferson Clinton North Building in the Green Room.

It was a pleasure to meet with API earlier this week and we are excited to have you on board as a partner. Through our collaborative partnership, Smart Sectors will demonstrate measurable results for the environment and the economy by building relationships and improving customer service to your sector; developing additional expertise in your industry's operations and environmental performance; and informing the planning of future policies, regulations, and agency processes.

We hope you will join Administrator Pruitt for the Smart Sectors launch and ask that you RSVP to me (letendre.daisy@epa.gov) by September 22, 2017. If you are unable to attend please feel free to share this invitation with another member of your association's leadership.

In addition to the launch event with Administrator Pruitt, we will be publishing a federal register notice announcing the oil and gas industry, as one of our initial partners.

I am very much looking forward to seeing you in October and to our continued partnership. As always, please don't hesitate to reach out with any questions or concerns.

All best,

Daisy C. Letendre
Senior Advisor for Policy and Strategic Communications
Office of the Administrator
Office of Policy
(202) 564-0410

Message

From: Stephanie Meadows [Meadows@api.org]
Sent: 9/14/2017 7:11:13 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]
Subject: Automatic reply: Thank you + Smart Sectors Launch Invite (please RSVP)

I will be out of the office on Thursday and Friday, September 14-15, 2017. I will be checking email and will get back with you as quickly as possible. Stephanie

Appointment

From: Khary Cauthen [cauthenk@api.org]
Sent: 9/1/2017 12:46:42 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]

Subject: Accepted: API/ EPA's Sector Strategies
Location: 1220 L Street NW

Start: 9/13/2017 3:00:00 PM
End: 9/13/2017 4:00:00 PM
Show Time As: Busy

Recurrence: (none)

Message

From: Hilary Moffett [moffetth@api.org]
Sent: 8/25/2017 3:00:41 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]
Subject: Re: API/Sector Strategies

Looking forward to seeing you! Let me know if you need anything g ahead of the meeting.

On Aug 24, 2017, at 3:43 PM, Letendre, Daisy <letendre.daisy@epa.gov> wrote:

> Hillary!! What a nice surprise getting your email on Khary's out of office. I am trying to get something on the books with API to discuss sector strategies (I think you and I have chatted about this, right?) I guess Khary is out until 9/5 but we'd love to set something up with you guys for after he's back. We can be very flexible.
>
> Call me if you have questions! Ex. 6 Personal Privacy (PP)
>
> ---
>
> **From:** Letendre, Daisy
> **Sent:** Thursday, August 24, 2017 3:34 PM
> **To:** 'cauthenk@api.org' <cauthenk@api.org>
> **Cc:** Sachs, Robert <Sachs.Robert@epa.gov>; Shaw, Nena <Shaw.Nena@epa.gov>; Sharpe, Kristinn <Sharpe.Kristinn@epa.gov>; Corona, Elizabeth <Corona.Elizabeth@epa.gov>
> **Subject:** API/Sector Strategies
>
> Khary – I hope you're enjoying the end of the summer and hopefully have been able to take some time out of DC.
>
> I wanted to touch base about Sector Strategies. I know you mentioned a couple weeks ago that API was enthusiastic about the program and we are too. We think the program will help EPA build better relationships and improve customer service to you and your members, ultimately leading to better informed rulemakings.
>
> I would love to set up a meeting with you and your team at API to tell you about bit more about the sectors Initiative, answer any questions, and discuss our timeline. Is there a date and time that works for you in the next couple of weeks?
>
> Looking forward to working with you.
>
> All best,
>
> **DAISY C. LETENDRE**
> ***Senior Advisor for Policy and Strategic Communications***
> U.S. Environmental Protection Agency
> Office of the Administrator
> Office of Policy
> (202) 564-0410
> Ex. 6 Personal Privacy (PP)

Appointment

From: Hilary Moffett [moffetth@api.org]
Sent: 8/25/2017 2:16:50 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]

Subject: Accepted: API/ EPA's Sector Strategies
Location: 1220 L Street NW

Start: 9/13/2017 3:00:00 PM
End: 9/13/2017 4:00:00 PM
Show Time As: Busy

Recurrence: (none)

Appointment

From: Stephanie Meadows [Meadows@api.org]
Sent: 8/25/2017 2:14:28 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]

Subject: Accepted: API/ EPA's Sector Strategies
Location: 1220 L Street NW

Start: 9/13/2017 3:00:00 PM
End: 9/13/2017 4:00:00 PM
Show Time As: Busy

Recurrence: (none)

Message

From: Khary Cauthen [cauthenk@api.org]
Sent: 8/24/2017 7:34:19 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]
Subject: Automatic reply: API/Sector Strategies

I am currently out of the office returning 5 September.

For immediate assistance please contact Hilary Moffett moffetth@api.org or 202-682-8040

Khary Cauthen
Senior Director, Federal Relations

Message

From: Hilary Moffett [moffetth@api.org]
Sent: 10/4/2017 11:55:32 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]
Subject: Re: Thank You and Sector Leads Moving Forward

Are you thanking people even if we showed up an hour late??? 😡

On Oct 4, 2017, at 4:56 PM, Letendre, Daisy <letendre.daisy@epa.gov> wrote:

All –

Thank you to those of you who attended yesterday's Smart Sectors launch event for the thoughtful and productive conversation. We welcome continued dialogue, ideas for site visits, as well as speaking and listening opportunities so that we can become a smarter and better EPA. We have met with many of you in person already but to those of you we haven't we would love to sit down and learn more about how to better engage with you and your members.

I wanted to make sure you have seen our press release and www.epa.gov/smartsectors. Thank you to those of you who contributed quotes and tweeted using #EPASmartSectors

Importantly, below you will find a list of your sector leads. We will be in touch individually soon.

Thank you all again for taking the time out of your day to join us yesterday, I look forward to our continued partnership and to working with you.

Warmest regards,
Daisy

- <!--[if !supportLists]--><!--[endif]-->Aerospace: Bob Sachs, Nena Shaw
- <!--[if !supportLists]--><!--[endif]-->Agriculture: Kristinn Sharpe, Elizabeth Corona
- <!--[if !supportLists]--><!--[endif]-->Automotive: Nena Shaw, Daisy Letendre
- <!--[if !supportLists]--><!--[endif]-->Cement and Concrete: Daisy Letendre, Kristinn Sharpe
- <!--[if !supportLists]--><!--[endif]-->Chemical Manufacturing: Elizabeth Corona, Bob Sachs
- <!--[if !supportLists]--><!--[endif]-->Construction: Daisy Letendre, Nena Shaw
- <!--[if !supportLists]--><!--[endif]-->Electronics and Technology: Kristinn Sharpe, Daisy Letendre
- <!--[if !supportLists]--><!--[endif]-->Forestry and Wood Products: Elizabeth Corona, Kristinn Sharpe
- <!--[if !supportLists]--><!--[endif]-->Iron and Steel: Bob Sachs, Elizabeth Corona
- <!--[if !supportLists]--><!--[endif]-->Mining: Bob Sachs, Nena Shaw
- <!--[if !supportLists]--><!--[endif]-->Oil and Gas: Daisy Letendre, Kristinn Sharpe
- <!--[if !supportLists]--><!--[endif]-->Ports and Marine: Elizabeth Corona, Kristinn Sharpe
- <!--[if !supportLists]--><!--[endif]-->Utilities and Power Generation: Nena Shaw, Bob Sachs

Contact Info:
Daisy C. Letendre, 202-564-0410, letendre.daisy@epa.gov
Nena Shaw, 202-564-5106, shaw.nena@epa.gov
Robert Sachs, 202-566-2884, sachs.robert@epa.gov
Kristinn Sharpe, 202-343-9062, sharpe.kristinn@epa.gov
Elizabeth Corona, 202-564-8356, corona.elizabeth@epa.gov

<Smart Sectors Fact Sheet.pdf>

Message

From: Hilary Moffett [moffetth@api.org]
Sent: 10/4/2017 5:22:08 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]
Subject: Invitation to API HEC Meeting
Attachments: Invitation letter 10-4-17.docx

Daisy,

What a great job yesterday—congratulations on the event! As I mentioned, our folks are really excited about the opportunity. As such, we would like to invite you to speak to API's Health and Environment Committee on November 2, 2017, here at API. We can be flexible with the timing, and would welcome any members of your team that you would like to bring. A more formal invitation is attached.

Good luck this weekend!! I'll let you know when I finish, approximately an hour after you!

Thanks,
Hilary

Hilary Moffett
Director, Federal Relations
American Petroleum Institute
202-682-8040 (desk)
Ex. 6 Personal Privacy (PP) (cell)
MoffettH@api.org

Howard J. Feldman
Senior Director

Regulatory and Scientific Affairs

1220 L Street, NW
Washington, DC 20005-4070
USA
Telephone 202-682-8340
Fax 202-682-8270
Email Feldman@api.org
www.api.org

Oct 4, 2017

Ms. Daisy Letendre
Senior Advisor for Policy and Strategic Communications
Office of Policy, Office of Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Ave, NW
Washington, DC 20004
Sent via email: sectors@epa.gov

Re: API Health and Environment Committee meeting

Dear Ms. Letendre,

On November 2, 2017, senior health and environmental leaders of companies in the oil and gas industry will be convening in Washington at the headquarters of the American Petroleum Institute (API). API represents over 625 oil and natural gas companies, leaders of a technology-driven industry that supplies most of America's energy, supports more than 10.3 million jobs and nearly 8 percent of the U.S. economy, and, since 2000, has invested nearly $2 trillion in U.S. capital projects to advance all forms of energy, including alternatives.

We believe that the meeting could serve as an excellent opportunity for companies across the industry to hear more about the Smart Sectors program that EPA has recently announced and the path forward. We hope that you or the appropriate EPA Smart Sectors oil and gas industry liaison will be able to join us on November 2nd. Please let us know if you have any time constraints.

Please feel free to contact me if you have questions or need more information.

Sincerely,

Howard J Feldman

Message

From: Jaber, Makram [mjaber@hunton.com]
Sent: 10/2/2017 3:38:18 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]
Subject: EPA Smart Sectors Program

Dear Ms. Letendre,

It was a pleasure to chat with you last Friday about EPA's Smart Sectors Program.

The Utility Air Regulatory Group ("UARG") is a not-for-profit association of individual electric generating companies and national trade associations. UARG participates on behalf of certain of its members collectively in Clean Air Act administrative proceedings that affect electric generators and in litigation arising from those proceedings. Since its formation in 1977, UARG has filed comments in every major EPA rulemaking affecting the utility industry; and UARG has participated in virtually every judicial review proceeding arising from such a rulemaking—whether as a Petitioner challenging portions of the rule, an Intervenor defending portions of the rule, or both. In the last few years, for example, UARG participated in—and often took the lead in—judicial challenges to the so-called Clean Power Plan and to EPA's adoption of generating industry standards without adequately considering the cost of those standards (the 2015 *Michigan* case before the U.S. Supreme Court). UARG has also been involved in decades of rulemakings and litigation about EPA's New Source Review ("NSR") rules, including intervening to defend the Bush Administration's rules to reform NSR in the mid-2000s.

As a result of its 40-year history of active participation in Clean Air Act rulemakings affecting power plants, UARG has unique insights into how regulations affect one of the most important industries in the Nation. UARG would appreciate the opportunity to share those insights with EPA's Smart Sectors Program.

We look forward to working with EPA.

Sincerely,

Makram Jaber
Counsel for UARG

HUNTON & WILLIAMS

Makram Jaber
Partner
mjaber@hunton.com
p 202.955.1567
f 202.828.3750
bio | vCard

Hunton & Williams LLP
2200 Pennsylvania Avenue, NW
Washington, DC 20037
hunton.com

This communication is confidential and is intended to be privileged pursuant to applicable law. If the reader of this message is not the intended recipient, please advise by return email immediately and then delete this message and all copies and backups thereof.

Message

From: Hilary Moffett [moffetth@api.org]
Sent: 9/29/2017 6:09:50 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]
Subject: RE: Smart sectors

Cool--cant wait!

-----Original Message-----
From: Letendre, Daisy [mailto:letendre.daisy@epa.gov]
Sent: Friday, September 29, 2017 2:09 PM
To: Hilary Moffett
Subject: RE: Smart sectors

Hell yeah!

-----Original Message-----
From: Hilary Moffett [mailto:moffetth@api.org]
Sent: Friday, September 29, 2017 12:09 PM
To: Letendre, Daisy <letendre.daisy@epa.gov>
Subject: Smart sectors

Hey hey! I know I wasn't on the invite, but can I attend the event tomorrow? Would love to see all the great work y'all have put together!

Thanks,
Hilary

Message

From: Khary Cauthen [cauthenk@api.org]
Sent: 9/28/2017 10:53:53 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]
Subject: Re: Smart Sectors Launch w/ Administrator Pruitt (please RSVP)

Awesome on Don.
I'm going to be at the DOE event at the same time.

Sent from my iPhone

On Sep 28, 2017, at 5:37 PM, Letendre, Daisy <letendre.daisy@epa.gov> wrote:

> Don Templin from Marathon is coming – thanks so much for your help here. Also, are you planning on attending with Kyle Isakower? You're more than welcome to!
>
> **From:** Khary Cauthen [mailto:cauthenk@api.org]
> **Sent:** Thursday, September 21, 2017 5:45 PM
> **To:** Letendre, Daisy <letendre.daisy@epa.gov>
> **Subject:** RE: Smart Sectors Launch w/ Administrator Pruitt (please RSVP)
>
> Best contact for CEOs to attend the event
> Marathon Petroleum- Jake Menefee 202-442-2451 jakeemenefee@marathonpetroleum.com CEO Gary Hemminger
> Hess- Alex Mistri 202-263-1011 amistri@hess.com CEO John Hess
> ConocoPhillips- John Dabbar 202-833-0902 john.m.dabbar@conocophillips.com CEO Ryan Lance
>
> **From:** Letendre, Daisy [mailto:letendre.daisy@epa.gov]
> **Sent:** Thursday, September 21, 2017 5:33 PM
> **To:** Susan Tackish; Khary Cauthen
> **Cc:** Kyle Isakower
> **Subject:** RE: Smart Sectors Launch w/ Administrator Pruitt (please RSVP)
>
> Hi Susan – I wanted to let you know that this event has been moved to 2:00PM instead of 3:00PM.
>
> And Khary, as we discussed, the Administrator would like to extend the invite to one of your member company CEOs. I know that timelines are tight but if you could pass along contact info for a couple companies that would be extremely helpful.
>
> Thanks so much!
>
> **From:** Susan Tackish [mailto:tackishs@api.org]
> **Sent:** Monday, September 18, 2017 1:15 PM
> **To:** Letendre, Daisy <letendre.daisy@epa.gov>
> **Cc:** Kyle Isakower <Isakowerk@api.org>
> **Subject:** RE: Smart Sectors Launch w/ Administrator Pruitt (please RSVP)
>
> Hi Daisy –

Unfortunately Mr. Gerard will be out of town for a speaking event on October 3rd but Kyle Isakower, our Vice President of Regulatory and Economic Policy, will attend on behalf of API. Thank you for your outreach and please let me know if you need any additional information.

Kind regards,
Susan

Susan A. Tackish
EA to the President & CEO

API | 1220 L Street, NW | Washington, DC 20005
202.682.8502 P | 202.682.8110 F | tackishs@api.org

From: Letendre, Daisy [mailto:letendre.daisy@epa.gov]
Sent: Friday, September 15, 2017 2:59 PM
To: Susan Tackish
Subject: Smart Sectors Launch w/ Administrator Pruitt (please RSVP)

Dear Susan:

On behalf of U.S. Environmental Protection Agency Administrator Scott Pruitt, I would like to invite Mr. Gerard to attend the launch of EPA's Smart Sectors Program. The event will be held at 3:00 PM on October 3, 2017 at EPA Headquarters in the William Jefferson Clinton North Building in the Green Room.

It was a pleasure to meet with API earlier this week and we are excited to have you on board as a partner. Through our collaborative partnership, Smart Sectors will demonstrate measurable results for the environment and the economy by building relationships and improving customer service to your sector; developing additional expertise in your industry's operations and environmental performance; and informing the planning of future policies, regulations, and agency processes.

We hope you will join Administrator Pruitt for the Smart Sectors launch and ask that you RSVP to me (letendre.daisy@epa.gov) by September 22, 2017. If you are unable to attend please feel free to share this invitation with another member of your association's leadership.

In addition to the launch event with Administrator Pruitt, we will be publishing a federal register notice announcing the oil and gas industry, as one of our initial partners.

I am very much looking forward to seeing you in October and to our continued partnership. As always, please don't hesitate to reach out with any questions or concerns.

All best,

Daisy C. Letendre
Senior Advisor for Policy and Strategic Communications
Office of the Administrator
Office of Policy
(202) 564-0410

Message

From: Khary Cauthen [cauthenk@api.org]
Sent: 9/28/2017 9:37:30 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]
Subject: Automatic reply: Smart Sectors Launch w/ Administrator Pruitt (please RSVP)

I am currently out of the office on business travel. For immediate assistance please contact Kari Kaibel 202-682-8402

Khary Cauthen
Senior Director, Federal Relations

Message

From: Kyle Isakower [Isakowerk@api.org]
Sent: 9/28/2017 9:33:45 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]
Subject: Automatic reply: Event Details: Smart Sectors Launch with EPA Administrator Pruitt

I will be out of the office Wednesday September 27th and Thursday the 28th. If your need is urgent, please contact my assistant, Maria Fial at 202-682-8166. Thanks.

Kyle Isakower
Vice President, Regulatory and Economic Policy
American Petroleum Institute
1220 L Street, NW
Washington, DC 20005
202-682-8314
isakowerk@api.org

Message

From: Michael Tadeo [TadeoM@api.org]
Sent: 9/28/2017 8:08:23 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]
Subject: FW: Smart Sectors?

Hi Daisy,

How are you? It was great seeing you a few weeks ago here at API. Just wanted to flag this for you.

As you can see, I have confirmed our invitation. I will refer her to you but wanted to give you a heads up on the incoming.

Coffee soon?

I hope you are great.

Mike Tadeo

Michael Tadeo
Spokesman
American Petroleum Institute
1220 L Street NW, Washington, DC 20005
202-682-8540 Phone
Ex. 6 Personal Privacy (PP) Cell
202-682-8114 Media Line
TadeoM@api.org
Twitter: @mtadeo

energy API POWER PAST IMPOSSIBLE.ORG

From: Emily Holden [mailto:eholden@politico.com]
Sent: Thursday, September 28, 2017 4:06 PM
To: Michael Tadeo
Subject: RE: Smart Sectors?

Do you have any details on the event that you could share? Right now I just know lots of industry trade groups are invited and it's in the Green Room.

Emily Holden
Reporter, energy/climate
POLITICO
eholden@politico.com
Desk: 703-842-1745
Cell: Ex. 6 Personal Privacy (PP)
@emilyhholden

From: Michael Tadeo [mailto:TadeoM@api.org]
Sent: Thursday, September 28, 2017 4:04 PM
To: Emily Holden <eholden@politico.com>
Subject: RE: Smart Sectors?

We have been invited to participate.

From: Emily Holden [mailto:eholden@politico.com]
Sent: Thursday, September 28, 2017 3:56 PM
To: Michael Tadeo
Subject: RE: Smart Sectors?

Nothing specific, but would love to include it in tomorrow's Morning Energy if I confirm some details.

Emily Holden
Reporter, energy/climate
POLITICO
eholden@politico.com
Desk: 703-842-1745
Cell: Ex. 6 Personal Privacy (PP)
@emilyhholden

From: Michael Tadeo [mailto:TadeoM@api.org]
Sent: Thursday, September 28, 2017 3:55 PM
To: Emily Holden <eholden@politico.com>
Subject: RE: Smart Sectors?

Hey Emily,

Let me check. What's your deadline?

From: Emily Holden [mailto:eholden@politico.com]
Sent: Thursday, September 28, 2017 3:49 PM
To: Michael Tadeo
Subject: Smart Sectors?

Hi Mike. Have you all been invited to an event at EPA Tuesday rolling out this?

https://www.federalregister.gov/documents/2017/09/26/2017-20310/epa-smart-sectors-program-launch

Thanks!

Emily Holden
Reporter, energy/climate
POLITICO
eholden@politico.com
Desk: 703-842-1745
Cell: Ex. 6 Personal Privacy (PP)
@emilyhholden

Message

From: Ron Chittim [Chittim@api.org]
Sent: 9/18/2018 6:40:45 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]
Subject: Automatic reply: Smart Sectors Event w/ Administrator Wheeler

I will be out of the office on business travel until Sept. 19th. I will have limited access to email.

Message

From: Stephanie Meadows [Meadows@api.org]
Sent: 5/3/2018 7:14:24 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]
Subject: RE: Please RSVP - Smart Sectors Round Table w/ Administrator Pruitt

Daisy:

Thank you so much for the invitation to attend on May 9, 2018. Unfortunately, I have a meeting conflict, but I understand that Hilary will be attending and representing API. Hopefully she will (or has) responded to you directly.

Looking forward to hearing the outcome. Good luck.

Stephanie

Stephanie R. Meadows
Manager
American Petroleum Institute
Upstream and Industry Operations
1220 L Street, NW
Washington, DC 20005-4070
USA
Phone: 202-682-8578
www.api.org

From: Letendre, Daisy <letendre.daisy@epa.gov>
Sent: Thursday, May 3, 2018 2:23 PM
To: Letendre, Daisy <letendre.daisy@epa.gov>
Cc: Gordon, Stephen <gordon.stephen@epa.gov>; Germann, Sandy <Germann.Sandy@epa.gov>; Shaw, Nena <Shaw.Nena@epa.gov>; Sachs, Robert <Sachs.Robert@epa.gov>; Sharpe, Kristinn <Sharpe.Kristinn@epa.gov>; Corona, Elizabeth <Corona.Elizabeth@epa.gov>
Subject: Please RSVP - Smart Sectors Round Table w/ Administrator Pruitt

Sectors Partners –

As promised, I'd like to formally invite you to a roundtable at **EPA Headquarters (1200 Pennsylvania Ave NW) next Wednesday, May 9, at 2:30pm in the Rachel Carson Green Room.** The purpose of this roundtable is for Administrator Pruitt and senior political leadership to provide you with Smart Sectors programmatic updates, preview our spring regulatory agenda, and engage in collaborative dialogue about how we can continue to work together to improve environmental protection while promoting economic growth.

This invitation is extended to two total representatives from your trade association.

In order to ensure that your name is included on a list for security please RSVP to me by COB on Monday, May 7th. Many of you have already let me know that you will be in attendance, but if you wouldn't mind replying to this email with your association's attendees that would be great.

Thank you so much. See you Wednesday!

Daisy C. Letendre
Senior Advisor for Policy and Strategic Communications

U.S. Environmental Protection Agency
Office of the Administrator
Office of Policy
202.564.0410 (O)
Ex. 6 Personal Privacy (PP) (C)

Message

From: Hilary Moffett [moffetth@api.org]
Sent: 5/3/2018 6:58:30 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]
Subject: Re: Please RSVP - Smart Sectors Round Table w/ Administrator Pruitt

I'm in for API! Thanks!!

On May 3, 2018, at 2:22 PM, Letendre, Daisy <letendre.daisy@epa.gov> wrote:

> Sectors Partners –
>
> As promised, I'd like to formally invite you to a roundtable at **EPA Headquarters (1200 Pennsylvania Ave NW) next Wednesday, May 9, at 2:30pm in the Rachel Carson Green Room.** The purpose of this roundtable is for Administrator Pruitt and senior political leadership to provide you with Smart Sectors programmatic updates, preview our spring regulatory agenda, and engage in collaborative dialogue about how we can continue to work together to improve environmental protection while promoting economic growth.
>
> *This invitation is extended to two total representatives from your trade association.*
>
> In order to ensure that your name is included on a list for security please RSVP to me by COB on Monday, May 7th. Many of you have already let me know that you will be in attendance, but if you wouldn't mind replying to this email with your association's attendees that would be great.
>
> Thank you so much. See you Wednesday!
>
> **Daisy C. Letendre**
> *Senior Advisor for Policy and Strategic Communications*
> U.S. Environmental Protection Agency
> Office of the Administrator
> Office of Policy
> 202.564.0410 (O)
> Ex. 6 Personal Privacy (PP) (C)

Message

From: Hilary Moffett [moffetth@api.org]
Sent: 1/31/2018 8:01:32 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]
Subject: Re: Invitation to Speak

Yessssssss!! I can do either day. Let's see what works for her

On Jan 31, 2018, at 2:38 PM, Letendre, Daisy <letendre.daisy@epa.gov> wrote:

> Free for either next Thursday or Friday. What works best for you? Should we invite Burhop?!
>
> **Daisy C. Letendre**
> *Letendre.Daisy@epa.gov*
>
> ---
>
> **From:** Hilary Moffett [mailto:moffetth@api.org]
> **Sent:** Wednesday, January 31, 2018 9:55 AM
> **To:** Letendre, Daisy <letendre.daisy@epa.gov>
> **Subject:** Re: Invitation to Speak
>
> Love! Which days are you free??
>
> On Jan 31, 2018, at 9:49 AM, Letendre, Daisy <letendre.daisy@epa.gov> wrote:
>
>> Hi yes! 1:30 is great.
>>
>> Also let's get lunch next week or HH or both?
>>
>> **Daisy C. Letendre**
>> *Letendre.Daisy@epa.gov*
>>
>> ---
>>
>> **From:** Hilary Moffett [mailto:moffetth@api.org]
>> **Sent:** Wednesday, January 31, 2018 9:30 AM
>> **To:** Letendre, Daisy <letendre.daisy@epa.gov>
>> **Subject:** RE: Invitation to Speak
>>
>> Hey there – just wanted to check back in here. Are you able to come by around 130? If not, just let me know which time works best and we can work around it.
>>
>> Hope you're well!
>>
>> ---
>>
>> **From:** Hilary Moffett
>> **Sent:** Monday, January 22, 2018 4:16 PM
>> **To:** Letendre, Daisy
>> **Subject:** Re: Invitation to Speak
>>
>> Great! Thanks for joining us. We had tentatively scheduled you for 1:30 (after I emailed you saying morning.). Could you do that? If not, we can make arrangement for the morning.
>>
>> Would love to see you soon. Can we get together???

Thanks,
Hilary

On Jan 19, 2018, at 11:37 AM, Letendre, Daisy <letendre.daisy@epa.gov> wrote:

> Hi Hilary! Thanks for the invite, I am available for this. My morning is open, so whatever works best for you!
>
> **Daisy C. Letendre**
> *Letendre.Daisy@epa.gov*
>
> ---
>
> **From:** Hilary Moffett [mailto:moffetth@api.org]
> **Sent:** Thursday, January 11, 2018 4:03 PM
> **To:** Letendre, Daisy <letendre.daisy@epa.gov>; Sharpe, Kristinn <Sharpe.Kristinn@epa.gov>
> **Cc:** Stephanie Meadows <Meadows@api.org>
> **Subject:** Invitation to Speak
>
> Daisy and Kristinn:
>
> I hope this email finds you well and enjoying the New Year! I'm reaching out today to invite you both to speak to a group on February 7th, here at API in Washington, DC. Stephanie Meadows, cc'd here, is hosting API's E&P Environmental Subcommittee and the Hydraulic Fracturing Issues Group for a joint meeting and we would love to have you both to speak about the Smart Sectors Program. The industry is excited that the Administrator has done so much to re-vitalize the program, and we would love to have you share more details on the great work you're doing. We can certainly work around your schedules, but would suggest any time in the morning of the 7th. I can provide you with a list of attendees and an agenda if that would be helpful.
>
> Please let me know if you need more details.
>
> Thanks for your consideration,
> Hilary
>
> Hilary Moffett
> Director, Federal Relations
> American Petroleum Institute
> 202-682-8040 (desk)
> Ex. 6 Personal Privacy (PP) (cell)
> MoffettH@api.org

Message

From: Sharpe, Kristinn [Sharpe.Kristinn@epa.gov]
Sent: 1/19/2018 4:49:02 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]; Hilary Moffett [moffetth@api.org]
CC: Stephanie Meadows [Meadows@api.org]
Subject: RE: Invitation to Speak

Hi Hilary,

I had previously committed to speak to another association that same day, so I'm happy Daisy can join you.

Thank you for the invitation.

All my best,
Kristinn

Kristinn L. Sharpe
Smart Sectors Program Liaison
Office of Policy, Immediate Office
U.S. Environmental Protection Agency
Office: (202) 343-9062
Mobile: Ex. 6 Personal Privacy (PP)
www.epa.gov/smartsectors

SMART SECTORS
A PROGRAM OF U.S. EPA

From: Letendre, Daisy
Sent: Friday, January 19, 2018 11:38 AM
To: Hilary Moffett <moffetth@api.org>; Sharpe, Kristinn <Sharpe.Kristinn@epa.gov>
Cc: Stephanie Meadows <Meadows@api.org>
Subject: RE: Invitation to Speak

Hi Hilary! Thanks for the invite, I am available for this. My morning is open, so whatever works best for you!

Daisy C. Letendre
Letendre.Daisy@epa.gov

From: Hilary Moffett [mailto:moffetth@api.org]
Sent: Thursday, January 11, 2018 4:03 PM
To: Letendre, Daisy <letendre.daisy@epa.gov>; Sharpe, Kristinn <Sharpe.Kristinn@epa.gov>
Cc: Stephanie Meadows <Meadows@api.org>
Subject: Invitation to Speak

Daisy and Kristinn:

I hope this email finds you well and enjoying the New Year! I'm reaching out today to invite you both to speak to a group on February 7th, here at API in Washington, DC. Stephanie Meadows, cc'd here, is hosting API's E&P Environmental Subcommittee and the Hydraulic Fracturing Issues Group for a joint meeting and we would love to have you both to speak about the Smart Sectors Program. The industry is excited that the Administrator has done so much to re-vitalize the program, and we would love to have you share more details on the great work you're doing. We can

certainly work around your schedules, but would suggest any time in the morning of the 7th. I can provide you with a list of attendees and an agenda if that would be helpful.

Please let me know if you need more details.

Thanks for your consideration,
Hilary

Hilary Moffett
Director, Federal Relations
American Petroleum Institute
202-682-8040 (desk)
Ex. 6 Personal Privacy (PP) (cell)
MoffettH@api.org

Message

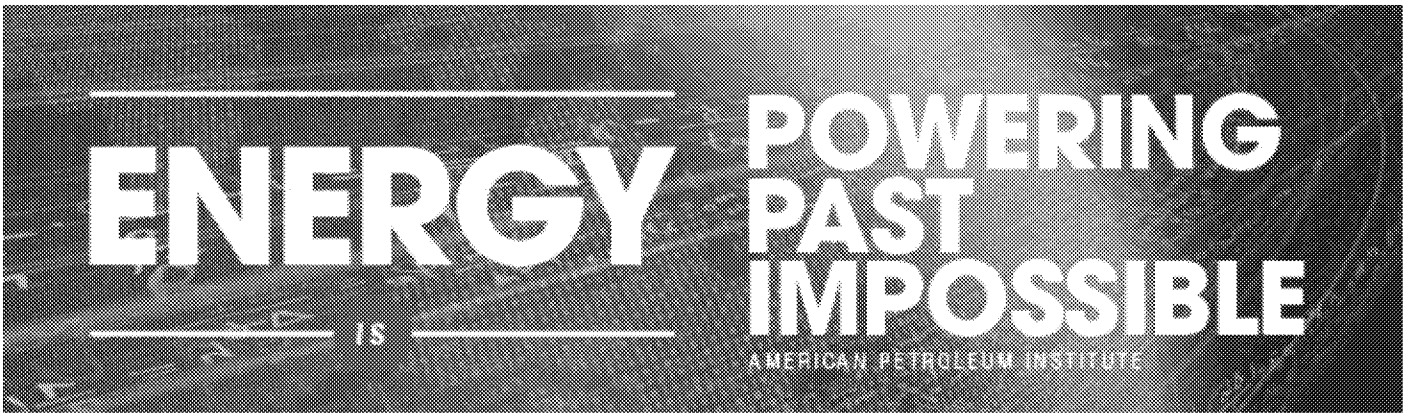
From: Howard Feldman [Feldman@api.org]
Sent: 2/5/2019 6:12:30 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]
Subject: Automatic reply: Change in Start Time on Friday, February 8, 2019 at API Offices

I'm on business travel and may be delayed in replying to your email. Please contact Melanie Rogers (rogersm@api.org) for assistance in the interim.

Howard

Message

From: Jack Gerard [registrar@api.org]
Sent: 12/5/2017 3:32:07 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]
Subject: You're Invited to API's State of American Energy 2018



STATE OF AMERICAN ENERGY 2018 | HOW NATURAL GAS & OIL ARE POWERING PAST IMPOSSIBLE

Please join us for the American Petroleum Institute's 2018 State of American Energy luncheon. As the midterm election year begins we will remind lawmakers, policymakers and the public that America's domestic energy abundance is helping to meet the ever-growing demand for energy, but also how those same resources are the building blocks for many of the products that make our modern society safer, advance the medical arts, and spur creativity and scientific innovation through our Power Past Impossible advertising campaign.

From energy that keeps our homes, offices, and schools lit and warm, to the modern fuels that not only power our vehicles but also help to improve our environment, to the modern pharmaceuticals that improve the health and well-being of millions. Power Past Impossible makes the connection between natural gas, oil and their derived products and their fundamental role in our society, which is essential to positively advance the national energy policy discussion.

Sincerely,

RSVP
BY DECEMBER 22ND

This invitation is non-transferable.

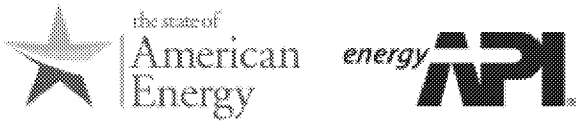
YES | NO

When
TUESDAY, JANUARY 9, 2018
11:30 A.M.-1:00 P.M.

Where
Ronald Reagan Building and
International Trade Center
Atrium Ballroom
1300 Pennsylvania Avenue, NW
Washington, DC 20004

Please use entrance on 14th Street

JACK N. GERARD
President and CEO, API



This event has been designed to comply with the gifts and ethics rules of the U.S. Senate and House of Representatives as a "widely attended event." Employees of the executive branch may wish to consult their Designated Agency Ethics Official about any rules that may apply to their attendance at this event.

powered by
cvent

Message

From: Ronald Chittim [Chittim@api.org]
Sent: 11/13/2017 8:12:49 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]
Subject: Automatic reply: American Petroleum Institute (API) & EPA Smart Sectors Program

I will be out of the office on business travel until November 20th. I will have limited access to email.

Message

From: Shaw, Nena [Shaw.Nena@epa.gov]
Sent: 11/13/2017 6:09:57 PM
To: Morehouse, Bob [RMorehouse@hunton.com]
CC: Letendre, Daisy [letendre.daisy@epa.gov]
Subject: RE: Meeting with Air Permitting Forum

Thanks Bob - This is super helpful. Looking forward to it. Nena

-----Original Message-----
From: Morehouse, Bob [mailto:RMorehouse@hunton.com]
Sent: Monday, November 13, 2017 12:54 PM
To: Shaw, Nena <Shaw.Nena@epa.gov>
Cc: Letendre, Daisy <letendre.daisy@epa.gov>; Morehouse, Bob <RMorehouse@hunton.com>
Subject: RE: Meeting with Air Permitting Forum

Nena:

We will have about 18 members in attendance, plus some Hunton staff. Our membership crosses different industries and consists of experienced company air experts and lawyers. We will have five auto companies represented, plus representation from oil and gas, pulp and paper, chemicals, and other manufacturing. Our fall meeting is one of two we have each year; the one in the spring is in RTP and we meet with various EPA air staff (e.g. Peter Tsirigotis, Anna Wood, etc). Our other agenda topics include reform initiatives, greenhouse gases, updates on regulatory activities and enforcement, what's happening legislatively etc.

The group is aware of the smart sectors program as I have shared some of your documents (eg Fact Sheet).

I will be running any presentations from my computer. If you have something you want me to show you can send it in advance or bring me a thumb drive.

Bob

-----Original Message-----
From: Shaw, Nena [mailto:Shaw.Nena@epa.gov]
Sent: Monday, November 13, 2017 10:59 AM
To: Morehouse, Bob
Cc: Letendre, Daisy
Subject: RE: Meeting with Air Permitting Forum

Bob -

Looking forward to the November 30 meeting with the Air Permitting Forum. To prepare, I wanted to get a sense of the agenda and who is likely to be in the room. If you have any information to share at this point, it would be much appreciated.

Best, Nena

-----Original Message-----
From: Morehouse, Bob [mailto:RMorehouse@hunton.com]
Sent: Saturday, November 11, 2017 7:45 AM
To: Letendre, Daisy <letendre.daisy@epa.gov>
Cc: Shaw, Nena <Shaw.Nena@epa.gov>
Subject: RE: Meeting with Air Permitting Forum-- Bios

Okay --- see you then. You'll need to arrive a few minutes early to get through the security desk.

Bob

-----Original Message-----
From: Letendre, Daisy [mailto:letendre.daisy@epa.gov]
Sent: Thursday, November 09, 2017 6:51 PM
To: Morehouse, Bob
Cc: Shaw, Nena
Subject: Re: Meeting with Air Permitting Forum-- Bios

8:45 is great. Thank you!

Sent from my iPhone

> On Nov 9, 2017, at 5:26 PM, Morehouse, Bob <RMorehouse@hunton.com> wrote:
>

> Does 8:45 am on the 30th work for you? If not, we can do a little later in the morning.
>
> Bob
>
> -----Original Message-----
> From: Letendre, Daisy [mailto:letendre.daisy@epa.gov]
> Sent: Thursday, November 09, 2017 1:13 PM
> To: Morehouse, Bob
> Cc: Shaw, Nena
> Subject: RE: Meeting with Air Permitting Forum-- Bios
>
> Great. Thank you so much.
>
> Daisy C. Letendre
> Letendre.Daisy@epa.gov
>
> -----Original Message-----
> From: Morehouse, Bob [mailto:RMorehouse@hunton.com]
> Sent: Thursday, November 9, 2017 2:06 PM
> To: Letendre, Daisy <letendre.daisy@epa.gov>
> Cc: Shaw, Nena <Shaw.Nena@epa.gov>
> Subject: Re: Meeting with Air Permitting Forum-- Bios
>
> The 30th in the morning works. I'll suggest a time when I get back to the office.
> Bob
>
> Sent from my iPhone
>
> On Nov 9, 2017, at 10:43 AM, Letendre, Daisy <letendre.daisy@epa.gov<mailto:letendre.daisy@epa.gov>>
wrote:
>
> Hi Bob - Nena and I just ran into a bit of a scheduling conflict and will be in NYC the day of Nov. 29.
Would it be possible for us to join you on the 30th instead of the 29th?
>
> Apologies for the inconvenience. Let me know what works best for you all.
>
> Daisy C. Letendre
> Letendre.Daisy@epa.gov<mailto:Letendre.Daisy@epa.gov>
>
> From: Morehouse, Bob [mailto:RMorehouse@hunton.com]
> Sent: Monday, November 6, 2017 10:28 AM
> To: Letendre, Daisy <letendre.daisy@epa.gov<mailto:letendre.daisy@epa.gov>>
> Subject: RE: Meeting with Air Permitting Forum-- Bios
>
> Thanks!
>
> Bob
>
> From: Letendre, Daisy [mailto:letendre.daisy@epa.gov]
> Sent: Monday, November 06, 2017 8:45 AM
> To: Morehouse, Bob; Shaw, Nena
> Subject: RE: Meeting with Air Permitting Forum-- Bios
>
> Hi Bob - here are links to our bios
>
> https://urldefense.proofpoint.com/v2/url?u=https-3A__www.epa.gov_smartsectors_about-2Dsectors-2Dstaff-
2Ddaisy-2Dletendre&d=DwIFAg&c=jxhwBfk-KSV6FFIot0PGng&r=HoAh1GJ97_mG-
IaRG0RaCmYkSClhaV5V72rP9W5H_1A&m=BB4KRaNMF6z4k-I6oVL-gp1O-
78gREeaTwXXlGxas90&s=vDyK4oeUcnO6P5bvnxBWGq5vzB75PtqRg_Co4COxtoA&e=<https://urldefense.proofpoint.com/v2/
url?u=https-3A__www.epa.gov_smartsectors_about-2Dsectors-2Dstaff-2Ddaisy-2Dletendre&d=DwMFAg&c=jxhwBfk-
KSV6FFIot0PGng&r=HoAh1GJ97_mG-
IaRG0RaCmYkSClhaV5V72rP9W5H_1A&m=5YzcoTA5wFDE9vxhw6d0QbDqdDg3RV6X8saNMp6jDto&s=HC7vr1luPFitgs0tFOYjCsT4u8
7h-aQqiuK_mMLrq6Q&e=>
>
> https://urldefense.proofpoint.com/v2/url?u=https-3A__www.epa.gov_smartsectors_about-2Dsectors-2Dstaff-
2Dnena-2Dshaw&d=DwIFAg&c=jxhwBfk-KSV6FFIot0PGng&r=HoAh1GJ97_mG-
IaRG0RaCmYkSClhaV5V72rP9W5H_1A&m=BB4KRaNMF6z4k-I6oVL-gp1O-78gREeaTwXXlGxas90&s=Kl6J6eINnNT-
wtUoxkGc6u1fIUbPWVnojayULvKiURg&e=<https://urldefense.proofpoint.com/v2/url?u=https-
3A__www.epa.gov_smartsectors_about-2Dsectors-2Dstaff-2Dnena-2Dshaw&d=DwMFAg&c=jxhwBfk-
KSV6FFIot0PGng&r=HoAh1GJ97_mG-
IaRG0RaCmYkSClhaV5V72rP9W5H_1A&m=5YzcoTA5wFDE9vxhw6d0QbDqdDg3RV6X8saNMp6jDto&s=zdGlojtCHP8NBUBonIsgsRHsJA
9TygU62Ig9hvy4ptU&e=>
>
>
> From: Morehouse, Bob [mailto:RMorehouse@hunton.com]
> Sent: Saturday, November 4, 2017 8:37 AM
> To: Shaw, Nena <Shaw.Nena@epa.gov<mailto:Shaw.Nena@epa.gov>>; Letendre, Daisy
<letendre.daisy@epa.gov<mailto:letendre.daisy@epa.gov>>

> Cc: Morehouse, Bob <RMorehouse@hunton.com<mailto:RMorehouse@hunton.com>>
> Subject: Meeting with Air Permitting Forum-- Bios
>
> Daisy and Nena: Do you have short "bios" on your background that you can send me and I can share with our members? If not, we can just make this part of the introductions.
>
> Thanks,
> Bob
>
> From: Shaw, Nena [mailto:Shaw.Nena@epa.gov]
> Sent: Monday, October 23, 2017 3:50 PM
> To: Letendre, Daisy; Morehouse, Bob
> Subject: RE: Meeting with Air Permitting Forum
>
> Thanks Bob! Looking forward to it. Nena
>
> From: Letendre, Daisy
> Sent: Monday, October 23, 2017 4:23 PM
> To: Morehouse, Bob <RMorehouse@hunton.com<mailto:RMorehouse@hunton.com>>
> Cc: Shaw, Nena <Shaw.Nena@epa.gov<mailto:Shaw.Nena@epa.gov>>
> Subject: RE: Meeting with Air Permitting Forum
>
> Excellent, thank you.
>
> From: Morehouse, Bob [mailto:RMorehouse@hunton.com]
> Sent: Monday, October 23, 2017 3:23 PM
> To: Letendre, Daisy <letendre.daisy@epa.gov<mailto:letendre.daisy@epa.gov>>
> Cc: Morehouse, Bob <RMorehouse@hunton.com<mailto:RMorehouse@hunton.com>>
> Subject: Meeting with Air Permitting Forum
>
> Daisy:
>
> The Air Permitting Forum members are looking forward to meeting with you and Nena Shaw on November 29 (2:00 p.m.). Our location in Washington is:
>
> Hunton & Williams LLP
> 2200 Pennsylvania Avenue, NW
> Washington, DC 20037
> 202-955-1500
>
> RECEPTION
> Reception is located on the 9th floor. A security card is not required to reach the 9th floor, during business hours. Reception is open from 8:00 am to 7:00 pm, Monday - Friday.
> Please access Reception and all Hunton & Williams' floors through the East Elevator Bank to the left of the Security desk in the lobby.
>
> We will be in the Penn Quarter conference room. I will have a computer set up to run any presentation material you may want to use.
>
> If you have any questions, please call me at the phone number below (I work out of my home in Houston).
>
> Thanks,
> Bob

Message

From: Sachs, Robert [Sachs.Robert@epa.gov]
Sent: 10/12/2018 6:00:47 PM
To: Stephanie Meadows [Meadows@api.org]; Letendre, Daisy [letendre.daisy@epa.gov]
CC: Shaw, Nena [Shaw.Nena@epa.gov]
Subject: RE: Smart Sectors – oil and gas information package for review and feedback

Thank you Stephanie, we received your comments.
Have a nice weekend.

V/r

Bob

Bob Sachs | EPA Smart Sectors Program
Office of Policy | Mailcode 1807t
Office 202.566.2884 | Mobile Ex. 6 Personal Privacy (PP)

epa.gov/smartsectors

SMART SECTORS
A PROGRAM OF U.S. EPA

From: Stephanie Meadows [mailto:Meadows@api.org]
Sent: Wednesday, October 10, 2018 4:47 PM
To: Letendre, Daisy <letendre.daisy@epa.gov>
Cc: Sachs, Robert <Sachs.Robert@epa.gov>; Shaw, Nena <Shaw.Nena@epa.gov>
Subject: RE: Smart Sectors – oil and gas information package for review and feedback

Daisy:

I apologize for the delay in sharing API's comments on the two Word documents associated with the Oil and Gas Sector. Please see attached. We would be happy to meet with you to discuss any of these suggested edits!

SRM

Stephanie R. Meadows
Manager
American Petroleum Institute
Upstream and Industry Operations
1220 L Street, NW
Washington, DC 20005-4070
USA
Phone: 202-682-8578
www.api.org

From: Stephanie Meadows
Sent: Monday, October 8, 2018 12:17 PM
To: Daisy Letendre <letendre.daisy@epa.gov>; 'Sachs.Robert@epa.gov' <Sachs.Robert@epa.gov>; 'Shaw.Nena@epa.gov' <Shaw.Nena@epa.gov>
Subject: FW: Smart Sectors – oil and gas information package for review and feedback

Daisy, Robert, and Nena:

On Friday I sent an email to Daisy in response to the request sent to API on Tuesday, regarding information on the oil and natural gas sector. Due to travel and vacations, we will be submitting information on the two Word documents as soon as possible (but likely a little late). In the meantime, I did want to share some materials on the request for "higher level" descriptions of our industry. Please see below the information from our Communications staff on materials available to the public to help with energy education. In addition, the quote below is from API's Vice Presidents, Kyle Isakower, who attended the kick off session last fall. The employment numbers are still accurate.

More information to come.

Stephanie

"The oil and natural gas industry is a major economic engine supporting 10.3 million jobs, is leading the world in the production and refining of oil and natural gas, and is a world leader in reducing carbon emissions from energy use which today are near 25-year lows," said **Kyle Isakower, American Petroleum Institute vice president for regulatory and economic policy**. "We welcome this new partnership and look forward to working with the Agency on this program to ensure that industry is doing all it can to protect the environment and support economic growth."

- https://www.epa.gov/newsreleases/epa-launches-smart-sectors-program

Stephanie R. Meadows
Manager
American Petroleum Institute
Upstream and Industry Operations
1220 L Street, NW
Washington, DC 20005-4070
USA
Phone: 202-682-8578
www.api.org

From: Reid Porter
Sent: Monday, October 8, 2018 9:23 AM
To: Stephanie Meadows <Meadows@api.org>
Subject: RE: Smart Sectors – oil and gas information package for review and feedback

Is this what is needed? "Higher level"?

- Powering Past Impossible
- Powering Innovation
- Powering Environmental Progress
- Powering the Economy
- Powering Manufacturing
- Powering Communities
- Policy Focus

ALSO:

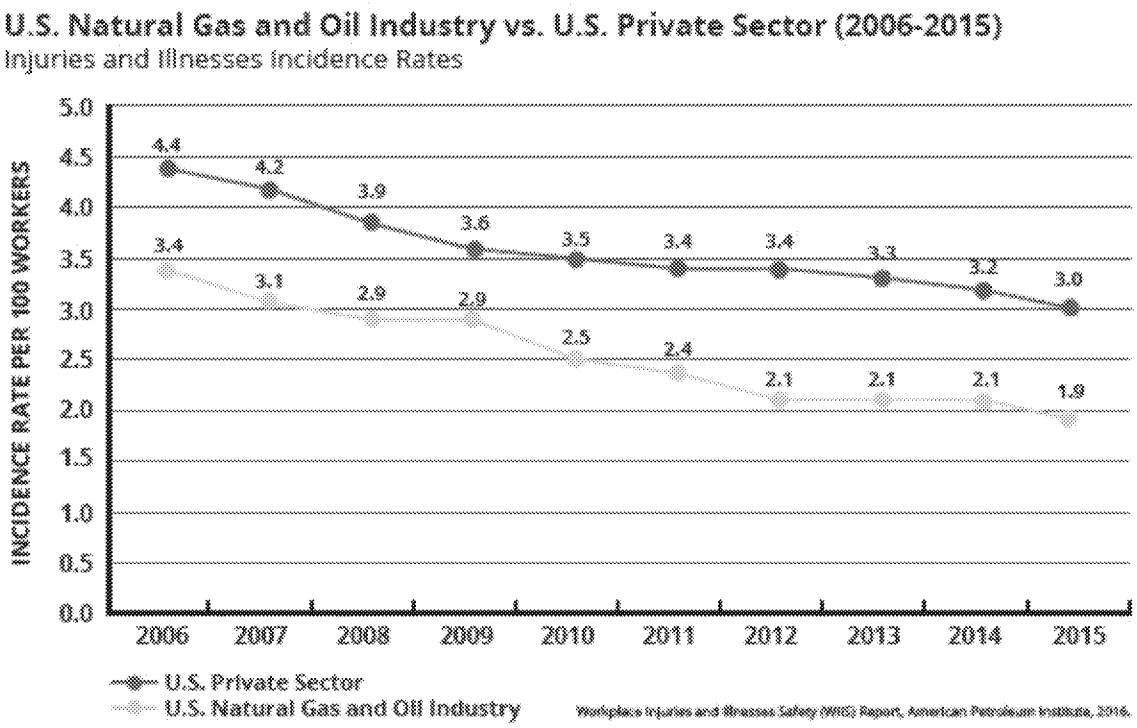
Prioritizing Safety, Health And Environmental Stewardship (2017)
Often overlooked, America's world-class refining sector not only produces the fuels that energize our transportation sector, but also produces cleaner fuels to ensure that our air stays clean. Just as our cars have modernized, so have our fuels and the refineries that produce it.

PDF DOWNLOADS
Energy and Communities Prioritizing Safety, Health and Environmental Stewardship (Full Report)
File Size: 64.2 MB
Energy and Communities Prioritizing Safety, Health and Environmental Stewardship (Executive Summary)

From the report:
The safety, health and protection of people, the environment and communities are the top priorities for the natural gas and oil industry. Today, natural gas and oil not only power our lives, but are the building blocks for so many of the products that make modern life possible. But this energy and the amazing things derived from it – everything from clothing and cosmetics to state-of-the-art health care devices and medicines – aren't possible unless responsible development is the centerpiece of everything the industry does.

Among highlights from the report:
Standards – Nearly 700 API standards cover all industry segments – many of them adopted into regulations at the state and federal level:

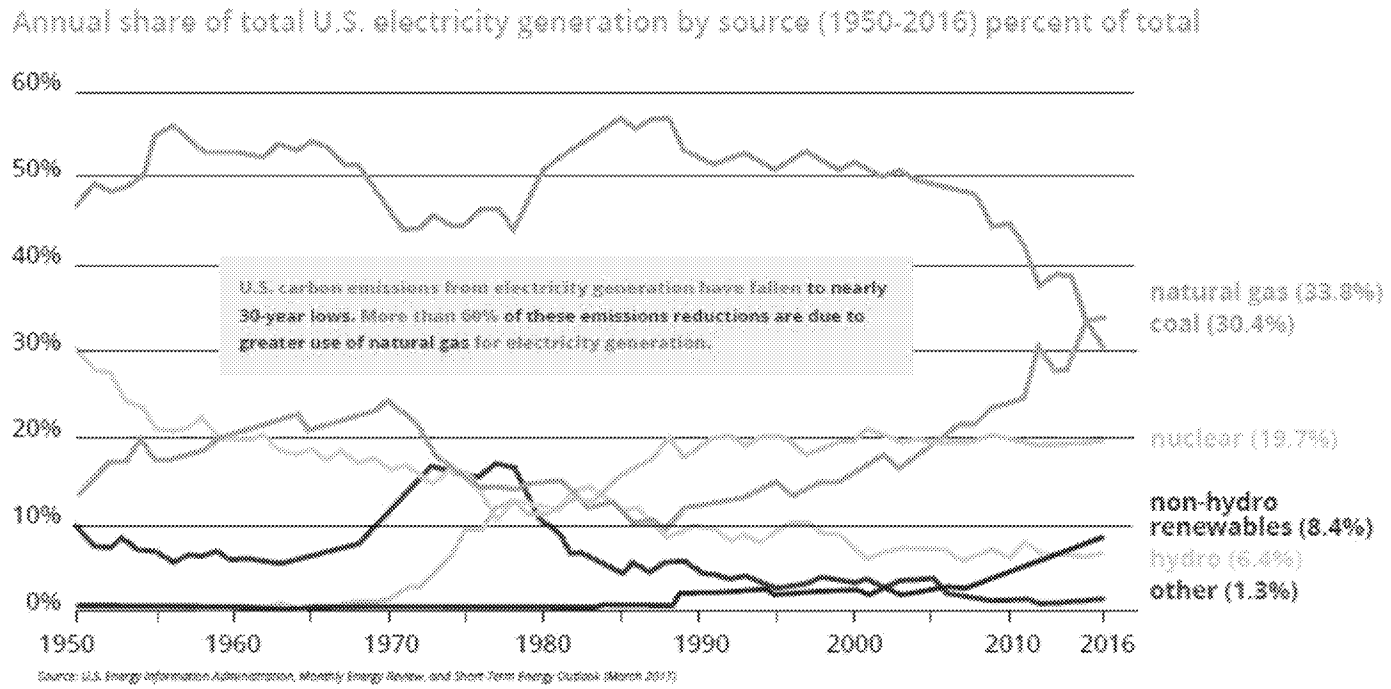
Worker safety – The injury and illness rate for the U.S. natural gas and oil industry fell 45 percent from 2006-2015 at the same time new jobs were added, and industry's rate is well below the national average for the entire U.S. private sector:



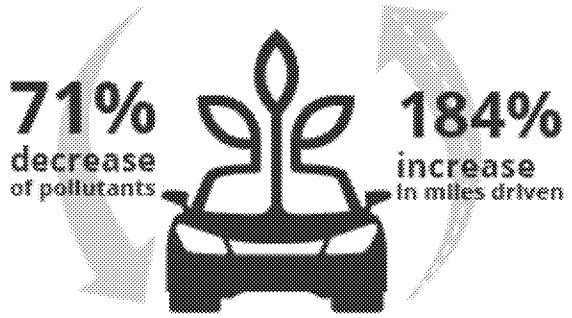
Pipeline safety – U.S. pipelines have a strong safety record, moving 99.99 percent of crude oil and petroleum products safely to their destination in 2016:

Similarly, in 2016, more than 99.99 percent of natural gas moved safely through interstate pipelines. In short, pipelines are incredibly safe – and getting safer all the time. In 2016, 25.3 trillion cubic feet of product moved through 300,000 miles of transmission pipes (200,000 interstate and 100,000 intrastate) plus 2.1 million miles of smaller lines that distribute gas to homes and businesses.

Reduced emissions – Between 1990 and 2015, methane emissions from natural gas systems dropped 16.3 percent overall and 59 percent from hydraulically fractured natural gas wells – at a time when natural gas use by the electric power sector rose almost 200 percent. U.S. energy-related greenhouse gas emissions are now at their lowest level in nearly 25 years. Natural gas now is the leading fuel source for generating electricity:



Refining sector advances – Modern, versatile refineries are producing cleaner gasoline and diesel fuels – which, combined with more fuel-efficient vehicles, have helped reduce U.S. air pollutants by 71 percent between 1970 and 2015. This has occurred even as vehicle miles traveled increased more than 184 percent.



The report also details advances in prioritizing responsible energy development, groundwater protection and well-casing standards, stewardship and reclamation efforts, protection of habitats, industry transparency and accountability, effective waste management and community engagement. Marty Durbin, API executive vice president and chief strategy officer, discussed the report during a conference call with reporters:

"The U.S. natural gas and oil industry is committed to producing more energy while reducing our footprint and improving the efficiency and safety of our operations. Investments in innovative technologies and operational improvements make it possible to lead the world not only in production and refining of oil and natural gas but also in reduction of carbon emissions – all while enhancing energy security and generating major economic benefits."

America's energy renaissance has changed our country's energy narrative from one of scarcity to one of abundance – helping grow our economy, increase U.S. energy security, improve air quality and lower costs for consumers. Responsible natural gas and oil development is at the heart of these positive impacts. And, as this new report shows, industry is working to make the investments and develop the technologies to make continuous improvements. Durbin:

"America's natural gas and oil industry provides the affordable, reliable energy that is the lifeblood of our economy, and we understand that the nation's prosperity fundamentally relies on our industry's ability to produce more of these resources in a way that promotes safety, benefits our communities and values environmental stewardship."

Message

From: Stephanie Meadows [Meadows@api.org]
Sent: 10/5/2018 5:25:20 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]
Subject: Re: Smart Sectors – oil and gas information package for review and feedback

Daisy:

I am sorry I missed the chance to even say hi on Tuesday. You had a lot going on and a ton of people vying for your time. It was a very helpful session.

I appreciate the attached information. Many of the appropriate API staff that can help with this are on travel and not back into the office until Tuesday. We will do our best to get this to you as close to the 9th as possible, but it will likely be a little late.

Thank you.

Stephanie

Sent from my iPhone

On Oct 2, 2018, at 9:30 AM, Letendre, Daisy <letendre.daisy@epa.gov> wrote:

> Oil and Gas Smart Sector Partners –
>
> As a follow up to our other messages and discussions recently regarding Sector Snapshots, we're sending you the package of materials upon which we seek your input for the Oil and Gas sector. Included are four files:
>
> (1) PowerPoint file. This contains: background image, color scheme, placeholders for introductory graphics information** to be provided to us, an example chart, and a concluding slide that identifies the relevant NAICS codes.
> (2) Word document file. This file contains text box content to appear alongside the charts for each environmental indicator for this sector.
> (3) Word document file. This file contains the "Summary" (Learn More) content for this sector.
> (4) Word document file. This file contains the "magnifying glass content," i.e., the instructions on how to download and replicate the data for each environmental indicator and economic benchmark for this sector.
>
> We ask that you review the information provided in the files, and provide feedback including: comments, editing, and suggested additions or deletions.
>
> ** for the four introductory graphics we'd like for you all to provide us with information characterizing your sector at a high level. We suggest referring to the three publicly available sectors that provide good context as you consider what to send. We ask that you provide data that is currently published and available, sourced from government or your own sector-wide research, a title, and citation. EPA will also find and review the data sources for consistency and generate graphics accordingly.
>
> In order to meet the programming schedule and public deployment by early January, we will ask that you **provide feedback by October 9th.** I know this is a tight timeframe but please don't hesitate to reach out with any questions or concerns.

Timeline

October 2	Information and guidance package to sector
October 9	All comments due to EPA
January 11	Draft date for snapshot published online

You can access one or more of the following sector snapshots that have been released for context:
https://cfpub.epa.gov/wizards/smartsectors/ironsteel/#home
https://cfpub.epa.gov/wizards/smartsectors/utilities/#home
https://cfpub.epa.gov/wizards/smartsectors/chemicals/#home

Thank you very much for your willingness to participate in this process. We look forward to collaborating with you over the coming weeks.

Daisy C. Letendre
Senior Advisor for Policy and Strategic Communications
U.S. Environmental Protection Agency
Office of the Administrator
Office of Policy
202.564.0410 (O)
Ex. 6 Personal Privacy (PP) (C)

<01. Powerpoint.pptx>

<02. Text Boxes.docx>

<03. Summary_Learn More.docx>

<04. Magnifying Glass Text.docx>

Message

From: Stephanie Meadows [Meadows@api.org]
Sent: 9/27/2018 7:51:37 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]
Subject: FW: REMINDER TO RSVP: Smart Sectors Event w/ Administrator Wheeler

Daisy:

Carrie shared your email of yesterday with me because I was working with our Executive Staff to secure an API participant for the Tuesday roundtable event. Due to many schedule conflicts, it looks like I will be attending for our organization. I am looking forward to hearing about the updates on the program.

If you have any questions or need additional information, please let me know.

Regards,

Stephanie

Stephanie R. Meadows
Manager
American Petroleum Institute
Upstream and Industry Operations
1220 L Street, NW
Washington, DC 20005-4070
USA
Phone: 202-682-8578
www.api.org

From: Letendre, Daisy <letendre.daisy@epa.gov>
Sent: Wednesday, September 26, 2018 1:56 PM
Cc: Shaw, Nena <Shaw.Nena@epa.gov>
Subject: REMINDER TO RSVP: Smart Sectors Event w/ Administrator Wheeler

All – a friendly reminder that if you have not RSVP'd to me yet, please do so by tomorrow, 9/27. It's important we have a complete list of attendees to ensure the security process moves smoothly.

If you've replied to this email or emailed me directly, I've made note of your attendance so no need to RSVP again.

Looking forward to seeing you next week.

Daisy C. Letendre
Letendre.Daisy@epa.gov

From: Letendre, Daisy
Sent: Tuesday, September 18, 2018 2:41 PM
To: Letendre, Daisy <letendre.daisy@epa.gov>
Cc: Jackson, Ryan <jackson.ryan@epa.gov>; Bolen, Brittany <bolen.brittany@epa.gov>
Subject: Smart Sectors Event w/ Administrator Wheeler

Smart Sector Partners –

On behalf of the U.S. Environmental Protection Agency's (EPA) Acting Administrator Andrew Wheeler, we would like to invite the principal of your organization – or his/her designee – to attend our second annual EPA Smart Sectors roundtable. This event marks one year of Smart Sectors' work, and Acting Administrator Wheeler would like to share with you successes from the last year, engage in meaningful dialogue about agency priorities, and discuss environmental improvements across manufacturing sectors.

WHO: EPA Acting Administrator Andrew Wheeler and EPA's Smart Sectors Program Partners
Attendees may bring an additional representative.
WHAT: A roundtable meeting highlighting Smart Sectors Program successes and open discussion
WHEN: Tuesday, October 2, 2018 at 11:00AM
WHERE: U.S. EPA Headquarters – Rachel Carson Green Room
RSVP BY: September 27, 2018 to Letendre.Daisy@epa.gov

SCHEDULE
10:30 – 11:00AM
Coffee and Conversation

Open Press
11:00AM
Remarks from Acting Administrator Wheeler

Closed Press
11:20AM – Business Portion of Meeting*

12:00PM – Meeting Wraps

We will be following up with many of you individually in order to inform the business portion of the meeting.

Daisy C. Letendre
Senior Advisor for Policy and Strategic Communications
U.S. Environmental Protection Agency
Office of the Administrator
Office of Policy
202.564.0410 (O)
Ex. 6 Personal Privacy (PP) (C)

Message

From: Ron Chittim [Chittim@api.org]
Sent: 9/26/2018 5:56:33 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]
Subject: Automatic reply: REMINDER TO RSVP: Smart Sectors Event w/ Administrator Wheeler

I will be out of the office on business travel until Sept. 27th. I will have limited access to email.

Message

From: Ronald Chittim [Chittim@api.org]
Sent: 11/1/2017 9:20:26 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]
CC: Ronald Chittim [Chittim@api.org]
Subject: RE: American Petroleum Institute (API) & EPA Smart Sectors Program

Perfect – I will be getting you the details in the next few days. Thanks again!

Ron

From: Letendre, Daisy [mailto:letendre.daisy@epa.gov]
Sent: Wednesday, November 01, 2017 5:06 PM
To: Ronald Chittim
Subject: RE: American Petroleum Institute (API) & EPA Smart Sectors Program

I will plan to attend in person and the timing will work for me! I will need to be on a flight to Huntington, WV that afternoon but it sounds like I will be all set. I will let you know if anything changes as I book travel. Thanks!!

From: Ronald Chittim [mailto:Chittim@api.org]
Sent: Thursday, October 26, 2017 11:11 AM
To: Letendre, Daisy <letendre.daisy@epa.gov>
Cc: Ronald Chittim <Chittim@api.org>
Subject: RE: American Petroleum Institute (API) & EPA Smart Sectors Program

Daisy – thank you for your prompt reply. We are still working on finalizing the agenda but my plan is to have you on the agenda fairly early in the meeting. The entire meeting is from 1:00 pm – 5:30 pm Central time so you would probably be on somewhere in the 1:15 – 2:15 pm time frame. Will that work for you? Also, to clarify, are you planning to attend in person or participate by phone? As mentioned below, attending in person is definitely preferred – just let me know.

Let me know if you have any further questions at this point.

Thanks -- Ron

From: Letendre, Daisy [mailto:letendre.daisy@epa.gov]
Sent: Monday, October 23, 2017 9:51 AM
To: Ronald Chittim
Subject: RE: American Petroleum Institute (API) & EPA Smart Sectors Program

Ron – thank you so much for the invitation to participate in the API Refining Subcommittee meeting. I would be happy to attend and to discuss the Smart Sectors program. Do you know what the timing of that day would look like? Once I know the timing I can give you a firm yes.

Thanks!

From: Ronald Chittim [mailto:Chittim@api.org]
Sent: Friday, October 20, 2017 11:49 AM
To: Letendre, Daisy <letendre.daisy@epa.gov>
Subject: American Petroleum Institute (API) & EPA Smart Sectors Program
Importance: High

Daisy – as a follow-up to the recent launch of the EPA Smart Sectors Program and your subsequent communications with Kyle Isakower, API VP of Regulatory & Economic Affairs, I'd like to invite you to participate in an upcoming meeting of the API Refining Subcommittee to educate them more on the Smart Sectors program for the oil and gas industry. The Refining Subcommittee is comprised of the senior leaders of the refining businesses within the API member companies.

One of the priorities of the API Refining Subcommittee is enhanced collaboration with government agencies such as EPA and, in line with that priority, we would like to learn more about the Smart Sectors program and potential collaboration with API.

The meeting of the Refining Subcommittee will be the afternoon of November 14th in Dallas, TX. It would be preferable to have you attend in person but if that is not feasible, participation by phone is acceptable also. Please consider this invitation and let me now at your earliest convenience if you will be able to participate. Thank you.

Ron Chittim
Manager – Downstream/Refining

API | 1220 L Street, NW | Washington, DC 20005
202.682.8176 P | Chittim@api.org

Message

From: Ronald Chittim [Chittim@api.org]
Sent: 3/12/2018 2:07:20 PM
To: Letendre, Daisy [letendre.daisy@epa.gov]
Subject: Left you a Voicemail

Please call my cell at Ex. 6 Personal Privacy (PP) and we can talk. I am in New Orleans but will call at a break or lunch.

Thanks – Ron

Sent from my iPhone

Message

From: Khary Cauthen [cauthenk@api.org]
Sent: 3/12/2018 11:41:57 AM
To: Letendre, Daisy [letendre.daisy@epa.gov]
Subject: RE: Smart Sectors Update #1

Daisy: sorry that I missed your call Friday. Give me a shout Ex. 6 Personal Privacy (PP) I'm generally in the office all day today

---

From: Letendre, Daisy [mailto:letendre.daisy@epa.gov]
Sent: Friday, March 09, 2018 4:24 PM
To: Letendre, Daisy
Cc: Corona, Elizabeth; Sachs, Robert; Shaw, Nena; Sharpe, Kristinn
Subject: Smart Sectors Update #1

SMART SECTORS
A PROGRAM OF U.S. EPA

All –

I hope this email finds you well. It has been almost six months since the U.S. Environmental Protection Agency (EPA) launched Smart Sectors. The Smart Sectors Team has been busy meeting with your environment committees, talking to your member companies, hosting internal EPA discussions, and thanks to many of you we've also conducted 11 informational site visits to facilities in the Iron and Steel, Ports, Construction, Oil and Gas, Chemical Manufacturing, Agriculture, and Automotive Sectors. We have much more in the works for 2018, but are always interested in your additional suggestions so that we can better understand your sector's operations and intricacies.

In an effort to increase communication and better coordinate and collaborate, I want to share some recent agency actions and news. It is my goal for these emails to be useful and to become more proactive and frequent. Please don't hesitate to reach out if you have questions, concerns, or ideas for the Smart Sectors Team. - Daisy

Accomplishment's Report

- This week, the Agency released a report of the accomplishments spearheaded by Administrator Pruitt during his first year in office. This report details EPA's work across the Agency aimed at ensuring better environmental protections for all Americans. In Administrator Pruitt's first year, ***EPA finalized 22 deregulatory actions, which could save Americans more than $1 billion in regulatory costs.***

Aerosol Cans

- On **March 6**, EPA proposed a safe system for recycling aerosol cans that is estimated to save at least $3 million per year in regulatory costs. EPA's proposal streamlines the regulation of hazardous waste aerosol cans by adding them to the list of materials that can be managed under the universal waste management system. *The 60-day comment period will open upon the forthcoming publication of the proposed Universal Waste Aerosol Can rule in the Federal Register*.

Biomass

- On **February 13**, Administrator Pruitt issued a letter to Gov. Sununu (NH) outlining EPA's work to advance and promote the responsible use of forest resources.

Coal Ash

- On **March 1**, EPA proposed the first of two rules to amend coal ash disposal regulations. EPA's Regulatory Impact Assessment shows this proposal, if finalized, will save the utility sector up to $100 million per year in compliance costs. This proposed rule includes more than a dozen changes to the 2015 final CCR rule, which established minimum national standards regulating the location, design, and operation of existing and new CCR landfills and surface impoundments at more than 400 coal-fired power plants nationwide. *The 45-day comment period on this proposal will open after the proposed rule publishes in the Federal Register.*
    - Additionally, EPA will hold a hearing on this proposed rule on April 24, 2018 in the Washington, DC metropolitan area. More details to follow.

New Source Review

- Last December, Administrator Pruitt issued a memo to EPA's 10 regional administrators clarifying the Agency's current understanding of certain elements of the Clean Air Act's New Source Review (NSR) regulations and when they should apply to projects at facilities that may increase emissions. The memo states that as long as a company complies with the procedural requirements of preconstruction analysis, the agency will not "second-guess" that analysis.
- In January, Bill Wehrum, assistant administrator for EPA's Office of Air and Radiation, issued a guidance memo withdrawing the "once in always in" policy for the classification of major sources of hazardous air pollutants under 112 of the Clean Air Act.

Oil and Gas Roundtable

- Last week, EPA co-hosted an oil and gas roundtable with the Environmental Council of States (ECOS) and the Interstate Oil and Gas Compact Commission (IOGCC) in Denver, CO. Last year, Administrator Pruitt committed to holding this event in response to a number of concerns raised by oil and gas associations in Colorado and North Dakota. For more information on the roundtable including the agenda, list of participants and background materials, click here.

Strategic Plan

- On **February 12**, the Agency released it's 2018-2022 Strategic Plan, designed to transform the way the Agency does business and more efficiently and effectively deliver environmental results. Attached is the corresponding Transformation Strategy.

Daisy C. Letendre
Senior Advisor for Policy and Strategic Communications
U.S. Environmental Protection Agency
Office of the Administrator
Office of Policy
202.564.0410 (O)
Ex. 6 Personal Privacy (PP) (C)

Message

From: Letendre, Daisy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B691CCCCA6264AE09DF7054C7F1019CB-LETENDRE, D]
Sent: 10/19/2017 8:05:19 PM
To: Hilary Moffett [moffetth@api.org]
CC: Sharpe, Kristinn [Sharpe.Kristinn@epa.gov]
Subject: Re: Smart Sectors

Hi Hilary! Chevron was really great yesterday. Thank you so much for facilitating.

Sent from my iPhone

On Oct 19, 2017, at 8:46 AM, Hilary Moffett <moffetth@api.org> wrote:

> Daisy and Kristinn,
>
> Just a note to check in. I hope you guys had a great visit with Chevron yesterday. Please let me know if you need anything else!
>
> Thanks,
> Hilary

Message

From: Letendre, Daisy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B691CCCCA6264AE09DF7054C7F1019CB-LETENDRE, D]
Sent: 10/17/2017 3:40:00 PM
To: Hilary Moffett [moffetth@api.org]
Subject: RE: Smart Sectors

Samantha will be attending. Let me know when you have POCs and location details so I can share that with her. Thanks!!!!

From: Hilary Moffett [mailto:moffetth@api.org]
Sent: Monday, October 16, 2017 1:35 PM
To: Letendre, Daisy <letendre.daisy@epa.gov>
Subject: RE: Smart Sectors

I went ahead and confirmed you two. Just let me know if Sam decided to join in. I will send addresses and points of contact along this afternoon!

From: Letendre, Daisy [mailto:letendre.daisy@epa.gov]
Sent: Monday, October 16, 2017 10:53 AM
To: Hilary Moffett; Sharpe, Kristinn
Subject: RE: Smart Sectors

Just me and Kristinn.

Here's my bio: https://www.epa.gov/smartsectors/about-sectors-staff-daisy-letendre
Here's Kristinn's bio: https://www.epa.gov/smartsectors/about-sectors-staff-kristinn-l-sharpe

---

From: Hilary Moffett [mailto:moffetth@api.org]
Sent: Monday, October 16, 2017 10:44 AM
To: Sharpe, Kristinn <Sharpe.Kristinn@epa.gov>; Letendre, Daisy <letendre.daisy@epa.gov>
Subject: RE: Smart Sectors

I'd like to give them a list of attendees, if possible Is it just the two of you or will anyone else be joining?

Thanks!

From: Sharpe, Kristinn [mailto:Sharpe.Kristinn@epa.gov]
Sent: Monday, October 16, 2017 10:36 AM
To: Letendre, Daisy; Hilary Moffett
Subject: RE: Smart Sectors

This is AMAZING! Thank you Hilary!

From: Letendre, Daisy
Sent: Monday, October 16, 2017 10:35 AM
To: Hilary Moffett <moffetth@api.org>
Cc: Sharpe, Kristinn <Sharpe.Kristinn@epa.gov>
Subject: RE: Smart Sectors

You are the BEST!

From: Hilary Moffett [mailto:moffetth@api.org]
Sent: Monday, October 16, 2017 10:31 AM
To: Letendre, Daisy <letendre.daisy@epa.gov>
Cc: Sharpe, Kristinn <Sharpe.Kristinn@epa.gov>
Subject: RE: Smart Sectors

Thanks for reaching out. I'm waiting for the final green light from Chevron, but this is what I have set up for you:

2:00 and 4:00 p.m. on October 18

- Meeting with President of Chevron North America Exploration and Production
- Oil & Gas Trading Floor Tour
- Pipeline Control Center Tour (will open next month)
- Drilling Decision Support Center Tour

I tried to get you into CPChem, which is a chemical facility jointly owned by P66 and Chevron, but they still aren't fully up and running after the hurricane. Hopefully, the Chevron experience will give you some great insight. The Drilling Decision Support Center is a live portal in which engineers in Houston can work with the folks drilling in the Gulf of Mexico, so you'll get to see some great stuff there.

I should have the final green light from Chevron today and will pass that along as soon as everything is locked down.

Thanks,
Hilary

From: Letendre, Daisy [mailto:letendre.daisy@epa.gov]
Sent: Monday, October 16, 2017 10:27 AM
To: Hilary Moffett
Cc: Sharpe, Kristinn
Subject: RE: Smart Sectors

Morning! Just wanted to circle back on this. Would love to set up some meetings and book flights today. Let me know if there's folks I should reach out to!

From: Letendre, Daisy
Sent: Friday, October 13, 2017 1:41 PM
To: 'Kyle Isakower' <Isakowerk@api.org>; Sharpe, Kristinn <Sharpe.Kristinn@epa.gov>
Cc: Hilary Moffett <moffetth@api.org>
Subject: RE: Smart Sectors

Kyle – I will be traveling down to Houston, TX next Thursday with the Administrator. Samantha Dravis and I are interested in heading down a day early if it might be possible to meet with some folks at Chevron in Houston. Is this something you could help me facilitate? I know this is a bit last minute but I'd appreciate any insight!

Thanks!
Daisy

From: Kyle Isakower [mailto:Isakowerk@api.org]
Sent: Thursday, October 12, 2017 1:41 PM
To: Letendre, Daisy <letendre.daisy@epa.gov>; Sharpe, Kristinn <Sharpe.Kristinn@epa.gov>
Cc: Hilary Moffett <moffetth@api.org>
Subject: RE: Smart Sectors

Daisy: Happy to help put you in touch with the appropriate folks. As you know, we're a big, diverse industry. Anything in particular you would like to see, or would you prefer us to make some recommendations?
Kyle

From: Letendre, Daisy [mailto:letendre.daisy@epa.gov]
Sent: Tuesday, October 10, 2017 10:46 AM
To: Kyle Isakower; Sharpe, Kristinn
Cc: Hilary Moffett
Subject: RE: Smart Sectors

Kyle, thank you so much – we're really looking forward to this initiative and are thankful for API's partnership. We had a great meeting a couple of weeks ago with Khary, Hilary and Stephanie Meadows.

We are very interested in visiting oil and natural gas facilities – it would be great to get in touch with some of your folks who can help with arrange this. Let me know who I should reach out to!

Really appreciate your help!

Thanks again,
Daisy

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Cc: Hilary Moffett <moffetth@api.org>
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There were numerous mentions at the launch last week of site visits to help familiarize the sector leads with the industry. Let me know if you are interested in visiting oil and natural gas facilities and I'll be happy to connect you with members who could arrange a visit.

Again, I look forward to working with you. Best,
Kyle

Kyle Isakower
Vice President, Regulatory and Economic Policy
American Petroleum Institute
1220 L Street, NW
Washington, DC 20005
202-682-8314
isakowerk@api.org

energy API

AMERICAN PETROLEUM INSTITUTE

Message

From: Letendre, Daisy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B691CCCCA6264AE09DF7054C7F1019CB-LETENDRE, D]
Sent: 10/16/2017 6:31:31 PM
To: Hilary Moffett [moffetth@api.org]
Subject: Re: Smart Sectors

Perfect. I pinged her earlier today and haven't heard back but will let you know if she decides to come.

Sent from my iPhone

On Oct 16, 2017, at 1:35 PM, Hilary Moffett <moffetth@api.org> wrote:

> I went ahead and confirmed you two. Just let me know if Sam decided to join in. I will send addresses and points of contact along this afternoon!
>
> ---
>
> **From:** Letendre, Daisy [mailto:letendre.daisy@epa.gov]
> **Sent:** Monday, October 16, 2017 10:53 AM
> **To:** Hilary Moffett; Sharpe, Kristinn
> **Subject:** RE: Smart Sectors
>
> Just me and Kristinn.
>
> Here's my bio: https://www.epa.gov/smartsectors/about-sectors-staff-daisy-letendre
> Here's Kristinn's bio: https://www.epa.gov/smartsectors/about-sectors-staff-kristinn-l-sharpe
>
> ---
>
> **From:** Hilary Moffett [mailto:moffetth@api.org]
> **Sent:** Monday, October 16, 2017 10:44 AM
> **To:** Sharpe, Kristinn <Sharpe.Kristinn@epa.gov>; Letendre, Daisy <letendre.daisy@epa.gov>
> **Subject:** RE: Smart Sectors
>
> I'd like to give them a list of attendees, if possible Is it just the two of you or will anyone else be joining?
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> Thanks!
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To: 'Kyle Isakower' <Isakowerk@api.org>; Sharpe, Kristinn <Sharpe.Kristinn@epa.gov>
Cc: Hilary Moffett <moffetth@api.org>
Subject: RE: Smart Sectors

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Thanks!
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Sent: Thursday, October 12, 2017 1:41 PM
To: Letendre, Daisy <letendre.daisy@epa.gov>; Sharpe, Kristinn <Sharpe.Kristinn@epa.gov>

Cc: Hilary Moffett <moffetth@api.org>
Subject: RE: Smart Sectors

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Kyle Isakower
Vice President, Regulatory and Economic Policy
American Petroleum Institute
1220 L Street, NW
Washington, DC 20005
202-682-8314
isakowerk@api.org

<image001.png>

Message

From: Letendre, Daisy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B691CCCCA6264AE09DF7054C7F1019CB-LETENDRE, D]
Sent: 10/16/2017 2:52:55 PM
To: Hilary Moffett [moffetth@api.org]; Sharpe, Kristinn [Sharpe.Kristinn@epa.gov]
Subject: RE: Smart Sectors

Well actually, let me double check if Samantha wants to join.

From: Hilary Moffett [mailto:moffetth@api.org]
Sent: Monday, October 16, 2017 10:44 AM
To: Sharpe, Kristinn <Sharpe.Kristinn@epa.gov>; Letendre, Daisy <letendre.daisy@epa.gov>
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Washington, DC 20005
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energy API

AMERICAN PETROLEUM INSTITUTE

Message

From: Letendre, Daisy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B691CCCCA6264AE09DF7054C7F1019CB-LETENDRE, D]
Sent: 9/18/2017 5:22:11 PM
To: Susan Tackish [tackishs@api.org]
CC: Kyle Isakower [Isakowerk@api.org]
Subject: RE: Smart Sectors Launch w/ Administrator Pruitt (please RSVP)

Wonderful, thank you Susan. Kyle, we're looking forward to having you on the 3rd. I will be in touch in the next week or so with formal run of show and additional details on getting to EPA etc. Let me know if you have any questions!

Thanks again,
Daisy

From: Susan Tackish [mailto:tackishs@api.org]
Sent: Monday, September 18, 2017 1:15 PM
To: Letendre, Daisy <letendre.daisy@epa.gov>
Cc: Kyle Isakower <Isakowerk@api.org>
Subject: RE: Smart Sectors Launch w/ Administrator Pruitt (please RSVP)

Hi Daisy –

Unfortunately Mr. Gerard will be out of town for a speaking event on October 3rd but Kyle Isakower, our Vice President of Regulatory and Economic Policy, will attend on behalf of API. Thank you for your outreach and please let me know if you need any additional information.

Kind regards,
Susan

Susan A. Tackish
EA to the President & CEO

API | 1220 L Street, NW | Washington, DC 20005
202.682.8502 P | 202.682.8110 F | tackishs@api.org

From: Letendre, Daisy [mailto:letendre.daisy@epa.gov]
Sent: Friday, September 15, 2017 2:59 PM
To: Susan Tackish
Subject: Smart Sectors Launch w/ Administrator Pruitt (please RSVP)

Dear Susan:

On behalf of U.S. Environmental Protection Agency Administrator Scott Pruitt, I would like to invite Mr. Gerard to attend the launch of EPA's Smart Sectors Program. The event will be held at 3:00 PM on October 3, 2017 at EPA Headquarters in the William Jefferson Clinton North Building in the Green Room.

It was a pleasure to meet with API earlier this week and we are excited to have you on board as a partner. Through our collaborative partnership, Smart Sectors will demonstrate measurable results for the environment and the economy by building relationships and improving customer service to your sector; developing additional expertise in your industry's

operations and environmental performance; and informing the planning of future policies, regulations, and agency processes.

We hope you will join Administrator Pruitt for the Smart Sectors launch and ask that you RSVP to me (letendre.daisy@epa.gov) by September 22, 2017. If you are unable to attend please feel free to share this invitation with another member of your association's leadership.

In addition to the launch event with Administrator Pruitt, we will be publishing a federal register notice announcing the oil and gas industry, as one of our initial partners.

I am very much looking forward to seeing you in October and to our continued partnership. As always, please don't hesitate to reach out with any questions or concerns.

All best,

Daisy C. Letendre
Senior Advisor for Policy and Strategic Communications
Office of the Administrator
Office of Policy
(202) 564-0410

Message

From: Letendre, Daisy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B691CCCCA6264AE09DF7054C7F1019CB-LETENDRE, D]
Sent: 9/15/2017 4:23:36 PM
To: Hilary Moffett [moffetth@api.org]
Subject: Re: Thank you + Smart Sectors Launch Invite (please RSVP)

Thanks! You're the best. I will forward the invite along. Thanks for having us! Looking forward to getting to work together. Let's run soon!!!

Sent from my iPad

On Sep 15, 2017, at 10:56 AM, Hilary Moffett <moffetth@api.org> wrote:

> Thanks Daisy! Do you have Susan Tackish's info handy? Her email is tackishs@api.org.
>
> Would be easiest to send Jack's official invite through that email. Please let me know if you need anything else, and thanks again for coming by.
>
> Regards,
> Hilary
>
> ---
>
> **From:** Letendre, Daisy [mailto:letendre.daisy@epa.gov]
> **Sent:** Thursday, September 14, 2017 3:11 PM
> **To:** Hilary Moffett; Khary Cauthen; Stephanie Meadows
> **Subject:** Thank you + Smart Sectors Launch Invite (please RSVP)
>
> Dear Khary, Stephanie and Hillary:
>
> It was a pleasure to meet with you yesterday and we are excited to have you on board as a Smart Sectors partner.
>
> As we discussed yesterday, we hope that through our collaborative partnership, Smart Sectors will demonstrate measurable results for the environment and the economy by building relationships and improving customer service to your sector; developing additional expertise in your industry's operations and environmental performance; and informing the planning of future policies, regulations, and agency processes.
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Sent: 9/12/2017 10:18:02 PM
To: Hilary Moffett [moffetth@api.org]
Subject: RE: Wed meeting

Hey! We don't need a thing! Looking forward to seeing ya tomorrow

-----Original Message-----
From: Hilary Moffett [mailto:moffetth@api.org]
Sent: Monday, September 11, 2017 10:29 AM
To: Letendre, Daisy <letendre.daisy@epa.gov>
Subject: Wed meeting

Hey hey! Do you guys need anything ahead of Wednesday's meeting? I have it on the schedule that y'all are coming this way-- is that correct?

Looking forward to seeing you.

Appointment

From: Letendre, Daisy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B691CCCCA6264AE09DF7054C7F1019CB-LETENDRE, D]
Sent: 8/25/2017 2:11:43 PM
To: Khary Cauthen [cauthenk@api.org]; Hilary Moffett [moffetth@api.org]; Stephanie Meadows [Meadows@api.org]; Sachs, Robert [Sachs.Robert@epa.gov]; Sharpe, Kristinn [Sharpe.Kristinn@epa.gov]; Shaw, Nena [Shaw.Nena@epa.gov]; Corona, Elizabeth [Corona.Elizabeth@epa.gov]

Subject: API/ EPA's Sector Strategies
Location: 1220 L Street NW

Start: 9/13/2017 3:00:00 PM
End: 9/13/2017 4:00:00 PM
Show Time As: Tentative

EPA Attendees: Daisy Letendre, Bob Sachs, Nena Shaw, Elizabeth Corona, Kristinn Sharpe

Message

From: Letendre, Daisy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B691CCCCA6264AE09DF7054C7F1019CB-LETENDRE, D]
Sent: 8/25/2017 2:09:24 PM
To: Stephanie Meadows [Meadows@api.org]; Hilary Moffett [moffetth@api.org]
CC: Khary Cauthen [cauthenk@api.org]
Subject: RE: API/Sector Strategies

Awesome thanks. I'll send a calendar invite so I can loop in my team at EPA as well.

From: Stephanie Meadows [mailto:Meadows@api.org]
Sent: Friday, August 25, 2017 10:05 AM
To: Hilary Moffett <moffetth@api.org>; Letendre, Daisy <letendre.daisy@epa.gov>
Cc: Khary Cauthen <cauthenk@api.org>
Subject: RE: API/Sector Strategies

Works for me. I am putting it in ink!

SRM

From: Hilary Moffett
Sent: Friday, August 25, 2017 9:58 AM
To: Letendre, Daisy
Cc: Stephanie Meadows; Khary Cauthen
Subject: Re: API/Sector Strategies

That works for me. Thanks!

On Aug 25, 2017, at 9:50 AM, Letendre, Daisy <letendre.daisy@epa.gov> wrote:

> How about 11AM on 9/13? Could also do 3PM.
>
> Thanks,
> Daisy
>
> ---
>
> **From:** Stephanie Meadows [mailto:Meadows@api.org]
> **Sent:** Friday, August 25, 2017 9:48 AM
> **To:** Letendre, Daisy <letendre.daisy@epa.gov>; Khary Cauthen <cauthenk@api.org>; Hilary Moffett <moffetth@api.org>
> **Subject:** RE: API/Sector Strategies
>
> Daisy:
>
> Good morning. I just shared this information with Khary and Hilary. I am out of the office on September 8 and most of the week of September 25, 2017. I am fairly flexible the week of the 11th and 18th. Perhaps we shoot for the week of the 11th and see how it fits for everyone. Wednesday, September 13, 2017 may be a place to start, unless you need to meet earlier.
>
> SRM

From: Letendre, Daisy [mailto:letendre.daisy@epa.gov]
Sent: Friday, August 25, 2017 9:32 AM
To: Khary Cauthen; Stephanie Meadows; Hilary Moffett
Cc: Sachs, Robert; Shaw, Nena; Sharpe, Kristinn; Corona, Elizabeth
Subject: RE: API/Sector Strategies

Awesome! Hope you're enjoying vacation, Khary. Stephanie, great to meet you – when in early September works for you and the API team? We can be flexible but are fairly open the afternoon of September 6 and the morning of Friday September 8.

Looking forward to sitting down with you all to discuss the Sectors initiative.

All best,
Daisy

From: Khary Cauthen [mailto:cauthenk@api.org]
Sent: Thursday, August 24, 2017 5:32 PM
To: Letendre, Daisy <letendre.daisy@epa.gov>; Stephanie Meadows <Meadows@api.org>; Hilary Moffett <moffetth@api.org>
Cc: Sachs, Robert <Sachs.Robert@epa.gov>; Shaw, Nena <Shaw.Nena@epa.gov>; Sharpe, Kristinn <Sharpe.Kristinn@epa.gov>; Corona, Elizabeth <Corona.Elizabeth@epa.gov>
Subject: RE: API/Sector Strategies

Daisy: you're catching me on vacation now but would be happy to gather the API team with you in early September when I'm back. Basically Stephanie Meadows copied on this email was the API point person for the oil and gas sector strategy group and I want to make sure that she can participate in the conversation.

From: Letendre, Daisy [mailto:letendre.daisy@epa.gov]
Sent: Thursday, August 24, 2017 3:34 PM
To: Khary Cauthen
Cc: Sachs, Robert; Shaw, Nena; Sharpe, Kristinn; Corona, Elizabeth
Subject: API/Sector Strategies

Khary – I hope you're enjoying the end of the summer and hopefully have been able to take some time out of DC.

I wanted to touch base about Sector Strategies. I know you mentioned a couple weeks ago that API was enthusiastic about the program and we are too. We think the program will help EPA build better relationships and improve customer service to you and your members, ultimately leading to better informed rulemakings.

I would love to set up a meeting with you and your team at API to tell you about bit more about the sectors Initiative, answer any questions, and discuss our timeline. Is there a date and time that works for you in the next couple of weeks?

Looking forward to working with you.

All best,

DAISY C. LETENDRE
Senior Advisor for Policy and Strategic Communications
U.S. Environmental Protection Agency

Office of the Administrator
Office of Policy
(202) 564-0410
Ex. 6 Personal Privacy (PP)

Appointment

From: Letendre, Daisy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B691CCCCA6264AE09DF7054C7F1019CB-LETENDRE, D]
Sent: 2/16/2018 1:09:51 PM
To: Hilary Moffett [moffetth@api.org]

Subject: Accepted: EPW Ladies Lunch
Location: Ex. 6 Personal Privacy (PP)

Start: 2/16/2018 7:00:00 PM
End: 2/16/2018 8:30:00 PM

Recurrence: (none)

Message

From: Letendre, Daisy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B691CCCCA6264AE09DF7054C7F1019CB-LETENDRE, D]
Sent: 2/8/2018 10:11:55 PM
To: Stephanie Meadows [Meadows@api.org]
CC: Hilary Moffett [moffetth@api.org]; Khary Cauthen [cauthenk@api.org]
Subject: RE: Thank You for Joining Us Yesterday

My pleasure, Stephanie. Always a pleasure to join an API Committee and I'm glad the conversation was useful.

I will be in touch prior to the Iron and Steel report going live but agree we should get some time to discuss what the Oil and Gas report will look like.

See you soon,

Daisy C. Letendre
Letendre.Daisy@epa.gov

From: Stephanie Meadows [mailto:Meadows@api.org]
Sent: Thursday, February 8, 2018 2:56 PM
To: Letendre, Daisy <letendre.daisy@epa.gov>
Cc: Hilary Moffett <moffetth@api.org>; Khary Cauthen <cauthenk@api.org>
Subject: Thank You for Joining Us Yesterday

Daisy:

THANK YOU so much for taking time out of your busy day yesterday to join my committees for an update on the Smart Sectors Program. It was great information, that really spurred much conversation after you left. I apologize for the tight time on the agenda, but you really should have stayed for the Yale Study discussion! Wow!

You were wonderful to speak to yet another API committee on this topic, but I think these members, in particular, need to know the plans for the oil and gas sector so they can provide input from an upstream perspective when needed. PLEASE do not hesitate to reach out if you need anything or have questions. I am happy to work with Khary and Hilary to schedule a follow up time to chat, after you complete the iron and steel report. In the meantime, I am thinking about site visit options!

Thanks again. Enjoy your weekend.

Stephanie

Stephanie R. Meadows
Manager
Upstream and Industry Operations
1220 L Street, NW
Washington, DC 20005-4070
USA
www.api.org

Appointment

From: Letendre, Daisy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B691CCCCA6264AE09DF7054C7F1019CB-LETENDRE, D]
Sent: 2/6/2018 2:35:54 PM
To: Hilary Moffett [moffetth@api.org]

Subject: Accepted: Don't schedule here
Location: Tbd

Start: 2/16/2018 5:30:00 PM
End: 2/16/2018 7:00:00 PM
Show Time As: Busy

Appointment

From: Letendre, Daisy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B691CCCCA6264AE09DF7054C7F1019CB-LETENDRE, D]
Sent: 2/5/2019 6:12:41 PM
To: Shaw, Nena [Shaw.Nena@epa.gov]; Sharpe, Kristinn [Sharpe.Kristinn@epa.gov]; Sachs, Robert [Sachs.Robert@epa.gov]; Corona, Elizabeth [Corona.Elizabeth@epa.gov]; Stephanie Meadows [Meadows@api.org]
CC: Smythe Anderson [AndersonS@api.org]; Howard Feldman [Feldman@api.org]

Subject: API/EPA 2019 Check-in
Location: 1220 L Street NW

Start: 2/8/2019 3:00:00 PM
End: 2/8/2019 4:00:00 PM
Show Time As: Tentative

Message

From: Letendre, Daisy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B691CCCCA6264AE09DF7054C7F1019CB-LETENDRE, D]
Sent: 2/5/2019 6:12:21 PM
To: Stephanie Meadows [Meadows@api.org]
CC: Howard Feldman [Feldman@api.org]; Smythe Anderson [AndersonS@api.org]
Subject: RE: Change in Start Time on Friday, February 8, 2019 at API Offices

Awesome, thank you for your flexibility! See you Friday!

Daisy C. Letendre
Letendre.Daisy@epa.gov

From: Stephanie Meadows <Meadows@api.org>
Sent: Tuesday, February 5, 2019 12:33 PM
To: Letendre, Daisy <letendre.daisy@epa.gov>
Cc: Howard Feldman <Feldman@api.org>; Smythe Anderson <AndersonS@api.org>
Subject: Change in Start Time on Friday, February 8, 2019 at API Offices

Daisy:

I have checked in with Howard and Smythe and we are all good for 10:00 a.m. on Friday. We look forward to seeing your team and you then!

SRM

Stephanie R. Meadows
Manager
American Petroleum Institute
Upstream and Industry Operations
1220 L Street, NW
Washington, DC 20005-4070
USA
Phone: 202-682-8578
www.api.org

Message

From: Letendre, Daisy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B691CCCCA6264AE09DF7054C7F1019CB-LETENDRE, D]
Sent: 2/5/2019 2:10:51 PM
To: Stephanie Meadows [Meadows@api.org]
Subject: RE: New Year Check-In

Hi Stephanie – looking forward to meeting Friday. Was curious if we could move the meeting up to 10AM? Let me know if that works for you, and if not, no worries!!

Daisy C. Letendre
Letendre.Daisy@epa.gov

From: Stephanie Meadows <Meadows@api.org>
Sent: Wednesday, January 30, 2019 1:17 PM
To: Letendre, Daisy <letendre.daisy@epa.gov>
Subject: RE: New Year Check-In

Daisy:

I spoke with Howard Feldman and Smythe Anderson and we have landed on Friday morning February 8, 2019. Would that work for your team and you (9:30 a.m., 10:00 a.m. 10:30 a.m. or 11:00 a.m. are all good times)? We can move into the early part of the week of February 11 as another option.

Thank you.

SRM

Stephanie R. Meadows
Manager
American Petroleum Institute
Upstream and Industry Operations
1220 L Street, NW
Washington, DC 20005-4070
USA
Phone: 202-682-8578
www.api.org

From: Letendre, Daisy <letendre.daisy@epa.gov>
Sent: Tuesday, January 29, 2019 2:14 PM
To: Stephanie Meadows <Meadows@api.org>
Subject: RE: New Year Check-In

Of course, let me know what works best on your end. Happy to come to you for one last hurrah at the old office!

Daisy C. Letendre
Letendre.Daisy@epa.gov

From: Stephanie Meadows <Meadows@api.org>
Sent: Tuesday, January 29, 2019 2:12 PM

To: Letendre, Daisy <letendre.daisy@epa.gov>
Subject: RE: New Year Check-In

Let me talk with my colleagues and see what might work. Wednesday may be an option. Do you want to come here (last meeting at API before our move to 200 Massachusetts Avenue on February 15) or should we come to you?

More shortly.

SRM

Stephanie R. Meadows
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Washington, DC 20005-4070
USA
Phone: 202-682-8578
www.api.org

From: Letendre, Daisy <letendre.daisy@epa.gov>
Sent: Tuesday, January 29, 2019 2:09 PM
To: Stephanie Meadows <Meadows@api.org>
Subject: RE: New Year Check-In

Amazing! Thank you so much for the quick response! I don't think next week is too soon if you don't ☺. Thursday or Friday 2/7 and 2/8 would be best for me but let me know what works for your team and I can adapt. I agree it would be great to include Howard as well.

Best,

Daisy C. Letendre
Letendre.Daisy@epa.gov

From: Stephanie Meadows <Meadows@api.org>
Sent: Tuesday, January 29, 2019 1:50 PM
To: Letendre, Daisy <letendre.daisy@epa.gov>
Subject: RE: New Year Check-In

Daisy:

Happy New Year (and almost Happy Ground Hog Day)! So glad to hear you are back in action. I am the best contact for you right now and I would LOVE to have an update session. I am working from home today, trying to avoid a commuting nightmare with the weather report (which may not even happen). I will reach out to both Hilary's replacement (Smythe Anderson) and Khary's replacement (Bill Koetzle) and see what might work for them. I believe I should also include Howard Feldman, who has been sharing input from the downstream side. Is next week too soon for a meeting?

Thank you for getting in touch.

Stephanie

Stephanie R. Meadows

Manager
American Petroleum Institute
Upstream and Industry Operations
1220 L Street, NW
Washington, DC 20005-4070
USA
Phone: 202-682-8578
www.api.org

From: Letendre, Daisy <letendre.daisy@epa.gov>
Sent: Tuesday, January 29, 2019 1:36 PM
To: Stephanie Meadows <Meadows@api.org>
Cc: Sharpe, Kristinn <Sharpe.Kristinn@epa.gov>
Subject: New Year Check-In

Hi Stephanie – Happy New Year (29 days late!) It's been an interesting start to the year to say the least, but luckily the Agency is now back at work and eager to get back into the groove.

I wanted to reach out as I know API has had some new hires in the government affairs shop and I was hoping you could let me know who might be the best point of contact for the Smart Sectors program is (maybe it's you?!) now that Hilary and Khary are gone.

As you may remember we had planned on releasing a Sector Snapshot for the Oil and Gas industry at the end of the month – obviously we're now behind – and I was thinking it may be a good idea to meet to walk through snapshot and possible roll out ideas as well as to catch up on what's going on at API and at EPA.

Separately, I know there was a lot left up in the air as OMB and OFR were both shutdown as well. So if you or your team have any questions about the status of anything, I'm happy to help.

I hope all is well with you and that your 2019 is off to a great start! I'll look forward to hearing back from you regarding POC at API and a possible meeting in the next couple of weeks to catch up!!

Best,
Daisy

Daisy C. Letendre
Senior Advisor for Policy and Strategic Communications
U.S. Environmental Protection Agency
Office of the Administrator
Office of Policy
202.564.0410 (O)
Ex. 6 Personal Privacy (PP) (C)

Appointment

From: Letendre, Daisy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B691CCCCA6264AE09DF7054C7F1019CB-LETENDRE, D]
Sent: 1/30/2019 6:52:21 PM
To: Shaw, Nena [Shaw.Nena@epa.gov]; Sharpe, Kristinn [Sharpe.Kristinn@epa.gov]; Sachs, Robert [Sachs.Robert@epa.gov]; Corona, Elizabeth [Corona.Elizabeth@epa.gov]; Stephanie Meadows [Meadows@api.org]

Subject: API/EPA 2019 Check-in
Location: 1220 L Street NW

Start: 2/8/2019 4:00:00 PM
End: 2/8/2019 5:00:00 PM
Show Time As: Tentative

Message

From: Letendre, Daisy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B691CCCCA6264AE09DF7054C7F1019CB-LETENDRE, D]
Sent: 1/30/2019 6:51:15 PM
To: Stephanie Meadows [Meadows@api.org]
Subject: RE: New Year Check-In

Awesome. Friday the 8th at 11am is perfect. I'll send a calendar invite your way momentarily!

Daisy C. Letendre
Letendre.Daisy@epa.gov

From: Stephanie Meadows <Meadows@api.org>
Sent: Wednesday, January 30, 2019 1:17 PM
To: Letendre, Daisy <letendre.daisy@epa.gov>
Subject: RE: New Year Check-In

Daisy:

I spoke with Howard Feldman and Smythe Anderson and we have landed on Friday morning February 8, 2019. Would that work for your team and you (9:30 a.m., 10:00 a.m. 10:30 a.m. or 11:00 a.m. are all good times)? We can move into the early part of the week of February 11 as another option.

Thank you.

SRM

Stephanie R. Meadows
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1220 L Street, NW
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Phone: 202-682-8578
www.api.org

From: Letendre, Daisy <letendre.daisy@epa.gov>
Sent: Tuesday, January 29, 2019 2:14 PM
To: Stephanie Meadows <Meadows@api.org>
Subject: RE: New Year Check-In

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Letendre.Daisy@epa.gov

From: Stephanie Meadows <Meadows@api.org>
Sent: Tuesday, January 29, 2019 2:12 PM
To: Letendre, Daisy <letendre.daisy@epa.gov>
Subject: RE: New Year Check-In

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More shortly.

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www.api.org

From: Letendre, Daisy <letendre.daisy@epa.gov>
Sent: Tuesday, January 29, 2019 2:09 PM
To: Stephanie Meadows <Meadows@api.org>
Subject: RE: New Year Check-In

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Best,

Daisy C. Letendre
Letendre.Daisy@epa.gov

From: Stephanie Meadows <Meadows@api.org>
Sent: Tuesday, January 29, 2019 1:50 PM
To: Letendre, Daisy <letendre.daisy@epa.gov>
Subject: RE: New Year Check-In

Daisy:

Happy New Year (and almost Happy Ground Hog Day)! So glad to hear you are back in action. I am the best contact for you right now and I would LOVE to have an update session. I am working from home today, trying to avoid a commuting nightmare with the weather report (which may not even happen). I will reach out to both Hilary's replacement (Smythe Anderson) and Khary's replacement (Bill Koetzle) and see what might work for them. I believe I should also include Howard Feldman, who has been sharing input from the downstream side. Is next week too soon for a meeting?

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Stephanie

Stephanie R. Meadows
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American Petroleum Institute

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From: Letendre, Daisy <letendre.daisy@epa.gov>
Sent: Tuesday, January 29, 2019 1:36 PM
To: Stephanie Meadows <Meadows@api.org>
Cc: Sharpe, Kristinn <Sharpe.Kristinn@epa.gov>
Subject: New Year Check-In

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As you may remember we had planned on releasing a Sector Snapshot for the Oil and Gas industry at the end of the month – obviously we're now behind – and I was thinking it may be a good idea to meet to walk through snapshot and possible roll out ideas as well as to catch up on what's going on at API and at EPA.

Separately, I know there was a lot left up in the air as OMB and OFR were both shutdown as well. So if you or your team have any questions about the status of anything, I'm happy to help.

I hope all is well with you and that your 2019 is off to a great start! I'll look forward to hearing back from you regarding POC at API and a possible meeting in the next couple of weeks to catch up!!

Best,
Daisy

Daisy C. Letendre
Senior Advisor for Policy and Strategic Communications
U.S. Environmental Protection Agency
Office of the Administrator
Office of Policy
202.564.0410 (O)
Ex. 6 Personal Privacy (PP) (C)

Message

From: Letendre, Daisy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B691CCCCA6264AE09DF7054C7F1019CB-LETENDRE, D]
Sent: 12/13/2017 4:25:05 PM
To: Shaw, Nena [Shaw.Nena@epa.gov]; Morehouse, Bob [RMorehouse@hunton.com]
CC: Broome, Shannon S. [SBroome@hunton.com]; Knauss, Chuck [CKnauss@hunton.com]
Subject: RE: Thanks!

Agreed. We found the meeting to be quite productive and are glad you're members felt similarly. As always let us know if we can be useful moving forward!

Best,

Daisy C. Letendre
Letendre.Daisy@epa.gov

From: Shaw, Nena
Sent: Wednesday, December 13, 2017 11:23 AM
To: Morehouse, Bob <RMorehouse@hunton.com>; Letendre, Daisy <letendre.daisy@epa.gov>
Cc: Broome, Shannon S. <SBroome@hunton.com>; Knauss, Chuck <CKnauss@hunton.com>
Subject: RE: Thanks!

Thanks Bob. It was a pleasure to speak to the group.

Best, Nena

From: Morehouse, Bob [mailto:RMorehouse@hunton.com]
Sent: Wednesday, December 13, 2017 11:12 AM
To: Letendre, Daisy <letendre.daisy@epa.gov>; Shaw, Nena <Shaw.Nena@epa.gov>
Cc: Broome, Shannon S. <SBroome@hunton.com>; Knauss, Chuck <CKnauss@hunton.com>; Morehouse, Bob <RMorehouse@hunton.com>
Subject: Thanks!

Daisy and Nena:

Thank you for taking the time to update Air Permitting Forum members on the Smart Sector program and Transformation Strategy during our Fall meeting. Our members appreciated your comments and look forward to the continued implementation of these initiatives.

Bob

Appointment

From: Letendre, Daisy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B691CCCCA6264AE09DF7054C7F1019CB-LETENDRE, D]
Sent: 11/30/2017 8:53:39 PM
To: Hilary Moffett [moffetth@api.org]

Subject: Lunch!
Location: TBD

Start: 12/1/2017 4:30:00 PM
End: 12/1/2017 5:30:00 PM
Show Time As: Tentative

Appointment

From: Letendre, Daisy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B691CCCCA6264AE09DF7054C7F1019CB-LETENDRE, D]
Sent: 11/30/2017 6:51:11 PM
To: Broome, Shannon S. [SBroome@hunton.com]

Subject: Accepted: Meet with Chemical Safety Advocacy Group
Location: 2200 Pennsylvania Ave., N.W., Suite 900

Start: 12/1/2017 3:00:00 PM
End: 12/1/2017 4:00:00 PM
Show Time As: Busy

Message

From: Letendre, Daisy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B691CCCCA6264AE09DF7054C7F1019CB-LETENDRE, D]
Sent: 11/13/2017 10:18:49 PM
To: Ronald Chittim [Chittim@api.org]
CC: Kyle Isakower [Isakowerk@api.org]; Khary Cauthen [cauthenk@api.org]; Hilary Moffett [moffetth@api.org]
Subject: Re: Need info for Dallas refining meeting

Awesome thank you

Sent from my iPhone

On Nov 13, 2017, at 5:18 PM, Ronald Chittim <Chittim@api.org> wrote:

> Daisy - we will be at the Hyatt in downtown Dallas tomorrow. The meeting is at 1 pm in the Pryor-Crockett Room on the Atrium level. You and another guest speaker are the 1st two on the agenda. My cell is Ex. 6 Personal Privacy (PP) if you have questions. Thanks and look forward to seeing you tomorrow afternoon.
>
> Ron
>
> Sent from my iPhone
>
> On Nov 13, 2017, at 2:10 PM, Letendre, Daisy <letendre.daisy@epa.gov> wrote:
>
>> Hi Kyle, Khary and Hilary - I'm currently en route down to Dallas for the Refining Subcommittee Meeting and realized that I do not have logistical info on where exactly the meeting is. Kind of important :)
>>
>> Would any of you be able to get me this information ASAP please? Thanks!
>>
>> Sent from my iPhone

Message

From: Letendre, Daisy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B691CCCCA6264AE09DF7054C7F1019CB-LETENDRE, D]
Sent: 11/13/2017 8:12:37 PM
To: Ronald Chittim [Chittim@api.org]
Subject: Re: American Petroleum Institute (API) & EPA Smart Sectors Program

Hey Ron - I'm getting in to Dallas tonight. Could you send me the logistics for tomorrow? Thanks!

Sent from my iPhone

On Nov 6, 2017, at 9:39 AM, Ronald Chittim <Chittim@api.org> wrote:

> Thanks
>
> Sent from my iPhone
>
> On Nov 6, 2017, at 8:37 AM, Letendre, Daisy <letendre.daisy@epa.gov> wrote:
>
>> Happy Monday, Ron – here's a link to my bio.
>> https://www.epa.gov/smartsectors/about-sectors-staff-daisy-letendre
>>
>> **From:** Ronald Chittim [mailto:Chittim@api.org]
>> **Sent:** Saturday, November 4, 2017 9:21 AM
>> **To:** Letendre, Daisy <letendre.daisy@epa.gov>
>> **Cc:** Ronald Chittim <Chittim@api.org>
>> **Subject:** RE: American Petroleum Institute (API) & EPA Smart Sectors Program
>>
>> Daisy – do you have a short bio we can use to introduce you to the API members?
>>
>> Thanks -- Ron
>>
>> **From:** Letendre, Daisy [mailto:letendre.daisy@epa.gov]
>> **Sent:** Wednesday, November 01, 2017 5:06 PM
>> **To:** Ronald Chittim
>> **Subject:** RE: American Petroleum Institute (API) & EPA Smart Sectors Program
>>
>> I will plan to attend in person and the timing will work for me! I will need to be on a flight to Huntington, WV that afternoon but it sounds like I will be all set. I will let you know if anything changes as I book travel. Thanks!!
>>
>> **From:** Ronald Chittim [mailto:Chittim@api.org]
>> **Sent:** Thursday, October 26, 2017 11:11 AM
>> **To:** Letendre, Daisy <letendre.daisy@epa.gov>
>> **Cc:** Ronald Chittim <Chittim@api.org>
>> **Subject:** RE: American Petroleum Institute (API) & EPA Smart Sectors Program
>>
>> Daisy – thank you for your prompt reply. We are still working on finalizing the agenda but my plan is to have you on the agenda fairly early in the meeting. The entire meeting is from 1:00 pm – 5:30 pm Central time so you would probably be on somewhere in the 1:15 – 2:15 pm time frame. Will that work for you? Also, to

clarify, are you planning to attend in person or participate by phone? As mentioned below, attending in person is definitely preferred – just let me know.

Let me know if you have any further questions at this point.

Thanks -- Ron

From: Letendre, Daisy [mailto:letendre.daisy@epa.gov]
Sent: Monday, October 23, 2017 9:51 AM
To: Ronald Chittim
Subject: RE: American Petroleum Institute (API) & EPA Smart Sectors Program

Ron – thank you so much for the invitation to participate in the API Refining Subcommittee meeting. I would be happy to attend and to discuss the Smart Sectors program. Do you know what the timing of that day would look like? Once I know the timing I can give you a firm yes.

Thanks!

From: Ronald Chittim [mailto:Chittim@api.org]
Sent: Friday, October 20, 2017 11:49 AM
To: Letendre, Daisy <letendre.daisy@epa.gov>
Subject: American Petroleum Institute (API) & EPA Smart Sectors Program
Importance: High

Daisy – as a follow-up to the recent launch of the EPA Smart Sectors Program and your subsequent communications with Kyle Isakower, API VP of Regulatory & Economic Affairs, I'd like to invite you to participate in an upcoming meeting of the API Refining Subcommittee to educate them more on the Smart Sectors program for the oil and gas industry. The Refining Subcommittee is comprised of the senior leaders of the refining businesses within the API member companies.

One of the priorities of the API Refining Subcommittee is enhanced collaboration with government agencies such as EPA and, in line with that priority, we would like to learn more about the Smart Sectors program and potential collaboration with API.

The meeting of the Refining Subcommittee will be the afternoon of November 14th in Dallas, TX. It would be preferable to have you attend in person but if that is not feasible, participation by phone is acceptable also. Please consider this invitation and let me now at your earliest convenience if you will be able to participate. Thank you.

Ron Chittim
Manager – Downstream/Refining

API | 1220 L Street, NW | Washington, DC 20005
202.682.8176 P | Chittim@api.org

Message

From: Letendre, Daisy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B691CCCCA6264AE09DF7054C7F1019CB-LETENDRE, D]
Sent: 11/9/2017 7:12:41 PM
To: Morehouse, Bob [RMorehouse@hunton.com]
CC: Shaw, Nena [Shaw.Nena@epa.gov]
Subject: RE: Meeting with Air Permitting Forum-- Bios

Great. Thank you so much.

Daisy C. Letendre
Letendre.Daisy@epa.gov

-----Original Message-----
From: Morehouse, Bob [mailto:RMorehouse@hunton.com]
Sent: Thursday, November 9, 2017 2:06 PM
To: Letendre, Daisy <letendre.daisy@epa.gov>
Cc: Shaw, Nena <Shaw.Nena@epa.gov>
Subject: Re: Meeting with Air Permitting Forum-- Bios

The 30th in the morning works. I'll suggest a time when I get back to the office.
Bob

Sent from my iPhone

On Nov 9, 2017, at 10:43 AM, Letendre, Daisy <letendre.daisy@epa.gov<mailto:letendre.daisy@epa.gov>>
wrote:

Hi Bob – Nena and I just ran into a bit of a scheduling conflict and will be in NYC the day of Nov. 29. Would it be possible for us to join you on the 30th instead of the 29th?

Apologies for the inconvenience. Let me know what works best for you all.

Daisy C. Letendre
Letendre.Daisy@epa.gov<mailto:Letendre.Daisy@epa.gov>

From: Morehouse, Bob [mailto:RMorehouse@hunton.com]
Sent: Monday, November 6, 2017 10:28 AM
To: Letendre, Daisy <letendre.daisy@epa.gov<mailto:letendre.daisy@epa.gov>>
Subject: RE: Meeting with Air Permitting Forum-- Bios

Thanks!

Bob

From: Letendre, Daisy [mailto:letendre.daisy@epa.gov]
Sent: Monday, November 06, 2017 8:45 AM
To: Morehouse, Bob; Shaw, Nena
Subject: RE: Meeting with Air Permitting Forum-- Bios

Hi Bob – here are links to our bios

https://www.epa.gov/smartsectors/about-sectors-staff-daisy-letendre<https://urldefense.proofpoint.com/v2/url?u=https-3A__www.epa.gov_smartsectors_about-2Dsectors-2Dstaff-2Ddaisy-2Dletendre&d=DwMFAg&c=jxhwBfk-KSV6FFIot0PGng&r=HoAh1GJ97_mG-IaRG0RaCmYkSClhaV5V72rP9W5H_1A&m=5YzcoTA5wFDE9vxhw6d0QbDqdDg3RV6X8saNMp6jDto&s=HC7vr1luPFitgs0tFOYjCsT4u87h-aQqiuK_mMLrq6Q&e=>

https://www.epa.gov/smartsectors/about-sectors-staff-nena-shaw<https://urldefense.proofpoint.com/v2/url?u=https-3A__www.epa.gov_smartsectors_about-2Dsectors-2Dstaff-2Dnena-2Dshaw&d=DwMFAg&c=jxhwBfk-KSV6FFIot0PGng&r=HoAh1GJ97_mG-IaRG0RaCmYkSClhaV5V72rP9W5H_1A&m=5YzcoTA5wFDE9vxhw6d0QbDqdDg3RV6X8saNMp6jDto&s=zdGlojtCHP8NBUBonIsgsRHsJA9TygU62Ig9hvy4ptU&e=>

From: Morehouse, Bob [mailto:RMorehouse@hunton.com]
Sent: Saturday, November 4, 2017 8:37 AM
To: Shaw, Nena <Shaw.Nena@epa.gov<mailto:Shaw.Nena@epa.gov>>; Letendre, Daisy <letendre.daisy@epa.gov<mailto:letendre.daisy@epa.gov>>
Cc: Morehouse, Bob <RMorehouse@hunton.com<mailto:RMorehouse@hunton.com>>
Subject: Meeting with Air Permitting Forum-- Bios

Daisy and Nena: Do you have short "bios" on your background that you can send me and I can share with our members? If not, we can just make this part of the introductions.

Thanks,
Bob

From: Shaw, Nena [mailto:Shaw.Nena@epa.gov]
Sent: Monday, October 23, 2017 3:50 PM
To: Letendre, Daisy; Morehouse, Bob
Subject: RE: Meeting with Air Permitting Forum

Thanks Bob! Looking forward to it. Nena

From: Letendre, Daisy
Sent: Monday, October 23, 2017 4:23 PM
To: Morehouse, Bob <RMorehouse@hunton.com<mailto:RMorehouse@hunton.com>>
Cc: Shaw, Nena <Shaw.Nena@epa.gov<mailto:Shaw.Nena@epa.gov>>
Subject: RE: Meeting with Air Permitting Forum

Excellent, thank you.

From: Morehouse, Bob [mailto:RMorehouse@hunton.com]
Sent: Monday, October 23, 2017 3:23 PM
To: Letendre, Daisy <letendre.daisy@epa.gov<mailto:letendre.daisy@epa.gov>>
Cc: Morehouse, Bob <RMorehouse@hunton.com<mailto:RMorehouse@hunton.com>>
Subject: Meeting with Air Permitting Forum

Daisy:

The Air Permitting Forum members are looking forward to meeting with you and Nena Shaw on November 29 (2:00 p.m.). Our location in Washington is:

Hunton & Williams LLP
2200 Pennsylvania Avenue, NW
Washington, DC 20037
202-955-1500

RECEPTION
Reception is located on the 9th floor. A security card is not required to reach the 9th floor, during business hours. Reception is open from 8:00 am to 7:00 pm, Monday - Friday.
Please access Reception and all Hunton & Williams' floors through the East Elevator Bank to the left of the Security desk in the lobby.

We will be in the Penn Quarter conference room. I will have a computer set up to run any presentation material you may want to use.

If you have any questions, please call me at the phone number below (I work out of my home in Houston).

Thanks,
Bob

Message

From: Letendre, Daisy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B691CCCCA6264AE09DF7054C7F1019CB-LETENDRE, D]
Sent: 5/16/2018 8:04:33 PM
To: Knauss, Chuck [CKnauss@hunton.com]
Subject: RE: Time sensitive re tomorrow

Got it! Thanks chuck!

Daisy C. Letendre
Letendre.Daisy@epa.gov

From: Knauss, Chuck [mailto:CKnauss@hunton.com]
Sent: Wednesday, May 16, 2018 1:28 PM
To: Letendre, Daisy <letendre.daisy@epa.gov>
Subject: Time sensitive re tomorrow

Daisy – Another small business representative planning on flying in tonight. Can you please call her with logistics? Please let me know that you received this email.

++++++++++

Christina R. Blanchard
EHS&S Manager
Rubicon, LLC.
9156 Hwy 75
Geismar, LA 70734

Direct: 225.242.5353
Mobile: Ex. 6 Personal Privacy (PP)

christy_r_blanchard@huntsman.com

Message

From: Letendre, Daisy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B691CCCCA6264AE09DF7054C7F1019CB-LETENDRE, D]
Sent: 11/9/2017 4:43:45 PM
To: Morehouse, Bob [RMorehouse@hunton.com]
CC: Shaw, Nena [Shaw.Nena@epa.gov]
Subject: RE: Meeting with Air Permitting Forum-- Bios

Hi Bob – Nena and I just ran into a bit of a scheduling conflict and will be in NYC the day of Nov. 29. Would it be possible for us to join you on the 30th instead of the 29th?

Apologies for the inconvenience. Let me know what works best for you all.

Daisy C. Letendre
Letendre.Daisy@epa.gov

From: Morehouse, Bob [mailto:RMorehouse@hunton.com]
Sent: Monday, November 6, 2017 10:28 AM
To: Letendre, Daisy <letendre.daisy@epa.gov>
Subject: RE: Meeting with Air Permitting Forum-- Bios

Thanks!

Bob

From: Letendre, Daisy [mailto:letendre.daisy@epa.gov]
Sent: Monday, November 06, 2017 8:45 AM
To: Morehouse, Bob; Shaw, Nena
Subject: RE: Meeting with Air Permitting Forum-- Bios

Hi Bob – here are links to our bios

https://www.epa.gov/smartsectors/about-sectors-staff-daisy-letendre

https://www.epa.gov/smartsectors/about-sectors-staff-nena-shaw

---

From: Morehouse, Bob [mailto:RMorehouse@hunton.com]
Sent: Saturday, November 4, 2017 8:37 AM
To: Shaw, Nena <Shaw.Nena@epa.gov>; Letendre, Daisy <letendre.daisy@epa.gov>
Cc: Morehouse, Bob <RMorehouse@hunton.com>
Subject: Meeting with Air Permitting Forum-- Bios

Daisy and Nena: Do you have short "bios" on your background that you can send me and I can share with our members? If not, we can just make this part of the introductions.

Thanks,
Bob

From: Shaw, Nena [mailto:Shaw.Nena@epa.gov]
Sent: Monday, October 23, 2017 3:50 PM

To: Letendre, Daisy; Morehouse, Bob
Subject: RE: Meeting with Air Permitting Forum

Thanks Bob! Looking forward to it. Nena

From: Letendre, Daisy
Sent: Monday, October 23, 2017 4:23 PM
To: Morehouse, Bob <RMorehouse@hunton.com>
Cc: Shaw, Nena <Shaw.Nena@epa.gov>
Subject: RE: Meeting with Air Permitting Forum

Excellent, thank you.

From: Morehouse, Bob [mailto:RMorehouse@hunton.com]
Sent: Monday, October 23, 2017 3:23 PM
To: Letendre, Daisy <letendre.daisy@epa.gov>
Cc: Morehouse, Bob <RMorehouse@hunton.com>
Subject: Meeting with Air Permitting Forum

Daisy:

The Air Permitting Forum members are looking forward to meeting with you and Nena Shaw on November 29 (2:00 p.m.). Our location in Washington is:

Hunton & Williams LLP
2200 Pennsylvania Avenue, NW
Washington, DC 20037
202-955-1500

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Please access Reception and all Hunton & Williams' floors through the East Elevator Bank to the left of the Security desk in the lobby.

We will be in the Penn Quarter conference room. I will have a computer set up to run any presentation material you may want to use.

If you have any questions, please call me at the phone number below (I work out of my home in Houston).

Thanks,
Bob

Message

From: Letendre, Daisy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B691CCCCA6264AE09DF7054C7F1019CB-LETENDRE, D]
Sent: 10/23/2017 2:04:55 PM
To: Hilary Moffett [moffetth@api.org]
CC: Sharpe, Kristinn [Sharpe.Kristinn@epa.gov]
Subject: RE: Invitation to API HEC Meeting

Excellent! Thanks!

From: Hilary Moffett [mailto:moffetth@api.org]
Sent: Monday, October 23, 2017 10:03 AM
To: Letendre, Daisy <letendre.daisy@epa.gov>
Cc: Sharpe, Kristinn <Sharpe.Kristinn@epa.gov>
Subject: Re: Invitation to API HEC Meeting

I'll send you guys the agenda and any relevant materials this week.

Thanks again.

On Oct 23, 2017, at 10:01 AM, Letendre, Daisy <letendre.daisy@epa.gov> wrote:

> Perfect!
>
> ---
>
> **From:** Hilary Moffett [mailto:moffetth@api.org]
> **Sent:** Monday, October 23, 2017 9:54 AM
> **To:** Letendre, Daisy <letendre.daisy@epa.gov>
> **Cc:** Sharpe, Kristinn <Sharpe.Kristinn@epa.gov>
> **Subject:** Re: Invitation to API HEC Meeting
>
> Hey there! Thanks for reaching out. Does 11 am work?
>
> On Oct 23, 2017, at 9:53 AM, Letendre, Daisy <letendre.daisy@epa.gov> wrote:
>
>> Morning Hilary! Just checking in to confirm the timing for the Nov. 2 meeting. I know we discussed following Brittany and that's great for me just want to make sure I get it on my calendar!
>>
>> Best,
>> Daisy
>>
>> ---
>>
>> **From:** Hilary Moffett [mailto:moffetth@api.org]
>> **Sent:** Friday, October 13, 2017 10:38 AM
>> **To:** Letendre, Daisy <letendre.daisy@epa.gov>
>> **Cc:** Sharpe, Kristinn <Sharpe.Kristinn@epa.gov>
>> **Subject:** RE: Invitation to API HEC Meeting
>>
>> Great—thanks. The group will be thrilled to have either or both of you! Brittany is coming in around 1030, so anything between about 11 and 130 is wide open!
>>
>> Have a great weekend,

Hilary

From: Letendre, Daisy [mailto:letendre.daisy@epa.gov]
Sent: Friday, October 13, 2017 10:34 AM
To: Hilary Moffett
Cc: Sharpe, Kristinn
Subject: RE: Invitation to API HEC Meeting

Hi Hil! Sorry for the delay in getting back to you. We're working through schedules now but either myself or Kristinn will be in attendance! I'll circle back with you on timing etc later this afternoon.

From: Hilary Moffett [mailto:moffetth@api.org]
Sent: Wednesday, October 4, 2017 1:22 PM
To: Letendre, Daisy <letendre.daisy@epa.gov>
Subject: Invitation to API HEC Meeting

Daisy,

What a great job yesterday—congratulations on the event! As I mentioned, our folks are really excited about the opportunity. As such, we would like to invite you to speak to API's Health and Environment Committee on November 2, 2017, here at API. We can be flexible with the timing, and would welcome any members of your team that you would like to bring. A more formal invitation is attached.

Good luck this weekend!! I'll let you know when I finish, approximately an hour after you!

Thanks,
Hilary

Hilary Moffett
Director, Federal Relations
American Petroleum Institute
202-682-8040 (desk)
Ex. 6 Personal Privacy (PP) (cell)
MoffettH@api.org

Message

From: Letendre, Daisy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B691CCCCA6264AE09DF7054C7F1019CB-LETENDRE, D]
Sent: 5/16/2018 3:27:51 PM
To: Walls, Michael [Michael_Walls@americanchemistry.com]; jgibson@nacd.com; Hilary Moffett [moffetth@api.org]; coughlinl@api.org; shawn.ward@cornerstonechemco.com; jgledhill@policynavigation.com; jufner@naco.org; Carolyn Berndt [Berndt@nlc.org]; jsheahan@usmayors.org; helminiakr@socma.com
CC: Woodward, Cheryl [Woodward.Cheryl@epa.gov]; Gordon, Stephen [gordon.stephen@epa.gov]; Ford, Hayley [ford.hayley@epa.gov]
Subject: Tomorrow - RMP Proposed Rule Signing

Good Morning –

We're looking forward to seeing you tomorrow morning to meet with EPA Administrator Pruitt and to join him in signing the RMP proposed rule. If you're no longer able to attend, or if someone else from your organization will attend please reply to me and CC: Woodward.Cheryl@epa.gov. Directions to EPA are below. If you have any questions, please contact me.

Directions: *You will need an ID such as a drivers license to enter the building*. EPA's address is 1200 Pennsylvania Avenue, NW. If you are coming by taxi/vehicle, you will want to be dropped off on 12th Street NW, between Pennsylvania and Constitution Avenue. From 12th Street, facing the building with the EPA and American flags, walk toward the building (under the flags) and take the glass door on your left hand side with the escalators going down to the metro on your left. This is the South Lobby entrance to the William Jefferson Clinton building.

Once inside the building, security will prompt you to scan all items such as bags, coats etc., and then let the guards know that you were instructed to call me (Daisy Letendre at 202-564-0410 or Hayley Ford at 564-2022) to escort you to the meeting with the Administrator. Security will have the visitors passes for everyone. Allow for 15 minutes to get through the process.

Daisy C. Letendre
Senior Advisor for Policy and Strategic Communications
U.S. Environmental Protection Agency
Office of the Administrator
Office of Policy
202.564.0410 (O)
Ex. 6 Personal Privacy (PP) (C)

Message

From: Letendre, Daisy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B691CCCCA6264AE09DF7054C7F1019CB-LETENDRE, D]
Sent: 10/9/2018 1:14:19 PM
To: Stephanie Meadows [Meadows@api.org]; Sachs, Robert [Sachs.Robert@epa.gov]; Shaw, Nena [Shaw.Nena@epa.gov]
Subject: RE: Smart Sectors – oil and gas information package for review and feedback

Thanks Stephanie!

Daisy C. Letendre
Letendre.Daisy@epa.gov

From: Stephanie Meadows [mailto:Meadows@api.org]
Sent: Monday, October 8, 2018 12:17 PM
To: Letendre, Daisy <letendre.daisy@epa.gov>; Sachs, Robert <Sachs.Robert@epa.gov>; Shaw, Nena <Shaw.Nena@epa.gov>
Subject: FW: Smart Sectors – oil and gas information package for review and feedback

Daisy, Robert, and Nena:

On Friday I sent an email to Daisy in response to the request sent to API on Tuesday, regarding information on the oil and natural gas sector. Due to travel and vacations, we will be submitting information on the two Word documents as soon as possible (but likely a little late). In the meantime, I did want to share some materials on the request for "higher level" descriptions of our industry. Please see below the information from our Communications staff on materials available to the public to help with energy education. In addition, the quote below is from API's Vice Presidents, Kyle Isakower, who attended the kick off session last fall. The employment numbers are still accurate.

More information to come.

Stephanie

"The oil and natural gas industry is a major economic engine supporting 10.3 million jobs, is leading the world in the production and refining of oil and natural gas, and is a world leader in reducing carbon emissions from energy use which today are near 25-year lows," said **Kyle Isakower, American Petroleum Institute vice president for regulatory and economic policy**. "We welcome this new partnership and look forward to working with the Agency on this program to ensure that industry is doing all it can to protect the environment and support economic growth."

- https://www.epa.gov/newsreleases/epa-launches-smart-sectors-program

Stephanie R. Meadows
Manager
American Petroleum Institute
Upstream and Industry Operations
1220 L Street, NW
Washington, DC 20005-4070
USA
Phone: 202-682-8578
www.api.org

From: Reid Porter
Sent: Monday, October 8, 2018 9:23 AM
To: Stephanie Meadows <Meadows@api.org>
Subject: RE: Smart Sectors – oil and gas information package for review and feedback

Is this what is needed? "Higher level"?

- Powering Past Impossible
- Powering Innovation
- Powering Environmental Progress
- Powering the Economy
- Powering Manufacturing
- Powering Communities
- Policy Focus

ALSO:

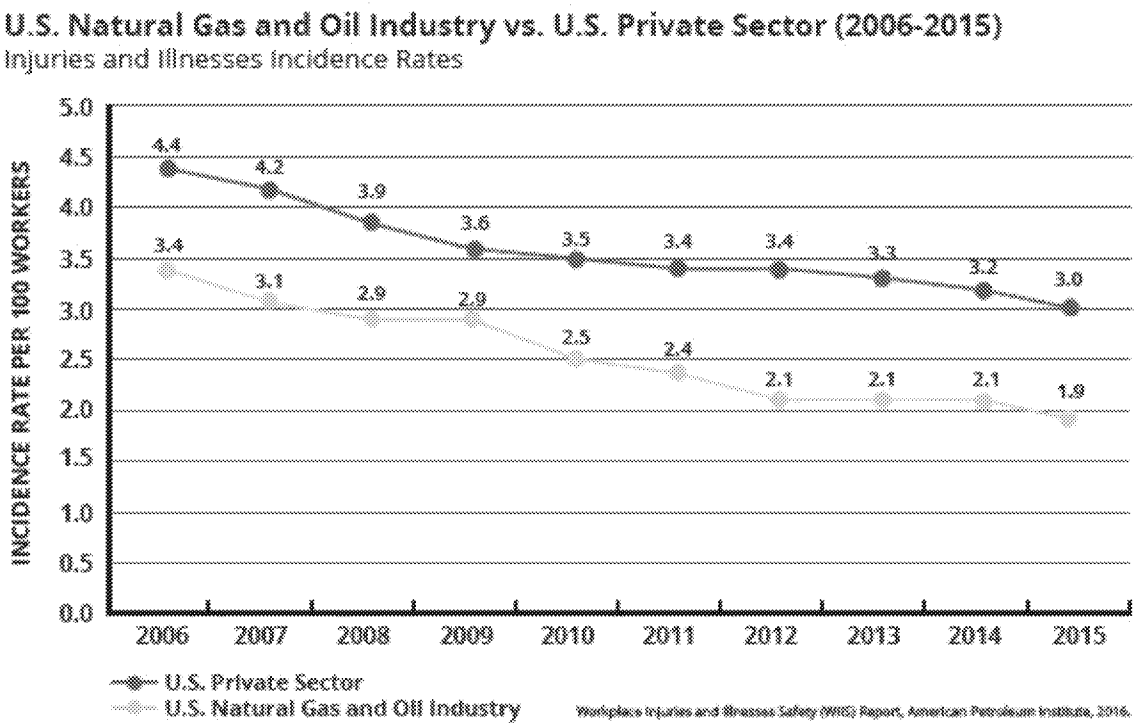
Prioritizing Safety, Health And Environmental Stewardship (2017)
Often overlooked, America's world-class refining sector not only produces the fuels that energize our transportation sector, but also produces cleaner fuels to ensure that our air stays clean. Just as our cars have modernized, so have our fuels and the refineries that produce it.

PDF DOWNLOADS
Energy and Communities Prioritizing Safety, Health and Environmental Stewardship (Full Report)
File Size: 64.2 MB
Energy and Communities Prioritizing Safety, Health and Environmental Stewardship (Executive Summary)

From the report:
The safety, health and protection of people, the environment and communities are the top priorities for the natural gas and oil industry. Today, natural gas and oil not only power our lives, but are the building blocks for so many of the products that make modern life possible. But this energy and the amazing things derived from it – everything from clothing and cosmetics to state-of-the-art health care devices and medicines – aren't possible unless responsible development is the centerpiece of everything the industry does.

Among highlights from the report:
Standards – Nearly 700 API standards cover all industry segments – many of them adopted into regulations at the state and federal level:

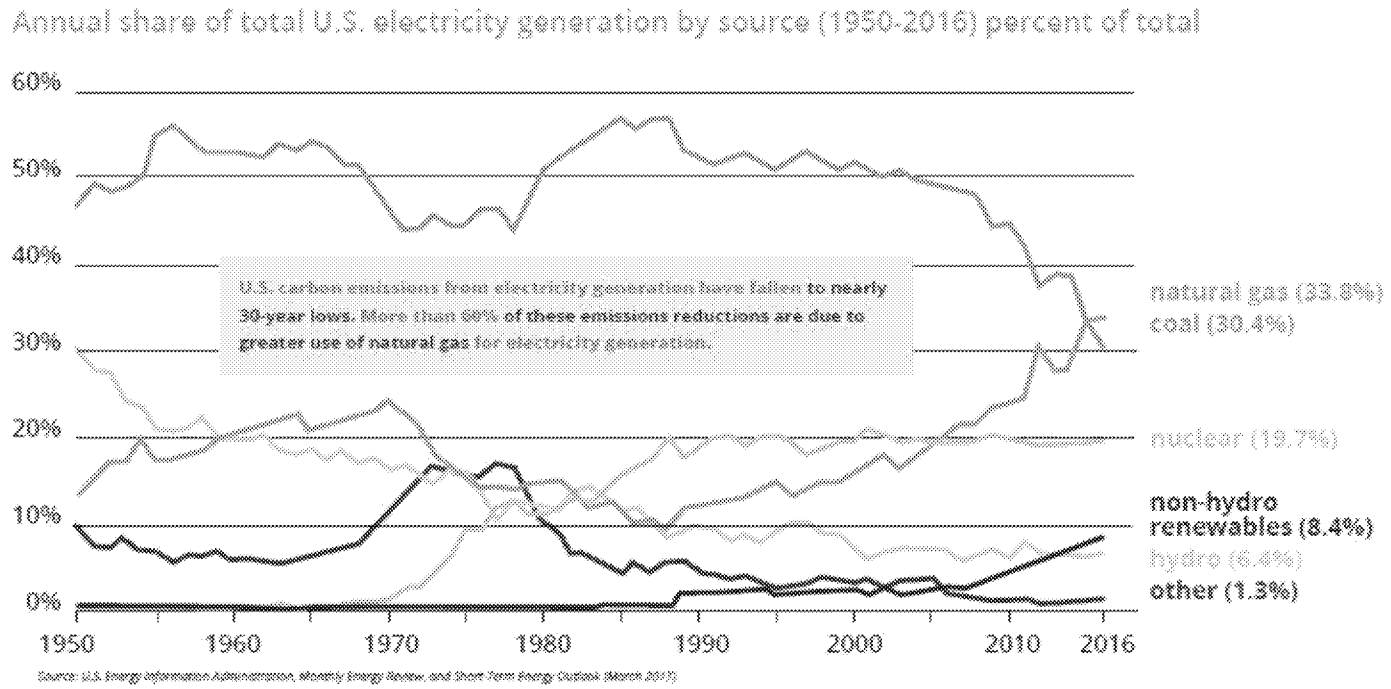
Worker safety – The injury and illness rate for the U.S. natural gas and oil industry fell 45 percent from 2006-2015 at the same time new jobs were added, and industry's rate is well below the national average for the entire U.S. private sector:



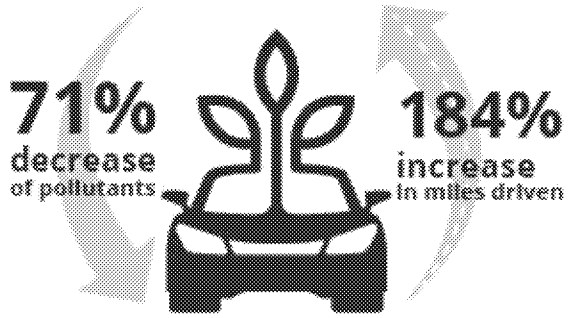
Pipeline safety – U.S. pipelines have a strong safety record, moving 99.99 percent of crude oil and petroleum products safely to their destination in 2016:

Similarly, in 2016, more than 99.99 percent of natural gas moved safely through interstate pipelines. In short, pipelines are incredibly safe – and getting safer all the time. In 2016, 25.3 trillion cubic feet of product moved through 300,000 miles of transmission pipes (200,000 interstate and 100,000 intrastate) plus 2.1 million miles of smaller lines that distribute gas to homes and businesses.

Reduced emissions – Between 1990 and 2015, methane emissions from natural gas systems dropped 16.3 percent overall and 59 percent from hydraulically fractured natural gas wells – at a time when natural gas use by the electric power sector rose almost 200 percent. U.S. energy-related greenhouse gas emissions are now at their lowest level in nearly 25 years. Natural gas now is the leading fuel source for generating electricity:



Refining sector advances – Modern, versatile refineries are producing cleaner gasoline and diesel fuels – which, combined with more fuel-efficient vehicles, have helped reduce U.S. air pollutants by 71 percent between 1970 and 2015. This has occurred even as vehicle miles traveled increased more than 184 percent.



The report also details advances in prioritizing responsible energy development, groundwater protection and well-casing standards, stewardship and reclamation efforts, protection of habitats, industry transparency and accountability, effective waste management and community engagement. Marty Durbin, API executive vice president and chief strategy officer, discussed the report during a conference call with reporters:

"The U.S. natural gas and oil industry is committed to producing more energy while reducing our footprint and improving the efficiency and safety of our operations. Investments in innovative technologies and operational improvements make it possible to lead the world not only in production and refining of oil and natural gas but also in reduction of carbon emissions – all while enhancing energy security and generating major economic benefits."

America's energy renaissance has changed our country's energy narrative from one of scarcity to one of abundance – helping grow our economy, increase U.S. energy security, improve air quality and lower costs for consumers. Responsible natural gas and oil development is at the heart of these positive impacts. And, as this new report shows, industry is working to make the investments and develop the technologies to make continuous improvements. Durbin:

"America's natural gas and oil industry provides the affordable, reliable energy that is the lifeblood of our economy, and we understand that the nation's prosperity fundamentally relies on our industry's ability to produce more of these resources in a way that promotes safety, benefits our communities and values environmental stewardship."

Message

From: Letendre, Daisy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B691CCCCA6264AE09DF7054C7F1019CB-LETENDRE, D]
Sent: 10/2/2018 1:30:26 PM
To: 'Stephanie Meadows' [Meadows@api.org]; David Friedman [DFriedman@afpm.org]; gmoody@afpm.org; domnitchc@api.org; Lee Fuller [lfuller@ipaa.org]
CC: Sharpe, Kristinn [Sharpe.Kristinn@epa.gov]; Shaw, Nena [Shaw.Nena@epa.gov]; Sachs, Robert [Sachs.Robert@epa.gov]
Subject: Smart Sectors – oil and gas information package for review and feedback
Attachments: 01. Powerpoint.pptx; 02. Text Boxes.docx; 03. Summary_Learn More.docx; 04. Magnifying Glass Text.docx

Oil and Gas Smart Sector Partners –

As a follow up to our other messages and discussions recently regarding Sector Snapshots, we're sending you the package of materials upon which we seek your input for the Oil and Gas sector. Included are four files:

(1) PowerPoint file. This contains: background image, color scheme, placeholders for introductory graphics information** to be provided to us, an example chart, and a concluding slide that identifies the relevant NAICS codes.
(2) Word document file. This file contains text box content to appear alongside the charts for each environmental indicator for this sector.
(3) Word document file. This file contains the "Summary" (Learn More) content for this sector.
(4) Word document file. This file contains the "magnifying glass content," i.e., the instructions on how to download and replicate the data for each environmental indicator and economic benchmark for this sector.

We ask that you review the information provided in the files, and provide feedback including: comments, editing, and suggested additions or deletions.

** for the four introductory graphics we'd like for you all to provide us with information characterizing your sector at a high level. We suggest referring to the three publicly available sectors that provide good context as you consider what to send. We ask that you provide data that is currently published and available, sourced from government or your own sector-wide research, a title, and citation. EPA will also find and review the data sources for consistency and generate graphics accordingly.

In order to meet the programming schedule and public deployment by early January, we will ask that you **provide feedback by October 9th.** I know this is a tight timeframe but please don't hesitate to reach out with any questions or concerns.

Timeline

October 2	Information and guidance package to sector
October 9	All comments due to EPA
January 11	Draft date for snapshot published online

You can access one or more of the following sector snapshots that have been released for context:
https://cfpub.epa.gov/wizards/smartsectors/ironsteel/#home
https://cfpub.epa.gov/wizards/smartsectors/utilities/#home
https://cfpub.epa.gov/wizards/smartsectors/chemicals/#home

Thank you very much for your willingness to participate in this process. We look forward to collaborating with you over the coming weeks.

Daisy C. Letendre

Senior Advisor for Policy and Strategic Communications
U.S. Environmental Protection Agency
Office of the Administrator
Office of Policy
202.564.0410 (O)
Ex. 6 Personal Privacy (PP) (C)

Message

From: Letendre, Daisy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B691CCCCA6264AE09DF7054C7F1019CB-LETENDRE, D]
Sent: 11/1/2017 9:14:12 PM
To: Hilary Moffett [moffetth@api.org]
Subject: RE: tomorrow

Great!

From: Hilary Moffett [mailto:moffetth@api.org]
Sent: Wednesday, November 1, 2017 5:10 PM
To: Letendre, Daisy <letendre.daisy@epa.gov>
Subject: RE: tomorrow

That should be great! Call or text with any questions. We're excited to have you!

From: Letendre, Daisy [mailto:letendre.daisy@epa.gov]
Sent: Wednesday, November 01, 2017 5:09 PM
To: Hilary Moffett
Subject: tomorrow

Still on for 11 at your offices? I will bring copies of our factsheet and biz cards. Anything else?

Message

From: Letendre, Daisy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B691CCCCA6264AE09DF7054C7F1019CB-LETENDRE, D]
Sent: 3/12/2018 5:29:48 PM
To: Hilary Moffett [moffetth@api.org]
Subject: RE: Contacts

Thanks!!

Daisy C. Letendre
Letendre.Daisy@epa.gov

From: Hilary Moffett [mailto:moffetth@api.org]
Sent: Monday, March 12, 2018 1:06 PM
To: Letendre, Daisy <letendre.daisy@epa.gov>
Subject: Contacts

Rebecca Rosen:

Name:	Rebecca Rosen
Title:	Vice President, Federal Government Affairs
Company:	Devon Energy Corporation
Phone:	(202) 255-3017
Fax:	()
E-Mail:	Rebecca.Rosen@dvn.com
Address:	101 Constitution Avenue, N.W. Suite701 Washington, DC 20001-2133

Ross Eisenberg
Vice President, Energy & Resources Policy
Direct: 202.637.3173
Mobile: Ex. 6 Personal Privacy (PP)
Email: reisenberg@nam.org

Laura Berkey-Ames
Director, Energy and Resources Policy
National Association of Manufacturers
Email: lberkeyames@nam.org
Direct: 202.637.3198

Appointment

From: Leopold, Matt (OGC) [Leopold.Matt@epa.gov]
Sent: 9/28/2018 11:09:58 AM
To: Leopold, Matt (OGC) [Leopold.Matt@epa.gov]; 'Stacy Linden' [lindens@api.org]; Leigh Ann Brown [BrownL@api.org]; Schwab, Justin [schwab.justin@epa.gov]
CC: John Wagner [Wagner@api.org]

Subject: EPA/API Meeting
Location: EPA Headquarters, 1200 Pennsylvania Ave. NW (William Jefferson Clinton Building), 4th floor, Room 4000

Start: 10/15/2018 3:30:00 PM
End: 10/15/2018 4:00:00 PM
Show Time As: Busy

Message

From: Smythe Anderson [AndersonS@api.org]
Sent: 4/8/2019 3:00:37 PM
To: Rakosnik, Delaney [rakosnik.delaney@epa.gov]; Schwab, Justin [Schwab.Justin@epa.gov]; Woods, Clint [woods.clint@epa.gov]
CC: Shaffer, Patricia [Shaffer.Patricia@epa.gov]
Subject: RE: API Mtg Request

Hi Delaney – Hope you had a great weekend. Following up on this scheduling request. 11am works for us – please let me know if this is confirmed and I will send around the invite to our folks. Thanks again for your help. Smythe

---

From: Rakosnik, Delaney <rakosnik.delaney@epa.gov>
Sent: Wednesday, April 3, 2019 10:36 AM
To: Schwab, Justin <Schwab.Justin@epa.gov>; Smythe Anderson <AndersonS@api.org>; Woods, Clint <woods.clint@epa.gov>
Cc: Shaffer, Patricia <Shaffer.Patricia@epa.gov>
Subject: RE: API Mtg Request

How about 11am?

From: Schwab, Justin
Sent: Tuesday, April 2, 2019 9:36 PM
To: Smythe Anderson <AndersonS@api.org>; Woods, Clint <woods.Clint@epa.gov>
Cc: Rakosnik, Delaney <rakosnik.delaney@epa.gov>; Shaffer, Patricia <Shaffer.Patricia@epa.gov>
Subject: RE: API Mtg Request

I can do before 9:30 or after 11 the morning of 4/12.

From: Smythe Anderson <AndersonS@api.org>
Sent: Tuesday, April 2, 2019 3:22 PM
To: Woods, Clint <woods.clint@epa.gov>
Cc: Schwab, Justin <Schwab.Justin@epa.gov>; Rakosnik, Delaney <rakosnik.delaney@epa.gov>; Shaffer, Patricia <Shaffer.Patricia@epa.gov>
Subject: RE: API Mtg Request

Clint – Thanks. Friday the 12th works well on our end. And, if possible, morning is preferable. Once we have the time confirmed, I will send around invites and get back to you with the names of attendees. Appreciate your help and look forward to seeing you.

Smythe

From: Woods, Clint <woods.clint@epa.gov>
Sent: Tuesday, April 2, 2019 10:51 AM
To: Smythe Anderson <AndersonS@api.org>
Cc: Schwab, Justin <Schwab.Justin@epa.gov>; Rakosnik, Delaney <rakosnik.delaney@epa.gov>; Shaffer, Patricia <Shaffer.Patricia@epa.gov>
Subject: Re: API Mtg Request

Smythe,

Thanks so much, and sorry for the delay. That sounds great - Any chance Friday the 8th or Monday the 12th might work? I think we would likely include a few reps from our Offices of General Counsel, Air Quality Planning and Standards, and Atmospheric Programs.

Clint

On Mar 28, 2019, at 12:40 PM, Smythe Anderson <AndersonS@api.org> wrote:

> Clint and Justin –
>
> On behalf of API's member companies, I would like to request a meeting at your earliest convenience to discuss our industry's position on EPA's regulation of methane. Would you have time in the next week or two to schedule this discussion? I expect to be joined by member company reps and defer to your judgment on who should be included from EPA.
>
> Thanks in advance,
> Smythe
>
> **Smythe Anderson**
> Director of Federal Relations
> API | 200 Massachusetts Ave NW | Washington, DC 20001 | 202.682.8040 | M: Ex. 6 Personal Privacy (PP) AndersonS@api.org
>
> <image001.png>

Message

From: Smythe Anderson [AndersonS@api.org]
Sent: 3/28/2019 4:40:46 PM
To: Woods, Clint [woods.clint@epa.gov]; Schwab, Justin [Schwab.Justin@epa.gov]
CC: Rakosnik, Delaney [rakosnik.delaney@epa.gov]; Shaffer, Patricia [Shaffer.Patricia@epa.gov]
Subject: API Mtg Request

Clint and Justin –

On behalf of API's member companies, I would like to request a meeting at your earliest convenience to discuss our industry's position on EPA's regulation of methane. Would you have time in the next week or two to schedule this discussion? I expect to be joined by member company reps and defer to your judgment on who should be included from EPA.

Thanks in advance,
Smythe

Smythe Anderson
Director of Federal Relations
API | 200 Massachusetts Ave NW | Washington, DC 20001 | 202.682.8040 | M: [Ex. 6 Personal Privacy (PP)] | AndersonS@api.org

Message

From: Smythe Anderson [AndersonS@api.org]
Sent: 12/18/2018 6:34:49 PM
To: Schwab, Justin [Schwab.Justin@epa.gov]
Subject: API Comments - NSPS OOOOa Rule
Attachments: 2018 12 17 API Final Comments on NSPS OOOOa Proposed Rule.pdf

Justin – Please find attached the comments that API submitted on EPA's proposed NSPS OOOOa rule. Don't hesitate to let me know if you have any questions.

Thanks,
Smythe

Smythe Anderson
Director of Federal Relations
1220 L Street NW
Washington, DC 20005
Ex. 6 Personal Privacy (PP)
AndersonS@api.org

energy API POWER PAST IMPOSSIBLE.ORG

Matthew Todd
Senior Policy Advisor

Regulatory and Scientific Affairs

1220 L Street, NW
Washington, DC 20005-4070
USA
Telephone 202-682-8319
Email toddm@api.org
www.api.org

December 17, 2018

The Honorable Andrew Wheeler, Acting Administrator
Environmental Protection Agency
1200 Pennsylvania Ave., NW
Washington, DC 20460

Submitted to www.regulations.gov

Re: Docket ID No. EPA-HQ-OAR-2017-0483; EPA's "Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources Reconsideration; Proposed Rule"; 83 Fed. Reg. 52056 (October 15, 2018)

Dear Acting Administrator Wheeler:

The American Petroleum Institute ("API") is pleased to submit the attached comments regarding EPA's reconsideration of the New Source Performance Standards ("NSPS") 40 C.F.R. Part 60 Subpart OOOOa, "Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources; Proposed Rule" at 83 Fed. Reg. 52056 (October 15, 2018).

API is the only national trade association representing all facets of the oil and natural gas industry, which supports 10.3 million U.S. jobs and nearly 8 percent of the U.S. economy. API's 620 members include large integrated companies as well as exploration and production, refining, marketing, pipeline, and marine businesses, and service and supply firms. They provide most of the nation's energy and are backed by a growing grassroots movement of more than 40 million Americans. Many of our members are directly impacted by the proposed amendments to the rule.

Throughout the development of the 2012 oil and gas NSPS rule and its amendments in 2016, API has maintained a constructive working relationship with EPA staff to provide operational expertise and emissions data to inform the developments of these important rules. During this time, our objective has remained the identification of cost-effective emission control requirements that reduce VOC emissions for new and modified sources and, as a co-benefit, also reduce methane emissions. Importantly, all oil and gas production emission sources that are covered by the previous 2012 and 2016 rules will continue to be effectively addressed. This approach, when combined with the leadership the industry has demonstrated to voluntarily reduce emissions from existing sources, has already proven effective in reducing emissions. Our industry has led the way in its pursuit of improved operations and keeping our product in the pipe, and the industry is incentivized to safely recover and capture methane as it is the primary component of natural gas.

Even as US oil and natural gas production has surged, methane emissions have declined significantly. For example, methane emissions from the natural gas industry have fallen 16 percent even as production increased by 50 percent since 1990. This is effectively a 45% reduction in the rate of emissions, further demonstrating industry's continued progress in minimizing emissions as we maximize efficiency in getting energy to the consumer. Methane emissions from hydraulically-fractured natural gas well completions have fallen more than 85 percent since 1990, and the increased use of natural gas to fuel the power sector has played the most significant role in achieving 30-year lows in carbon dioxide emissions from power generation that we see today. These trends are indicative of what our industry, when given the freedom to innovate, can achieve to improve the environment while protecting our nation's energy security. We fully expect that progress will continue.

API supports EPA's reconsideration of the rule and appreciates the proposed changes that provide additional clarity for our industry to maintain compliance. However, the proposed rule includes several missed opportunities and, in many circumstances, has increased the stringency of the rules without securing additional environmental benefit. Overly burdensome recordkeeping and reporting, overlapping regulatory requirements with state leak detection and repair programs, and a reinterpretation of several important aspects of the rule are all examples where further improvement is warranted to balance compliance assurance with securing emissions reductions.

There are significant capital investments and scientific studies underway to advance the development and use of new emission detection technologies; the proposed regulation that requires site-specific approval for each new technology will only stifle this positive development. We hope that EPA continues to significantly streamlines this process in the final rule. The rule also fails to reduce the burden of overlapping regulatory requirements that have no

environmental benefit. While the agency agrees that many state leak detection and repair programs are equally effective, significant and duplicative recordkeeping and reporting remain. This is just regulatory burden without environmental benefits, and we encourage the agency to improve the recordkeeping and reporting requirements in the final rule.

We also encourage the EPA to recognize the value of the field data measurements that have been shared with the agency. API collected initial leak survey data during normal operations from more than 4,000 sites and representing more than 2 million components that demonstrates a much lower incidence of leaks when compared to the EPA estimates in the rule. However, the agency has dismissed this data due to hypothetical uncertainties that effectively undermines the credible advantages the use of optical gas imaging cameras provides to our industry by facilitating our ability to find and repair leaks. These findings should inform the final rule because they support an annual frequency as a cost-effective survey frequency at well sites and, importantly, demonstrate that the agency has significantly overestimated the emissions resulting from implementation of this rule as proposed.

In API's petition for reconsideration, we sought a reduction in the administrative burden to operators by revisiting the amount of records required to be maintained and reported for each leak detection survey. The oil and gas sector is unique in that thousands of newly affected sources will, year after year, compound the recordkeeping and reporting burden. However, in the proposed amendments, EPA has *increased* the recordkeeping and reporting requirements to operators without adequately justifying increased costs with respect to the administrative burden these proposed changes would require. The level of data required for recordkeeping and reporting within subpart OOOOa unnecessarily includes significantly more data points than other traditional LDAR programs with fewer affected sources.

API and its members recognize the importance of developing oil and gas resources responsibly, but there is no value to implementing duplicative and costly regulations with little or no environmental benefit. The combined technologies of hydraulic fracturing and horizontal drilling have elevated the United States to global prominence as an energy superpower. Because of the advanced application of these technologies, the United States is now the world's largest producer of oil and natural gas while, at the same time, emissions from the industry continue to decline. This positive trend will continue as many companies engage in multiple voluntary programs and individual efforts to further reduce emissions from oil and gas production. Industry's commitment to reduce emissions is exemplified by The Environmental Partnership, a program that has brought more than 50 of the nation's oil and gas producers together, both large and small and operating across the entire nation, to take concrete actions to reduce emissions. This energy revolution has helped to energize the U.S. economy by driving domestic investment in energy projects, creating jobs, and enhancing U.S. energy and national security interests. We encourage

the agency to consider these positive trends and the important benefits this industry provides as you consider comments on the proposed rule.

Please contact me at toddm@api.org or 202-682-8319 with any additional questions regarding the content of this submittal.

Sincerely,

Matthew Todd

cc: Peter Tsirigotis, USEPA
David Cozzie, USEPA

API Comments on Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources Reconsideration, 83 Fed. Reg. 52056 (October 15, 2018) Docket ID: No. EPA-HQ-OAR-2017-0483

December 17, 2018

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List of Attachments

A – API's Response to EPA's Analysis of Well Site Fugitive Emissions Monitoring Data

B – API Analysis of Subpart OOOOa Semi-Annual Leak Survey Data

C – Production Flows and Operating Pressure

D – Sample Observation Narrative

ED_002719_00023646-00007

API's Comments on Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources Reconsideration Docket ID No. EPA-HQ-OAR-2017-0483

1.0 FUGITIVE EMISSIONS AT WELL SITES

1.1 ANNUAL LEAK SURVEY FREQUENCY FOR WELL SITES IS APPROPRIATE

API supports EPA's proposed revision to Subpart OOOOa to establish an annual frequency for leak surveys at new and modified well sites. An annual survey frequency is appropriate for the following reasons:

- EPA has mischaracterized the assumed number of leaking components per well site in their supporting document, citing 1.18% of components leaking (4 components per site) when the underlying emission factors used to estimate overall emissions assume higher leak rates.
- Data from API members surveys conducted under Subpart OOOOa as well as under state and voluntary programs show the average well site has significantly fewer leaking components nthan EPA assumed in its rulemaking; and thus, much lower baseline emissions prior to implementation of leak requirements.
- Given the much lower rate of leaks being found at well sites, during initial and subsequent leak surveys, there are limited environmental benefits to conducting leak surveys for well sites more often than annually.
- If EPA uses the best available data – data from the large number of surveys completed over the last few years – and reevaluates the benefits and costs from the Subpart OOOOa leak requirements, it will determine that there are less baseline fugitive emissions and, as a result, semi-annual leak surveys are not cost effective for well sites.

API members have been conducting leak surveys for new and modified well sites under Subpart OOOOa since the rule was effective in June 2017. Additionally, members have been conducting surveys under state and voluntary programs for much longer. These data, as well as data from other recent studies[1,2] indicate that the average facility has very few leaking components, even during the first leak survey.

[1] Lyon, et al. 2016. "Aerial Surveys of Elevated Hydrocarbon Emissions from Oil and Gas Production Sites" (https://pubs.acs.org/doi/pdf/10.1021/acs.est.6b00705) – Aerial OGI surveys of 8220 well pads in seven basins identified 494 unique emissions sources at 327 well pads (< 4% of sites).

[2] "Lowering Emissions Across the Piceance," 2018 presentation by HRL Compliance Solutions and Colorado Oil and Gas Association – West Slope. Approximately 42,000 surveys at 2,200 sites found that 94.3% of leak surveys found no (0) leaks.

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1.1.1 INDUSTRY DATA SHOWS THE NUMBER OF LEAKS IS LESS THAN THOSE ESTIMATED BY EPA

API previously initiated a data collection and analysis effort from member companies to determine how the implementation of leak monitoring and repair programs might further inform a reduced leak survey frequency. These data were provided to EPA in February 2018 and represented a range of operators across a range of geographies. The data represented observations from over 4,000 well sites, as compared to the 24 oil and gas sites upon which the emission factors in Table 2-4 of the 1995 Protocol for Equipment Leak Emission Estimates (EPA Leak Protocol) (EPA-453/R-95-017) are based. In response to this submittal, EPA provided a summary of its review of the data as part of the docket for this proposal (Docket EPA-HQ-OAR-2017-0483-0036). EPA did not objectively critique the submitted data. Rather than looking at the totality of the data and trends shown, EPA raised questions that could only be answered by a controlled experiment. API is including comments in response to EPA's analysis of the data as Attachment A of this document.

As a follow-up to the data analysis that API provided to EPA in early 2018, API undertook a recent effort to collect Subpart OOOOa data from member companies to understand how data collected under the rule might differ from the broader dataset previously provided to EPA. The reported Subpart OOOOa data include data from both the initial and second annual reporting period and show trends that are entirely consistent with API's earlier dataset and analysis. Specifically, the Subpart OOOOa data show:

- There are large number of sites that have no leaks (58% of initial well site surveys).
- The average number of leaking components per site is less than 2 components found leaking during the initial Subpart OOOOa survey and falls quickly to less than 1 leaking component found on average in subsequent surveys. These values are both below the 4 fugitive components that EPA assumed would require repair in each survey and even further below the number of leaks assumed in the EPA Leak Protocol Table 2-4 emission factors that were used to estimate emissions (See Figure 1 in Comment 1.1.3). In fact, nearly 92% of all surveys conducted across the 2 year period identified 4 or less leaking components per site.

Summary data and analysis of the Subpart OOOOa data from member companies is provided in Attachment B. While EPA previously expressed prior concern about certain aspects of the previous API survey data, API expects that providing these data developed from Subpart OOOOa surveys should adequately address any EPA concerns. The Subpart OOOOa data confirm that semi-annual leak monitoring provide limited incremental environmental benefit and support EPA's proposed annual survey frequency. API welcomes the opportunity to discuss these data further with EPA.

1.1.2 SUBPART OOOOA BASELINE FUGITIVE EMISSIONS ARE NOT BASED ON 1.18% OF LEAKING COMPONENTS AT THE MODEL PLANT

At the time of the original Subpart OOOOa rulemaking, EPA did not have adequate leak detection and repair data from well sites and compressor stations to develop baseline emission rates. Therefore, EPA relied upon the general oil and gas leak emission factors from the EPA Leak Protocol. Specifically, EPA

applied emission factors in Table 2-4[3] to all components estimated within the model plant in order to quantify the baseline emissions in absence of a leak detection and repair program.

The above point is important because EPA and others have often cited that the Agency assumed a leak incidence rate of 1.18% for fugitive components in the analyses to support the development of Subpart OOOOa. EPA discusses this issue extensively in the preamble for the current proposed rulemaking (Section B.1). However, this statement is inaccurate with respect to the emission rates that EPA assumes in the rulemaking to estimate baseline emissions. EPA assumes 1.18% of components at the model plant are leaking with respect to the count of components that require repair. However, this value does not have any bearing on the baseline emissions nor quantified benefits from implementing leak detection and repair (LDAR) at well sites over time.

The figures in Chapter 5 of the EPA Leak Protocol can be used to determine the fraction of different component types that are assumed to be leaking, when applying the Table 2-4 factors to represent a population of components. This is demonstrated in Figures 5-16 through 5-34 of the EPA Leak Protocol. Each component type (connectors, flanges, open-ended lines, etc.) and each service have a different assumed leak fraction (or assumed number of leaking components) embedded within the average emission rate listed in Table 2-4. (See Attachment A of these comments for further discussion of an example figure from Chapter 5 of the EPA Leak Protocol.)

Using the figures and correlation equations within the EPA Leak Protocol, one can calculate that, for the EPA model facility used in the 2016 Subpart OOOOa rulemaking, EPA actually assumed between 1.6% and 2.5% of components at a model well site were leaking, depending on the leak threshold used to define the leak. The lower value represented an assumed 10,000 ppm Method 21 leak definition, and the higher value assumed a 500 ppm leak definition, which is the leak definition finalized within Subpart OOOOa.

We also note that the analysis EPA has done in the 2018 Subpart OOOOa proposal for pressure relief devices (PRDs) on controlled storage vessels follows a similar process to arrive at new emission factors based on newly available data. Similar to the Table 2-4 factors, the proposed emission factor represents yet another assumed fraction of components to be leaking for a particular component type that differs from the 1.18% value EPA cites.

1.1.3 EPA'S ANALYSIS OVERESTIMATES BASELINE WELL SITE EMISSIONS AND EMISSION REDUCTIONS FROM LDAR

In addition to EPA relying upon the Leak Protocol emission factors that assume a higher percentage of components to be leaking than EPA's stated 1.18%, data from leak surveys conducted at regulated facilities indicate even fewer components are actually leaking. Figure 1 below illustrates the relative magnitude of the over-estimation. This figure was developed by normalizing the following data on a number of leaks per well site basis with the following assumptions:

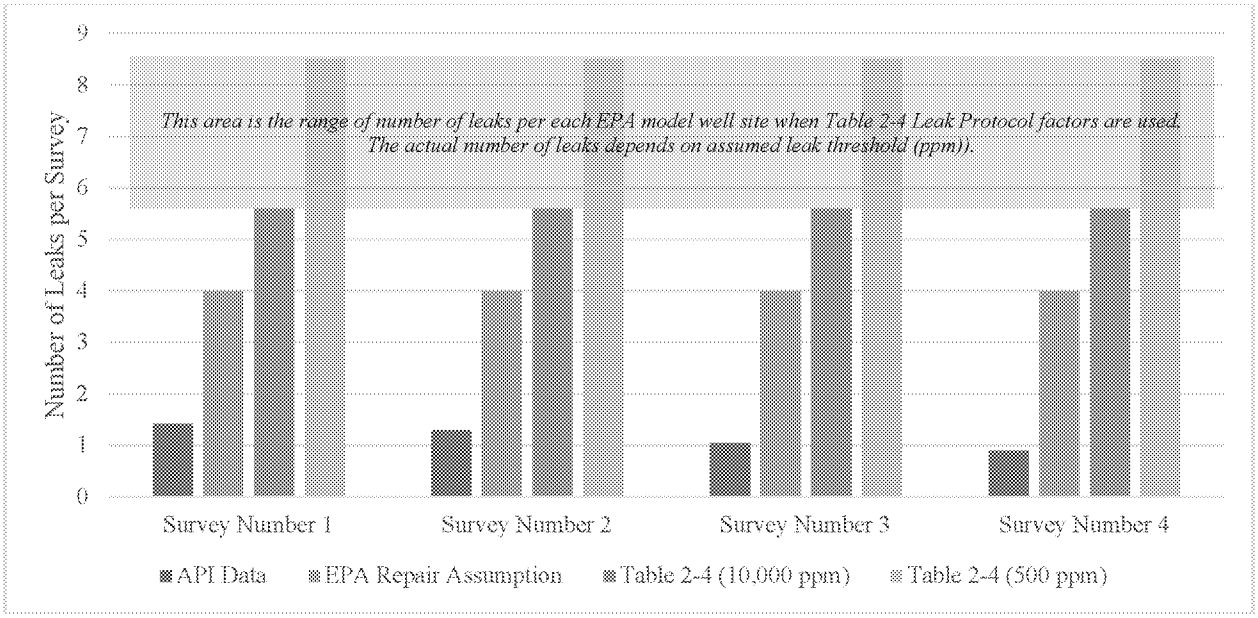
---

3 The emission factors developed in Table 2-4 are based upon analysis of leak data from a limited number of facilities using Method 21. Specifically, the protocol is based on only a total of 24 oil and gas sites, as noted on page C-14 of the EPA Leak Protocol.

- Scaled EPA's 1.18% (or 4 leaking component) assumption to the percentage range (1.6% to 2.5%) behind the EPA Leak Protocol Table 2-4 values to estimate the average number of components expected to be leaking.
- Plotted data from API member company Subpart OOOOa surveys showing actual numbers of leaks found during semi-annual surveys.

It is clear that EPA's assumed number of leaking components, and by direct extension, the estimated amount of fugitive emissions are significant overestimates – by a factor of over 2.5 to up to 4 times.

Figure 1. Comparison of Actual Leaks Observed under Subpart OOOOa vs. EPA Model Plant Data Assumptions



1.1.4 LIMITED FORGONE EMISSIONS IMPACT

As part of the proposed rulemaking, EPA estimated the forgone emission reductions associated with impacts of the proposed changes, if finalized. The only forgone emission reductions from this proposal are expected to be from semi-annual leak surveys moving to annual leak surveys. Even with EPA's overestimation of emissions from fugitives and, thus an overestimate of benefits from implementing LDAR requirement, the following benefits are still realized:

- *Relative to only reductions from Subpart OOOOa leak provisions* – EPA estimates indicate that approximately 77-78% of LDAR reductions relative to the benefits from the 2016 Subpart OOOOa rule provisions will still be realized after accounting for state rules that are providing Subpart OOOOa like LDAR benefits (OH, PA, CA, CO, WY in EPA's analysis).
- *Relative to Reductions from all rule provisions* – EPA estimates indicate that approximately 85-87% of the reductions relative to the 2016 Subpart rule will still be realized after accounting for state rules that are providing Subpart OOOOa-like LDAR benefits.

The above statements are important as there are many who are referring to this proposed rulemaking as a major regulatory rollback or action that will result in significant emissions increases. This is inaccurate even with EPA's overestimates. When one accounts for the lower actual mass of reductions that are occurring through implementation of the leak provision, the amount of forgone benefits are even lower.

1.2 LOW PRODUCTION WELL SITES

API endorses the more detailed comments of IPAA and provides the following additional comments.

1. EPA should exempt low production well sites as originally proposed in 2015. As API has stated in prior comments, low production well sites typically have less equipment located on the well site and, therefore, less sources that could result in fugitive emissions. Given that there are no comprehensive studies indicate that low production well sites would have a higher fraction of components leaking than other well sites, it is expected that low production well sites, on average, will have lower emissions than other well sites. The IPAA comments further discuss the issues associated with EPA's reliance on data from a Barnett Shale study to represent low production wells in the Subpart OOOOa rulemaking process.
2. Furthermore, while the production rate does not directly impact the number of fugitive emissions from a site, it can be an appropriate surrogate for correlation in this context. Low production well sites typically operate at reduced operating pressures (i.e., often less than 100 psig) when compared to average production sites.
3. All well sites will eventually become low production well sites. Therefore, Subpart OOOOa affected well sites that become low production well sites should have a pathway to cease or reduce monitoring frequency following 12 consecutive months demonstrating that the production rate has dropped below 15 barrel of oil equivalent (boe) per day after startup of production. At a minimum, EPA should allow for a well that averages less than 15 boe per day over its first (or any) year of operation to immediately cease leak surveys or, if appropriate, reduce frequency.
4. API appreciates that EPA is proposing to include the standard cubic feet per barrel (scf/bbl) of oil ratio in the rule but, API suggests that EPA use the IRS Tax Code definition for boe of 6,000 scf/bbl.

Recommendation:

EPA should exempt low production well sites, as originally proposed in 2015, and allow for a pathway for well sites that become low production well sites due to production decline to reduce or cease monitoring. The determination should allow for demonstrating that the production rate has dropped below 15 barrel of oil equivalent (boe) per day over 12 consecutive months and reference the IRS Tax Code for boe which is 6,000 scf/bbl.

1.2.1 ADDITIONAL RECORDKEEPING AND REPORTING FOR LOW PRODUCTION WELLS

Requiring documentation that a well site meets the criteria of a low production well is appropriate. However, companies should only identify sites within the annual report as low production and not be required to report the production rate determination itself, as proposed in § 60.5420a(b)(7)(i)(E).

Providing identification of this designation should provide appropriate compliance assurance for these well sites. All records can be made available upon request by the Administrator, as necessary, for further review. If EPA were to revisit the exemption for low production well sites as originally proposed, documentation of the production determination including the methodology should be sufficient. No reporting of these well sites should be required.

In addition, there are typographical errors proposed within §60.5420a(c)(15)(iii) since we do not believe it was EPA's intent to require all well sites to document and report production values. The paragraph should refer to biennial monitoring based on the current proposed language, and the cross-reference should be reviewed to correctly refer to the appropriate paragraph (i.e. (g)(1)(ii)), as currently proposed.

Recommendation:

EPA should reduce administrative burden associated with low production wells by requiring documentation of the production rate determination as a recordkeeping requirement only.

EPA should review typographical errors to check for cross-reference issues (e.g. frequency cited in § 60.5420a(c)(15)(iii)).

1.2.2 REQUEST REMOVAL OF "NON-LOW PRODUCTION" DESCRIPTOR FOR LEAK DETECTION APPLICABILITY AND THE ASSOCIATED RECORDKEEPING AND REPORTING OF PRODUCTION VALUES

EPA has introduced the concept of a "non-low production" well for reference to and applicability of the fugitive emission requirements for new and modified locations. This descriptor is unnecessary and should be removed. Reference to and definition of "low production" well site establishes criteria for a subset of production well sites as a threshold less than 15 barrels of oil equivalent per day. It should be inferred that if this criteria is not met, then the well site does not meet this definition and is assumed to produce more than 15 barrels of oil equivalent per day.

Recommendation:

Remove the "non-low production" descriptor from the rule language since usage of the term is unnecessary.

1.3 THE PROPOSED CLARIFICATIONS TO THE DEFINITION OF WELL SITE ARE APPROPRIATE.

API supports EPA's proposed clarification to the definition of well site in § 60.5430a as it pertains to equipment owned and operated by a third-party operator at well sites and Class II disposal wells. We also support the proposed definitions of *"custody meter"* and *"custody meter assembly."* In addition to exempting meter assemblies at well sites and Class II disposal wells, we also request EPA provide a similar exemption for meter assemblies owned and operated by third parties located at compressor stations and also exempt non-hazardous Class I wells for similar reasons noted.

- *Third party owned and operated equipment at well sites:* The clarification to exclude meter assemblies from the fugitive emissions standards was necessary and will alleviate legal and logistical issues that arose with compliance with Subpart OOOOa for the small number of components, as API stated in previous comments to the Agency (see August 8, 2017). Meters used in this capacity are calibrated regularly, and any leaks would be detected at the time of calibration.

- *Third party owned and operated equipment at compressor stations:* The same exemption should apply to custody meter assemblies at compressor stations for the same legal and logistical reasons noted for well sites. The same language provided for well sites would be appropriate to include for compressor stations to account for the correct components.
- *Class II Wells:* The proposed definition and exemption for Class II disposal wells and disposal facilities is appropriate. As EPA stated in the preamble, the EPA had not considered these types of wells during the development of the fugitive standards in the 2016 Subpart OOOOa. This clarification alleviates confusion to the regulated community. These wells and facilities handle produced water that has already been physically treated to remove hydrocarbon and natural gas prior to the arrival at the facility to avoid loss of revenue. Equipment and components would primarily be in water service and would not directly compare to EPA's model plant analysis accounted for in the technical support documentation.
- *Non Hazardous Class I Wells:* In addition to exempting Class II disposal wells, we also request EPA exempt non-hazardous Class I wells for similar reasons noted. Like Class II disposal wells, non-hazardous Class I disposal wells were not considered during the development of the fugitive emission standards in the 2016 Subpart OOOOa. Class I disposal wells are regulated by the EPA (https://www.epa.gov/uic) and accept industrial waste, which includes Class II waste. Non-hazardous Class I wastes are required to be sampled for laboratory analysis according to their EPA permits.

While it is clear that these components will be excluded from Subpart OOOOa requirements for sources constructed after the October 15, 2018 publication date of the proposed rule (see 42 U.S.C. § 7411(a)(2)), API requests confirmation that affected facilities with the now-excluded components that have been subject to the 2016 version of Subpart OOOOa will no longer be required to comply with Subpart OOOOa requirements for those components once the rule is finalized. Confirming this in the final rule will avoid unnecessary uncertainty and is fully consistent with the rationale EPA has provided for amending the definition of well site.

Recommendation:

EPA should maintain the proposed clarification to the definition of well site in § 60.5430a as it pertains to equipment owned and operated by a third-party operator at well sites and Class II disposal wells and should maintain the proposed definitions of "custody meter" and "custody meter assembly."

In addition to exempting meter assemblies at well sites and Class II disposal wells, EPA should also provide a similar exemption for meter assemblies owned and operated by third parties located at compressor stations. EPA should also exempt non-hazardous Class I disposal wells in addition to Class II wells.

EPA must also provide confirmation that affected facilities with the now-excluded components that have been subject to the 2016 version of Subpart OOOOa will no longer be required to comply with Subpart OOOOa requirements for those components once the rule is finalized.

1.4 MAJOR PRODUCTION AND PROCESSING EQUIPMENT SHOULD NOT INCLUDE REFERENCE TO ANCILLARY EQUIPMENT SUCH AS PNEUMATIC PUMPS AND CONTROLLERS

API supports the concept EPA introduced for classifying major production equipment for purposes of determining whether a well-site facility is considered a wellhead-only facility and the provision that monitoring can cease when the major production equipment is removed. However, the definition of major production and processing equipment proposed by EPA includes reference to smaller auxiliary type equipment including pneumatic pumps and controllers. Pneumatic pumps and controllers should not be considered major equipment for purposes of determining applicability of the fugitive emission requirements, especially given their status as separate affected facilities under Subpart OOOOa. These small ancillary equipment do not contain a significant number of components, if any, and have limited potential to emit fugitive leaks. Therefore, a well site containing only a wellhead and a small chemical injection pump would have similar number of components as a site containing only a wellhead, which EPA has established as not cost-effective. Since the equipment is designed to vent, EPA has appropriately not included the pneumatic equipment within the definition of fugitive components, and this equipment would be excluded from the fugitive emission requirements directly.

Many wells have an emergency shutdown valve that is controlled by a pneumatic controller, which would make this new definition of a wellhead-only facility obsolete in practical application. While we agree the leak detection requirements should target sites that contain large permanent process equipment (condensate or crude oil storage vessels, separators, centrifugal or reciprocating natural gas compressors, dehydration units, or heater treaters) that have more fugitive components, we suggest EPA eliminate reference to auxiliary equipment (pneumatic pumps and pneumatic controllers) within the new definition. It is overly burdensome to broadly require LDAR programs at sites with only minimal supplemental equipment that would result in minimal, if any, emission reductions.

API also requests that EPA further clarify the definition by making "compressors" specific to centrifugal or reciprocating natural gas compressors within the definition.

Recommendation:

Pneumatic pumps and controllers should not be considered major production equipment since their inclusion makes the leak survey exemption obsolete. EPA should also further clarify the definition of major production equipment to add a descriptor to make compressors specific to centrifugal or reciprocating natural gas compressors.

1.5 MODIFICATION

1.5.1 MODIFICATION TO WELL SITES

EPA continues to define a modification to well site through identification of events that can result in an increase in production (i.e., drilling a new well, hydraulic fracturing a well, or hydraulic refracturing a well. These events, in and of themselves, should not be considered a modification. These actions do not necessarily increase the number of fugitive components at a well site, which could increase fugitive emissions at a site. There are a couple of primary considerations that should be made when analyzing whether an NSPS modification has occurred:

1. *Has the change resulted in an emission increase?* Consistent with the definition of modification for NSPS at 40 C.F.R. § 60.14[4], one would conclude there has not been a modification simply if a well is fractured or refractured because fugitive emissions are estimated based on EPA supported emission factors that consider only the number and type of components present at a facility. Therefore, if there is not an increase in the number of components, there would be no calculated emission rate increase from the collection of fugitive components and thus, no modification. More specifically, changes to flow or pressure are not factors in the emission estimate. It is noted that this same issue applies to fugitive components at other locations historically subject to LDAR (e.g., refineries, chemical plants, natural gas processing plants) and for those sites, changes to operating pressure or flow are not triggers for modification. Components could be brought into LDAR if there are significant changes to the composition of material (e.g., switch from < 10% VOC to > 10% VOC service), but not due to operating flow or pressure.
2. *What is the appropriate comparison when assessing an hourly emission rate increase?* Notwithstanding the issues noted immediately above about how fugitive emission rates are calculated, even if one were to consider EPA's argument in the preamble that an increase in flow and/or pressure results in emission increases following a hydraulic fracturing or refracturing event, one should look further back in time than just the moment prior to the operation on the well to determine if the collection of fugitive components experienced a change that increases the hourly emission rate relative to ANY hour in the past operation of collection of fugitive

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[4] § 60.14 Modification.
(a) Except as provided under paragraphs (e) and (f) of this section, any physical or operational change to an existing facility which results in an increase in the emission rate to the atmosphere of any pollutant to which a standard applies shall be considered a modification within the meaning of section 111 of the Act. Upon modification, an existing facility shall become an affected facility for each pollutant to which a standard applies and for which there is an increase in the emission rate to the atmosphere.
(b) Emission rate shall be expressed as kg/hr of any pollutant discharged into the atmosphere for which a standard is applicable. The Administrator shall use the following to determine emission rate:
(1) Emission factors as specified in the latest issue of "Compilation of Air Pollutant Emission Factors," EPA Publication No. AP-42, or other emission factors determined by the Administrator to be superior to AP-42 emission factors, in cases where utilization of emission factors demonstrates that the emission level resulting from the physical or operational change will either clearly increase or clearly not increase.
(2) Material balances, continuous monitor data, or manual emission tests in cases where utilization of emission factors as referenced in paragraph (b)(1) of this section does not demonstrate to the Administrator's satisfaction whether the emission level resulting from the physical or operational change will either clearly increase or clearly not increase, or where an owner or operator demonstrates to the Administrator's satisfaction that there are reasonable grounds to dispute the result obtained by the Administrator utilizing emission factors as referenced in paragraph (b)(1) of this section. When the emission rate is based on results from manual emission tests or continuous monitoring systems, the procedures specified in appendix C of this part shall be used to determine whether an increase in emission rate has occurred. Tests shall be conducted under such conditions as the Administrator shall specify to the owner or operator based on representative performance of the facility. At least three valid test runs must be conducted before and at least three after the physical or operational change. All operating parameters which may affect emissions must be held constant to the maximum feasible degree for all test runs.

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components, including start of production. EPA's definition of modification ignores this important point that has been used to determine whether a modification has occurred under other NSPS rules for years.

API continues to maintain that the amount of production, in and of itself, does not increase nor decrease the amount of fugitive emissions emitted from a site with the same number of fugitive components and same approximate operating pressure[5]. For this scenario, an increase in the number of the fugitive emission components is the only modification that could increase the calculated fugitive emissions. Therefore, as long as major production equipment is not constructed along with the well activities listed (well is drilled, hydraulically fractured, or hydraulically refractured), there is no emissions increase and there is no "modification" as defined in § 60.14.

In the preamble to the proposed rule, EPA provides three justifications for its determination that refracturing a well at an existing well site constitutes a modification of the source pursuant to the Clean Air Act (CAA or "the Act") and EPA's modification rules. 83 Fed. Reg. at 52072-73. In the third of these justifications, EPA states that, even when refracturing does not result in additional equipment at an existing well site, refracturing should nonetheless be deemed a modification because:

> *"it is possible for increased throughput to these controlled storage vessels at a well site to exceed the design capacity of the vapor control system, which may result in additional emissions from storage vessel thief hatches or other openings."*

Id. at 52073. This rationale does not offer a sufficient basis for concluding that a modification has taken place and should be rejected by EPA as a basis for reaching such a conclusion in the final rule.

Modification is defined in Section 111 of the CAA (Section 111) as

> *"any physical change in, or change in the method of operation of, a stationary source which increases the amount of any air pollutant emitted by such source or which results in the emission of any air pollutant not previously emitted."*

42 U.S.C. § 7411(a)(4) *(emphasis added).* EPA's third justification does not pass the statutory test for a modification. EPA's own words demonstrate that an increase in throughput causing an exceedance of a vapor control system design capacity is only "*possible*" and that such an exceedance only "*may* result in additional emissions." 83 Fed. Reg. at 52703 (emphasis added). If there is any possibility, even a remote one, that emissions will not increase (which EPA concedes is the case here), EPA cannot by blanket rule determine that a change will constitute a "modification" under the CAA.

Recommendation:

API requests that EPA update the rule language regarding modifications such that well site is considered modified if an operator drills a new well, hydraulic fractures a well, or hydraulic refractures a well and additional permanent process equipment is added to the site.

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[5] See Attachment C for further discussion regarding how pressure is controlled at well sites such that operating pressure for surface equipment and piping does not generally increase due to changes in well head pressure.

1.5.2 MODIFICATION TO CENTRAL TANK BATTERIES

EPA should not finalize the proposed language that a central tank battery is considered modified for the purposes of the Subpart OOOOa leak provisions when "major production equipment" is removed at the separate surface well site such that it becomes wellhead only. Similar to the above discussion of modification of a well site, the simple act of removing surface equipment at a well site feeding a tank battery does not meet the statutory definition of modification. Without a change to the number of components at the tank battery, there would be no calculated emission rate increase. Further, while API does not agree with EPA's position on the impact of flow and pressure on fugitive emissions, even if one accepted EPA's position, EPA must still consider all aspects of this situation. That is, if a well site's production has declined so much that equipment has been removed and it is now a wellhead-only site, then it is highly likely that the total flow to the tank battery has not increased over a level it had experienced in the past and thus, would not see an emission increase relative to that prior level.

Even if EPA holds that there is a small, albeit unquantifiable, increase in emissions at a tank battery when a well feeding it removes some of its production equipment, API notes that the general provisions found under 40 CFR § 60.14 (e)(2) would address this situation. 40 CFR § 60.14 (e)(2) states:

> *(e) The following shall not, by themselves, be considered modifications under this part:*
>
> ...
>
> *(2) An increase in production rate of an existing facility, if that increase can be accomplished without a capital expenditure on that facility.*

In the situation of removing "major production equipment" from a well site feeding a central tank battery, there would be no capital expenditure at the well site and certainly none at the central tank battery facility.

Further, EPA's action to try to subject more tank batteries to Subpart OOOOa could prove to be a disincentive to operators with respect to the consolidation of equipment from wells that would actually reduce footprint and minimize emissions. When well sites become wellhead-only facilities, there is a reduction in the overall number of fugitive components. That is, the components do not move to the central tank battery. The central tank battery should only become subject to the leak provisions if major equipment is added to the central tank battery.

Recommendation:

A central tank battery should only become subject to the leak provisions if major production equipment (condensate or crude oil storage vessels, separators, centrifugal or reciprocating natural gas compressors, dehydration units, or heater treaters) are added to the central tank battery following one of the activities in § 60.5365a(i)(3)(i)-(iii) at a well site feeding the tank battery. EPA should not finalize the language proposed that triggers modification at tank battery after removal of major equipment at a separate wellsite.

1.6 COLD WEATHER TECHNICAL LIMITATIONS

1.6.1 API SUPPORTS PROVISIONS FOR ALASKAN NORTH SLOPE AS PROPOSED

We support EPA extending the timeframe for conducting the initial monitoring for all well site and compressor stations located on the Alaskan North Slope. As EPA stated in the preamble 83 Fed. Reg. at

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52071, the requirements were warranted due to the area's extreme cold temperature, which is below the temperatures at which the monitoring instruments are designed to operate for approximately half of a year

1.6.2 API CONDITIONALLY SUPPORTS THE REMOVAL OF WAIVER AT § 60.5397A(G)(5)

The removal of the waiver for cold climates is adequate as long as EPA maintains the frequencies proposed in the reconsideration as annual for well sites and at least semi-annual (between 4-6 months) for compressor stations. If these minimum frequencies are not finalized, the waiver at § 60.5397a(g)(5) must be reinstated to account for inclement weather and other harsh conditions that would cause safety issues for personnel or for when temperatures may be below those approved for use of the OGI camera.

2.0 FUGITIVE EMISSIONS AT COMPRESSOR STATIONS.

2.1 EPA SHOULD REDUCE THE SURVEY FREQUENCY AT COMPRESSOR STATIONS AND COMPRESSORS SHOULD NOT BE REQUIRED TO BE SURVEYED IN OPERATING MODE AT LEAST ONCE PER YEAR

API supports the comments submitted by GPA Midstream regarding the appropriate survey frequency for compressor stations. API does not support the proposed rule change that compressors must be surveyed in operating mode at least once per year but rather believes EPA should require operators to conduct surveys with facility operations as they are found when the survey is conducted. The proposed requirement is inappropriate for the following reasons:

- The requirement to ensure engines are surveyed in operating mode will result in situations where an engine will be brought on line just to enable an LDAR survey. This will add a significant logistical burden on operators as load on compressor engines can be unpredictable and may go down without notice just prior to a scheduled LDAR survey.
- The act of starting up and then shutting down (and potentially blowing down) a compressor engine that would not otherwise be required to operate is expected to result in more emissions than might be mitigated by any leak(s) identified in the process of the survey.
- Based on experience conducting 40 CFR Part 98 Subpart W required surveys for transmission compressor stations, it is expected that EPA's proposed requirement will result in the need for multiple survey trips in order to survey all compressors. EPA did not consider the costs for multiple trips when determining cost effectiveness for conducting leak surveys.

Recommendation:

API recommends EPA reduce the survey frequency and that operators conduct leak surveys with facility operations as they are found when the survey is conducted.

2.2 MODIFICATION TO COMPRESSOR STATIONS – EPA SHOULD EDIT RULE TEXT TO ADDRESS VAPOR RECOVERY UNITS (VRUS)

With respect to VRUs, API appreciates the clarification EPA provided (83 Fed. Reg. at 52074), but we ask EPA to add regulatory language to confirm this interpretation that clarifies that a modification is

triggered when an additional compressor is added for the compression of natural gas and that the addition of a VRU compressor was not intended to trigger the leak detection requirements.

3.0 SIMPLIFICATION OF THE LEAK MONITORING PLAN REQUIREMENTS

3.1 THE SITEMAP AND OBSERVATION PATH REQUIREMENTS SHOULD BE DELETED OR MODIFIED BECAUSE THEY ARE OVERLY PRESCRIPTIVE AND DO NOT BEAR A RATIONAL RELATIONSHIP TO THE EMISSIONS REDUCTIONS SOUGHT TO BE ACHIEVED.

API opposes the sitemap and observation path requirements in Subpart OOOOa because these requirements depart from the performance standard principles underlying Section 111 of the CAA in that they unreasonably restrict how industry achieves compliance with fugitive emissions monitoring. This prescriptiveness further has the effect of unnecessarily creating potential violations of the regulations (which EPA describes as deviations, defined as failure to meet rule requirements), even where the required surveys were properly conducted. These burdensome requirements are not only costly and onerous, they also fail to advance EPA's objectives beyond what a performance-based metric would achieve and, for these reasons, do not withstand scrutiny.

API requests that EPA simplify the monitoring plan provisions as follows:

- Remove the sitemap and observation path requirements and replace with a performance objective requiring all regulated components be monitored with the OGI equipment, without prescribing the way that this be achieved within the monitoring plan.

3.1.1 MONITORING PLAN SITEMAP AND OBSERVATION PATH REQUIREMENTS – AND THE RELATED REPORTING AND RECORDKEEPING – ARE OVERLY PRESCRIPTIVE AND UNREASONABLE

EPA's sitemap and observation path requirements should be stricken, or at the very least, modified, because EPA has failed to either (i) provide sufficient reasoning in support of its rationale for these requirements, or (ii) adequately address industry concern over the burdensome nature of strict compliance with them (and consequences of characterizing departures as "deviations"). It is an axiom of administrative law that an agency's explanation of the basis for its decision must include a 'rational connection between the facts found and the choice made.' " *Bowen v. Am. Hosp. Ass'n*, 476 U.S. 610, 626 (1986) (quoting *Motor Vehicle Mfrs. Ass'n of U.S., Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983)). Accordingly, EPA must respond with providing such explanation or change the rule in such a way that meets its objectives and allows industry flexibility in meeting them as well.

As the proposed rule stands now, its requirements and EPA's supporting statements exemplify rulemaking requirements that are not rationally connected to the agency's stated goal and that run fundamentally contrary to the performance standard approach embodied in Section 111 of CAA. At its core, Section 111 directs EPA to issue performance standards but allows affected owners/operators to decide how to meet them. EPA has traditionally recognized that "[g]enerally, the EPA does not prescribe a particular technological system that must be used to comply with a standard of performance. Rather, sources generally may select any measure or combination of measures that will achieve the emissions

level of the standard."[6] While the work practice provisions may be somewhat more specific given the nature of a work practice, the base performance standard approach remains and requires that EPA not impose requirements that are unnecessary or not rationally related to emission reduction. In this case, the observation path requirements are inefficient and provide no greater compliance assurance than a simple statement directing that all regulated components must be observed during the monitoring survey.

3.1.2 A *SINGLE* DEFINED OBSERVATION PATH IS INEFFICIENT AND COSTLY FOR AFFECTED INDUSTRY, AND PROVIDES NO GREATER COMPLIANCE ASSURANCE.

As EPA makes clear in the June 2016 final rule preamble statement, the fundamental goal of its "observation path" requirement is to ensure that all of the regulated components are reviewed with the OGI instrument. That goal can be met in any number of ways, and EPA's selection of a defined "observation path" deprives companies of flexibility in achieving the performance requirement to observe the regulated components and also manufactures potential violations by requiring a particular path to be followed even if another pathway would not only ensure that all of the regulated components are reviewed but prevent a modified approach that results in a more effective survey. Such an outcome is the very definition of arbitrary and capricious rulemaking.

The single defined observation path also fails to take into account the sequence of viewing fugitive components. EPA provides no reason why a different route (or even the same route in a different order or with a break in-between), would not meet its goal. In short, the June 2016 final rule failed to justify its restriction that only *one* path may be used as part of the required monitoring surveys when there are many possible routes that would achieve the same objectives, and EPA's response in the most recent proposal does not cure that failure.

EPA attempts to justify its overly prescriptive requirements in stating that the defined observation path is necessary because it cannot find another way to ensure owners/operators meet their compliance obligations to monitor all of their equipment.[7] But restricting monitoring surveys to a single path has no bearing on ensuring owners or operators meet their compliance obligations, and such a restriction does little to actually serve the valid objectives enunciated in the rule. For example, an owner/operator could physically view and monitor all of the equipment during a survey but still be in violation of the rule if a small departure from the observation path was taken while en route. If anything, EPA has created more inefficiency for OGI users by tying the requirements of OGI to the more antiquated Method 21 system rather than simply establishing the performance objective for OGI users to meet.

In addition, the costs of creating, maintaining, and updating sitemaps and observation paths are onerous and unnecessarily burdensome on owners/operators at affected facilities. EPA's statement in the Response to Comments regarding the observation path requirement is problematic because it assumes this

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[6] 79 Fed. Reg. 34960, 34,969 (Proposed Rule for *Carbon Pollution Standards for Modified and Reconstructed Stationary Sources: Electric Utility Generating Units*); *see also* 42 U.S.C. § 7411(b)(5) ("Except as otherwise authorized under subsection (h) of this section, nothing in this section shall be construed to require, or to authorize the Administrator to require, any new or modified source to install and operate <u>any particular</u> technological system of continuous emission reduction to comply with any new source standard of performance").

[7] *See* 81 Fed. Reg. at 35,860 ("B]ecause we are no longer requiring a traditional log of instrument readings…the rule must provide another way to ensure the compliance obligation to monitor all equipment is met. We believe that the observation path requirement effectively ensures that an operator looks at all the required components…").

is a "one time" obligation. That assumption is clearly not correct; components change over time, and this now creates a continual update requirement that itself could be violated (e.g., if a company adds a new component and the plan has not been updated, is it in violation of the requirement to have a "fugitive emissions monitoring plan" because a component that may be on a slightly different path is not included). Moreover, EPA's assumption fails to take into account that owners/operators may now be forced to create entirely new and separate management systems for the sole purpose of maintaining sitemaps and observation paths. While the notion of a "plan" and "observation path" may have intuitive appeal, a closer analysis shows that the layers of requirements to monitor compliance with the plan, the path development, the updates to them, and compliance with following them impose significant costs that the rulemaking has completely ignored to date.

API does not generally disagree with EPA's overall goals underlying the monitoring survey (namely, to ensure all regulated components are observed). But EPA's requirements go beyond that which is needed to assure compliance and actually limits the rule in a way that prevents other methods that accomplish the same result. The same result could be achieved with a *simple* requirement – one that ensures that all regulated components are observed without interferences. The 2016 rule entirely failed to address this fundamental issue, and the new proposed rule would perpetuate this fundamental problem with the 2016 requirements.

3.1.3 THE SITEMAP AND OBSERVATION PATH REQUIREMENTS ARE ARTIFICIALLY MANUFACTURING "DEVIATIONS" THAT MUST BE REPORTED AS VIOLATIONS FOR SOME FACILITIES.

EPA has indicated in some documents[8] that not following the path is "merely" a "deviation," but a review of the deviation definition strongly suggests that regulators will consider it a violation. Indeed, if EPA wanted to make a deviation clearly not a violation, it would not have defined deviation as a "failure to meet" an obligation and would have used another word, such as "excursion." EPA has taken such an approach before, e.g., in the Compliance Assurance Monitoring (CAM) rules, 40 C.F.R. part 64, in which the agency provided that excursions were instances in which a monitoring parameter was not met but made clear that this did not constitute a violation. As defined in Subpart OOOOa, however, deviation includes the failure to meet *any* requirement or obligation of the subpart. This logically leads to a conclusion that deviations from the observation path (and thus the monitoring plan) would likely be considered violations.

EPA states that these deviations are "not necessarily deviations from the requirements of the rule" and should even be expected by experienced OGI operators. But this reasoning does not assure owners and operators that they have not committed "deviations" because they are still vulnerable to deviation

[8] May 2016 RTC, at 4-706, EPA-HQ-OAR-2010-0505-6811; 83 Fed. Reg. at 52078.

reporting under other rules.[9] For example, some facilities subject to this rule are also subject to Title V permitting requirements. Pursuant to the Title V program, those operators must report all deviations. Those same facilities could also be subject to citations by states that elect to pursue them for their "deviations" from the rule, e.g., failing to follow the observation path as defined. EPA's assurances that are not reflected in the rule provisions or definitions do nothing to change the enforcement risk faced by these facilities or their obligation to report intermittent compliance status for those facilities subject to Title V permitting. It is possible that the proposal is merely stating that EPA would exercise its enforcement discretion not to pursue deviations (violations) of the observation path and sitemap provisions if they did not make a difference in the effectiveness of the observations, but a commitment to exercise discretion does not make an arbitrary provision rational.[10]

3.1.4 EPA SHOULD REVISE THE OBSERVATION PATH REQUIREMENT INTO A GENERAL PERFORMANCE OBJECTIVE.

API agrees with EPA that a monitoring plan is one rational way to implement the OGI requirements. It is the prescriptiveness in the elements of the plan with which API takes issue. Surveyors should ensure they have a clear view of all fugitive components during the surveys. The approach that should be taken to achieve this outcome, however, is one consistent with fundamental CAA Section 111 principles by setting the core requirements but not specifying how an owner/operator achieves those requirements. For example, EPA could specify that observations require the following elements: (1) clear views, (2) monitoring of all equipment, and (3) accurate imaging. Such a regulation would be in line with past CAA Section 111 rules and allow industry flexibility in achieving those metrics. Therefore, EPA should amend the rule to provide that each monitoring plan must include or state the following: *"Each monitoring survey shall be conducted in such a manner to ensure all fugitive components are surveyed."* No more is required.

A company may elect to create a pathway so that it can prove it observed all required components, but that should not be a requirement of the rule. Fundamentally, companies will need a basis for certifying that they met the requirements of the rule, but there is no reason that EPA should impose a one-way only methodology for doing that. This approach would ensure that all fugitive components are included in the monitoring survey while allowing industry to find the most suitable approach to achieving that objective. The sitemap and observation path currently prescribed by EPA would merely represent one of those approaches.[11] An example of the type of description that an operator may choose to include within their plan describing a general process is provided in Attachment D.

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[9] API acknowledges that the proposed rule eliminates some of the reporting requirements that would have required *all* deviations from the monitoring plan – including the observation path – to be reported in the facility's annual reports required under this subpart.

[10] EPA has also publicly stated that it does not intend to issue guidance on the monitoring plan – this shows EPA has no real intent to ensure that owners and operators are not subjected to unwarranted enforcement as a result of not following the defined observation path closely enough. It is in this sense that deviations will have been *manufactured* by EPA.

[11] In this scenario, EPA could also create a "safe harbor" provision that allows using the sitemap and observation path as one way for owners/operators to be deemed in compliance.

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If EPA retains a "path" requirement, then departures from the observation path should be considered "excursions" and not deviations. EPA has stated that deviations from the monitoring plan are not necessarily deviations from rule requirements. Thus, "deviation" is not the appropriate label for a departure from the observation path. The definitions for Compliance Assurance Monitoring under 40 C.F.R. part 64 provide for an "excursion," and that approach should be adopted here (with modification); the). The Compliance Assurance Monitoring definition provides:

> *"Excursion shall mean a departure from an indicator range established for monitoring under this part, consistent with any averaging period specified for averaging the results of the monitoring."*

To the extent EPA includes any pathway provisions, deviations should not be considered a failure to meet the requirements of the rule. Instead, EPA could adopt an "excursion" definition along the following lines, based on 40 CFR §64.1:

> *"An "excursion" shall mean a departure from the observation path, as outlined in § 60.5397a(d), for an established monitoring plan under this part, that does not result in an omission by a monitoring surveyor to view or inspect any required emissions components, and/or does not interfere with the view or accuracy of the OGI equipment or operator in completing the survey of all required emissions components. An excursion is not a deviation from the requirements of this subpart."*

By using "excursion" to define the departure from the observation path, EPA could still identify when departures occurred, and owners and operators would be less vulnerable to "deviation" citations under other rules. A deviation would only occur if the surveys were made without clear views, failed to monitor all required components, and/or did not have accurate imaging. This characterization of a departure also comports with EPA's current understanding, since EPA states that it does not view all "departures" from the monitoring plan as deviations. An "excursion" would still allow a departure to be taken and noted but not result in a deviation/violation from the requirements of the rule.

4.0 EPA SHOULD DO MORE TO REDUCE AND SIMPLIFY ACTUAL BURDEN ASSOCIATED WITH RECORDKEEPING AND REPORTING

Subpart OOOOa continues to require onerous recordkeeping and reporting that exceed typical levels of compliance assurance and are a significant cost to operators to track and maintain. In this proposal, EPA increased the recordkeeping and reporting requirements under the guise of streamlining requirements without adequately justifying increased costs with respect to the administrative burden these proposed changes would require.

Furthermore, EPA requires a certifying official submit certification of all information submitted within the annual report in compliance to Subpart OOOOa. API believes that general recordkeeping of leak monitoring surveys provides compliance assurance and validates completion of surveys, including the identification of leaks and their repair.

4.1 REQUIREMENTS CREATE AN UNNECESSARY REGULATORY BURDEN AND ARE THEREFORE AT ODDS WITH EXECUTIVE ORDERS 13771, 13563, AND 12866.

The current proposed rule fails to meet the objectives of Executive Orders (EO) 13771, 13563, and 12866 as a result of the arbitrary restriction imposed on owners and operators to comply with a single defined observation path. Taken together, these Executive Orders direct and encourage federal agencies to reduce regulatory burdens and costs, implement regulations that are cost-effective, and consider the effect and need for the regulations on society, including private industry.

More specifically, EO 13771 directs executive agencies, including the EPA, to reduce regulation and control regulatory costs. [12] EO 13771 provides that "It is the policy of the executive branch to be prudent and financially responsible in the expenditure of funds, from both public and private sources." [13] EO 13771 further provides that "the cost of planned regulations be prudently managed and controlled." [14] In 1993, EO 12866 was issued to announce a regulatory policy that directs federal agencies to "promulgate only such regulations as are required by law, are necessary to interpret the law, or are made necessary by compelling public need," and in making such a determination, "to assess all costs and benefits including the alternative of not regulating."[15] EO 12866 also directs agencies to "design its regulations in the most *cost-effective* manner to achieve the regulatory objective." [16]

In 2011, EO 13563 was issued to be "supplemental to and reaffirms the principles, structures, and definitions governing contemporary regulatory review that were established in Executive Order 12866 of September 30, 1993." [17] EO 13563 expressly reiterates and affirms that each agency must (among other things) "propose or adopt a regulation only upon a reasoned determination that its benefits justify its costs…" "tailor its regulations to impose the least burden on society … taking into account…the costs of cumulative regulations," and "to the extent feasible, specify performance objectives, rather than specifying the behavior or manner of compliance that regulated entities must adopt." [18]

As discussed above, EPA has yet to provide a reasoned explanation or guidance as to why its restrictive approach is reasonable. The current proposed rule creates a significant monetary, resource, and management intensive regulatory burden on owners and operators subject to subpart OOOOa that provides little, if any, benefit, and could be achieved by much simpler and more flexible means (e.g. performance objectives for each monitoring survey). Neither the final rule or current proposed rule align with the objectives of these EOs.

Recommendation:

API respectfully requests that EPA carefully consider the objectives in EO 13771, 13563, and 12866 and as a result of that review, delete or substantially modify the requirements as discussed in these comments.

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[12] E.O. 13771 of Jan 30, 2017.
[13] *Id.*
[14] *Id.*
[15] E.O. 12866 of Sept. 30, 1993.
[16] *Id.* (emphasis added).
[17] E.O. 13563 of Jan. 21, 2011.
[18] *Id.* (emphasis added).

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4.2 FUGITIVE EMISSIONS AT WELL SITES AND COMPRESSOR STATIONS

EPA continues to ignore the scale of sites that are subject and will become subject to these provisions over time. We continue to request the Agency seek to reduce the administrative burden to operators by reducing the amount of records required to be maintained and reported for each leak survey. API recognizes that it is appropriate to maintain sufficient records to demonstrate that fugitive emissions are adequately identified and subsequently repaired. However, it is API's view that it is excessive to require such a significant level of detail to be both documented and submitted.

4.2.1 RECORDKEEPING FOR FUGITIVES

API appreciates EPA's proposed changes to allow for a unique identifier for survey personnel, protecting the privacy of company employees and contractors.

The general recordkeeping of leak monitoring surveys provides compliance assurance and validates completion of surveys, including the identification of leaks and their repair. The additional photographs required to be maintained do not provide additional assurance beyond the survey records maintained, submitted and certified in the annual report. Maintaining thousands of photographs in addition to the details required to be recorded is additional cost and administrative burden to track and organize. The level of data required for recordkeeping and reporting within Subpart OOOOa already includes significantly more data points than other traditional LDAR programs. As stated in our petition for reconsideration, EPA should reduce the recordkeeping burden for conducting the leak monitoring by removing the digital photo requirement for each OGI survey. At a minimum, EPA should modify the rule to make the photo requirement optional similar to that for reduced emission completion recordkeeping, where the use of photographs is an alternative in place of other recordkeeping requirements.

Within this proposal EPA has also added additional data points that should be eliminated or simplified as we discussed throughout Comment 1.0.

EPA should remove the following recordkeeping requirements:

- Digital photographs.
- When using OGI, ambient temperature, sky conditions, and reference to max wind speed (i.e. document wind speed only).
- Instrumentation used to resurvey a repaired fugitive emissions component that could not be repaired during the initial fugitive emissions finding
- Number and type of components that were tagged as a result of not being repaired during the monitoring survey.
- Repair methods applied in each attempt to repair beyond identification that the leak was fixed.

This would still retain a substantial amount of the recordkeeping information per survey including:

- Location of each fugitive emission.
- Number and type of components for which fugitive emissions were detected.
- Number and type of difficult-to-monitor and unsafe-to-monitor fugitive emission components monitored.

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- Instrument reading of each fugitive emissions component that requires repair when Method 21 is used for monitoring.
- Number and type of fugitive emissions components that were not repaired as required.
- Number and type of components that were tagged as a result of not being repaired during the monitoring survey.
- Repair methods applied in each attempt to repair.
- Number and type of fugitive emission components placed on delay of repair and explanation for each.
- Date of the survey.
- Beginning and end time of the survey.
- Monitoring instrument used.
- Fugitive emissions component identification when Method 21 is used to perform the monitoring survey.
- Wind speed at the time of the survey.
- Narrative of how survey process was performed or statement no excursions from the narrative in the monitoring plan occurred.

Recommendation:

EPA should simplify the recordkeeping and reporting requirements to those that ensure compliance without additional administrative burden. Some examples include removal of the digital photographs and elimination of tracking environmental conditions beyond wind speed. Only elements needed for compliance assurance should be requested within the annual report. Supporting records retained by companies can be made available upon request from the Agency.

4.2.2 REPORTING FOR FUGITIVES

All of the existing reporting requirements are not necessary for the agency to assess whether ongoing compliance is being attained. It is incumbent on all reporting entities to self-report any non-compliance with the regulation. As part of the existing reporting, entities are required to inform the agency of any deviations from requirements. It would substantially reduce the reporting burden if entities were only required to submit limited information that would make known any compliance issues that occurred during the reporting period. In the absence of such issues, it is excessive to require the provision of every detail for every survey of every affected facility.

Recommendation:

API requests that EPA limit the reporting requirements to the most relevant information to assure compliance focused on the identification and subsequent repair of leaking components. We believe this can be achieved by the following data points, which is consistent with the level and format of data state programs require. As we have stated before, supporting records can be made available to the Administrator upon request:

- Site ID

- Date of the survey;
- Number and type of components for which fugitive emissions were detected;
- Number and type of fugitive emissions components that were not repaired as required;
- Number and type of fugitive emission components placed on delay of repair and explanation for each delay of repair;;
- Deviations from requirements associated with survey frequency and repair time; and
- Identification a well site meets the criteria for wellhead only and will cease monitoring.

4.2.3 NEWLY PROPOSED RECORDKEEPING AND REPORTING ELEMENTS SHOULD BE REMOVED

Additionally, EPA has proposed additional reporting specific to leak monitoring. These data points should not be finalized for reporting as proposed. Examples of these reporting elements include:

- *Low production determination by well site*: The determination should be documented and records retained. The production rate itself should not be reported. If biennial monitoring frequency is retained, companies can provide documentation that the well meets the criteria for being a low production well site. See Comment 1.2.1
- *For wellhead only sites:* API requests EPA simplify the reporting associated with the removal of equipment at a well site resulting in it becoming a wellhead only facility. EPA should simplify the reporting requirements to a one-time notification within the annual report for that well site. If equipment is added back to the site, leak detection would resume, and the well site would have full reporting information associated with it. Therefore, the following information is unnecessary to be recorded or reported:
    - Date of removal of the last piece of major production and processing equipment
    - Well ID or separate tank battery ID receiving the production.
    - Date first piece of major production and processing equipment added back.

4.2.4 REPORTING FOR EQUIVALENT STATE PROGRAMS

State Agencies have recordkeeping and reporting requirements to ensure compliance with their leak detection programs, and. EPA should give proper deference to states for compliance assurance for their state programs. Complying with multiple recordkeeping and reporting schemes for the same site(s) is an enormous administrative burden for operators to maintain with no added environmental benefit. Requiring federal reporting, as EPA has proposed, would require Subpart OOOOa recordkeeping requirements to be met in order to comply with the reporting elements required in § 60.5420a(b)(7). Since EPA has proposed equivalence to the state recordkeeping programs, we also request EPA defer equivalency of reporting. Without doing so will defeat the purpose, and any benefit from EPA approving these state programs in the first place.

Additionally, EPA requires an advance notice within 90 days that a site is complying with the state LDAR program. API recommends that a one-time notification be submitted prior to the first LDAR survey (similar to written / electronic notification process associated with hydraulic fracturing of a well).

Additional comments on this topic are provided in Comment 6.0

4.3 OTHER RECORDKEEPING AND REPORTING SIMPLIFICATION REQUESTS

API has provided comments on recordkeeping and reporting aspects of Subpart OOOOa throughout this comment letter. Below is a list of each topic and the section that can be cross referenced:

- Technical Infeasibility assessments for pneumatic pumps - Comment 8.2
- CVS Inspections – Comment 10.2
- Well Completion Operations that Immediately Start Production – Comment 11.3
- Performance Testing - The previous rule required operators to conduct a visible emissions test only and the change in administrative burden with respect to reporting has not been adequately explained or justified.
    - Was the combustion unit returned to operation from a maintenance or repair activity?
    - Date of visible emissions test
    - Length of the test
    - Amount of time visible emissions present

4.4 TESTING AND REVIEW OF THE CEDRI REPORTING FORM

There are significant changes to the CEDRI forms and API and industry should be afforded more time to review. Some initial feedback includes the following:

- The form includes numerous data elements not required for reporting. EPA should remove any reporting requirement that is listed as optional. These fields are not required and add unnecessary information to an already long list of reporting requirements.
- API believes the form should be tested and reviewed with industry prior to the Final Template's release. The current version has various issues such as cells being locked and drop-downs not working consistently as well as missing relevant options.
- Through the guise of streamlining reporting, EPA has added significantly to data required to be included within the annual report. Many of these data points previously only were required to be maintained through recordkeeping. The administrative burden with respect to reporting has not been adequately explained or justified within the proposed rule.

5.0 PROVISIONS FOR NEW AND EMERGING TECHNOLOGY ALTERNATIVE MEANS OF EMISSION LIMITATION

Less expensive and more effective monitoring technologies will accelerate the production of clean domestic energy, helping to deliver a healthy environment and economy. EPA must revise the AMEL provisions of Subpart OOOOa to unlock the benefits of these emerging technologies.

5.1 API SUPPORTS THE OPTIONS IN THE PROPOSED RULE TO USE MODELING, TO TEST TECHNOLOGIES IN A CONTROLLED TEST ENVIRONMENT, AND TO ALLOW MANUFACTURERS/VENDORS TO APPLY FOR APPROVALS.

5.1.1 MODELING

API strongly supports the inclusion of modeling, in addition to limited field data, to demonstrate the performance of a specific technology. This is a preferred and recommended option to the onerous requirement to gather 12 months of field data. The 2018 Interstate Technology and Regulatory Council ("ITRC") paper states, "Computer modeling is highly valuable for evaluating emission reduction objectives due to the probabilistic nature of emission rates."[19] The paper also states that "computer-based modeling, coupled with empirical validation of model accuracy, is a potential solution to rigorously evaluate application efficacy under the most likely encountered meteorological and site conditions. The Fugitive Emissions Abatement Simulation Toolkit (FEAST) model is a virtual gas field simulator that predicts emission reductions of various leak detection and repair programs. An effective demonstration of equivalency could include an empirical evaluation of an application at a structurally complex site such as a gathering compressor station over a time period, such as twelve months, that assesses performance under a wide range of meteorological conditions. If a computer model can accurately predict the detection limit and response time for different sources as a function of environmental parameters, then a probabilistic model can be used to simulate performance at other sites. This approach could allow a scientifically rigorous determination of equivalency while minimizing the number of sites required for field testing." [20] Additionally, modeling is a highly valuable tool in that it allows for comparison of the "end game" of equivalent emissions reductions (i.e., allows for comparison of two approaches/work practices rather than specific technology detection thresholds).

Further, EPA used modeled simulations when it simulated the frequency and distribution of leaks in order to compare OGI to Method 21 and approve OGI as an "alternative work practice to detect leaks from equipment" ("OGI AWP").[21] EPA used a Monte Carlo model to evaluate and approve the use of OGI as an alternative work practice (AWP) for fugitive emissions monitoring. "In developing the AWP, EPA sought to design a program for using the optical gas imaging instrument that would provide for emissions reductions of leaking equipment at least as equivalent as the current work practice. To do so, we used the Monte Carlo model for determining what leak rate definition and what monitoring frequency were necessary for the AWP." At no point in its approval of OGI did EPA require site-specific modeling.

We strongly urge EPA to apply the same logic to AMEL equivalence demonstrations. There is no reason why rigorous statistical modeling, combined with real-world field data and thorough documentation and recordkeeping, should not be sufficient for EPA to make a reasoned decision on broadly approving a new technology.

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[19] Interstate Technology and Regulatory Council (ITRC). 2018. Evaluation of Innovative Methane Detection Technologies. Section 5.2 Design Elements. Methane-1. Washington D.C.: Interstate Technology and Regulatory Council, Methane team. https://methane-1.itrcweb.org

[20] *Id.*

[21] Alternative Work Practice to Detect Leaks from Equipment Final Rule, 73 Fed. Reg. 78201 (add date)

5.1.2 CONTROLLED TEST ENVIRONMENT

Use of a controlled test environment, such as Colorado State University's Methane Emissions Technology Evaluation Centre (METEC) to gather field data on the performance of various leak detection technologies and compare their capabilities to current approved methods, such as OGI, would greatly streamline the process of determining equivalence, as well as the lengthy CAA Section 111(h) application and approval process. API appreciates EPA including this option in the proposal and further recommends that a facility such as METEC be recognized by EPA as a facility where all suitable technologies could be tested for equivalency. The team at METEC is currently working to establish a baseline for OGI for this very purpose. In fact, EPA has funded work at METEC toward developing the baseline for OGI. Testing a new technology against a clearly established baseline and following a pre-set methodology for testing would provide consistency and confidence in the process. If manufacturers are aware of baseline emissions reduction for OGI, they would clearly know what standard their technology must meet to be deemed equivalent. As a result, this would streamline the process and allow new technologies to successfully navigate this application and approval process and be deployed faster. This would result in faster, cost-effective emissions reductions.

The ITRC paper referenced above supports this concept and states, "Controlled releases under field conditions are ideal for systems with emission source objectives because they can assess the accuracy of source quantification and/or localization under realistic meteorological conditions. Long-term testing at field sites allows controlled releases to be tested under a diversity of meteorological conditions. Performing multiple controlled releases under each set of conditions can be used to calculate the probability of detection as a function of emission rates and other relevant conditions such as wind speed."[22] Therefore, gathering field data at a facility such as METEC would prove extremely useful and could effectively take the place of gathering field data at an active oil and gas well site. API recommends that testing technologies in a controlled test environment, in addition to modeling, to minimize the field data necessary to demonstrate the performance of various technologies and achieve approvals.

5.1.3 VENDORS/MANUFACTURERS SHOULD BE ALLOWED TO APPLY FOR APPROVAL OF EMERGING TECHNOLOGY

Vendors/manufacturers of new leak detection technologies are the experts in this advanced, high-tech area and are the appropriate person(s) to apply for approval of a technology to be used in compliance with Subpart OOOOa for methane and/or VOC leak detection. API appreciates the inclusion of this language in the proposal. However, API recommends that the operator not be required to be a party to the application and approval process as well since the technologies are being developed for broad applicability.

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[22] *Id.*

5.2 EPA SHOULD ALLOW FOR BASIN-WIDE APPROVALS OF EMERGING TECHNOLOGY FOR USE IN COMPLYING WITH THE LEAK DETECTION REQUIREMENTS IN THE RULE.

One of API's priority concerns in the proposed Subpart OOOOa technical revisions is the requirement to apply for the use of emerging technologies on a site-specific level. Outlined below are the technical and legal reasons why this would be an enormous and unnecessary burden, not feasible to undertake from an administrative and timing perspective, not necessary for showing equivalence to the current method, and will greatly stifle innovation in this very dynamic area of technological advancement.

Numerous technologies are currently being developed and piloted at oil and gas field sites throughout the country. Many of these state-of-the-art technologies in development have the potential to detect leaks faster and more efficiently, which could enable the operators to make timely repairs resulting in less fugitive emissions, resulting in a win-win for both the operator and the environment.

5.2.1 SITE-SPECIFIC VARIABLES CAN BE ADDRESSED IN CONDITIONS REQUIRED FOR THE USE OF THE TECHNOLOGY

In the proposal, EPA states that "we are not changing the requirement that AMEL's be site-specific because we are aware of the variability of this sector and are concerned that the procedures may need to be adjusted based on site-specific conditions (e.g., gas compositions, allowable emission or landscape)."[23] There is no logic behind this statement, and this reasoning does not withstand scrutiny. If a technology is designed to measure methane molecules in the atmosphere, it will measure methane molecules in the atmosphere, regardless of what the site looks like or the gas composition. If there is methane above a certain concentration, the technology should find it. Further, EPA can establish clear and consistent parameters under which a technology will be able to detect methane emissions. The approval of the technology could have certain conditions assigned to it that are required to be met in order for the technology to be used at a site, similar to EPA's technology-based approval for OGI that had minimum/maximum temperatures and minimum/maximum distance parameters required to be present, for example.

In response to EPA's mention of landscaping being a site-specific variable, if the landscaping at a particular site impedes the path of the technology to effectively operate, for example, then the technology may not be used at that site until the landscaping is in compliance with the parameters required to be met for the proper operation of the specific technology. Again, this could be a condition for the use of a specific technology at a specific site. Continuous sensors, for example, allow for continuously monitoring a site for leaks and are particularly suited for intermittent leaks at very low thresholds. Day or night time is immaterial for detection by continuous sensors. On the other hand, aerial-based surveys might have limitations flying at night and may use sunlight as reference. As such, these surveys would need to be deployed only during the daytime.

EPA stating that a technology should be able to distinguish allowable emissions as a site-specific variable is irrelevant to the case for a site-specific approval. Every site has allowable emissions that could result in some venting that is allowed if under threshold levels. Differentiating allowable venting, for example, from fugitive emissions leaks could arguably be an issue against the approval of any technology but that

[23] Subpart OOOOa Proposed Technical Revisions, 83 Fed. Reg. 52080 (October 15, 2018)

should not be a reason to disallow approval on a basin-wide level and stifle all development in this important area. An approach where detection may be impacted by allowable emissions may be an approach that is used to direct inspection efforts. Some technologies could be used as a frequent screening tool and may require the operator to visit the site with OGI, for example, to detect the source of the leak(s). But it would flag the large emitter sites and again, enable the operator to find and fix the largest leaks faster.

In the OGI AWP final rule, EPA stated, "the standard is an alternative to the existing work practice and maybe used in place of the existing work practice where feasible and whenever the owner or operator chooses to do so." [24] As this language clearly states, OGI received approval from the EPA, but if a site did not meet the conditions then the technology was deemed not feasible at that site at that time. Similarly, EPA should provide approvals for alternative technologies and include qualifications for their use "where feasible

5.2.2 SITE SPECIFIC DATA IS NOT NECESSARY TO DETERMINE EQUIVALENCY AND RECEIVE APPROVAL PER CLEAN AIR ACT 111(H)

There is no legal impediment to demonstrating that an AMEL is equivalent to a Section 111(h)(1) of CAA standard based on differences between the AMEL and the standard against which it is being evaluated – such as differences in the frequency (e.g., annual, semi-annual, quarterly) over which the monitoring or other requirements must occur. The current regulations for implementing Subpart OOOOa state that EPA "may condition permission [to use an AMEL] on requirements related to the operation and maintenance of the alternative means." 40 C.F.R. § 60.5398a(a). Such requirements could easily include frequency of the deployment or operation of the AMEL.

The technologies being developed have different methane sensitivity thresholds and can operate at different frequencies. For example, a spectrometer (i.e., laser-based technology) mounted on an airplane can scan over an entire basin in a day. It could do these fly-overs more quickly and efficiently than a person using a hand held OGI camera on foot at a site and therefore, could have a higher frequency assigned to it and this would be a feasible alternative. Based on cost-benefit analysis, some of these emerging technologies have been shown to be favorable and a preferred option for some member operators.

In the OGI AWP, EPA states, "The emission control effectiveness of any work practice is a function of both 1) its ability to detect leakage and 2) the frequency of monitoring. An equivalent work practice may require more frequent monitoring, depending on its mass rate threshold for detecting leaks."[25] If the fly-over technology has a lower sensitivity threshold, it may only find larger leaks, but it could find these larger leaks faster with a more frequent monitoring schedule.

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[24] Alternative Work Practice to Detect Leaks From Equipment Final Rule (73 Fed. Reg. 78204)
[25] Alternative Work Practice to Detect Leaks From Equipment Proposed Rule (71 Fed. Reg. 17404)

EPA further states, "A more frequent monitoring requirement becomes necessary because higher mass emission reductions from large leaks, found earlier, are offset by some degree by smaller leaks which go undetected."[26] Of Equivalency in Section 111(h)(3) is discussed simply as "a reduction in emissions of any air pollutant at least equivalent to the reduction in emissions of such air pollutant [under the current work practice]." Based on this standard in the statute, larger leaks found earlier and more frequently should reasonably be able to offset smaller leaks that may not be found as timely.

Further, in referring to OGI in the AWP final rule, EPA stated, "The results show that the AWP will achieve EPA's goal of detecting leaking equipment from which the majority of emissions arise."[27]

Therefore, similar to EPA's approach in the AWP OGI rulemaking, EPA should focus on basin-wide (or category-wide) mitigation equivalence, not detection equivalence. For example, a one-time aerial-based survey with a more cost effective, less sensitive technology may not be able to detect emissions with the same sensitivity as ground-based technologies, or detection equivalence, but conducting multiple surveys instead of one would mean that any potential fat-tail emission sources are identified ten times faster than a ground-based method. Mitigation equivalence can only be achieved across many sites, because of the relatively few sites that produce the bulk of emissions. Further, basin-wide approaches are likely to be more accurate in terms of estimating total emission reductions than individual site estimates given the high variability in individual site emissions.

EPA can use statistical models such as FEAST to make data-driven decisions about equivalence. EPA can then incorporate basin-specific emissions data into modeling to ensure that its emission reduction objectives are being met. Making decisions based on aggregated data reduces the uncertainty that comes with site-specific estimates. API recommends that site attributes could be obtained from a small number of representative sites in the basin; then that data, coupled with modeling and testing in a controlled test environment would be adequate to determine if equivalency is achieved. Further, once a technology is approved to be used in a specific basin, all new well sites drilled and constructed in that basin going forward will have the opportunity to use that technology without going through the onerous 111(h) application and approval process for each new site or groups of new sites all over again. Again, the proposed approval process is not feasible and would stifle development of leak detection technologies.

Therefore, based on this information and EPA's logic in this previous OGI AWP rulemaking, once this technology has been deemed equivalent based on emissions reductions achieved in a specific basin, use of the technology in that basin should be the subject of the application for approval. As explained above, the approval could be granted with conditions that would need to be met at each site prior to the technology being used.

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[26] *Id.*

[27] Alternative Work Practice to Detect Leaks from Equipment Final Rule, 73 Fed. Reg. 78203, (add date)

5.2.3 COMMON SENSE DICTATES BASIN-LEVEL APPROVAL

Clean Air Act section 111(h) requires that an alternative work practice must first be shown to be equivalent and then be subject to a notice and comment period and possible public hearing. Gathering the field data, performing modeling, and showing equivalence will be a lengthy process of at least a year or more. Then the notice and comment period will take months. EPA stated in the Subpart OOOOa final rule that they would make a decision within 6 months of close of the comment period.[28] Therefore, realistically, this process would take approximately two years. To do this for every single well site, such as a well or wells on a pad or a centralized tank battery would be unmanageable. It would be lengthy and it is unlikely that a vendor/manufacturer or operator would undertake the effort.

One API member who operates solely in the Permian Basin in Texas reported hundreds well sites subject to the Subpart OOOOa LDAR monitoring for 2018. Going through this 111(h) process for each of these sites in order to use a new, more effective and efficient technology to detect methane emissions for compliance could take at least two years per site. This does not account for the new wells this operator is drilling in the Permian Basin every month (with about 3 wells/pad or well site) and building around 4-6 large centralized tank batteries per year that would also require site-specific approval per the current language in the rule.

API requests that EPA reconsider this site-specific approach and approve a basin-wide (or category-wide) approach. Not doing so would stifle innovation in this technologically advanced, dynamic area. The environmental benefit of the rule could continue to increase if EPA would allow more than handheld OGI cameras or Method 21 to detect leaks in compliance with Subpart OOOOa.

5.2.4 CLEAN AIR ACT SEC. 111(H)(3) DOES NOT CONSTRAIN BASIN-WIDE APPROVALS

EPA should provide a procedure for approving an Alternative Means of Emission Limitation ("AMEL") under Subpart OOOOa for categories of sources rather than limit an AMEL to an inefficient and unworkable source-by-source application. The structure and language of section 111 and EPA's decision to allow for similar flexibilities under other CAA provisions confirm that applying an AMEL to source categories is appropriate and lawful.

CAA Section 111 calls on the Administrator to list "categories of stationary sources" that "cause, or contribute significantly to, air pollution which may reasonably be anticipated to endanger public health or welfare." 42 U.S.C. § 7411(b)(1)(A). The Act then calls on the Administrator to promulgate and subsequently revise every eight years, if appropriate, "standards of performance for new sources within such source category." *Id.* § 7411(b)(1)(B). The Act defines a standard of performance for purposes of section 111 as:

> *"a standard for emissions of air pollutants which reflects the degree of emission limitation achievable through the application of the best system of emission reduction which (taking into account the cost of achieving such reduction and any non-air quality health and environmental impact and energy requirements) the Administrator determines has been adequately demonstrated."*

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[28] Subpart OOOOa Final Rule, 81 Fed. Reg. 35861 (June 3, 2016)

Id. § 7411(a)(1). In the event it is not feasible to establish such a standard, section 111(h)(1) authorizes the Administrator instead to "promulgate a design, equipment, work practice, or operational standard, or combination thereof." *Id.* § 7411(h)(1). Section 111(h)(1) does not refer to categories of sources or individual sources, but because a section 111(h) standard is intended to replace a standard of performance applicable to an entire source category, the logical inference is that section 111(h) standards also apply to source categories. Section 111(h)(3) provides for an AMEL when:

> *"after notice and opportunity for public hearing, any person establishes to the satisfaction of the Administrator that an [AMEL] will achieve a reduction in emissions of any air pollutant at least equivalent to the reduction in emissions of such air pollutant achieved under the requirements of [section 111(h)(1)]."*

Id. § 111(h)(3). On the face of this language, because any AMEL will serve as a replacement for a category-wide 111(h)(1) standard, any demonstration that an AMEL will achieve an emission reduction at least equivalent to a 111(h)(1) standard could reasonably be made on a category-wide basis and be applied to an entire source category.

Section 111(h)(3) also states, however, that once a successful equivalency demonstration has been made, "the Administrator shall permit the use of such alternative by the source for purposes of compliance with this section with respect to such pollutant." Id. The fact that this provision has been used for the authorization of source-specific AMEL applications should not be interpreted to preclude EPA's authorization of an AMEL on a source category-wide basis. Indeed, provided an adequate demonstration for a single source within a source category can be made and it can be established that there are no material differences between that source and the other sources in the category that would render the AMEL less than equivalent to a section 11(h)(1) standard, there is no reason, based on the statute, to prohibit category-wide application of AMEL. Indeed, any other number of approaches, including a more generalized approach that does not focus on individual sources for making an adequate category-wide demonstration under Section 111(h)(3) may be available, and EPA should evaluate them on a case-by-case basis.

Allowing for source category-wide AMEL determinations would be consistent not only with the overall structure of section 111 and its focus on category-wide standards under sections 111(b) and 111(h)(1); it is also consistent with the limitation prohibiting EPA from imposing specific technological emission reduction requirements pursuant to Section 111. Section 111(b)(5) states:

> *"Except as otherwise authorized under subsection (h) ..., nothing in this section shall be construed to require, or to authorize the Administrator to require, any new or modified source to install and operate any particular technological system of continuous emission reduction to comply with any new source standard of performance."*

Id. § 7411(b)(5). Section 111(h)(1) allows EPA, under limited circumstances, to impose a standard "which reflects the best technological system of continuous emission reduction." Section 111(h)(3) serves as a safety valve on that authority and thereby functions to further the policy set out in Section 111(b)(5). To give full effect to that policy, EPA should allow for category-wide AMEL demonstrations.

Adopting such an interpretation for Section 111(h)(3) would also be consistent with the policy EPA has adopted for the nearly identical provision in Section 112(h)(3), which authorizes an AMEL under the provisions of the CAA governing national emission standards for hazardous air pollutants. EPA's regulation implementing section 112(h)(3) recognizes that EPA is authorized to approve an AMEL for

"source(s) *or category(ies) of sources* on which the alternative means will achieve equivalent emission reductions." 40 C.F.R. § 61.12 (emphasis added). Given the similarities between the programs authorized under Section 111 and section 112 and, in particular, the similarity of Section 111(h)(3) and 112(h)(3), EPA should adopt its policy of applying an AMEL to source categories for Section 111(h)(3) in the same manner as it has done with respect to section 112(h)(3).

Moreover, EPA has adopted similarly flexible approaches under other provisions of the CAA. For example, under the Act's visibility provisions, EPA must require states to include in their state implementation plans measures reflecting "best available retrofit technology" ("BART") for certain "major stationary sources." 42 U.S.C. § 7491(b)(2)(A). The Act further states that BART must control emissions "from such source," and defines BART as taking into account, among other things, "any existing pollution control technology in use at the source" and "the remaining useful life of the source." *Id.* § 7491(b)(2)(A), (g)(2). Despite the focus of the statutory language on determinations for individual sources, EPA's rules allow EPA and the states to authorize BART alternatives that can apply to groups of sources and that allow emission averaging across sources, even over wide regions, in lieu of imposing source-specific emission limits or source-specific alternatives to such limits. 40 C.F.R. § 51.208(e)(2). The courts have consistently affirmed the authority of EPA and the states in this regard. *See, e.g.*, *Util. Air Regulatory Grp. v. EPA*, 471 F.3d 1333 (D.C. Cir. 2006); *Central Ariz. Water Conserv. Distr. v. EPA*, 990 F.2d 1531 (9th Cir. 1993). If alternatives to emission limits (or work practice standards) for groups of sources under these provisions are permissible despite the continued references to the term "source," then surely a source category-wide AMEL is permissible under section 111(h)(3).

6.0 ALTERNATIVE MEANS OF EMISSION LIMITATIONS FOR STATE EQUIVALENCY

6.1 EPA SHOULD RECOGNIZE THE APPROVED STATE PROGRAMS AS WHOLLY EQUIVALENT LDAR PROGRAMS AND FULLY DELEGATE THE IMPLEMENTATION OF THE LDAR MONITORING PROVISIONS TO THESE RESPECTIVE STATES

In the state LDAR program equivalency guidance document EPA provided with this rulemaking, 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's LDAR program.[29] However, EPA is requiring operators to use the fugitive emission component definition from Subpart OOOOa, in addition to the reporting and monitoring plan.

Under the well-established premise of cooperative federalism, EPA should recognize these programs in full, including the states' recordkeeping and reporting requirements. Cooperative federalism is a central tenet of the Clean Air Act. 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

[29] https://www.regulations.gov/document?D=EPA-HQ-OAR-2017-0483-0041 – Equivalency of State Fugitive Emissions Programs for Well Sites and Compressor Stations to Proposed Standards at 40 CFR Part 60, Subpart OOOOa dated April 12, 2018. .

instance and then implemented by the states. The principle that the States and the federal government will work in tandem to protect 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," 42 U.S.C. § 7401(a)(3), with the federal government providing "financial assistance and leadership," *id.* § 7401(a)(4).

For example, pursuant to section 110 of the CAA, while EPA develops the national ambient air quality standards, *see* 42 U.S.C. §§ 7408, 7409, 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." *Train v. Natural Res. Def. Council, Inc.*, 421 U.S. 60, 79 (1975). Similarly, under the CAA's visibility provisions, states have broad leeway to develop plans to combat regional haze that EPA cannot second-guess if the states have considered the statutory factors. *Am. Corn Growers Ass'n v. EPA*, 291 F.3d 1, 8 (D.C. Cir. 2002).

Section 111 of the CAA, 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." 42 U.S.C. § 7411(c)(1). The Supreme Court has affirmed that these cooperative principles are the heart of the CAA again and again. *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.").

We provide additional comments on specific reporting elements in Comment 4.2.4.

6.2 ALTERNATIVELY, EPA COULD REQUIRE THE FUGITIVE EMISSIONS COMPONENT DEFINITION FROM SUBPART OOOOA TO BE USED WHEN FOLLOWING AN ALTERNATIVE APPROVED STATE PROGRAM, BUT EPA SHOULD NOT REQUIRE A DUPLICATIVE ADMINISTRATIVE BURDEN.

EPA could finalize a hybrid approach and require that, if an operator complies with an "approved" state LDAR program then the operator must follow the fugitive emission comment definition in Subpart OOOOa and assure that all components are included in the surveys (even if the fugitive emissions component definition in the state program is less expansive). However, there should be no reporting, recordkeeping or monitoring plan requirements as that is an administrative burden with no added environmental benefit and further defeats any benefit from EPA approving these state programs in the first place.

6.3 TYPOGRAPHICAL ERRORS WITHIN § 60.5399A

There are appear to be typographical errors in the proposal rule regarding state program equivalency. Specifically, EPA appears to only approve Method 21 under Ohio's program; however, EPA's review memo included use of OGI as well. For Pennsylvania, EPA has listed GP-5 twice in the regulatory text. Well sites should be associated with GP-5a and compressor stations with GP-5.

Additionally, EPA only included the Texas Standard Permit but missed the Texas Non-rule Standard Permit[30]. The Non-rule Standard Permit's LDAR provisions are similar to the Standard Permit. API requests that EPA add the Texas Non-rule Standard Permit to the approved State AMELs.

7.0 STORAGE VESSEL APPLICABILITY

API opposes the proposed changes to regulatory language regarding the determination of Subpart OOOOa applicability for storage vessels. EPA's proposed revisions to the storage vessel applicability language in § 60.5365a(e) and its proposed revisions for the definition of "*maximum average daily throughput*" results in a very impractical and inappropriate method for calculating and using the 30-day production applicability period. EPA's proposed revisions involve EPA in states agencies' authority to issue air permits containing legally and practically enforceable limits on VOC emissions from individual storage tanks and compromises Cooperative Federalism between EPA and state agencies. See: https://www.epa.gov/home/cooperative-federalism-epa: "*EPA is embracing cooperative federalism and working collaboratively with states, local government, and tribes to implement laws that protect human health and the environment, rather than dictating one-size-fits-all mandates from Washington.*" *(Emphasis added).*

7.1 TECHNICAL AND PRACTICAL ISSUES WITH THE PROPOSED REVISIONS TO DEFINITION OF "*MAXIMUM AVERAGE DAILY THROUGHPUT*"

EPA's proposed revised definition of "maximum daily average throughput" is not practical or appropriate. The proposed approach would frequently result in situations where the total emissions resulting from calculations to determine applicability can be multiple times what the actual emissions are for situations when more than one tank is present (which occurs in the vast majority of situations with new storage vessels). Specifically, for a situation where a site has produced fluids flowing to a group of "x number" storage vessels, it would be quite common to end up with emission estimates for individual storage vessels as well as the group as a whole that are "x number" times the actual emissions.

There are a number of different ways in which companies configure groups of tanks, but for the purposes of this discussion, let's focus on an example site with four (4) 400-barrel storage vessels where flow is being routed to one vessel at a time, until that vessel is full, and then to other vessels. If we assume that each vessel takes 7.5 days to fill, at the end of 30 days, we would have 4 full storage vessels containing a total of 1600 barrels of fluids. Applying EPA's proposed approach to this situation would mean that each storage vessel would need to estimate emissions assuming a flow rate of 400 barrels per 7.5 days or 53.3 bbl/day. With four storage vessels present and each calculating this way, EPA's proposed method would result in total emissions based on 53.3 x 4, or 213.2 barrels per day of production, when the actual production rate is only 53.3 barrels per day. Of course, to obtain a correct "average production or throughput" the correct answer would be to divide the total 30-day production through each tank by 30 days (400 barrels x 7.5 days / 30 days = 100 barrels).

[30] https://www.tceq.texas.gov/permitting/air/newsourcereview/chemical/oil_and_gas_sp.html

Additionally, most wells decline significantly over the first year at a rate of up to approximately 50 to 80 percent. Thus, the actual average emissions for the first year may only be an average of approximately 32 barrels per day when one considers production decline. With EPA's assumption in this case, production could be estimated as much as 6.6 times the actual production rate in the first year. Note that Section 7.5.2 of these comments also highlights that EPA is aware of the potential challenges when storage vessels are connected in parallel and has made efforts in the past to try to address this situation.

Additionally, when there are multiple controlled storage vessels at a site (as affected facilities under Subpart OOOOa or covered by a state permit or other limit), they are typically tied into a single control device. That is, the vapors from the collection of storage vessels are collected in a common manifold and routed together to a single emission point, the control device. This fact creates further inconsistency and challenges with EPA's proposed approach for determining applicability as the air emission source in a traditional sense has shifted from a single storage vessel to a single control device associated with a group of storage vessels.

API believes that even the current approach to determining emissions for applicability is conservative since operators must consider only the first 30 days of production, and there is no allowance for a reflection of the reality that production from wells declines over time, often very quickly. API also expects that there would be limited environmental benefit from the proposed change as most new storage vessels that receive oil or condensate are being installed with controls. This issue is discussed further in Section 7.2.

Perhaps for certain lower production scenarios or situations involving low volatility crude, EPA's proposed changes could result in the controlling of vessels that would not otherwise have had them. However, even in this scenario, there would be very low environmental benefit from the controls (due to the low actual emissions). Further, in all likelihood, a situation such as this would result in vessels that will have actual emissions < 4 TPY VOC after just the first 12 months of production. Thus, controls could be removed after just one year and would, in hindsight, prove to have not been cost effective in the first place.

7.1.1 EPA'S PROPOSED CHANGES ARE INCONSISTENT WITH POSITIONS TAKEN DURING THE ORIGINAL SUBPART OOOO RULEMAKING.

It is very difficult and impractical to measure throughput rates through individual storage vessels in a tank battery. EPA has recognized this in the preamble of the proposed Subpart OOOO rule, in proposed amendments to Subpart OOOO, and in EPA responses to public comments on those amendments. Provided below are two excerpts from EPA's Response to Comments document from the Subpart OOOO rulemaking. These excerpts clearly demonstrate that EPA has no intention to require the monitoring of flow to individual storage vessels under the rule. The proposed modifications to the definition of maximum average daily throughput in § 60.5430a certainly appear inconsistent with EPA's previously stated intent.

EPA Response to Public Comments, EPA-HQ-OAR-2010-0505-4546 (April 18, 2012), at 106-107 (Commenter 4178 – Laura Finley, ODEQ)

> *Comment: One commenter (4178) asserts that it is industry practice to not maintain records of the throughput of each individual tank; rather, total load out records are kept, which only show the total volume, rather than the volume at each individual tank. The commenter believes that*

putting the mechanisms in place to be able to track the totals at each individual tank, in addition to the reporting requirements, could prove to be a great burden on industry.

Response: We do not believe that the concerns expressed by the commenter apply under the final rule. The final rule does not determine applicability based on throughput, nor does it require monitoring of throughput. Instead, operators are required to determine at the outset whether a new, modified or reconstructed storage vessel will have uncontrolled VOC emissions equal to or greater than 6 tpy and, if so, must install controls. The operator is not required to track VOC emissions thereafter.

EPA Response to Public Comments, EPA-HQ-OAR-2010-0505-4546 (April 18, 2012), at 126-127

Comment: Several commenters (3560/4258, 4192, 4219, 4228, 4241, 4246, 4266) object to the requirement in the proposed rule to use flow meters to determine the annual throughput of storage vessels...

Response: The final rule does not require the use of liquid throughput flow meters because the applicability of the storage vessel control requirements is determined based on annual VOC emissions, rather than liquid throughput as proposed. As discussed above and in section IX.E of the preamble to the final rule, we made this change in part because we are convinced that VOC emissions from stored fluids in the ONG industry are too variable to be regulated based on an average emission factor. Other factors in our decision to change the applicability metric include the issues raised by these commenters.

Recommendation:

EPA should review the previously stated comments by the Agency (noted above) and re-evaluate whether clarifications are actually needed to the rule regarding storage vessel applicability.

If there are changes ultimately made to the rule, the word maximum has always added confusion with respect to calculating the average daily throughput and should be removed. It is more appropriate that average daily throughput be represented as the total throughput to an individual storage vessel over the 30-day evaluation period specified in § 60.5365a(e)(1) divided by 30 days.

7.2 STORAGE VESSEL APPLICABILITY SHOULD BE OF LITTLE CONCERN WHEN EMISSIONS ARE CONTROLLED

Feedback from API members indicates that the vast majority of new storage vessel batteries currently being designed and installed are equipped with a control device. As long as an operator is controlling storage vessel emissions at well sites or central tank batteries in compliance with "a legally and practically enforceable limit in an operating permit or other requirement established under a Federal, State, local or tribal authority," it matters little from an environmental perspective that the storage vessels are not subject to Subpart OOOOa compliance, recordkeeping and reporting requirements. In addition, states and operators have focused significant attention and resources to further address the appropriate sizing of storage vessel emissions control systems to ensure adequate handling of initial high production rates and peak flow from dump valves. It is also appropriate to note that, beyond general duty obligations that have always existed with respect to designing and maintaining equipment to minimize emissions,

when new storage vessels are added to a site, it is generally associated with the addition of wells to the site. In that scenario, the fugitive components associated with the closed vent system for the controlled storage vessels would be subject to the Subpart OOOOa fugitive component requirements.

7.3 RESTRICTIONS ON THE USE OF LEGALLY AND PRACTICALLY ENFORCEABLE LIMITS BY STATES, TRIBES, OR LOCAL AGENCIES VIOLATES THE CONCEPT OF COOPERATIVE FEDERALISM

EPA finalized effective rulemaking when it provided the original language in § 60.5395 that allowed an operator to use a legally and practically enforceable limit to keep its storage vessels out of Subpart OOOO. This resulted in the vast majority of new and modified well sites opting to take these limits and incentivized the installation of storage vessel emission controls long before the applicability date of Subpart OOOO. EPA's proposed revisions undermine this incentive and compromise cooperative federalism.

The benefits of this approach are similar to the benefits realized previously with respect to 40 C.F.R. part 63, Subparts HH and HHH, where companies can establish limitations on benzene emissions through enforceable permit conditions to maintain dehydrator operations below levels that trigger the MACT control requirements under those rules.

Additionally, EPA's proposed revisions are wholly inconsistent with EPA's reliance on states to administer the Clean Air Act with regard to the Title V and PSD. That is, EPA allows states to establish emission limits on sites that keep sites below Title V and PSD permitting thresholds. This has long been an effective approach to reduce recordkeeping burden while directionally reducing potential emissions – the same goal being met with the original Subpart OOOO/OOOOa language and approach.

7.4 HISTORY OF SUBPART OOOO STORAGE VESSEL APPLICABILITY LANGUAGE

A brief look at the history of how the storage vessel applicability methodology and rule language evolved, from the August 23, 2011 proposed Subpart OOOO rule to the June 3, 2016 final Subpart OOOOa rule, further demonstrates that the newly proposed amendments are impractical and unnecessary. Underlined wording is emphasis added.

7.4.1 AUGUST 23, 2011 PROPOSED SUBPART OOOO RULE AND AUGUST 16, 2012 FINAL OOOO RULE

In the original proposal for controlling VOC emissions from storage vessels, in § 60.5365, EPA exempted storage vessels for which either (1) the annual average condensate throughput is less than 1 barrel per day per storage vessel, or (2) the annual average crude oil throughput is less than 20 barrels per day per storage vessel. As explained in the Best System of Emission Reduction (BSER) analysis on pages 7-18 through 7-21 of the July 2011 Technical Support Document. EPA intended to exempt individual storage vessels with less than 6 TPY of VOC emissions. EPA attempted to simplify the applicability method for facility owners by applying a fixed VOC flash emissions factor of 33 lb VOC/bbl of condensate and 1.6 lb VOC/bbl of crude oil. However, public commenters, principally API, noted that the 33 lb VOC/bbl emissions factor was much too high for most condensates and was based on a very flawed storage tank emissions study conducted for TCEQ. It was also pointed out that condensate and crude oil

VOC flash emissions factors vary greatly from basin-to-basin and field-to-field due to the variability of last separator liquid API gravity, composition, temperature and, especially, pressure operating conditions.

EPA received many public comments regarding the costs and impracticability of measuring liquid flow rates to individual storage vessels. (See EPA's Response to Public Comments on Proposed Rule August 23, 2011 (FR 52738)). Therefore, in the August 16, 2012 final rule, EPA revised the storage tank applicability language to a basic VOC emissions determination. In § 60.5365 (a)(1), for well sites with no other wells in production, EPA stated that "…you must determine the VOC emission rate for each storage vessel affected facility using any generally accepted model or calculation methodology within 30 days after startup…." In § 60.5395 (a)(2), for well sites with one or more wells already in production, EPA stated that "…you must determine the VOC emission rate for each storage vessel affected facility using any generally accepted model or calculation methodology upon startup."

In the rule preamble on page 49498, EPA addressed the reasoning behind the revisions to storage vessel applicability stating "For storage vessels ….with no wells already in production…, the final rule provides a 30-day period from startup for the owner or operator to determine whether the magnitude of VOC emissions from the storage vessel will be at least 6 TPY" and "For storage vessels at well sites with one or more wells already in production….these estimation and installation periods are not provided because an estimate of VOC emissions can be made using information on the liquid production characteristics of existing wells."

It is obvious EPA intended for the 30-day evaluation period to simply be a time period for determining each storage tank's potential annual VOC emissions using any generally accepted model or calculation methodology.

7.4.2 JULY 17, 2014 SUBPART OOOO RECONSIDERATION AMENDMENTS: PROPOSED RULE AND DECEMBER 31, 2014 FINAL RULE

The proposed amendments for storage vessels were simply to (1) amend the provisions for determining storage vessel PTE when vapor recovery is being used for control, (2) add closed cover requirements for other mechanisms besides weighted lid thief hatches, and (3) slightly amend the requirements for storage vessels to clarify notification and other requirements for storage vessels that are removed from service. To that end, EPA proposed adding a definition of "removed from service" to § 60.5430.

However, without any public notice or public comment period, in the final rule EPA introduced the concept of storage vessels being returned to service and possibly being operated in "parallel" with existing storage vessels and how that affects VOC PTE for the two storage vessels. EPA also introduced the concept of calculating VOC PTE based on "maximum average daily throughput for a 30-day period." In the preamble, EPA stated that "Although we believe it is an unlikely occurrence, we note that, when two or more storage vessels receive liquids in parallel, the total throughput is shared between or among the parallel vessels and, in turn, this causes the PTE of each vessel to be a fraction of the total PTE. In these cases, the EPA would consider the parallel storage vessels equivalent to a single vessel with PTE equal to the sum of the PTE of the individual vessels."

EPA revised the definition of *storage vessel* to include the language that "Two or more storage vessels connected in parallel are considered equivalent to a single storage with throughput equal to the total throughput of the storage vessels connected in parallel." EPA also, without any justification, added a definition for "*maximum average daily throughput*" to mean "the earliest calculation of daily average throughput during the 30-day PTE evaluation period employing generally accepted methods." EPA also

revised some of the storage vessel applicability language in § 60.5365 to include that "The potential for VOC emissions must be calculated using a generally accepted model or calculation methodology, based on the maximum average daily throughput determined for a 30-day period of production prior to the applicable emission determination deadline specified in this section."

After publication of the final amendments in the Federal Register on December 31, 2014, numerous upstream and midstream O&G companies and trade groups raised concerns about the storage vessel applicability revisions to EPA for: (1) being made final without public notice and comment; and (2) for EPA making assumptions about the operation of storage vessels connected in parallel and/or series without any understanding of how the storage vessels may be operated in practice. Specifically, on February 19, 2015, the Gas Processors Association (GPA) submitted a petition for administrative reconsideration of the December 21, 2014 amendments. The GPA asserted that "it is quite common for multiple storage vessels to be situated next to each other and connected in parallel. Sometimes the storage vessels are operated in parallel, sometimes they are operated in series, and sometimes they are operated one-at-a-time with the connecting valves closed." The GPA asserted this configuration has existed for decades and that "this language potentially has large impacts to how our members evaluate affected facility status."

7.4.3 March 23, 2015 Oil and Natural Gas Sector: Definitions of Low Pressure Gas Well and Storage Vessel: Proposed Rule and August 12, 2015 Final Rule

In response to the concerns raised by numerous companies and trade groups including GPA in its petition for reconsideration regarding the finalized revisions to storage vessel applicability language, EPA proposed "to amend the NSPS to remove provisions concerning storage vessels connected or installed in parallel and to revise the definition of "storage vessel". EPA discussed its original concern about storage vessels connected or installed in parallel in the proposed rule preamble and stated "For the reasons discussed above, we are proposing to remove the regulatory provisions relative to storage vessels 'installed in parallel' or 'connected in parallel.' Instead, we solicit comment on other approaches to help avoid or discourage installations or operation of storage vessels that would unnecessarily reduce the potential to emit (PTE) of a single storage vessel." On August 12, 2015, EPA finalized the revisions as proposed.

On pages 14 – 20 of the July 2015 Response to Public Comments on Proposed Rule (80 FR 13180): March 23, 2015), EPA responded to a number of public comments that provide information on EPA 's rational for removing the provisions concerning storage vessels connected or installed in parallel and revising the definition of "storage vessel."

7.4.4 September 18, 2015 Proposed Revisions to Subpart OOOO and Subpart OOOOa Proposal

In this action, EPA kept the method of determining storage vessel applicability as it was for the final Subpart OOOO amendments.

By keeping the storage vessel applicability language as it was for the final Subpart OOOO amendments, EPA reaffirmed (1) the use of "legally and practically enforceable limits" and (2) no language was necessary to address any concerns with whether storage vessels are operated in series or parallel.

8.0 PNEUMATIC PUMPS

API supports EPA's proposed removal of the "greenfield" site designation and the associated proposed revisions that allow the technical infeasibility determination associated with the control of an affected pneumatic pump at all well site locations. We agree with EPA's determination that this designation should be removed. There are, however, additional technical clarifications related to the pneumatic pump requirements that EPA failed to address:

- Explicit clarification that heaters and boilers need not be considered as either a control device or as "routed to a process" with respect to the requirements in § 60.5393a for pneumatic pumps. This is especially important when reviewing revisions made to § 60.5412a and § 60.5413a with respect to control of centrifugal compressors and storage vessels using a heater or boiler.
- Simplification of the technical infeasibility assessment to account for situations that are common to operators, including situations when control devices are owned and operated by a third party or presence of only a high-pressure flare.

8.1 HEATERS AND BOILERS

EPA has not addressed API's request to clarify how to handle boilers and process heaters with respect to the requirements to control pneumatic pumps by routing to a process or a control device.[31] By contrast, 40 CFR 63 Subpart HH and Subpart HHH include the following language under the definition of a "*control device*": "*For the purposes of this subpart, if gas or vapor from regulated equipment is used, reused (i.e., injected into the flame zone of an enclosed combustion device), returned back to the process, or sold, then the recovery system used, including piping, connections, and flow inducing devices, is not considered to be a control device or a closed-vent system.*"

By not providing this clarity with respect to pneumatic pumps under Subpart OOOOa, operators must review the technical feasibility of routing pump exhaust emissions to any small heater or boiler added at the well site per § 60.5393a(b)(3)(i) and maintain additional records. For many heaters/boilers used at well sites, the burner capacity will be insufficient to compensate for emission combustion of additional pneumatic diaphragm pump discharge due to their small size, which is generally 0.5-1.25 million BTU/hour. This may result in frequent safety trips and burner flame instability (e.g., ., high temperature limit shutdowns, loss of flame signal, etc.). There are additional safety concerns due to the intermittent, pulsating exhaust of gas when the pump de-pressures because this can cause problems for the pilot or fuel system. Additionally, industry guidelines (i.e., NFPA 86) would prohibit the use of boilers/heaters as control devices based on specific criteria including minimum operating temperature and presence of

[31] Under Subpart OOOOa, the provisions related to "control device" and "routed to a process" or "route to a process" are unclear with respect to controlling pneumatic pumps. These devices have additional requirements when controlling a storage vessel or wet seal centrifugal compressor that are not appropriate for the control of the intermittent emissions vented from a diaphragm pneumatic pumps.

emission source safety interlocks. Furthermore, small heaters and boilers are not inherently designed for control of emissions.

Consequently, boilers and heaters should not be considered "as routed to a process" nor as a control device with respect to the pneumatic pump requirements in § 60.5393a. We ask EPA to clearly provide this distinction under § 60.5393a(b)(3) to eliminate confusion with other requirements in the rule.[32] This will reduce the overall administrative burden by removing the recordkeeping requirements specific to certification of the technical infeasibility of using a small heater at well site with respect to control of pump emissions.[33]

Recommendation:

EPA should revise the rule language to clarify that, for the purposes of complying with the pneumatic pump provisions, heaters and boilers should not be considered as "routed to a process" or as a control device.

8.2 SIMPLIFICATION OF TECHNICAL INFEASIBILITY ASSESSMENTS

API submitted in our August 8, 2018 letter a request to simplify and reduce the administrative burden associated with conducting technical infeasibility assessments for situations that are pre-determined to meet the criteria listed in § 60.5393a(b)(5)(iii). If any of these situations were to occur at a well site with an affected pneumatic pump, operators would not be required to perform a full certification of infeasibility, but would document the cause of the infeasibility with respect to the common situations listed. This would alleviate undue burden associated with the technical infeasibility and certification requirements within this rule without posing any environmental dis-benefit.

- ***Exceedance of Maximum Rated Heat Capacity:*** The combustion device has a rated heat capacity that would be exceeded if the discharge of pump were to be sent to it.
- ***Operating pressure of the flare header exceeds the discharge pressure of the pump:*** If a high-pressure flare is installed to control emergency and maintenance blowdowns, it would not be technically feasible to route the low-pressure pump exhaust to the high-pressure flare because the operating pressure of the flare header exceeds the discharge pressure of the pump. For a flare to properly combust emissions and meet the destruction efficiency, the flare must be designed to manage either a high pressure or low pressure flow and for specific volumes being sent to it. A low-pressure exhaust would not adequately flow to the flare tip and result in inadequate

[32] In § 60.5412a(a)(1) and (d)(1)(iv), states that introducing the vent stream into the flame zone of the boiler and heater would be using the boiler or heater as a control device. At the same time, § 60.5412a(a)(1)(iv) and (d)(1)(iv)(D),) requires the vent stream to be introduced with the primary fuel or use the vent stream as a primary fuel which would be routing the stream to a process. EPA has two conflicting requirements together in the same section. Inferring from the revisions in this proposal, EPA appears to distinguish the issue of whether a boiler/heater is a control or process device by where the vent stream to be combusted is placed. In §60.5413a(a)(3)), boilers/heaters are exempt from testing requirements if the vent stream is tied into the primary fuel or is the primary fuel for the heater firebox. This exemption indicates that EPA treats boilers/heaters as a process device. Conversely, if the vent stream is directed at the flame zone, then the boiler/heater appears to be considered a control device under the rule per § 60.5412a(a)(1) and (d)(1)(iv).

[33] If EPA continues to intend heaters and boilers be considered for reducing emissions from diaphragm pneumatic pumps, heaters and boilers should only be considered as process devices, which is inherent of their operational use;, with additional provisions streamlining the technical infeasibility assessment.

combustion of the exhaust. A separate flare would have to be installed to route the low-pressure exhaust from the pump which would not be cost-effective to install, as demonstrated in EPA's Regulatory Impact Analysis.

- ***Existing third-party control device on location:*** A company cannot legally route pump exhaust emissions to an existing third-party control device at a site. In addition, since the control device owner designs the equipment, the pump owner could not attempt to certify that the control device owned or operated by a third party is of sufficient design and capacity as specified in the certification requirements under § 60.5411a(d)(1). This is less likely to be an issue when a site location is being originally designed, but presents issues for existing locations where a new diaphragm pneumatic pump may be installed. Some examples of third-party control devices that an owner or operator of the pump could not route to include:
    - *Gathering Company Dehydration Unit Flare:* In some instances, a control device for the dehydration unit on a production site may be owned and operated by a gathering and collection system operator. In these instances, the well site operator does not have the right to route a pneumatic pump affected source exhaust to the control device.
    - *Reboiler for Dehydration Unit:* The reboiler for glycol dehydration unit and the dehydration unit may be owned or operated by the gathering company while the pump is owned by the production company. The production site owner would not have authority to route a pump to the dehydration unit reboiler.
    - *NGL Recovery Unit Flare:* There are instances where a natural gas liquids (NGL) recovery unit with a flare are owned by a third party, such as a gathering company, that is located at a production site with a pump that is owned by the production company.
- ***Presence of Small Boiler or Small Process Heater:*** Comment 8.1 outlines technical challenges with use of boilers and heaters with respect to control of a pneumatic pump. If EPA does not provide clarification for handling boilers and heaters with respect to control of pneumatic pumps, then simplification of the technical infeasibility assessment must be provided based on the stated technical considerations.

Recommendation:

EPA should reduce the administrative burden associated with conducting technical infeasibility assessments for situations that are pre-determined to meet the criteria listed in § 60.5393a(b)(5)(iii). Any of the following situations should be considered to represent common technically infeasible situations and such situations should not require further assessment: (1) Flare or other combustion device has a rated heat capacity that would be exceeded if the discharge of pump were to be routed to it; (2) Operating pressure of the flare header exceeds the discharge pressure of the pump; and (3) The control device is not owned and operated by the owner/operator of the pneumatic pump.

8.3 THE 90-DAY EXEMPTION BASED ON CALENDAR DAYS SHOULD ALSO ALLOW FOR 2,160 HOURS OF OPERATION IN § 60.5365A(H)(2)

API requests the use of a non-resettable run-time meter or automation to track hours of operation of a pneumatic pump to demonstrate that pumps that operate only occasionally operate less than 2,160 hours in addition to the current 90-day exemption. Allowing the use of a run-time meter or other automation to demonstrate operation below 2,160 hours per year would allow greater flexibility in documentation and

better compliance demonstration that the pump runs less than 90 days a year. There are a number of pumps that might run for less than an hour every day or two, such as a water transfer pump. Such a pump would have very low annual emissions yet could still trigger the rule under the current language due to the nature of its operation.

EPA should maintain the current 90-day exemption in addition to this option. To be clear, 2,160 hours is the equivalent timing of a pneumatic to a pump that operates 24 hours per day for 90 days. EPA's background documentation established the 90-day exemption assuming 24 hours of operation of a pump based on a pump emission rate of 22.45 scf/hour (equivalent to assume emission rate of a diaphragm pump from the technical support document).

8.4 CROSS REFERENCE ISSUES IDENTIFIED FOR PNEUMATIC PUMP CLOSED VENT SYSTEM REQUIREMENTS

Although dependent on how pneumatic pump closed vent systems are handled in the final revision to Subpart OOOOa, API notes that there are numerous issues with the references to the closed vent system requirements proposed by EPA, including:

- There are no references to § 60.5415a and § 60.5416a found in § 60.5393a. Only § 60.5410a, §§ 60.5411a, and 60.5420a are referenced in 60.5393a and these sections do not reference 60.5415a or 60.5416a. This is very confusing because operators subject to pumps may not read these sections to know that they are subject to them if that, in fact, is EPA's intent.
- § 60.5415a(b) references both pumps and centrifugal compressors though the reporting requirements in § 60.5415a(b)(3) which include requirements that only apply to centrifugal compressors [including § 60.5420a(b)(3), § 60.5420a(c)(2), (7), (9), (10), and (11)]. API recommends that pneumatic pumps be split from centrifugal compressors in this section to make it clear the applicable reporting and recordkeeping requirements that apply to pneumatic pumps. Pneumatic pumps should only be subject to § 60.5420a(b)(1) and (8) and § 60.5420a(c)(6), (8), (16), and (17).
- Though it may be an oversight, § 60.5416a(b) still includes pneumatic pumps for the requirement to do Method 21 monitoring of the closed vent systems.
- Under § 60.5416a(c)(2), EPA has included reference to pneumatic pumps in the cover requirements listed in § 60.5416a(c)(2), although pumps do not have covers and are not subject to the cover requirements under § 60.5411a(b). We believe this is a cross-reference typographical error.
- There is no date upon which § 60.5416a(a) and (b) no longer apply and § 60.5416a(c) applies to the closed vent systems of pneumatic pumps. Therefore, it is unclear for operators whether or not sites already subject should change inspection methods for the closed vent system or keep using the existing method. Clear dates should be incorporated in the rule stating that it applies to existing Subpart OOOOa pumps and new as of publication of the proposal on October 15, 2018. EPA should also consider additional flexibility of assurance for pump CVS as discussed in Comment 10.0.

9.0 CERTIFICATION BY AN IN-HOUSE ENGINEER OR QUALIFIED PROFESSIONAL ENGINEER

9.1 IN-HOUSE ENGINEER OR QUALIFIED PROFESSIONAL ENGINEER CERTIFICATION CHANGES

API supports changing the requirement to require a qualified professional engineer for the CVS certification but the proposed changes to the rule to allow the use of an in-house engineer for certification still result in costs and difficulties in certifying:

- The technical infeasibility for routing pneumatic diaphragm pumps to a control device or process under § 60.5393a(b)(5), and
- The closed vent system (CVS) under § 60.5411(d)(1) for centrifugal compressor well seal fluid degassing systems, reciprocating compressors, pneumatic pumps and storage vessels.

Some challenges that will remain even with allowing an in-house engineer include the following:

- EPA has not defined in-house engineer, as to whether the engineer must be a full-time employee or could be a consultant working "in-house" for the company.
- Most in-house engineers and Professional Engineers (PE's) are not bonded and insured, thus are not willing to certify that they are *"aware there are penalties for knowingly submitting false information."* Some engineers fear that this statement could result in prosecution of individuals versus the company or the responsible official certifying the entire report.
- If an engineer (PE or in-house) did not design the whole system, they are unwilling to certify the CVS system. The new amendments are still not adequate.
- EPA underestimated the cost for an engineering certification as detailed in Comment 9.2

As stated in our December 8, 2017 letter to EPA, API maintains that a technical assessment of a closed vent system by a qualified engineer is an appropriate action for compliance assurance of the emission standards for storage vessels, compressors and pneumatic pumps. Documentation of this technical assessment should provide adequate compliance assurance that can be made available upon request to EPA. EPA should remove the certification statement in § 60.5411(d)(1)(i). The certification requirement and specific certification language that EPA includes in § 60.5411(d)(1)(i) presents numerous challenges and unintended costs beyond what EPA considered during this proposal. The certification process and statement itself does not add significant environmental benefit nor additional compliance assurance since there are provisions in place for ongoing compliance specific to the operation of closed vent systems, a general duty for all operators to minimize environmental impacts, and the annual report must be approved by a certifying official.

- There is already a 'general duty obligation' in § 60.11(d) for owners and operators to ensure proper operation and maintenance of equipment. The engineering certification statement does not relieve companies of this duty.
- The certifying official is already required to sign the report certifying the company's compliance with all applicable provisions.
- There are direct costs associated with the engineer certification process, whether companies support in-house licensure of engineers or leverage third parties.

- Engineering documentation showing that the closed vent system was properly designed or that a control was technically infeasible as part of the recordkeeping requirements should provide adequate compliance assurance. These records can be made available by request to the Administrator, as necessary.

Recommendation:

EPA should eliminate the certification statement in § 60.5411(d)(1)(i). If EPA retains the certification statement within the technical assessment, we request EPA should replace the descriptor of "in-house" to allow an engineer with knowledge/oversight of the system design. EPA should review the certification language with respect to liabilities for the engineer providing the assessment. The certifying official is already required to attest to their company's compliance with all applicable provisions. Any inclusion of discussion of liabilities for the engineer themselves only confuses EPA's intent that a professional engineer is not required.

9.2 EPA UNDERESTIMATED THE COST OF AN ENGINEERING CERTIFICATION

API members report costs ranging from $2,000 - $9,000 per certification; with actual cost dependent on the site complexity and, thus the amount of engineering design time involved. EPA estimates each certification by a professional engineer would cost only $547 and an in-house engineer would cost only $358. These costs are based on only four hours of staff level engineer time for the in-house engineer and on only two hours of work by a professional engineer. This level of cost does not match the inherent time required to have knowledge of the system prior to the certification; especially given the language and liability included within the certification language.

10.0 CLOSED VENT SYSTEM AND COVER REQUIREMENTS

API appreciates that EPA has made efforts to propose changes to the pneumatic pump closed vent system requirements versus requiring annual Method 21 inspections of the pump closed vent system. EPA has proposed to align pneumatic pump CVS inspections with the requirements for storage vessel CVS inspection. API has discussed different approaches to the pump CVS requirements with EPA and would like to clarify our position.

- API request EPA further increase flexibility pertaining to the closed vent system requirements for pneumatic pumps by allowing the option to perform monthly AVO inspections or allow annual OGI or Method 21 inspections.
- API requests simplification of the recordkeeping and reporting requirements for the CVS inspections. Consistent with our position on other recordkeeping and reporting, EPA should focus on the most important elements and not require data that does not provide direct value.

10.1 EPA SHOULD INCREASE FLEXIBILITY IN PNEUMATIC PUMP CLOSED VENT SYSTEM INSPECTIONS

Unlike closed vent systems that are used to route storage vessels to a control device, a closed vent system with respect to control of pneumatic pump emissions is simply a hard piece of pipe with connectors or

flanges. While the technical feasibility of routing pneumatic pump emissions to a control device presents many technical challenges, as described in previous comments, once the pump is routed to a control device through a closed vent system, the closed vent system itself is fairly simple in design. Given the simplicity and low potential for leaks or defects along the piping, EPA could and should allow increased flexibility in implementation of the no-detectable emission limit along this piece of pipe by allowing multiple options to perform inspections including monthly AVO, annual OGI, or annual Method 21. EPA has considered OGI an equivalent method under the leak detection and repair requirements and the hard piping of the closed vent system for the pump for defects can be performed the same as looking at fugitive components.

Practically speaking, for sites where monthly AVO is being performed on an affected storage vessel, many companies would prefer to do monthly AVO. For sites subject to Subpart OOOOa leak requirements and no Subpart OOOOa storage vessels, companies are more likely to prefer to conduct annual OGI inspection.

Recommendation:

EPA should further increase flexibility pertaining to the closed vent system requirements for pneumatic pumps by allowing the option to perform monthly AVO inspections or allow annual OGI or Method 21 inspections.

10.2 SIMPLIFY RECORDKEEPING AND REPORTING FROM MONTHLY AVO

EPA is requiring that operators collect and report a great amount of information for closed vent system AVO inspections. This data collection increases the time that it takes to do these inspections and increases burden of such inspections without providing a clear environmental benefit. API requests that the reporting requirements for both storage vessels (in § .605420a(b)(6)(ix)) and pumps (in § 60.5420a(b)(8)(iv)) be eliminated and not finalized as proposed.

API requests that the recordkeeping requirements be further simplified, consistent with previous comments, and limited to the following:

- Site ID
- Date of the inspection;
- Number and type of defects identified;
- Number and type of defects that were not repaired as required; and
- Number and type of defects placed on delay of repair and explanation for each delay of repair.

API also requests that EPA remove the requirements for recordkeeping under § 60.5420a(c)(6), (7) & (8) and reporting under § 60.5420a(b)(8)(iv) for pumps for covers because pneumatic pumps do not have covers and are not subject to § 60.5411a(b). We believe this is likely a typographical error in the proposed rule.

11.0 WELL COMPLETIONS OPERATIONS

11.1 API SUPPORTS CLARIFICATIONS REGARDING SEPARATOR LOCATION AND DEFINITION OF FLOWBACK; SEEKING ADDITIONAL CLARITY IN PROPOSED DEFINITIONS

We support EPA's proposed clarifications regarding well completion operations in § 60.5375a(a)(1)(iii) that explicitly allow use of nearby separators during flowback and provide the distinction that certain activities that occur prior to flowback including screenouts, plug drill outs and coil tubing cleanouts are not intended to be part of flowback as defined. There are additional minor clarifications required with respect to the newly proposed definitions for these activities as follows:

- *Coil Tubing Cleanouts* include mechanical methods to remove solids and/or debris from a wellbore. The process where an operator runs a string of coil tubing to the packed proppant within a well and jets the well to dislodge the proppant and provide sufficient lift energy to flow it to the surface.
- *Plug Drill-outs are* the removal of a plug (or plugs) that were used to isolate different sections of the well.
- *Screenout*s are attempts to clear proppant from the wellbore in order to carry the proppant out of the well.

11.2 PROPOSED DEFINITION OF PERMANENT SEPARATOR

In § 60.5420(b)(2) and (c)(1), EPA introduces the term "*permanent separator.*" The definition EPA provides in § 60.5430a for *"permanent separator"* describes temporary actions, which is contrary to the inherent meaning of the word permanent. Specifically, EPA defines the usage of the permanent separator as handling flowback between the initial flowback period and the startup of production, which is temporary in nature.

Recommendation:

To mitigate confusion on the flowback requirements, API suggests not finalizing the proposed definition of permanent separator and removing reference of the term for purposes of recordkeeping and reporting § 60.5420(b)(2) and (c)(1). The completion log requirements would not require a separate category since the daily log includes the time period described in this definition.

11.3 RECORDKEEPING AND REPORTING FOR COMPLETION OPERATIONS THAT IMMEDIATELY START PRODUCTION SHOULD BE SIMPLIFIED

In some locations, operators are able to start production immediately following well cleanup activities. In these cases, the flowback period, including both the initial flowback stage and separation flowback stages as defined in § 60.5430a, is bypassed and the well immediately starts production following well cleanup activities. For wells where it is possible to immediately start up production, we request simplification of the recordkeeping and reporting burden associated with maintaining the daily completion log. The simplification of these records is requested to reduce administrative burden since the daily completion log information is not relevant after startup of production.

Recommendation:

For well completions operations that immediately start production, API recommends that EPA only require the following for recordkeeping and reporting: 1) the United States Well Number, 2) the Well Completion ID, 3) Identification that the well immediately starts production (i.e. there is no initial flowback stage or separation flowback stage), 4) the date of startup of production (in lieu of Date of Onset of Flowback Following Hydraulic Fracturing or Refracturing).

12.0 OTHER TOPICS

12.1 THE EQUATION DEFINED FOR CAPITAL EXPENSE REMAINS UNREPRESENTATIVE OF CURRENT ECONOMIC CONDITIONS.

API believes that the definition of Capital Expenditure (and the equation listed in Subpart OOOOa) is unrepresentative of current economic conditions. It was meant to model inflation in the late 1970s and early 1980s, as stated in EPA-FR-1984-Vol 49 No 105, P 22603. API requests that EPA utilize a ratio of Consumer Price Indices (CPI), as noted in our original comments and as used in the "Civil Monetary Penalty Inflation Adjustment Rule" published in the Federal Register on July 1, 2016 and located at http://federalregister.gov/a/2016-15411. As we stated in our December 4, 2015 comments, the equation proposed by the EPA unrepresentatively overstates the effect of inflation in terms of discounting the value of B. We maintain that a Consumer Price Index (CPI) based equation is more appropriate for use in discounting inflation in current economic conditions.[34] API proposes that EPA use a CPI based equation to discount B (valued at 4.5% for our industry) as shown: Y = (CPI of date of construction or reconstruction/CPI of date of component price data).

An example of the effect of the improper use of inflation is that gas plants that are built after 1982 trigger "modification" with as little as a single valve added to the process unit. Many times these process units may require large replacements of "equipment" (as defined in the regulation) to comply with this change and permanent plant shutdowns may occur as a result because these replacements are uneconomic.

We incorporate by reference the following docket previously submitted to EPA by GPA on this issue. https://www.regulations.gov/document?D=EPA-HQ-OAR-2010-0505-7237 (page 42).

[34] Refer to Comment 16 in API's December 4, 2015 Comment letter at EPA-HQ-OAR-2010-0505-6884

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Attachment A
API's Response to EPA's Analysis of Well Site Fugitive Emissions Monitoring Data

ED_002719_00023646-00054

API's Response to EPA's Analysis of Well Site Fugitive Emissions Monitoring Data

Memo dated April 17, 2018
EPA-HQ-OAR-2017-0483-0036

EPA released a memo summarizing the Agency's review and analysis of the leak detection and repair (LDAR) data submitted by API in early 2018 (see Docket: EPA-HQ-OAR-2017-0483). EPA's memo discusses their view of data uncertainty associated with the data provided and presents EPA's rationale for why these uncertainties contribute to the inability of EPA to rely on the data directly with respect to the current proposed amendments. API members collected leak detection data from over 4,000 well sites across the country and submitted these data to help the Agency better understand trends with actual leak incidence occurring at well sites. API believes EPA's analysis and conclusion that the data cannot be relied upon is flawed for several reasons as detailed below by topic.

Additionally, the tone and content of EPA's memo suggest inherent bias by the agency. That is, the Agency's analysis implies that there must be flaws in the dataset as the results represented lower leak rates than EPA appears to have expected. This inference is particularly concerning as no data or explanation for EPA's expectations are provided. The data relied upon by EPA in developing its estimates for leaks from well sites comes from the 1995 EPA Leak Protocol document were values based on a small sample size of oil and gas operations. The 1995 Protocol was also derived from oil and gas facilities whose designs are expected to be significantly different than modern sites subject to Subpart OOOOa.

A. EPA Concern with Uncertainty of Well Site Age

Summary of Issue: EPA's stated concern is that the dataset did not provide the age of the wells. EPA asserts new wells *"could be expected to have a lower-than average incidence of fugitive emissions because components have not yet experienced degradation via wear and tear or lack of maintenance."*

API Response: API does not agree with EPA's assertion, but more importantly, we do not understand how this is a limitation to the data provided. By nature, New Source Performance Standards, like Subpart OOOOa, are directed at new and modified sources. Our dataset was focused on providing the initial leak incidence rates being observed by members at the type of facilities that EPA has regulated under Subpart OOOOa.

If EPA truly believes new well sites are expected to have lower than average leak incidence, this would directly conflict with EPA's reasoning for requiring new sources to perform leak detection within 60 days of startup. We would further question how EPA has estimated the baseline emissions for new well sites within their cost-effectiveness analysis since the model plants do not distinguish between new and modified locations. Furthermore, by EPA's logic, any inclusion of older wells undergoing the first OGI survey in API's dataset would only provide a higher than "average" initial leak incidence than a collection of only new wells. This would infer API's data is conservative with respect to types of well sites subject to the NSPS.

B. EPA Concern with Uncertainty of OGI Procedures and Environmental Conditions During Surveys

Summary of Issue: EPA expresses concern about the specific methods used in conjunction with the OGI surveys that led to the API dataset and concludes: *"Without standardization of monitoring procedures, or knowledge of which programs this initial monitoring was conducted under, it is not possible to determine the quality of the monitoring data and whether the survey operator accounted for environmental conditions and interferences during the survey."*

API Response: It seems EPA is expecting wide variability in the environmental conditions when OGI is used and thus, even though this dataset is large, such variability is so great that the average of the data is not useful. API believes this position is unreasonable and overly pessimistic with respect to the ability to use OGI instruments. While API appreciates the potential variability between equipment and the exact methods used in conjunction with the OGI camera, many of the survey data provided were collected under compliance obligations, either under Subpart OOOOa directly and/or another state program. API also believes that the dataset is quite large and covers many geographies and operators and is superior to the small dataset behind the 1995 EPA leak protocol document. Furthermore, it is difficult to understand how EPA can make these statements with respect to the OGI data provided by API and, in the same proposed rulemaking, rely upon OGI data collected through a helicopter survey in order to make assumptions specific to thief hatches and pressure relief valves.

With respect to environmental conditions and interferences, EPA states that lack of knowledge on wind speed and weather conditions effectively limits the use of the data provided. First, not all state programs have required capturing this type of information and therefore, it does not exist for some of the survey data. Perhaps more importantly, while API understands that Subpart OOOOa requires capturing this information, the fact is that EPA does not have any quantifiable method to include or exclude data based on it. Therefore, the assertion that the data cannot be used because the wind speed and weather condition information is missing is unreasonable.

While certain conditions, such as high wind speed, can make it more difficult to identify small leaks, operators are unlikely to perform surveys during high winds (and other limiting conditions). API believes it is also important to acknowledge that study after study shows that the majority of emissions come from the largest leaks. Even if one were to accept EPA's inference that some small leaks were missed during surveys, the mass of such leaks would have little impact on the overall expected emissions.

Lastly, industry has invested extensive resources in the use of OGI cameras. The cost to implement a leak detection and repair program is not insignificant. It is impractical to assume that companies are not properly using the technology after making such high investments in equipment and manpower.

C. EPA Concern with Uncertainty of Universe of Components Monitored

Summary of Issue: EPA expressed concern about whether or not all the components covered by Subpart OOOOa were surveyed since not all surveys were performed under the NSPS.

API Response: API member companies indicate that their staff and contractors generally make a record of all leaks identified during OGI surveys. Reasons for this include:

- A desire to not confuse staff completing the surveys with regard to what components are to be surveyed under different regulatory programs, and operators want to get the maximum benefit of mobilization for a given survey.
- Companies want to know that identified leaks are repaired to capture the natural gas for sales.

API believes that the universe of components in our dataset is, on average, more exhaustive than the components covered by Subpart OOOOa. Additionally, EPA's concern about the universe of components that are monitored may be coming from a different industry context. For example, a refinery or chemical plant will have components and entire sections of facilities that are not subject to LDAR under federal regulations. This is because certain streams may be low in VOC content and, therefore, are not subject to monitoring. For oil and gas well sites and compressor stations, there is no such applicability criteria. This means all the components at a well site or compressor station are subject to the leak survey. While closed vent systems under Subpart OOOOa undergo separate compliance measures through implementation of separate inspections, operators do not typically distinguish these components separately when using the OGI for reasons stated above, i.e. operators seek maximum benefit for conducting leak surveys.

D. EPA Concern with Uncertainty of Production Rates of Well Sites

Summary of Issue: There is no information provided on the production rates of the well sites included in the dataset and EPA did not want to misapply the data.

API Response: Production data are not easily associated with leak data based on the recordkeeping associated with leak detection surveys. In the absence of information on wells that are low production, we assumed all well sites in our dataset produce more than 15 barrels of oil equivalent per day.

E. EPA Concern with Uncertainty of Equipment Counts

Summary of Issue 1: EPA expressed concern about the accuracy of API's data, stating: *"Of the 4,117 well sites included in the dataset, only 95 of these well sites had known equipment counts. Equipment counts for the remaining 4,022 well sites were estimated using the default average component counts for onshore natural gas and crude oil production equipment listed in 40 CFR part 98, subpart W, Tables W-1B and W-1C."*

EPA goes on to state: *"Additionally, the counts in subpart W do not accurately reflect the entire universe of components that could be present at a well site. For example, for natural gas production equipment, Table W1B only lists estimated counts for valves, connectors, open-ended lines, and pressure relief devices on wellheads, separators, piping, compressors, heaters, and dehydrators. It does not include sources like storage vessels, where thief hatches would be a potential source of fugitive emissions."*

API Response to Issue 1: API is concerned by EPA's logic on the use of estimating components in the above statements for several reasons:

1) EPA has mis-categorized the data. There were 95 well sites that had a known level of actual components stated. We believe this was a typo in the memo. As EPA states, the additional 4,022 sites used known equipment counts to estimate the number of components using a

generally accepted approach that EPA has established under the Greenhouse Gas Reporting Program at 40 C.F.R. part 98, Subpart W.

2) The component count methodology under Subpart W have been the basis for the GHG reporting rule for several years, so it seems inappropriate for EPA to assert that the methodology is inadequate in estimating number of fugitive components.

3) While EPA infers it was inappropriate for API to use these Subpart W component factors in our analysis, these are the same component factors EPA uses in the development of the model plant. We fail to understand how our application of these factors in estimating components based on known equipment at our well sites is different than EPA's methodology of establishing the number of components at the model plants using the same factors.

4) By EPA's stated example, the component counts provided in our dataset are estimated lower than what EPA feels might be representative, indicating our data were conservative. In other words, the leak incidence values in the dataset would be even lower when these additional components are added to each well site; in addition to the Subpart W factors already estimated.

5) We reviewed the average components based on the actual equipment listed in our data compared to the average number of components EPA had used during the final rulemaking in Subpart OOOOa (which were available during the time the API data was compiled). While our data show slightly higher components for Oil Wells Associated with Gas, our gas well sites contain, on average, about 100 less components than EPA's gas well site model plant for the final rulemaking.

   We also note that EPA has reduced the number of estimated component counts in their newly released model plant for both gas well and oil well sites. This directly conflicts with EPA's stated concerns that our dataset had underestimated the total number of components with respect to estimating the leak incidence.

EPA Model Plant Categories in Final Rule	**EPA Model Plant Components in Final Rule**	**Average Components from API Data**	**Model Plant Counts in Proposed Rulemaking**
Gas Well Sites	671	580	610
Oil Well Sites (GOR < 300)	127	Not applicable, data only include light crude oil wells with associated gas.	127
Oil Well w/ Associated Gas (GOR > 300)	314	347	257

Summary of Issue 2: *"An estimated component count will likely bias the leak rate, as the leak rate is directly correlated to the number of components present and monitored. Whether the leak rate is biased high or low would depend on whether the fugitive components are over or under estimated."*

API Response to Issue 2: We agree the total number of components at the site is an important factor when considering the overall leak incidence rate. In this context, a site with only 40 total estimated components should not be equally compared to a location with 1,000 estimated total components. To account for this variation, we applied a weighted average to specifically account for the number of total components estimated at the site. We continue to maintain that this was a correct approach and one that directly addresses the variation and uncertainty in using estimated component factors. We discuss this more in our response to EPA's concerns with the calculated leak rates.

Summary of Issue 3: EPA states, "*Furthermore, because the equipment counts do not include components like thief hatches, it calls into question whether these types of components were monitored during the surveys. As previously discussed, the presented information is limited as to whether the universe of fugitive emissions components required under the 2016 NSPS OOOOa were monitored during the surveys, potentially biasing the leak rates; the equipment counts further reinforce this concern."*

API Response to Issue 3: As discussed in API's response to Section C above, the assertion that API members are not surveying all potential fugitive components is unfounded and is simply inaccurate. Further, the methodology used to determine an estimate of total components at a well site does not influence or impact the number or type of leaking components identified within the leak records. For EPA to make any linkage or assumption between the approach to estimate the number of components and the count of leaks identified is unfounded. Our analysis included review of records maintained when conducting initial leak surveys at 4,117 well sites. We then paired this information with separate records that describe the number and type of equipment located at these well sites. Information regarding equipment to estimate the number of components of these sites based on an approach developed by EPA to estimate fugitive components. This was a large undertaking by member companies to collect and organize data in order to present information in, what was believed to be, a useful format for the Agency.

F. EPA's Concern with the Uncertainty of Zero-leak Rates

Summary of Issue: EPA claims the dataset contained an unusual number of well sites reporting no fugitive emissions during the monitoring surveys. "*Of the 4,117 well sites, 44% reported no fugitive emissions. This extremely high percentage of well sites with a zero-leak rate reinforces concerns related to the proper use of OGI and the need for standardization in the way that OGI is performed in monitoring surveys, as previously discussed."*

API Response: EPA asserts the zero-leak findings in our data are unusually high but does not present any basis for this claim. Our data is based on real world results of implementing leak detection and repair program at well sites which are indicative of the locations subject to the NSPS. We have submitted multiple rounds of data in various formats that continue to show this similar trend. These statements are troublesome as they express a level of bias by the Agency with respect to our operations and have no supporting merit for comparison. We also disagree that more stringent standardization of OGI procedures would show different results. Each monitoring survey is conducted to ensure all components are surveyed EPA continues to erroneously equate the sources at well sites and compressor stations covered under

Subpart OOOOa with sources covered by traditional LDAR programs such as chemical plants and refineries, which are large, complex facilities containing tens of thousands or more components. These facilities require a team of full-time dedicated staff on-site to manage the significant demands associated with running a "traditional LDAR" program. This is very different from managing surveys containing a relatively small number of total components at hundreds (and eventually thousands) of un-manned, remote production facilities.

G. EPA's Concern with Leak Rates

Summary of Issue 1: EPA believes a weighted average does not address the average leak rate at individual well sites.

API Response: By definition, a weighted average is similar to a straight average except that instead of each of the data points contributing equally to the final average some data points contribute more than others. As we discuss above, we believe variation in the total number of components at the well site is an important factor to be considered when reviewing the leak incidence in appropriate context. In fact, we have previously submitted comments asking that sites with less components than what EPA estimates in the model plant be exempt from leak detection programs because of this issue.

Some specific points about our data based on statements by EPA:

- There was one state, Ohio, where out of 37 locations surveyed, no leaks were identified. First, we point out that the Pennsylvanian Basin (Eastern Overthrust Area) includes portions of Ohio. EPA should consider that some Pennsylvania Basin wells may be located in Ohio and review the data in its entirety. Second, all of these locations were identified as single gas well sites containing separators, heaters and some piping. These locations each have an estimated total components count less than 200. Based on the equipment located at these sites, we do not find it unreasonable to assume no leaks were found based on the equipment identified. Lastly, we continue to point out that operations at well sites are vastly different than what EPA might expect at larger, more complex facilities.
- Well sites in Alaska average around 30 wells per well site compared to EPA's model plant of only two wells. The total component counts we estimated at these well sites are, therefore, likely underestimated for these assets. This means the leak incidence calculated for these locations is overly conservative in its estimation.

Summary of Issue 2: EPA states a 1.18% leak incidence was assumed at well sites.

API Response: EPA assumed that 1.18% percent of components, or four components, were leaking in order to estimate the count of components that would require repair. With respect to quantification of baseline emissions, EPA applied emission factors to the population of components within the model plant, i.e. the emission factor was multiplied against all components at the well site. That is, EPA did not estimate baseline emissions assuming only four components leak at the site. It is misleading for EPA to continue to make erroneous statements with respect to the number of leaks assumed in their analysis and their associated emissions.

Figures 5-16 through 5-34 of the EPA Leak Protocol clearly demonstrate that the emission factors within Table 2-4 correspond to a specific fraction (or number) of components that are assumed to be leaking. To

make this point clear, Figure 5-25 from EPA Leak Protocol is provided below for reference and depicts this correlation between emission rates and leak incidence rates.

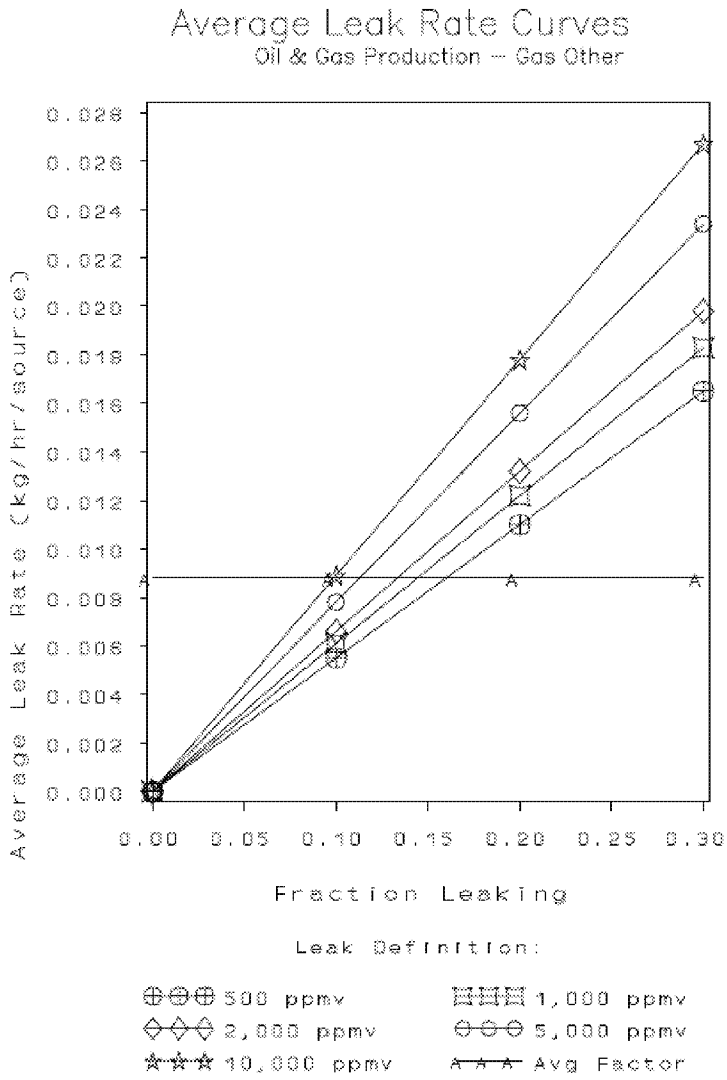


Figure 5-25. Oil and Gas Production Gas Other Average Leak Rate Versus Fraction Leaking at Several Leak Definitions

As Figure 5-25 clearly depicts, the average leak factor from Table 2-4 for "other" equipment at gas production sites is 8.83 E-03 kg/hr/source, as demarcated by the horizontal line. This emission rate directly corresponds to a fraction of leaking components that ranges from nearly 0.1 to 0.16 (or 10 to 16%) of "other" components, depending on the leak definition applied. Similarly, one can look at the Figures in Chapter 5 of the EPA Leak Protocol and determine the fraction of all component types that are assumed to be leaking when one uses the Table 2-4 factors to represent a population of components. Each component type (connectors, flanges, open-ended lines, etc.) has a different assumed leak fraction embedded within the average emission factor rate.

The following table summarizes the fraction of leaking components assumed within the Table 2-4 Emission Factors based on a leak definition of 500 ppm and 10,000 ppm.

Type of Component	***Original EPA Basis for Emissions from Leaks (Table 2-4):* (kg/hr/comp)[1]**	**Percent of Components Leaking @500 ppm using Table 5-7 correlations**	**Fraction of Components Leaking @10,000 ppm using Table 5-7 correlations**
Valves	0.0045	6.42%	4.57%
Flanges	0.00039	0.90%	0.47%
Connectors	0.0002	1.20%	0.73%
OEL	0.002	5.39%	3.61%
PRV	0.0088	15.97%	9.75%

Using the figures and correlation equations within the EPA leak protocol, one can calculate that, for the EPA model facility assumed in the 2016 Subpart OOOOa rulemaking, EPA actually assumed between 1.6% and 2.5% of components at a model well site were leaking, depending on the leak threshold used to define the leak. The lower value represents an assumed 10,000 ppm Method 21 leak definition and the higher value assumes a 500 ppm leak definition, which is the leak definition finalized within Subpart OOOOa.

We also note that the analysis EPA developed in support of the 2018 Subpart OOOOa proposal for thief hatches follows a similar process to arrive at a new emission factor. The new emission factor for thief hatches is based on newly available data, and similar to the Table 2-4 factors, the newly proposed emission factor represents yet another assumed leak fraction for that particular component type.

H. Response to Emission Rates

Summary of Issue: EPA does not agree with the approach within the analysis to apply correlation factors from the EPA protocol document because the data is based on Method 21 data and not on OGI. EPA makes the following statements about the correlations in the EPA Leak Protocol: "*The equations in Table 5-7 are based on specific leak definitions when using Method 21. These equations do not apply to monitoring using OGI… Even using the most conservative of the equations in Table 5-7 does not provide reasonable accuracy because OGI data is not expected to correlate point-by-point to Method 21 data. If it were possible to develop equations for OGI, they are unlikely to resemble the equations in Table 5-7. Additionally, as previously noted in Section 4.0 of this memorandum, we did not use these equations to determine the leak rate for OGI. Since we didn't determine the leak fractions from the equations in Table 5-7, we do not believe it is appropriate to scale the emissions factors that we used with the leak fraction back calculated from the equations in Table 5-7.*"

API Response: EPA does not oppose the approach in our analysis, but rather, only opposes its application to OGI data. EPA's rationale for dismissing our analysis on the basis that data within the EPA Leak Protocol are based on Method 21 data contradicts EPA's own approach within the model plant

analysis that applies emission factors based on the same data. Specifically, EPA relied upon the general oil and gas leak emission factors from the 1995 Protocol for Equipment Leak Emission Estimates that are summarized in Table 2-4. As discussed above, these emission factors were developed from Method 21 data and applied to all components within the model plant as a representation of average leaks across all components within a population with an unknown initial leak incidence. The same application of the emission estimating methodology was applied for the model plant cost-benefit analysis for both Method 21 and OGI as EPA did not use separate emission factors to quantity baseline emissions based on leak detection techniques.

Further, it is noted that both the emission factors in Table 2-4 and the correlation equations from Chapter 5 of the EPA Leak Protocol are derived from Method 21 data – in fact, both the factors and collection of equations come from the very same Method 21 data. EPA did not rely upon the correlation equations in Chapter 5 directly. However, EPA did, in fact, rely upon Method 21 based emission factors to estimate the emissions from well sites that would be subject to OGI by relying on Table 2-4.

API did not object to the use of Table 2-4 in the original rulemaking as it was the best available data at the time. However, now that large amounts of data are available and are indicating that, for the average site, EPA has over-estimated the fraction of components leaking, It is both appropriate and necessary to reflect that in determining what frequency of leak survey is cost-effective and the net benefits that will actually be realized through implementation of Subpart OOOOa.

Recognizing that there are no correlation equations yet developed for OGI similar to what exists for Method 21, API reminds EPA of its determinations made during the Subpart OOOOa rulemaking when establishing Method 21 as an alternative to OGI, which was determined to be BSER:

> *"Available data show that OGI can detect fugitive emissions at a concentration of at least 10,000 ppm when restricting its use during certain environmental conditions such as high wind speeds. Due to the dynamic nature for the OGI detection capabilities, OGI may also image emissions at a lower concentration when environmental conditions are ideal. Because an OGI instrument can only visualize emissions and not the corresponding concentration, any components with visible emissions, including those emissions that are less than 10,000 ppm, would be repaired."*

In other words, there is a high confidence that OGI will identify leaks over 10,000 and, in many cases, will also identify leaks at lower concentration levels. API therefore believes that applying EPA's Method 21 correlation equations, based on a 10,000 ppm Method 21 leak threshold and a known leak incidence, is justified. In fact, it is a conservative approach since, in most conditions, OGI will identify leaks that are less than 10,000 ppm, thereby increasing the incidence rate for identification of leaks.

Further, we believe that, in absence of emission factor correlation data specific to OGI, the approach we used to derive more representative emission factors based on the known incidence rate is appropriate given EPA's usage of similar Method 21 based data within the protocol and further detailed in the above comment on leak incidence rate.

API appreciates the opportunity to discuss approaches for updating EPA's analysis in light of the data we have provided and additional data we expect to provide from Subpart OOOOa surveys.

Attachment B

API Analysis of Subpart OOOOa Semi-Annual Leak Survey Data

ED_002719_00023646-00064

API Initial Analysis of Subpart OOOOa Fugitive Emissions Monitoring Data

December 17, 2018

As a follow-up to our review of the data API provided to EPA in early 2018, API undertook a recent effort to collect Subpart OOOOa data from member companies to understand how data collected under the rule might differ from the broader dataset previously provided to EPA. The reported Subpart OOOOa data include data from both the initial and second reporting period and show trends that are entirely consistent with API's earlier dataset and analysis. Specifically, the Subpart OOOOa data show:

- There are large number of sites that have no leaks (58% of initial well site surveys).
- The average number of leaking components per site is less than 2 components found leaking during the initial Subpart OOOOa survey and falls quickly to less than 1 leaking component found on average in subsequent surveys. Both values being well below the 4 fugitive components that EPA assumed would require repair in each survey and even further below the number of leaks assumed in the EPA Leak Protocol Table 2-4 emission factors that were used to estimate emissions.

These data confirm that EPA's initial assumption regarding the number of components leaking at well sites (and the corresponding mass of emissions) was significantly overestimated. API further believes that an evaluation of this data and any larger datasets from Subpart OOOOa data will confirm that a semi-annual survey frequency is not necessary or cost-effective for well sites.

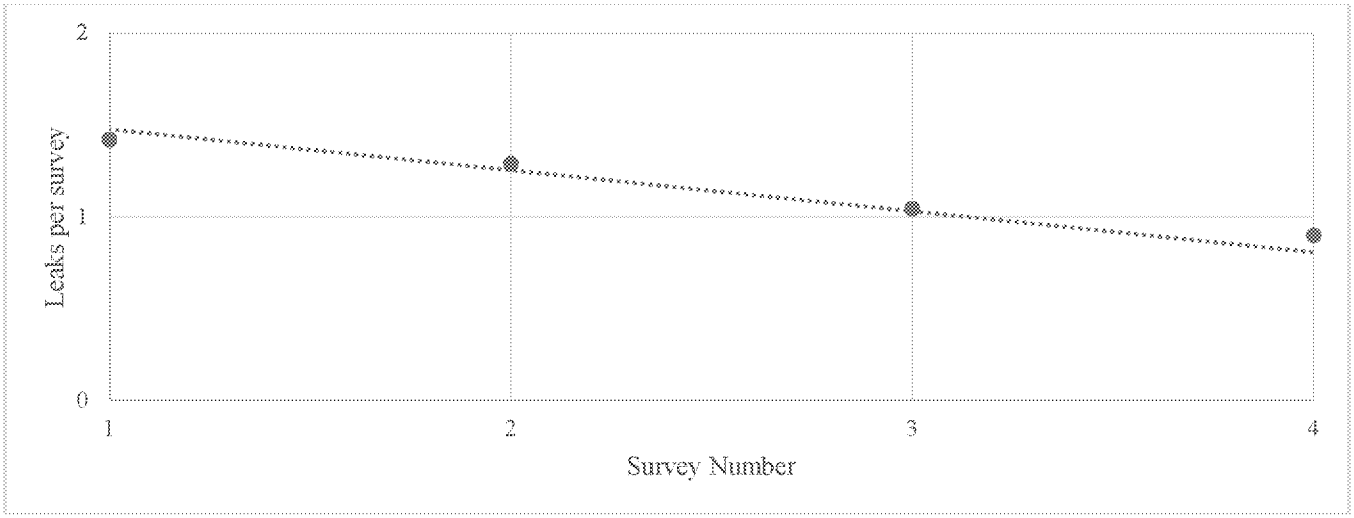
The remainder of this document provides an initial summary of the Subpart OOOOa dataset evaluated by API. API is continuing to analyze the data and welcomes the opportunity to discuss the data with EPA.

Summary of Leak Survey Dataset

- Two years of Subpart OOOOa Leak Survey Data for Sites Monitored at a Semi-Annual Frequency
- Over 6,000 total surveys across 3,482 sites
- Represents data from 13 different operators
- Surveys performed at sites located in: Kansas, Louisiana, North Dakota, New Mexico, Ohio, Oklahoma, Pennsylvania, Texas, and Wyoming
- For Initial Surveys at Sites Monitored at Semi-Annual Frequency – 58% of initial surveys found no (0) leaks
- Average number of leaks found per site = 1.42 for first survey and declines for subsequent surveys.

The following graphic illustrates the average count of leaks found per leak survey. As can be seen, the count of components found leaking averages around 1.4 components and steadily declines with each subsequent survey. While there is a decline over time as one would expect, the key observation from the data is that there are very few leaks being detected, on average, even during the initial leak survey.

Figure 1. Average Count of Leaks Found per Leak Survey Monitored per § 60.5397a



The table below summarizes the number of semi-annual survey data by company.

Company ID	Number of Leak Surveys
AA	904
BB	79
CC	156
DD	63
EE	1070
FF	497
GG	552
HH	39
II	730
JJ	121
KK	317
LL	727
MM	765

The table below summarizes the number of sites and leaks available from semi-annual survey data by survey number.

Survey Number	Total Number of Leak Surveys	Total Number of Leaks	Leaks per Survey
1	3,367	4,779	1.42
2	1,776	2,290	1.29
3	721	752	1.04
4	119	107	0.90

Summary of Findings

Figure 2 below illustrates the distribution of the number of leaks found during initial and subsequent semi-annual leak surveys. Observations from these data:

- A large percentage sites have no or very few leaks.
- With subsequent surveys, the percentages of sites with 0 or 1 leaks increases and the percentage of sites with 2 or more leaks decreases.
- Notably, while 3.2% of sites found 10 or more leaks in the initial survey, the percentage of sites with 10 or more leaks in subsequent surveys declines, going from 3.2% to 2.2% by the second survey and to 1.8% of sites by the third survey.

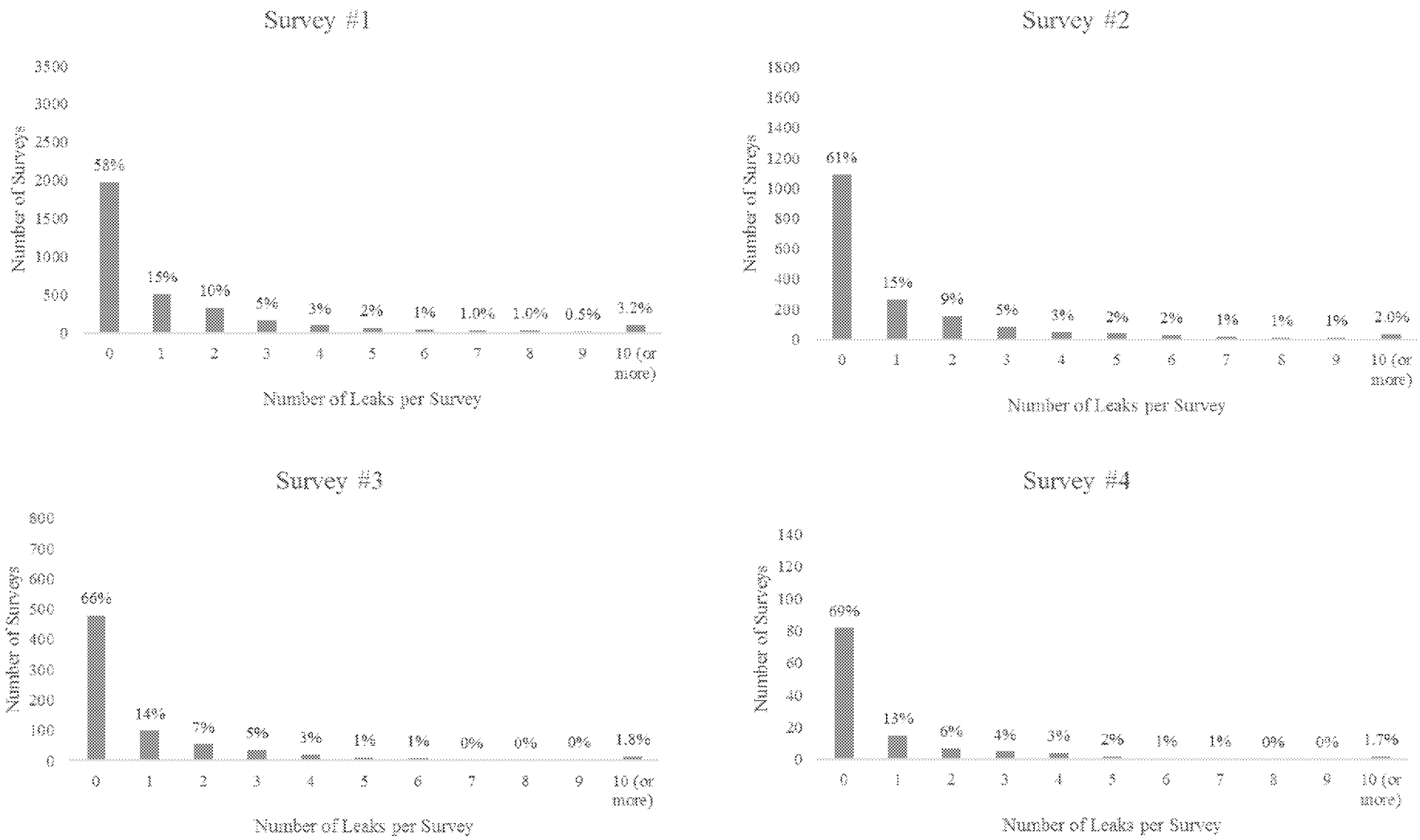
Conclusion

The Subpart OOOOa data described above confirm that the vast majority of well sites have very few leaking components – 92% of surveys identified 4 or less leaking components – with over half the surveys identifying no leaking components at all. In fact, approximately 60% of all surveys did not find any leaks. These data also are consistent with API's previously submitted data and confirm that EPA overestimated the number of leaking components at the average well site used within the model plant.

While EPA previously expressed prior concern about certain aspects of the previous API survey data, API expects that providing these data developed from Subpart OOOOa surveys should adequately address any EPA concerns. The Subpart OOOOa data confirm that semi-annual leak monitoring provide limited incremental environmental benefit and support EPA's proposed annual survey frequency. While the dataset were not produced from a controlled experiment with a collection of well sites undergoing semi-annual monitoring and another set undergoing annual monitoring, the data clearly indicate that moving to an annual frequency will not result in an appreciable increase in emissions. API welcomes the opportunity to discuss these data further with EPA.

ED_002719_00023646-00067

Figure 2. Semi-Annual Leak Survey Data Monitored per § 60.5397a Comparing Number of Leaks Found per Survey over Two Years



Attachment C
Production Flows and Operating Pressure

ED_002719_00023646-00069

Discussion on Production Flows and Operating Pressures

EPA's discussions in the preamble regarding increased production from refracturing a well (83 Fed Reg. at 52073), leads to the statement that "[T]he increase in production rate requires an increase to either the operating pressure and/or the duration of or frequency of flow events" is incorrect. The cited theory that to increase flow across a given cross-sectional area requires an increase in pressure is certainly true for a static system where the cross-sectional area is fixed. However, production flow through wellheads, process lines, separators and other equipment at a well site is a dynamic system in which pressure control valves adjust the cross-sectional area of their valve ports to moderate flow in order to maintain desired operating pressures. This allows a production unit to operate at the same approximate operating pressure over a wide range of flow rates.

Typically, the operating pressure of the first and/or second separator at a well site, or at a central tank battery with process equipment, is kept at a set pressure with a pressure control valve that allows more or less gas flow to the sales line. However, for production sites only, the most important control valves are "choke valves" on the wellhead.

The following is from EnggCyclopedia[35]:

> *"Choke valve is a type of control valves, mostly used in oil and gas production wells to control the flow of well fluids being produced. Another purpose that the choke valves serve is to kill the pressure from reservoir and to regulate the downstream pressure in the flowlines. Choke valves allow fluid flow through a very small opening, designed to kill the reservoir pressure while regulating the well production. The reservoir fluids can contain sand particles. Hence the choke valves are usually designed to handle an erosive service.*
>
> *Typically oil and gas producing wells have two choke valves in series, one non-regulating choke valve and one regulating choke valve downstream to the non-regulating choke valve.*

Non-regulating choke valves
Function of the non-regulating choke valve is to act as an on-off valve and kill the reservoir pressure to a desired operating value in the flowline. The opening in the choke valve is sized to kill the pressure when valve is fully open. The non-regulating choke valve is not used for flow regulation and hence is not sized for controlling the flow. Over the life of an oil production well, the reservoir pressure drop as fluids are depleted from the reservoirs. Hence with dropping reservoir pressure, the non-regulating valves may have to be changed to maintain the same well production levels. Hence over the life of an oil production well, the non-regulating choke valves can be replaced with valves having increasingly larger openings for flow.

Regulating choke valves
The regulating choke valve is a flow control valve that is designed to maintain a steady production level in the flowlines and production header. Regulating choke valve is an automatic valve and valve opening can be controlled via electric or pneumatic signal from the control panel to regulate the flow in downstream flowlines."

---

[35] https://www.enggcyclopedia.com/2012/03/choke-valves/

Therefore, in the case of a successful refracturing of a well which restores much of the well's reservoir pressure and results in an increased production rate, a regulating choke valve would adjust to maintain the desired operating pressure and, if needed, a non-regulating choke valve could manually be replaced with a valve having a smaller opening for flow."

Thus, the fugitive components downstream of wellhead valve would not necessarily experience an increase in pressure even though flow increased.

Attachment D
Sample Observation Narrative

ED_002719_00023646-00072

The following is one example of a sample narrative to describe a general process a company could use to describe an observation path as discussed in detail in Comment 3.0.

Observation Path at Well Site: The path shall start at the wellhead or inlet header and move along any lines attached containing the possibility of leaking fugitive emissions. This path should encompass any storage and process vessels on the site. The physical path followed by the inspector will differ from site to site due to the construction layout of each well site. The inspector will need to adjust distance from components based on camera lens, wind speed, and any adverse monitoring conditions to identify any fugitive emissions from all applicable components.

Observation Path at Compressor Station: The path shall start at the inlet header and move along any piping containing the possibility of leaking fugitive emissions. This path should encompass any storage and process vessels on the site. The physical path followed by the inspector will differ from site to site due to the construction layout of each compressor station. The inspector will need to adjust distance from components based on camera lens, wind speed, and any adverse monitoring conditions to identify any fugitive emissions from all applicable components.

Deviation from Observation Path: Any deviations from this monitoring path will need to be recorded on the survey sheet. In the event that no deviations from the monitoring path occur, inspector will note there were no deviations from the monitoring path.

ED_002719_00023646-00073

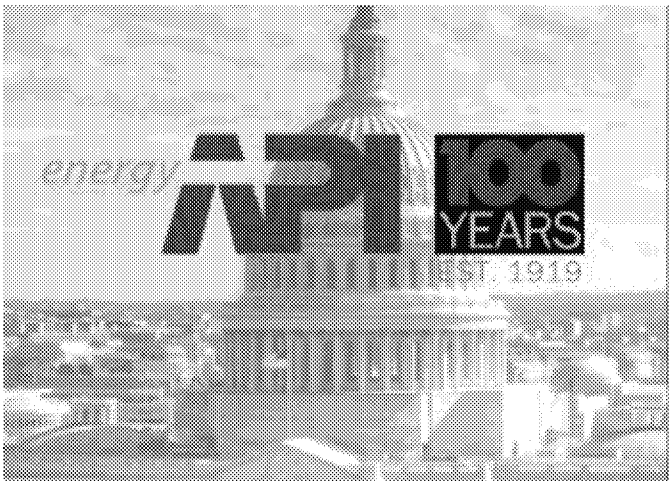
Message

From: Smythe Anderson [AndersonS@api.org]
Sent: 3/7/2019 3:32:04 PM
To: Schwab, Justin [Schwab.Justin@epa.gov]
Subject: FW: Invitation to the API Centennial Gala

Justin – Below please find an RSVP link to API's Centennial Gala on March 19. Smythe

---

From: API President <apipresident@api.org>
Sent: Monday, March 4, 2019 3:36 PM
To: API President
Subject: Invitation to the API Centennial Gala



From the first successful oil well to world leadership in production and emissions reduction, America's natural gas and oil industry has supplied the foundation for modern life and reshaped the global energy balance.

Please join us as we celebrate 100 years of American innovation and advancement at the American Petroleum Institute's Centennial Gala.

MIKE SOMMERS
President and CEO, API

TUESDAY

March 19, 2019

6:00 P.M. - 9:30 P.M.

National Portrait Gallery, Washington, D.C.

YES or NO

RSVP

BY MARCH 14th

This invitation is non-transferable.

This event has been designed to comply with the gifts and ethics rules of the U.S. Senate and House of Representatives as a "widely attended event." Employees of the executive branch may wish to consult their Designated Agency Ethics Official about any rules that may apply to their attendance at the event.

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Message

From: Smythe Anderson [AndersonS@api.org]
Sent: 3/13/2019 12:54:45 AM
To: Schwab, Justin [Schwab.Justin@epa.gov]
Subject: Fwd: Shell, Equinor call for tighter U.S. methane rules

Smythe Anderson
API

From: POLITICO Pro Energy Whiteboard <politicoemail@politicopro.com>
Sent: Tuesday, March 12, 2019 8:00:01 PM
To: Smythe Anderson
Subject: Shell, Equinor call for tighter U.S. methane rules

By Ben Lefebvre and Eric Wolff

03/12/2019 07:58 PM EDT

HOUSTON — Shell Oil called today on the Trump administration to reverse its plan to ease regulation of methane emissions, saying the U.S. should be tightening restrictions on the oil and gas industry's leaks of the potent greenhouse gas.

"We're actually breaking a habit, which is generally we don't tell governments how to do their job," Gretchen Watkins, president of the U.S. arm of Shell Oil, told an audience at the CERAWeek conference.

"We've come out in support of direct regulation of methane, both on existing sources of methane [and] future sources," she said.

Oil and gas companies have been split on how to address their carbon emissions in an effort to combat climate change, but most of the major industry players support measures to reduce leaks of methane, the main component in natural gas.

EPA has sought to roll back Obama-era rules tightening methane emissions, causing a public backlash from environmental groups.

Bjørn Otto Sverdrup, senior vice president for sustainability for Norwegian oil and gas producer Equinor, said the company believed methane pollution from pipelines and other infrastructure could be virtually eliminated.

"We have been clear it would be OK to have on federal level some regulations supporting that," he said.

Still, environmental group representatives attending the conference questioned whether two companies had the support of the rest of the industry.

"The companies most narrowly focused on the U.S. market are the biggest cheerleaders of rolling back methane standards, the rollback of the [automotive] mileage standards," said Mike Brownstein, senior vice president of energy at the Environmental Defense Fund. "They're not part of global energy conversation."

To view online:
https://subscriber.politicopro.com/energy/whiteboard/2019/03/shell-equinor-call-for-tighter-us-methane-rules-2865840

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Message

From: Smythe Anderson [AndersonS@api.org]
Sent: 12/13/2018 8:19:25 PM
To: Smythe Anderson [AndersonS@api.org]
Subject: Invite: State of American Energy (Jan. 8)
Attachments: 2019_SOAE_Invite.pdf

Hi – I'd like to invite you to API's annual luncheon, "The State of American Energy." Our CEO, Mike Sommers, and other industry leaders will discuss recent trends in energy and priorities for 2019. Additional information can be found in the attached invitation.

Details
Tuesday, January 8, 2019
11:30am – 1:30pm
Ronald Reagan Building, Atrium Ballroom
1300 Pennsylvania Ave NW

Please let me know if you are able to join us, and I will have your name added to the list.

Thanks,
Smythe

Smythe Anderson
Director of Federal Relations
1220 L Street NW
Washington, DC 20005
Ex. 6 Personal Privacy (PP)

energy API POWER PAST IMPOSSIBLE.ORG

The American Petroleum Institute invites you to

The 2019 State of American Energy luncheon – a celebration of Generation Energy

We are in the midst of Generation Energy. More natural gas and oil is produced in the United States than any other country in the world. At the same time, U.S. carbon dioxide emissions are at their lowest levels in a generation, largely because of the growing role played by clean natural gas. Our industry is an economic engine, supporting 10.3 million jobs – to produce, deliver and refine natural gas and oil – as well as jobs associated with energy development and the personal spending of our workers.

Guided by smart policies and regulations that unleash innovation and progress, natural gas and oil are playing a powerful role in America's economic progress and will for generations to come.

Join me and industry leaders from coast to coast at the 2019 State of American Energy luncheon.

Sincerely,

MIKE SOMMERS
President and CEO, API

RSVP

BY DECEMBER 31ST

This invitation is non-transferable.

RSVP HERE

REGISTRAR@API.ORG

WHEN

TUESDAY, JANUARY 8, 2019
11:30 A.M.–1:30 P.M.

WHERE

RONALD REAGAN BUILDING AND
INTERNATIONAL TRADE CENTER
ATRIUM BALLROOM
1300 PENNSYLVANIA AVENUE, NW
WASHINGTON, DC 20004
Please use entrance on 14th Street

energy API | POWER PAST IMPOSSIBLE.ORG

This event has been designed to comply with the gifts and ethics rules of the U.S. Senate and House of Representatives as a "widely attended event." Employees of the executive branch may wish to consult their Designated Agency Ethics Official about any rules that may apply to their attendance at this event.

Message

From: Mike Sommers [registrar@api.org]
Sent: 11/27/2018 6:08:33 PM
To: Schwab, Justin [Schwab.Justin@epa.gov]
Subject: Registration Confirmed - The State of American Energy 2019

Dear Justin:

Thank you for your RSVP.

Your registration has been confirmed. Please save this email for future reference. I look forward to seeing you at the State of American Energy 2019.

When: Tuesday, January 8, 2019 from 11:30 A.M.—1:00 P.M.

Attending: Justin Schwab

Location: Ronald Reagan Building and International Trade Center
Atrium Ballroom
1300 Pennsylvania Avenue, NW
Washington, DC 20004
NOTE: Please use entrance on 14th Street

Confirmation number: PRNB573WBMF

To view your online registration confirmation, click the link below. You will be asked to enter the confirmation number shown above.

Click here to view the event summary

Sincerely,

Mike Sommers
President and CEO
API

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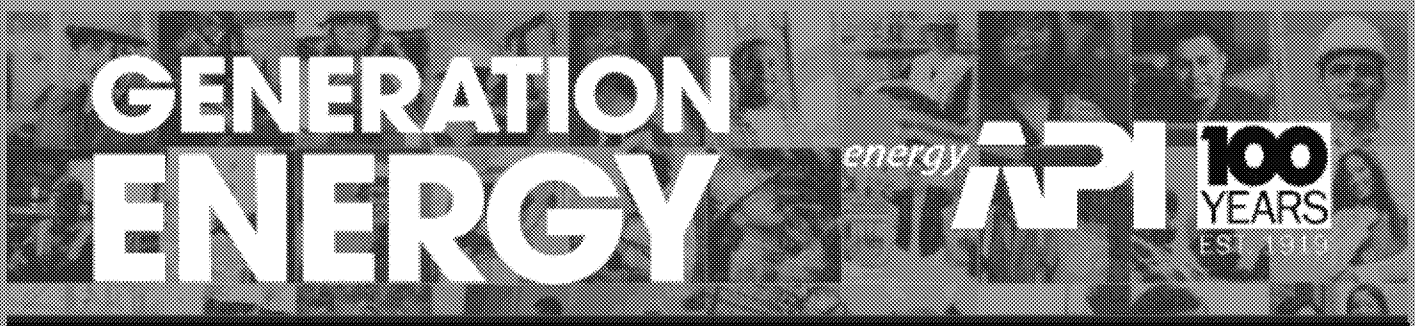
Message

From: Mike Sommers [registrar@api.org]
Sent: 11/27/2018 4:11:55 PM
To: Schwab, Justin [Schwab.Justin@epa.gov]
Subject: You're Invited to API's State of American Energy 2019



The American Petroleum Institute invites you to

The 2019 State of American Energy luncheon – celebrating Generation Energy

We are in the midst of Generation Energy. More natural gas and oil is produced in the United States than any other country in the world. At the same time, U.S. carbon dioxide emissions are at their lowest levels in a generation, largely because of the growing role played by clean natural gas. Our industry is an economic engine, supporting 10.3 million jobs – to produce, deliver and refine natural gas and oil – as well as jobs associated with energy development and the personal spending of our workers.

Guided by smart policies and regulations that unleash innovation and progress, natural gas and oil are playing a powerful role in America's economic progress and will for generations to come.

Join me and industry leaders from coast to coast at the 2019 State of American Energy luncheon.

Sincerely,

MIKE SOMMERS
President and CEO, API

RSVP

BY DECEMBER 31st
This invitation is non-transferable.

WHEN

TUESDAY, JANUARY 8, 2019
11:30 A.M.– 1:30 P.M.

WHERE

RONALD REAGAN BUILDING AND INTERNATIONAL TRADE CENTER
ATRIUM BALLROOM
1300 PENNSYLVANIA AVENUE, NW
WASHINGTON, DC 20004
Please use entrance on 14th Street

energy API | POWER PAST IMPOSSIBLE.ORG

This event has been designed to comply with the gifts and ethics rules of the U.S. Senate and House of Representatives as a "widely attended event." Employees of the executive branch may wish to consult their Designated Agency Ethics Official about any rules that may apply to their attendance at this event.

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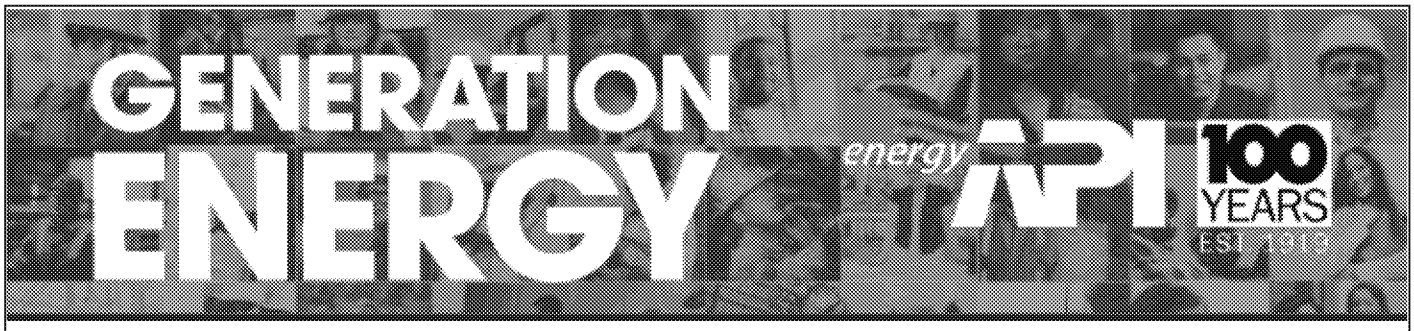
Message

From: Mike Sommers [registrar@api.org]
Sent: 1/8/2019 5:03:16 PM
To: Schwab, Justin [Schwab.Justin@epa.gov]
Subject: Live Now: 2019 State of American Energy



Watch Live: The State of American Energy

If you were unable to attend API's State of American Energy 2019 event today, you don't have to miss it! Simply watch the event live.

We encourage you to join the conversation on Twitter using #SOAE2019.

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Message

From: Mike Sommers [registrar@api.org]
Sent: 1/8/2019 2:17:12 PM
To: Schwab, Justin [Schwab.Justin@epa.gov]
Subject: REMINDER: API's State of American Energy is Today

We look forward to having you join us today for the American Petroleum Institute's 2019 State of American Energy luncheon.

When: Tuesday, January 8, 2019 from 11:30 A.M.—1:00 P.M.

Attending: Justin Schwab

Location: Ronald Reagan Building and International Trade Center
Atrium Ballroom
1300 Pennsylvania Avenue, NW
Washington, DC 20004
NOTE: Please use entrance on 14th Street

I look forward to you joining me and industry leaders from coast to coast at the 2019 State of American Energy luncheon as we celebrate - Generation Energy!

Sincerely,

Mike Sommers
President and CEO
API

powered by cvent

Message

From: Mike Sommers [registrar@api.org]
Sent: 12/3/2018 3:47:14 PM
To: Shaw, Betsy [Shaw.Betsy@epa.gov]
Subject: You're Invited to API's State of American Energy 2019

The American Petroleum Institute invites you to

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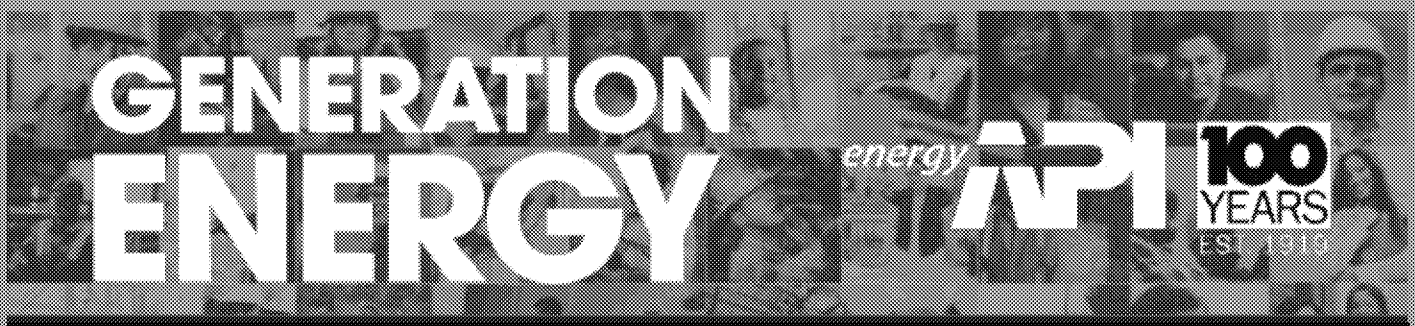
Message

From: Mike Sommers [registrar@api.org]
Sent: 11/27/2018 4:11:55 PM
To: Shaw, Betsy [Shaw.Betsy@epa.gov]
Subject: You're Invited to API's State of American Energy 2019



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Message

From: Jack Gerard [registrar@api.org]
Sent: 12/14/2017 4:02:16 PM
To: Shaw, Betsy [Shaw.Betsy@epa.gov]
Subject: You're Invited to API's State of American Energy 2018

STATE OF AMERICAN ENERGY 2018 | HOW NATURAL GAS & OIL ARE POWERING PAST IMPOSSIBLE

Please join us for the American Petroleum Institute's 2018 State of American Energy luncheon. As the midterm election year begins we will remind lawmakers, policymakers and the public that America's domestic energy abundance is helping to meet the ever-growing demand for energy, but also how those same resources are the building blocks for many of the products that make our modern society safer, advance the medical arts, and spur creativity and scientific innovation through our Power Past Impossible advertising campaign.

From energy that keeps our homes, offices, and schools lit and warm, to the modern fuels that not only power our vehicles but also help to improve our environment, to the modern pharmaceuticals that improve the health and well-being of millions. Power Past Impossible makes the connection between natural gas, oil and their derived products and their fundamental role in our society, which is essential to positively advance the national energy policy discussion.

Sincerely,

RSVP

BY DECEMBER 22ND

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President and CEO, API

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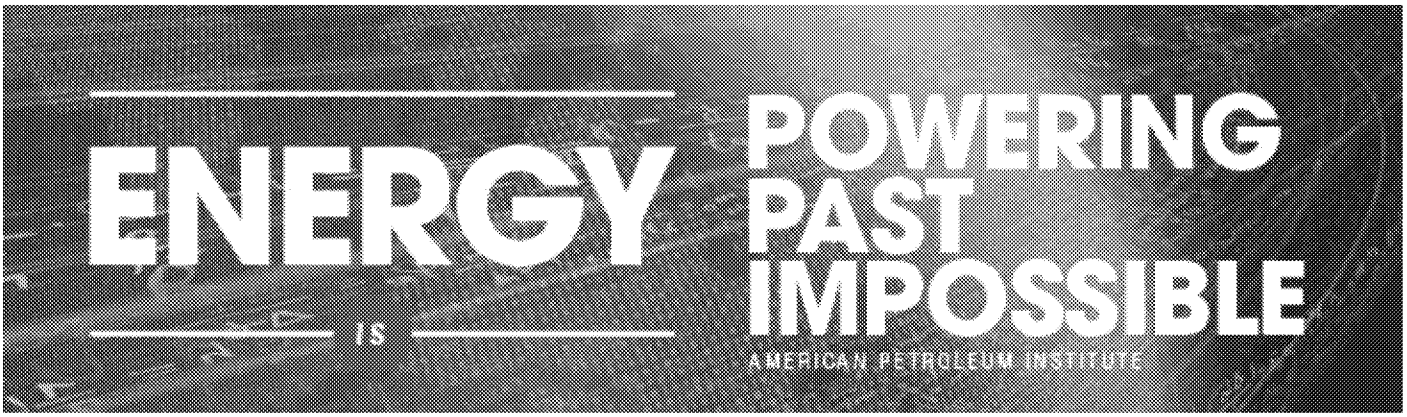
From: Jack Gerard [registrar@api.org]
Sent: 12/5/2017 3:32:18 PM
To: Shaw, Betsy [Shaw.Betsy@epa.gov]
Subject: You're Invited to API's State of American Energy 2018



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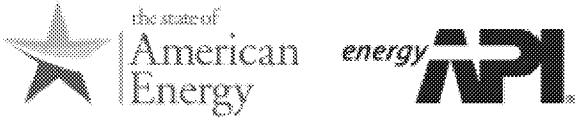

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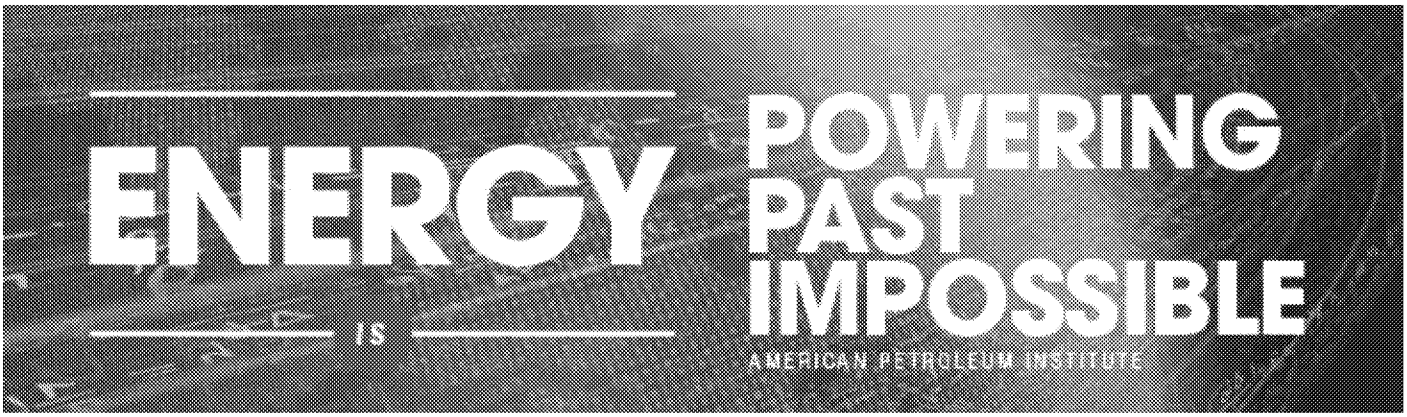
Sent: 12/11/2017 4:02:07 PM
To: Shaw, Betsy [Shaw.Betsy@epa.gov]
Subject: You're Invited to API's State of American Energy 2018



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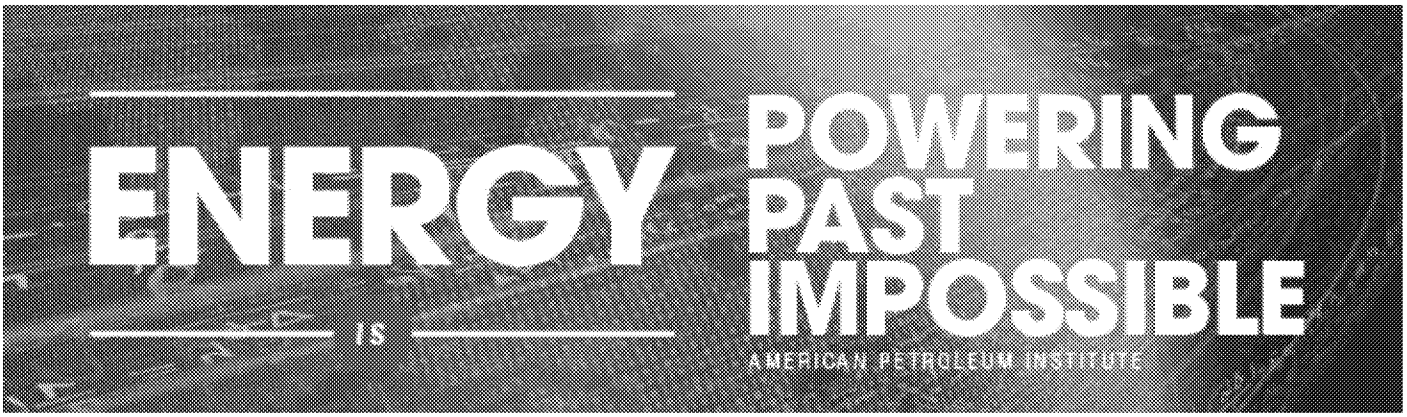

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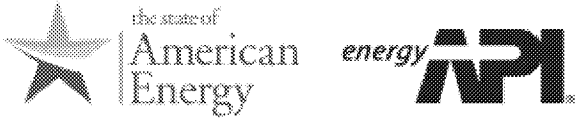

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Message

From: Jack Gerard [registrar@api.org]
Sent: 1/9/2018 5:31:50 PM
To: Shaw, Betsy [Shaw.Betsy@epa.gov]
Subject: Watch Live: API's State of American Energy 2018

STATE OF AMERICAN ENERGY 2018 | HOW NATURAL GAS & OIL ARE POWERING PAST IMPOSSIBLE

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Message

From: Jack Gerard [registrar@api.org]
Sent: 12/20/2017 3:02:07 PM
To: Shaw, Betsy [Shaw.Betsy@epa.gov]
Subject: Last Chance to Register for The State of American Energy 2018

STATE OF AMERICAN ENERGY 2018
HOW NATURAL GAS & OIL ARE POWERING PAST IMPOSSIBLE

Today is the **last chance to register** for API's 2018 State of American Energy luncheon on **Tuesday, January 9, 2018** from 11:30 A.M.-1:00 P.M. Please RSVP at Registrar@api.org if you have any questions.

Sincerely,

JACK N. GERARD,
President and CEO, API

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Message

From: Weinstock, Larry [Weinstock.Larry@epa.gov]
Sent: 5/17/2019 4:29:13 PM
To: Ex. 6 Personal Privacy (PP)
amorrison@amorrisonlaw.com; wbahnfleth@psu.edu; ryan.baker@okc.gov; KSLBauman@MLC.com; matthew.kuryla@bakerbotts.com; Ex. 6 Personal Privacy (PP) booher.john@basco.com; BBroberg@trcsolutions.com; bruce@ranww.org; bnelson@airalliancehouston.org; ahlers@cleanair.org; pope@texstrat.us; dgreenbaum@healtheffects.org; daniel.nickey@uni.edu; Ex. 6 Personal Privacy (PP) dvandervaart@johnlocke.org; drew.shindell@duke.edu; Elizabeth Jacobs [ejacobs@aha-nsn.gov]; steven.flint@dec.ny.gov; gjones@sgia.org; gmittelstaedt@thhnw.org; james.mcguire@dallascityhall.com; William.spratlin@aptim.com; ahoekzema@capcog.org; Jeremy.Fincher@sacandfoxnation-nsn.gov; jcastner@castnerincorp.com; jobrzut@escogroup.org; Paul Miller [pmiller@nescaum.org]; kelley@tcga.org; kris.ray@colvilletribes.com; Ex. 6 Personal Privacy (PP) laliddington@aqm.co.knox.tn.us; mduaime@alum.mit.edu; Baronm@detroitmi.gov; mary@whatsinourair.org; jason.howanitz@jcdh.org; Ex. 6 Personal Privacy (PP) mitch@creationcare.org; natalene.cummings@fcpotawatomi-nsn.gov; steven.l.shestag@boeing.com; sbroome@huntonak.com; Edith Pestana [Edith.Pestana@ct.gov]; pfine@aqmd.gov; Frank.Prager@XCELENERGY.COM; Robert.Hodanbosi@epa.ohio.gov; Robert.Wyman@LW.com; SHayes@aceee.org; Kimberly.Scarborough@pseg.com; speterson@ctps.org; Gail Good [gail.good@wisconsin.gov]; Ex. 6 Personal Privacy (PP); VICTORIA.SULLIVAN@duke-energy.com; alice.lovegrove@wsp.com; SteichenT@api.org; todd.washam@acca.org; tcarbonell@edf.org; vmorris@howard.edu; twalling@ford.com; SWhitworth@ameren.com
CC: Shoaff, John [Shoaff.John@epa.gov]
Subject: Update on your Clean Air Act Advisory Committee application

Dear CAAAC applicant,

I am writing to provide you with an update on the status of membership applications for the Clean Air Act Advisory Committee (CAAAC). We are currently reviewing all applications and expect to make final selections by mid-summer.

We would like to hold a CAAAC meeting in the fall and are targeting the middle two weeks of September for both the next meeting and the Clean Air Excellence Awards (Awards) ceremony. Our current expectation is that the Awards ceremony would be held the afternoon before or morning after a full day-long CAAAC meeting. There would be an optional dinner organized for the evening in between the Awards ceremony and the meeting. The meeting will be held in Washington, DC and resources are available to support your travel, as needed.

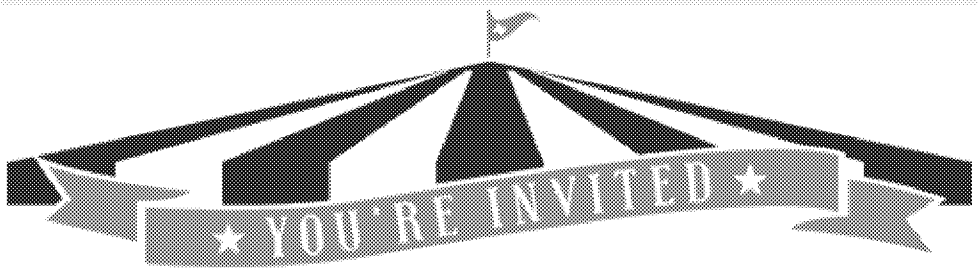
Thank you for patience with the membership selection process and your willingness to serve as a member of CAAAC,

Larry Weinstock
Program Innovation Coordinator
Office of Air Policy and Program Support
Office of Air and Radiation
US Environmental Protection Agency
1200 Pennsylvania Avenue
Washington, D.C. 20460
202-564-9226

Message

From: Hunton Andrews Kurth LLP [info@huntonak.com]
Sent: 6/26/2019 8:21:01 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]
Subject: You're Invited: Reception following the Texas Environmental Superconference hosted by Hunton Andrews Kurth

If you have problems viewing this email, click here to view it online.



Please join
Hunton Andrews Kurth's Environmental Practice
for cocktails and hors d'oeuvres
during the

Texas Environmental Superconference

Thursday, August 1, 2019
5:30 pm

Four Seasons Hotel Austin
Stone's Crossing Room
98 San Jacinto Blvd
Austin, TX 78701

RSVP

Questions? Contact Emily Day at
+1 202 955 1979 or eday@HuntonAK.com.

HUNTON
ANDREWS KURTH

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statistical data to measure email opening rates, webpage hyperlink click-through rates and other statistics measuring marketing campaign effectiveness. If you object to the use of such analytic cookies, please reply using the "opt out" link below.

Hunton Andrews Kurth LLP, 200 Park Avenue, New York, NY 10166

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Message

From: Hunton Andrews Kurth LLP [info@huntonak.com]
Sent: 10/3/2018 8:01:54 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]
Subject: You're Invited: Insights into Environmental Law & Policy: A Conversation with Key Regulators

If you have problems viewing this email, click here to view it online.

YOU'RE INVITED

HUNTON
ANDREWS KURTH

Please join Hunton Andrews Kurth LLP for an engaging half-day discussion with key regulators from EPA and other agencies.

Insights into Environmental Law & Policy: A Conversation with Key Regulators

Wednesday, October 24, 2018
1:00–5:00 pm ET
Registration 12:30–1:00 pm

Networking Reception Immediately Following Conference
5:00–7:30 pm

Hunton Andrews Kurth LLP
2200 Pennsylvania Avenue, NW
Washington, DC 20037

REGISTER NOW

Add to my calendar

Over the course of the afternoon, you will have the opportunity to hear from and engage with the current leadership of EPA and the Trump Administration on environmental and natural resource trends and future developments.

The agenda will include discussions on:

- EPA's Developments in Water and Air Quality Policies
- Waste Management and Emergency Response Developments
- The Future of NEPA and other Priorities of the Administration

Confirmed Speakers:

- **Matt Leopold**, General Counsel, US EPA
- **Mary Neumayr**, Chairperson, Council on Environmental Quality
- **David Ross**, Assistant Administrator, Office of Water, US EPA
- **Steven Cook**, Deputy Assistant Administrator, Office of Land and Emergency Management, US EPA
- **Mandy Gunasekara**, Principal Deputy Assistant Administrator, Office of Air and Radiation, US EPA

Moderators:

- **Shannon S. Broome**, Partner, Hunton Andrews Kurth
- **Samuel L. Brown**, Partner, Hunton Andrews Kurth
- **Makram B. Jaber**, Partner, Hunton Andrews Kurth
- **Kerry L. McGrath**, Partner, Hunton Andrews Kurth
- **Joseph C. Stanko**, Partner, Hunton Andrews Kurth
- **Allison D. Wood**, Partner, Hunton Andrews Kurth

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Message

From: Hunton Andrews Kurth LLP [info@huntonak.com]
Sent: 9/19/2018 9:05:39 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]
Subject: You're Invited: Insights into Environmental Law & Policy: A Conversation with Key Regulators

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Message

From: Patrick Kelly [kellyp@api.org]
Sent: 4/18/2019 8:50:47 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]
CC: Frank Macchiarola [MacchiarolaF@api.org]; MacAllister, Julia [MacAllister.Julia@epa.gov]; Atkinson, Emily [Atkinson.Emily@epa.gov]; Grundler, Christopher [grundler.christopher@epa.gov]
Subject: API Request for Comment Period Extension
Attachments: Comment period extension request.pdf

Dear Assistant Administrator Wehrum,

On behalf of Frank Macchiarola, API Vice President, Downstream and Industry Operations, please see the attached Request for an Extension of Period to Provide Public Comment for the Modifications to Fuel Regulations to Provide Flexibility for E15; Modifications to RFS RIN Market Regulations Rulemaking (Docket ID# EPA-HQ-OAR-2018-0775).

Regards,
Patrick Kelly
API

Frank J. Macchiarola
Vice President
Downstream & Industry Operations

1220 L Street, NW
Washington, DC 20005-4070
USA
Telephone 202-682-8167
Fax 202-682-8051
Email MacchiarolaF@api.org
www.api.org

April 18, 2019

The Honorable William Wehrum
Assistant Administrator
U.S. Environmental Protection Agency
Office of Air and Radiation
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Transmitted via email

Re: Docket ID# EPA-HQ-OAR-2018-0775
Request for an Extension of Period to Provide Public Comment for the Modifications to Fuel Regulations to Provide Flexibility for E15; Modifications to RFS RIN Market Regulations Rulemaking.

Dear Assistant Administrator Wehrum,

EPA published a Proposed Rulemaking in the Federal Register on March 21, 2019 to extend the 1.0 psi RVP waiver to ethanol blends up to 15 volume percent and to make modifications to the RIN program with comments due April 29, 2019. This is a broad and complex rulemaking. As such, API requests an extension of EPA's comment period for an additional 30 days to allow stakeholders the opportunity to fully evaluate the proposal. The extension of the 1.0 psi RVP waiver for E15 is contrary to EPA's statutory authority under the Clean Air Act. The Proposed Rulemaking also includes changes to multiple components of the RFS that will affect all participants in the RIN program.

EPA's revised interpretation of the 1.0 psi RVP waiver under CAA 211(h)(4) and the new approach to consider E15 "substantially similar" to gasoline under the CAA 211(f) requirements are not consistent with the plain reading of the statute. The legal arguments are complex and create uncertainty about long established precedents related to fuel regulation. In addition, the RIN Reform proposals are equally complex. EPA states that there is no evidence of market manipulation. The proposed changes to the RIN program could have negative consequences without achieving the intended benefits.

In past rulemakings of this magnitude, it has been customary to allow a 60-day comment period. We believe it is more important for the EPA to receive quality feedback enabled through a 60-day comment period rather than a shorter rushed process.

Please let me know if you have any questions, and API and our member companies appreciate your consideration of this request.

Sincerely,

Frank J. Macchiarola
Vice President
Downstream & Industry Operations

Message

From: Pamela McCutcheon [pmccutcheon@ali-cle.org]
Sent: 11/19/2018 9:28:54 PM
To: pesterman@sprlaw.com; driesel@sprlaw.com; Ex. 6 Personal Privacy (PP); dchorost@sprlaw.com; dchung@crowell.com; jcruden@bdlaw.com; dorsainvild@dcobc.org; aferlo@perkinscoie.com; rfox@mankogold.com; fulton@eli.org; agates@mwlaw.com; michael.gerrard@law.columbia.edu; ragu-jara.gregg@usdoj.gov; rhammer@nrdc.org; joshua.kaplowitz@doi.gov; Leopold, Matt (OGC) [Leopold.Matt@epa.gov]; brenda@heritageoutdoors.org; nmcaliley@carltonfields.com; catherine.mccabe@dep.nj.gov; Mugdan, Walter [Mugdan.Walter@epa.gov]; jpage@defenders.org; vpatton@edf.org; Rpercival@law.umaryland.edu; squarles@nossaman.com; Ruhl, Suzi [Ruhl.Suzi@epa.gov]; sschwarz@faraci.com; hilary.tompkins@hoganlovells.com; andrew.wheeler@epa.gov; awood@HuntonAK.com
CC: Amy Weinberg [aweinberg@ali-cle.org]; Pamela McCutcheon [pmccutcheon@ali-cle.org]; vperlmutter@sprlaw.com; sheron.fletcher@usdoj.gov; klawson@mgkflaw.com; reinersmann@eli.org; Veney, Carla [Veney.Carla@epa.gov]; Dawson, Shelly [Dawson.Shelly@epa.gov]; DeHart, Nicole [DeHart.Nicole@epa.gov]; ldaniel@edf.org; Slangrall@law.umaryland.edu; ccampbell@nossaman.com; shannon.vevoda@bakerd.com
Subject: ALI CLE (Env Law 2019)
Attachments: CA012 fac ltr.pdf

Good afternoon, all! Attached is your faculty packet for the ALI CLE program **Environmental Law 2019, February 7-8, 2019**, in Washington, DC. Please let me know if you have any questions regarding your packet.

Also, we are collecting contact info of the assistants of all members of faculty. If your assistant was not included on this email, then we currently don't have this information on file. I would greatly appreciate it, if you could please send me the (1) name, (2) phone number, and (3) email address of your assistant.

Thanks again for agreeing to participate on the faculty of this very fine course. We recognize and appreciate all that you do for us.

Wishing you and yours, a happy holiday season!

Pamela McCutcheon DeLarge
ALI CLE
4025 Chestnut Street
Philadelphia, PA 19104

American Law Institute
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(215) 243-1613 | www.ali-cle.org
Office of Content Production
Leslie A. Belasco, *Director of Courses*

CA012

MEMORANDUM

TO: Planning Chairs and Faculty

FROM: Amy Weinberg

RE: **Environmental Law 2019,** February 7-8, 2019, in Washington, D.C., at the Washington Plaza Hotel

DATE: November 19, 2018

Thank you for agreeing to participate as a member of the faculty for the above-referenced ALI CLE course. Please take the time to review the attached documents:

1. Faculty contact list.

2. Information about the live webcast and subsequent archived recordings of the course, and PowerPoint slide guidelines.

3. Sample announcement and invitation to colleagues and clients to attend the course at reduced rates.

4. Hotel room request form, which, if applicable, must be submitted to my assistant, Pam McCutcheon DeLarge, no later than Wednesday, December 19th. **Please note that this hotel has a 72 hour cancellation policy.** To avoid a no-show charge, please notify the hotel and us and in advance of the cancellation deadline if you will not need this room. Thank you.

5. Faculty expense reimbursement policy and guidelines.

Course Brochure: Please refer to the online course brochure at https://www.ali-cle.org/CA012 for the most up-to-date program and faculty listing. Please note the date and time of your session and plan your presentation accordingly. We also encourage you to share the web address with colleagues and clients who might be interested in attending the program. If you would like any hard copies of the brochure for distribution, please contact us.

Study Materials: Course study materials, including power points, should be emailed to me at aweinberg@ali-cle.org and to my assistant, Pam, at pmccutcheon@ali-cle.org no later than **Thursday, January 10, 2019**. In your cover email, please indicate which session each document applies to. NOTE: As part ALI CLE's effort to go green, course materials will be made available in electronic format for download only. *Print materials will not be distributed on-site.* Please be sure to bring a laptop or tablet with you to the program to access the study materials.

Copyright: ALI has the copyright to the collective work in which your Content will appear. Content means spoken, written, and/or audio-visual presentations you create as a volunteer faculty member or author for ALI. You retain the individual copyright to your own Content, allowing you to freely sell or otherwise distribute it and revise or republish it at will. Submission of your Content to ALI grants ALI a nonexclusive license to edit, reproduce, sell, and otherwise distribute all or portions of your Content under your name, individually or as part of collective and derivative works, in any media (including electronic) now known or that might be created. **Note:** Any use by you in your Content of spoken, written, and/or audio-visual (including web-based) material created by others is a representation by you to ALI that you have obtained the rights necessary to such material for the benefit of ALI with respect to the nonexclusive licenses described above.

Please notify ALI CLE in advance if you are embedding any audio or video clips in your slides. In addition to potential technical issues, audio and video (even from YouTube) can be subject to copyright, and use by you in your presentation of audio or video materials created by others is a representation by you to ALI that you have obtained the rights necessary to such material for the benefit of ALI.

Faculty Discounts and Outreach: We encourage you to promote your upcoming speaking engagement through your own outreach and/or your organization's web site, events calendar, and social media outlets. **To thank you for your voluntary participation, ALI CLE is pleased to provide you with one complimentary registration to the in-person course and a 50% discount for all additional registrations to the course or webcast, which we encourage you to extend to your colleagues and clients.** To request the complimentary registration, please contact the course attorney handling your program. The 50% discount can be obtained by entering the coupon code ALIFACULTY at checkout online or by calling ALI CLE Customer Service at 800-CLE NEWS. A sample announcement and invitation is attached for your convenience to send to others in your organization and to your clients.

Sponsorship: We frequently receive requests from firms that are interested in supporting our programs as a way to obtain additional exposure and promotional consideration. As you are a valued faculty member, we are pleased to offer your organization the opportunity to underwrite this course before we make it available to the broader marketplace of sponsors. For more information and to ensure your sponsor slot, please contact our sponsorship coordinator, Dara Lovitz at dlovitz@ali-cle.org.

Strategic Outreach Initiative: We welcome you to invite experienced associates or their equivalents from underrepresented groups to assist in the preparation of study materials for this course. To view ALI CLE's *Strategic Outreach Initiative*, please see our web site at https://www.ali-cle.org/about/diversity.

If you have any questions or concerns, please feel free to contact me at aweinberg@ali-cle.org or by phone at (215) 243-1688 or my assistant Pam at pmccutcheon@ali-cle.org or (215) 243-1633.

ASW: pmd
Attachments

THE AMERICAN LAW INSTITUTE
Continuing Legal Education

Environmental Law 2019

Cosponsored by the Environmental Law Institute

February 7-8. 2019
Washington, D.C.

PLANNING CHAIRS

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KEYNOTE SPEAKER

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FACULTY

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Ex. 6 Personal Privacy (PP)

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4025 Chestnut Street Philadelphia, PA 19104-3099
(215) 243-1600 | www.ali-cle.org

To: ALI CLE Course Faculty

Re: Live Webcasts of ALI CLE Courses of Study

As you may know, we are webcasting most courses live via the Internet, including your forthcoming program, to make ALI CLE's excellent courses of study available to a wider audience. Individuals and groups will be able to view (or if audio-only, hear) the program on their computers or projected on large screens in their offices. The study materials are made available electronically in downloadable, searchable form.

For many would-be registrants, this arrangement removes the time, travel, and cost constraints that often discourage course attendance. For you, this means that your office can bring the course *in house* during the webcast[1].

A technician on site will "stream" and record the entire live course, including opening remarks and Q&As. When concurrent sessions are scheduled, one session will be selected for live webcast, if appropriate.

Keeping on schedule is important to your faculty colleagues as well as to the audience, particularly if your course is being made available in half-day segments as well as in its entirety. If there are last-minute schedule or faculty changes, please bring those to the immediate attention of the ALI CLE staff attorney on site.

To ensure program continuity, we request that questions from the audience be in written form. Benefits to be gained from this should outweigh the loss of spontaneity, as the faculty is likely to contend with fewer interruptions and fewer redundant or ill-formed questions. Questions from the webcast audience will be printed and relayed to the faculty.

Attending an ALI CLE course of study presents unique opportunities for discussion and camaraderie. We hope that as those benefits become more apparent to new registrants, they will attend future courses on site. And when your office colleagues see/hear the live webcast and the archived course, they will better appreciate the time and expertise that you volunteered to participate on the course faculty.

We thank you in advance for your participation and cooperation.

---

[1]Instructions for the webcast will be e-mailed to you before the course.

Sample Course Faculty Invitation (with discount for your contacts)

Dear Colleague:

As you may know, I am a featured speaker at the American Law Institute CLE (ALI CLE) annual course, **Environmental Law 2019,** being held **Thursday-Friday, February 7-8, 2019**, in Washington, DC.

This year's agenda promises to be a strong one, and I invite you to join me at the program. The American Law Institute CLE has graciously extended my colleagues a discount of **50% off the regular tuition** for in-person attendance or for attendance at the live video simulcast. To take advantage of these savings, please register online at **http://www.ali-cle.org/CA012** and enter the coupon code **ALIFACULTY** at checkout.

I hope to see you in D.C.

Sincerely,

PowerPoint Slide Guidelines

General

- Plain and simple, no office or company logos
- Light/dark contrast between background and text
- Same background on all slides
- Short and simple text
- Font styles available on both PCs and Macs

Recommended Fonts Common to PCs and Macs

- Arial
- Lucida Sans Unicode
- Tahoma
- Trebuchet MS
- Verdana

Text sizes

5”

- Heading 44pt
- Subtitle 32-36pt
- Paragraphs 28pt
- Explanatory text 24pt

Readability Considerations

- Groups will be 20 or more feet away from the projected image.
- Computer screen image for slides will be approximately 5” x 4.”
- More than 8 lines of text may lose the audience’s attention.

Suggested Color Combinations

- White or yellow on dark blue or black
- Orange on dark blue
- Dark blue or black on light gray
- No red, green, and multi-color backgrounds

Special Effects: Caution

- Keep animations short. Avoid overly flashy transitions between slides.
- Notify ALI CLE staff if any audio or video clips are embedded in the slides.

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(215) 243-1613 | www.ali-cle.org
Office of Content Production
Leslie A. Belasco, *Director of Courses*

Environmental Law 2019
February 7-8, 2019, Washington, D.C.
CA012

PLEASE RETURN THIS FORM BY: Thursday, December 19, 2018

Name: _____
(Please print your name)

Please check one of the following:

_____ **I will need the following hotel accommodations:**

Arrival Date: _____ Time:_____

Departure Date: _____ Time:_____

_____Single Occupancy
_____Double Occupancy
_____Special requests: _____

_____ **I have made my own reservations at the site hotel. Following are my arrival/departure dates:**

Arrival Date: _____

Departure Date: _____

_____ **I have made a reservation at _____. Following are my arrival/departure dates:**

Arrival Date: _____

Departure Date: _____

_____ **I do not need a hotel reservation.**

The site hotel is the Washington Plaza Hotel

(Please note that this hotel has a 72 hour cancellation policy. So as not to incur a no-show charge, please notify the hotel and us in advance of the cancellation deadline if you will not need this room.)

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Office of Content Production
Leslie A. Belasco, *Director of Courses*

Travel and Other Expenses

General:

Costs for travel and hotel functions have continued to rise since the bottom of the recession. Although we have increased tuitions, ALI CLE thus far has been able to continue to provide quality courses at fees that are competitive with those of other national CLE organizations. We have been able to do so primarily by imposing economies on phases of our operations that have minimal effect on the educational purposes and quality of our efforts, and by enlisting the cooperation of everyone involved, including our traveling faculty members. We ask that you read and follow the policies outlined below.

- ALI CLE will reimburse travel and lodging expenses of faculty from the **government and non-profit sectors** upon request.
- **ALI CLE generally will *not* reimburse private practice attorneys** for travel and lodging expenses; however, ALI CLE will reimburse a private sector attorney who feels that (s)he cannot participate without reimbursement *and* notifies us in advance of the program to make the necessary arrangements.
- No reimbursement can be made for a spouse's or partner's expenses.

All faculty are reminded that ALI is a 501(c)(3) organization, so tax deductions may be available for travel expenses. ALI CLE is happy to provide faculty who forgo reimbursement with complimentary course registrations or other products that may be worth at least as much as their financial contribution.

If you will be submitting for reimbursement, please contact us for an expense reimbursement form. To process your expenses for reimbursement, the form must be submitted to me **within 60 days** after the program, accompanied by receipts for all items of $25 or more. (Credit card statements will not be accepted.) Please note that if you host a group faculty meal, you will need to list on your receipt the names of those attending.

Thank you for your understanding of these policies, which help ALI CLE keep course expenses down so that we can continue to offer quality CLE at a competitive price.

Transportation:

Faculty should make their own transportation arrangements. Please note that ALI CLE will reimburse only:

- discounted, nonrefundable coach air fares
- non-Acela coach Amtrak fares
- taxi, UberX, and UberT fares (not limo, town car, UberBlack, UberSUV, or comparable services).

ALI CLE will not reimburse optional coach airfare upgrades or reimburse car rental costs (unless reasonable, necessary, *and* approved in advance). Please make your airline reservations as early as possible so as to secure the best available fare.

Hotel Arrangements:

We have reserved a guaranteed block of rooms at the **Washington Plaza Hotel**. If you choose to stay elsewhere, please notify us in advance and note that we will only reimburse up to the same rate as that offered in the room block at our site hotel, or **$149/night (single-double). We shall reserve specific accommodations for you at the site hotel if you will let us know your requirements by returning the hotel form, included in this packet, by the due date specified.** If you subsequently change your plans for a later arrival, please notify both the hotel and us directly. Otherwise, since your room is guaranteed, the hotel will regard you as a no-show, charge for one night's lodging, and cancel your reservation.

Message

From: Mike Sommers [registrar@api.org]
Sent: 12/10/2018 2:43:34 PM
To: Wheeler, Andrew [wheeler.andrew@epa.gov]
Subject: You're Invited to API's State of American Energy 2019

The American Petroleum Institute invites you to

The 2019 State of American Energy luncheon – celebrating Generation Energy

We are in the midst of Generation Energy. More natural gas and oil is produced in the United States than any other country in the world. At the same time, U.S. carbon dioxide emissions are at their lowest levels in a generation, largely because of the growing role played by clean natural gas. Our industry is an economic engine, supporting 10.3 million jobs – to produce, deliver and refine natural gas and oil – as well as jobs associated with energy development and the personal spending of our workers.

Guided by smart policies and regulations that unleash innovation and progress, natural gas and oil are playing a powerful role in America's economic progress and will for generations to come.

Join me and industry leaders from coast to coast at the 2019 State of American Energy luncheon.

Sincerely,

MIKE SOMMERS
President and CEO, API

RSVP

BY DECEMBER 31st
This invitation is non-transferable.

WHEN

TUESDAY, JANUARY 8, 2019
11:30 A.M.– 1:30 P.M.

WHERE

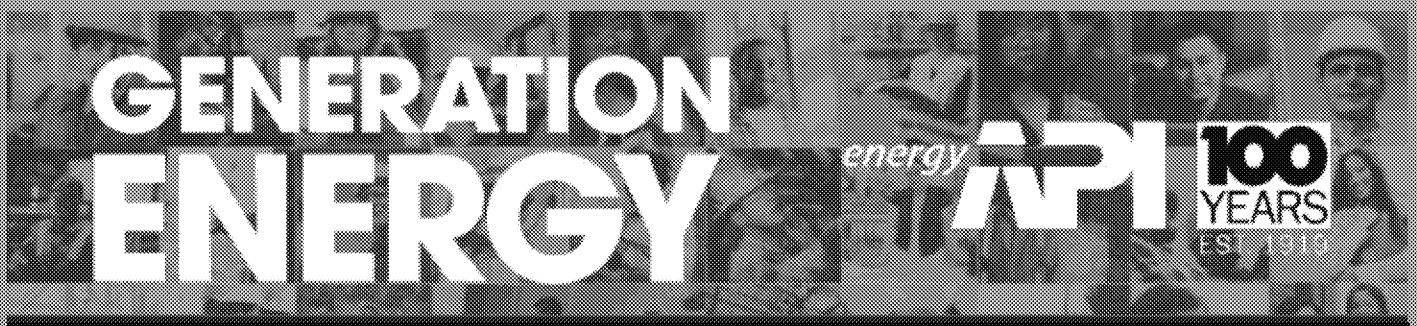
RONALD REAGAN BUILDING AND INTERNATIONAL TRADE CENTER
ATRIUM BALLROOM
1300 PENNSYLVANIA AVENUE, NW
WASHINGTON, DC 20004
Please use entrance on 14th Street

This event has been designed to comply with the gifts and ethics rules of the U.S. Senate and House of Representatives as a "widely attended event." Employees of the executive branch may wish to consult their Designated Agency Ethics Official about any rules that may apply to their attendance at this event.

powered by cvent

Message

From: Mike Sommers [registrar@api.org]
Sent: 12/3/2018 3:47:14 PM
To: Wheeler, Andrew [wheeler.andrew@epa.gov]
Subject: You're Invited to API's State of American Energy 2019



The American Petroleum Institute invites you to

The 2019 State of American Energy luncheon – celebrating Generation Energy

We are in the midst of Generation Energy. More natural gas and oil is produced in the United States than any other country in the world. At the same time, U.S. carbon dioxide emissions are at their lowest levels in a generation, largely because of the growing role played by clean natural gas. Our industry is an economic engine, supporting 10.3 million jobs – to produce, deliver and refine natural gas and oil – as well as jobs associated with energy development and the personal spending of our workers.

Guided by smart policies and regulations that unleash innovation and progress, natural gas and oil are playing a powerful role in America's economic progress and will for generations to come.

Join me and industry leaders from coast to coast at the 2019 State of American Energy luncheon.

Sincerely,

MIKE SOMMERS
President and CEO, API

RSVP

BY DECEMBER 31st
This invitation is non-transferable.

WHEN

TUESDAY, JANUARY 8, 2019
11:30 A.M.– 1:30 P.M.

WHERE

RONALD REAGAN BUILDING AND INTERNATIONAL TRADE CENTER
ATRIUM BALLROOM
1300 PENNSYLVANIA AVENUE, NW
WASHINGTON, DC 20004
Please use entrance on 14th Street

energy API | POWER PAST IMPOSSIBLE.ORG

This event has been designed to comply with the gifts and ethics rules of the U.S. Senate and House of Representatives as a "widely attended event." Employees of the executive branch may wish to consult their Designated Agency Ethics Official about any rules that may apply to their attendance at this event.

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Appointment

From: Ted Steichen [SteichenT@api.org]
Sent: 8/1/2018 5:40:11 PM
To: Woods, Clint [woods.clint@epa.gov]

Subject: Conference Call Details
Location: Ex. 6 Personal Privacy (PP)

Start: 8/3/2018 3:00:00 PM
End: 8/3/2018 3:30:00 PM
Show Time As: Tentative

Recurrence: (none)

Appointment

From: Broome, Shannon S. [SBroome@hunton.com]
Sent: 10/9/2018 9:17:53 PM
To: Woods, Clint [woods.clint@epa.gov]

Subject: Quick chat on ABA panel
Location: Ex. 6 Personal Privacy (PP) code Ex. 6 Personal Privacy (PP)

Start: 10/11/2018 8:00:00 PM
End: 10/11/2018 8:30:00 PM
Show Time As: Tentative

Recurrence: (none)

Appointment

From: Broome, Shannon S. [SBroome@hunton.com]
Sent: 10/4/2018 4:22:28 PM
To: Brightbill, Jonathan (ENRD) [Jonathan.Brightbill@usdoj.gov]; dpettit@nrdc.org; Woods, Clint [woods.clint@epa.gov]

Subject: Final Prep ABA Panel
Location: Ex. 6 Personal Privacy (PP) code Ex. 6 Personal Privacy (PP)

Start: 10/11/2018 3:00:00 PM
End: 10/11/2018 4:00:00 PM
Show Time As: Tentative

Recurrence: (none)

Appointment

From: Broome, Shannon S. [SBroome@hunton.com]
Sent: 10/19/2018 1:13:07 AM
To: Woods, Clint [woods.clint@epa.gov]; Brightbill, Jonathan (ENRD) [Jonathan.Brightbill@usdoj.gov]; Jacob A. Santini [JSantini@parsonsbehle.com]; dpettit@nrdc.org

Subject: Breakfast in prep for ABA panel
Location: Marina Kitchen in hotel

Start: 10/19/2018 2:30:00 PM
End: 10/19/2018 3:30:00 PM
Show Time As: Tentative

Recurrence: (none)

Appointment

From: Veney, Carla [Veney.Carla@epa.gov]
Sent: 3/8/2019 5:10:28 PM
To: 'Broome, Shannon S.' [SBroome@hunton.com]; Schwab, Justin [Schwab.Justin@epa.gov]; Cress, Julie [JCress@hunton.com]; Woods, Clint [woods.clint@epa.gov]
CC: Shaffer, Patricia [Shaffer.Patricia@epa.gov]; Rakosnik, Delaney [rakosnik.delaney@epa.gov]

Subject: EPA/Hunton Andrews Kurth Meeting
Location: EPA Headquarters, 1200 Pennsylvania Avenue (William Jefferson Clinton Building), 4th Floor, Room 4045

Start: 3/12/2019 2:00:00 PM
End: 3/12/2019 3:00:00 PM
Show Time As: Tentative

Appointment

From: Broome, Shannon S. [SBroome@hunton.com]
Sent: 8/24/2018 3:04:24 PM
To: Woods, Clint [woods.clint@epa.gov]; dpettit@nrdc.org

Subject: Call re ABA Panel
Location: Ex. 6 Personal Privacy (PP) code Ex. 6 Personal Privacy (PP)

Start: 8/29/2018 2:00:00 PM
End: 8/29/2018 2:30:00 PM
Show Time As: Tentative

Recurrence: (none)

Appointment

From: Smythe Anderson [AndersonS@api.org]
Sent: 4/9/2019 2:44:47 PM
To: Marnie.Funk@shell.com; Woods, Clint [woods.clint@epa.gov]

Subject: Call re: NAAQS
Location: Skype Meeting

Start: 4/9/2019 3:00:00 PM
End: 4/9/2019 3:30:00 PM
Show Time As: Tentative

Recurrence: (none)

Appointment

From: Smythe Anderson [AndersonS@api.org]
Sent: 4/9/2019 2:44:47 PM
To: Marnie.Funk@shell.com; Woods, Clint [woods.clint@epa.gov]

Subject: Call re: NAAQS
Location: Skype Meeting

Start: 4/9/2019 3:00:00 PM
End: 4/9/2019 3:30:00 PM
Show Time As: Tentative

Recurrence: (none)

Join Skype Meeting

Trouble Joining? Try Skype Web App

Join by phone

Toll number: Ex. 6 Personal Privacy (PP) (Dial-in Number) English (United States)

Find a local number

Conference ID: 71001589
Forgot your dial-in PIN? | Help

Appointment

From: Broome, Shannon S. [SBroome@hunton.com]
Sent: 10/11/2018 8:21:39 PM
To: Woods, Clint [woods.clint@epa.gov]; dpettit@nrdc.org; Brightbill, Jonathan (ENRD) [Jonathan.Brightbill@usdoj.gov]

Subject: Breakfast in prep for ABA panel
Location: Will send location on Thursday

Start: 10/19/2018 2:30:00 PM
End: 10/19/2018 3:30:00 PM
Show Time As: Tentative

Recurrence: (none)

Appointment

From: Broome, Shannon S. [SBroome@hunton.com]
Sent: 10/4/2018 4:22:37 PM
To: Broome, Shannon S. [SBroome@hunton.com]; Brightbill, Jonathan (ENRD) [Jonathan.Brightbill@usdoj.gov]; dpettit@nrdc.org; Woods, Clint [woods.clint@epa.gov]

Subject: Final Prep ABA Panel
Location: Ex. 6 Personal Privacy (PP) code Ex. 6 Personal Privacy (PP)

Start: 10/11/2018 3:00:00 PM
End: 10/11/2018 4:00:00 PM
Show Time As: Tentative

Recurrence: (none)

Appointment

From: Broome, Shannon S. [SBroome@hunton.com]
Sent: 10/19/2018 12:36:21 AM
To: Woods, Clint [woods.clint@epa.gov]; Brightbill, Jonathan (ENRD) [Jonathan.Brightbill@usdoj.gov]; dpettit@nrdc.org

Subject: Breakfast in prep for ABA panel
Location: Marina Kitchen in hotel

Start: 10/19/2018 2:30:00 PM
End: 10/19/2018 3:30:00 PM
Show Time As: Tentative

Recurrence: (none)

Appointment

From: Leopold, Matt (OGC) [Leopold.Matt@epa.gov]
Sent: 3/8/2019 5:10:29 PM
To: Leopold, Matt (OGC) [Leopold.Matt@epa.gov]; 'Broome, Shannon S.' [SBroome@hunton.com]; Schwab, Justin [Schwab.Justin@epa.gov]; Cress, Julie [JCress@hunton.com]; Woods, Clint [woods.clint@epa.gov]; DCRoomARN4045/DC-Ariel-Rios-OGC [DCROOMARN4045@epa.gov]
CC: Shaffer, Patricia [Shaffer.Patricia@epa.gov]; Rakosnik, Delaney [rakosnik.delaney@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]

Subject: EPA/Hunton Andrews Kurth Meeting
Location: EPA Headquarters, 1200 Pennsylvania Avenue (William Jefferson Clinton Building), 4th Floor, Room 4045

Start: 3/12/2019 2:15:00 PM
End: 3/12/2019 3:00:00 PM
Show Time As: Busy

Appointment

From: Veney, Carla [Veney.Carla@epa.gov]
Sent: 3/12/2019 12:15:29 PM
To: 'Broome, Shannon S.' [SBroome@hunton.com]; Schwab, Justin [Schwab.Justin@epa.gov]; Cress, Julie [JCress@hunton.com]; Woods, Clint [woods.clint@epa.gov]; DCRoomARN4045/DC-Ariel-Rios-OGC [DCROOMARN4045@epa.gov]
CC: Shaffer, Patricia [Shaffer.Patricia@epa.gov]; Rakosnik, Delaney [rakosnik.delaney@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]

Subject: EPA/Hunton Andrews Kurth Meeting
Location: EPA Headquarters, 1200 Pennsylvania Avenue (William Jefferson Clinton Building), 4th Floor, Room 4045

Start: 3/12/2019 2:15:00 PM
End: 3/12/2019 3:00:00 PM
Show Time As: Tentative

Appointment

From: Leopold, Matt (OGC) [Leopold.Matt@epa.gov]
Sent: 3/8/2019 5:10:29 PM
To: Leopold, Matt (OGC) [Leopold.Matt@epa.gov]; 'Broome, Shannon S.' [SBroome@hunton.com]; Schwab, Justin [Schwab.Justin@epa.gov]; Cress, Julie [JCress@hunton.com]; Woods, Clint [woods.clint@epa.gov]; DCRoomARN4045/DC-Ariel-Rios-OGC [DCROOMARN4045@epa.gov]
CC: Shaffer, Patricia [Shaffer.Patricia@epa.gov]; Rakosnik, Delaney [rakosnik.delaney@epa.gov]

Subject: EPA/Hunton Andrews Kurth Meeting
Location: EPA Headquarters, 1200 Pennsylvania Avenue (William Jefferson Clinton Building), 4th Floor, Room 4045

Start: 3/12/2019 2:00:00 PM
End: 3/12/2019 3:00:00 PM
Show Time As: Tentative

Appointment

From: Veney, Carla [Veney.Carla@epa.gov]
Sent: 3/8/2019 5:10:28 PM
To: 'Broome, Shannon S.' [SBroome@hunton.com]; Schwab, Justin [Schwab.Justin@epa.gov]; Cress, Julie [JCress@hunton.com]; Woods, Clint [woods.clint@epa.gov]
CC: Shaffer, Patricia [Shaffer.Patricia@epa.gov]; Rakosnik, Delaney [rakosnik.delaney@epa.gov]

Subject: EPA/Hunton Andrews Kurth Meeting
Location: EPA Headquarters, 1200 Pennsylvania Avenue (William Jefferson Clinton Building), 4th Floor, Room 4045

Start: 3/12/2019 2:00:00 PM
End: 3/12/2019 3:00:00 PM
Show Time As: Tentative

Please enter via our north side entrance. Upon clearing security, you will be escorted to the conference room.

Appointment

From: Woods, Clint [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=BC65010F5C2E48F4BC2AA050DB50D198-WOODS, CLIN]
Sent: 8/24/2018 3:03:58 PM
To: Broome, Shannon S. [SBroome@hunton.com]

Subject: Declined: Call re ABA Panel
Location: Ex. 6 Personal Privacy (PP) code Ex. 6 Personal Privacy (PP)

Start: 8/24/2018 3:00:00 PM
End: 8/24/2018 3:30:00 PM
Show Time As: Busy

Appointment

From: Woods, Clint [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=BC65010F5C2E48F4BC2AA050DB50D198-WOODS, CLIN]
Sent: 10/10/2018 7:17:23 PM
To: Broome, Shannon S. [SBroome@hunton.com]

Subject: Declined: Final Prep ABA Panel
Location: Ex. 6 Personal Privacy (PP) code Ex. 6 Personal Privacy (PP)

Start: 10/11/2018 3:00:00 PM
End: 10/11/2018 4:00:00 PM
Show Time As: Busy

Appointment

From: Ted Steichen [SteichenT@api.org]
Sent: 8/1/2018 5:40:19 PM
To: Ted Steichen [SteichenT@api.org]; Woods, Clint [woods.Clint@epa.gov]

Subject: Conference Call Details
Location: Ex. 6 Personal Privacy (PP)

Start: 8/3/2018 3:00:00 PM
End: 8/3/2018 3:30:00 PM
Show Time As: Busy

Recurrence: (none)

Appointment

From: Broome, Shannon S. [SBroome@hunton.com]
Sent: 10/9/2018 9:17:59 PM
To: Broome, Shannon S. [SBroome@hunton.com]; Woods, Clint [woods.clint@epa.gov]

Subject: Quick chat on ABA panel
Location: Ex. 6 Personal Privacy (PP) code Ex. 6 Personal Privacy (PP)

Start: 10/11/2018 8:00:00 PM
End: 10/11/2018 8:30:00 PM
Show Time As: Busy

Recurrence: (none)

Appointment

From: Broome, Shannon S. [SBroome@hunton.com]
Sent: 10/11/2018 8:21:46 PM
To: Broome, Shannon S. [SBroome@hunton.com]; Woods, Clint [woods.clint@epa.gov]; Brightbill, Jonathan (ENRD) [Jonathan.Brightbill@usdoj.gov]; Jacob A. Santini [JSantini@parsonsbehle.com]; dpettit@nrdc.org

Subject: Breakfast in prep for ABA panel
Location: Marina Kitchen in hotel

Start: 10/19/2018 2:30:00 PM
End: 10/19/2018 3:30:00 PM
Show Time As: Busy

Recurrence: (none)

Appointment

From: Broome, Shannon S. [SBroome@hunton.com]
Sent: 8/24/2018 3:05:23 PM
To: Broome, Shannon S. [SBroome@hunton.com]; Woods, Clint [woods.clint@epa.gov]; dpettit@nrdc.org

Subject: FYI: Call re ABA Panel
Location: Ex. 6 Personal Privacy (PP) code Ex. 6 Personal Privacy (PP)

Start: 8/29/2018 2:00:00 PM
End: 8/29/2018 2:30:00 PM
Show Time As: Free

Recurrence: (none)

Appointment

From: Leopold, Matt (OGC) [Leopold.Matt@epa.gov]
Sent: 3/8/2019 5:10:29 PM
To: Leopold, Matt (OGC) [Leopold.Matt@epa.gov]; 'Broome, Shannon S.' [SBroome@hunton.com]; Schwab, Justin [Schwab.Justin@epa.gov]; Cress, Julie [JCress@hunton.com]; Woods, Clint [woods.clint@epa.gov]; DCRoomARN4045/DC-Ariel-Rios-OGC [DCROOMARN4045@epa.gov]
CC: Shaffer, Patricia [Shaffer.Patricia@epa.gov]; Rakosnik, Delaney [rakosnik.delaney@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]

Subject: EPA/Hunton Andrews Kurth Meeting
Location: EPA Headquarters, 1200 Pennsylvania Avenue (William Jefferson Clinton Building), 4th Floor, Room 4045

Start: 3/12/2019 2:00:00 PM
End: 3/12/2019 3:00:00 PM
Show Time As: Tentative

Please enter via our north side entrance. Upon clearing security, you will be escorted to the conference room.

Appointment

From: Leopold, Matt (OGC) [Leopold.Matt@epa.gov]
Sent: 3/8/2019 5:10:29 PM
To: Leopold, Matt (OGC) [Leopold.Matt@epa.gov]; 'Broome, Shannon S.' [SBroome@hunton.com]; Schwab, Justin [Schwab.Justin@epa.gov]; Cress, Julie [JCress@hunton.com]; Woods, Clint [woods.clint@epa.gov]; DCRoomARN4045/DC-Ariel-Rios-OGC [DCROOMARN4045@epa.gov]
CC: Shaffer, Patricia [Shaffer.Patricia@epa.gov]; Rakosnik, Delaney [rakosnik.delaney@epa.gov]

Subject: EPA/Hunton Andrews Kurth Meeting
Location: EPA Headquarters, 1200 Pennsylvania Avenue (William Jefferson Clinton Building), 4th Floor, Room 4045

Start: 3/12/2019 2:00:00 PM
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Show Time As: Tentative

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Appointment

From: Leopold, Matt (OGC) [Leopold.Matt@epa.gov]
Sent: 3/8/2019 5:10:29 PM
To: Leopold, Matt (OGC) [Leopold.Matt@epa.gov]; 'Broome, Shannon S.' [SBroome@hunton.com]; Schwab, Justin [Schwab.Justin@epa.gov]; Cress, Julie [JCress@hunton.com]; Woods, Clint [woods.clint@epa.gov]
CC: Shaffer, Patricia [Shaffer.Patricia@epa.gov]; Rakosnik, Delaney [rakosnik.delaney@epa.gov]

Subject: EPA/Hunton Andrews Kurth Meeting
Location: EPA Headquarters, 1200 Pennsylvania Avenue (William Jefferson Clinton Building), 4th Floor, Room 4045

Start: 3/12/2019 2:00:00 PM
End: 3/12/2019 3:00:00 PM
Show Time As: Tentative

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Appointment

From: Smythe Anderson [AndersonS@api.org]
Sent: 4/9/2019 2:44:56 PM
To: Smythe Anderson [AndersonS@api.org]; Marnie.Funk@shell.com; Woods, Clint [woods.clint@epa.gov]

Subject: Call re: NAAQS
Location: Skype Meeting

Start: 4/9/2019 3:00:00 PM
End: 4/9/2019 3:15:00 PM
Show Time As: Busy

Recurrence: (none)

Join Skype Meeting

Trouble Joining? Try Skype Web App

Join by phone

Toll number: Ex. 6 Personal Privacy (PP) (Dial-in Number) English (United States)

Find a local number

Conference ID: Ex. 6 Personal Privacy (PP)

Forgot your dial-in PIN? | Help

Appointment

From: Leopold, Matt (OGC) [Leopold.Matt@epa.gov]
Sent: 3/8/2019 5:10:29 PM
To: Leopold, Matt (OGC) [Leopold.Matt@epa.gov]; 'Broome, Shannon S.' [SBroome@hunton.com]; Schwab, Justin [Schwab.Justin@epa.gov]; Cress, Julie [JCress@hunton.com]; Woods, Clint [woods.clint@epa.gov]; DCRoomARN4045/DC-Ariel-Rios-OGC [DCROOMARN4045@epa.gov]
CC: Shaffer, Patricia [Shaffer.Patricia@epa.gov]; Rakosnik, Delaney [rakosnik.delaney@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]

Subject: EPA/Hunton Andrews Kurth Meeting
Location: EPA Headquarters, 1200 Pennsylvania Avenue (William Jefferson Clinton Building), 4th Floor, Room 4045

Start: 3/12/2019 2:15:00 PM
End: 3/12/2019 3:00:00 PM
Show Time As: Busy

PLEASE NOTE: The start time has been adjusted. Please enter via our north side entrance. Upon clearing security, you will be escorted to the conference room.

Appointment

From: Ted Steichen [SteichenT@api.org]
Sent: 8/1/2018 5:40:19 PM
To: Ted Steichen [SteichenT@api.org]; Woods, Clint [woods.Clint@epa.gov]

Subject: Conference Call Details
Location: Ex. 6 Personal Privacy (PP)

Start: 8/3/2018 3:00:00 PM
End: 8/3/2018 3:30:00 PM
Show Time As: Busy

Recurrence: (none)

To: Ted Steichen (API); Woods, Clint

Howard will attempt to join the call.

Conference call details:

11:00 a.m. EDT on FRIDAY 8/3

Ex. 6 Personal Privacy (PP)

Then Ex. 6 Personal Privacy (PP)

Appointment

From: Broome, Shannon S. [SBroome@hunton.com]
Sent: 10/11/2018 8:21:46 PM
To: Broome, Shannon S. [SBroome@hunton.com]; Woods, Clint [woods.clint@epa.gov]; Brightbill, Jonathan (ENRD) [Jonathan.Brightbill@usdoj.gov]; Jacob A. Santini [JSantini@parsonsbehle.com]; dpettit@nrdc.org

Subject: Breakfast in prep for ABA panel
Location: Marina Kitchen in hotel

Start: 10/19/2018 2:30:00 PM
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Show Time As: Busy

Recurrence: (none)

Appointment

From: Broome, Shannon S. [SBroome@hunton.com]
Sent: 10/9/2018 9:17:59 PM
To: Broome, Shannon S. [SBroome@hunton.com]; Woods, Clint [woods.clint@epa.gov]

Subject: Quick chat on ABA panel
Location: Ex. 6 Personal Privacy (PP) code Ex. 6 Personal Privacy (PP)

Start: 10/11/2018 8:00:00 PM
End: 10/11/2018 8:30:00 PM
Show Time As: Busy

Recurrence: (none)

Appointment

From: Broome, Shannon S. [SBroome@hunton.com]
Sent: 8/24/2018 3:05:23 PM
To: Broome, Shannon S. [SBroome@hunton.com]; Woods, Clint [woods.clint@epa.gov]; dpettit@nrdc.org

Subject: FYI: Call re ABA Panel
Location: Ex. 6 Personal Privacy (PP) code Ex. 6 Personal Privacy (PP)

Start: 8/29/2018 2:00:00 PM
End: 8/29/2018 2:30:00 PM
Show Time As: Free

Recurrence: (none)

Message

From: Jacks, Susan [Jacks.Susan@epa.gov]
Sent: 6/7/2019 7:19:24 PM
To: Smythe Anderson [AndersonS@api.org]; Woods, Clint [woods.clint@epa.gov]
Subject: RE: API Mtg Request - NAAQS

Hi Smythe,

I'll take a look at Clint's calendar and send you some dates.

Susan

From: Smythe Anderson <AndersonS@api.org>
Sent: Friday, June 7, 2019 2:53 PM
To: Woods, Clint <woods.clint@epa.gov>
Cc: Jacks, Susan <Jacks.Susan@epa.gov>
Subject: API Mtg Request - NAAQS

Clint,

Thanks again for taking the time to meet with API in April. Our members found it to be a very productive meeting.

I would like to request a meeting at your earliest convenience to discuss NAAQS. I expect to be joined by member company representatives and defer to your judgment who should be included from EPA.

Thanks in advance,
Smythe

Smythe Anderson
Director of Federal Relations
API | 200 Massachusetts Ave NW | Washington, DC 20001 | 202.682.8040 | M: Ex. 6 Personal Privacy (PP) | AndersonS@api.org

energy API 100 YEARS EST. 1919

Message

From: Broome, Shannon S. [SBroome@hunton.com]
Sent: 10/22/2018 4:46:47 PM
To: Woods, Clint [woods.clint@epa.gov]
CC: Knauss, Chuck [CKnauss@hunton.com]
Subject: RE: 2:00

Sorry for delay in responding Clint. Yes we are on. I had a delayed flight issue that prevented me from being on line. Charles Knauss will come over there and be there at 2 pm.

From: Woods, Clint [mailto:woods.clint@epa.gov]
Sent: Monday, October 22, 2018 10:59 AM
To: Broome, Shannon S.
Subject: 2:00

Shannon,

Thanks again for the opportunity in San Diego – Still up for 2:00 today? I have reserved room 5415 if the timing still works.

Clint Woods
Deputy Assistant Administrator
Office of Air and Radiation, U.S. EPA
202.564.6562

Message

From: Broome, Shannon S. [SBroome@hunton.com]
Sent: 10/21/2018 5:34:36 AM
To: Brightbill, Jonathan (ENRD) [Jonathan.Brightbill@usdoj.gov]; Woods, Clint [woods.clint@epa.gov]; dpettit@nrdc.org
CC: Jacob A. Santini [JSantini@parsonsbehle.com]
Subject: Thank you!

Flag: Flag for follow up

Clint, David, and Jonathan,

On behalf of the ABA SEER, the Air Quality Committee, and the Climate Change, Sustainable Development, and Ecosystems Committee, I thank you for your excellent contributions this past week to the SEER Fall Conference in San Diego. You all were terrific panelists and you were very clear and forthcoming in your viewpoints and the legal bases for them. I am especially grateful for the "redeye" crew and for David trekking through LA traffic to reach us. Finally, thanks to Jacob for keeping us on track and supporting me through the preparation process. This was a true team effort. The ABA can only serve its purpose through the dedicated efforts of professionals like all of you. Thank you and I hope you all have a nice weekend!

HUNTON
ANDREWS KURTH

Shannon S. Broome
Managing Partner, SF Office, Partner, DC Office
SBroome@HuntonAK.com
p 415.975.3718
p 202.955.1912

c Ex. 6 Personal Privacy (PP)

Hunton Andrews Kurth LLP

HuntonAK.com

Message

From: Pettit, David [dpettit@nrdc.org]
Sent: 10/1/2018 8:16:11 PM
To: Broome, Shannon S. [SBroome@hunton.com]
CC: Brightbill, Jonathan (ENRD) [Jonathan.Brightbill@usdoj.gov]; Woods, Clint [woods.clint@epa.gov]; Ellis, Clare [CEllis@hunton.com]
Subject: Re: Draft Paper and Next Call -- ABA Fall Conference - CLE Materials - Deregulation in Focus - The CAA and the States_70899299_1.DOCX

Thanks.

Sent from my iPhone

On Oct 1, 2018, at 1:15 PM, Broome, Shannon S. <SBroome@hunton.com> wrote:

All – here is the final paper. I just submitted it. Thanks for all of the support in getting this done.

Best Regards,

<image001.png>

Shannon S. Broome
Partner/Office Managing Partner San Francisco
sbroome@HuntonAK.com
p 415.975.3718
202.955.1912
m Ex. 6 Personal Privacy (PP)

bio | vCard |

Hunton Andrews Kurth LLP
50 California Street
Suite 1700
San Francisco, CA 94111

2200 Pennsylvania Avenue, NW
10th Floor
Washington, DC 20007
HuntonAK.com

This communication is confidential and is intended to be privileged pursuant to applicable law. If the reader of this message is not the intended recipient, please advise by return email immediately and then delete this message and all copies and backups thereof.

From: Broome, Shannon S.
Sent: Monday, September 24, 2018 12:10 AM
To: dpettit@nrdc.org; Brightbill, Jonathan (ENRD); 'Woods, Clint'
Cc: Ellis, Clare
Subject: Draft Paper and Next Call -- ABA Fall Conference - CLE Materials - Deregulation in Focus - The CAA and the States_70899299_1.DOCX

All –

Thank you again for agreeing to present on the "Deregulation in Focus" panel at the SEER Fall Conference in San Diego. As promised, we put together some background materials on a few regulations that could be good fodder for discussion of state roles. The attached is intended to provide "table setting" information about some rules we could discuss. It is not intended to

discuss the appropriate role of states – that is for the panel discussion. We tried to be neutral – a Dragnet "just the facts" approach on these regulations. Our final paper is due on Friday.

Please keep in mind that the purpose of this paper is to ensure that the various states where ABA members are licensed grant CLE credit. We are not trying to win "best paper" (unless one of you really wants to do that). So please recognize the spirit with which the attached was prepared before criticizing. It's okay to criticize and make edits; we were gearing level of effort to the goal and were not trying to carry anyone's bags. I am copying Clare Ellis who was kind enough to help with the paper (thank you Clare!).

Next Steps for Our Panel:

1. Finalize the paper and submit it: Please review the attached and provide any comments/edits by Wednesday COB. Please read the footnote that I put on the first page saying we all contributed but that the paper doesn't represent our organizations' positions so we can't have it cited back to us in case we inadvertently said something that hurts someone's position.

2. Circulate assignments for the panel and format with moderator questions for review by this group: I intend to circulate the outline of the panel that we have discussed with time allocations by October 10.

3. Hold a conference call to review and finalize the outline/questions: I propose that we have a conference call to go over the approach to the panel with the draft moderator questions the week of October 15. I am hoping that can work for everyone. Please fill out the doodle poll a this link re your availability that week: https://doodle.com/poll/dzqtcmawk4hamnst

4. Briefly meet the day before our panel (Thursday) to do any last-minute logistics and have a quick drink or coffee so that we are familiar and comfortable. This is obviously optional but I find that the panels go better if we have at least had one in-person interaction before stepping up on the stage. Please let me know if you could break away on Thursday between 4 and 5 to meet in San Diego and do this.

Best Regards,

<image002.png>

Shannon S. Broome
Partner/Office Managing Partner San Francisco
sbroome@HuntonAK.com
p 415.975.3718
202.955.1912
m Ex. 6 Personal Privacy (PP)

bio | vCard |

Hunton Andrews Kurth LLP
50 California Street
Suite 1700
San Francisco, CA 94111

2200 Pennsylvania Avenue, NW
10th Floor
Washington, DC 20007
HuntonAK.com

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<2018-09-30_FINAL Dereg in Focus Panel Paper ABA_Fall_Conference-c.docx>

Message

From: Broome, Shannon S. [SBroome@hunton.com]
Sent: 10/1/2018 1:46:09 PM
To: Woods, Clint [woods.clint@epa.gov]
Subject: RE: 2018-09-30_FINAL ABA_Fall_Conference_-_CLE_Materials_-_Deregulat...docx

Thanks for responding. I know you are completely buried. As I had hoped, Jon Brightbill included some more caveat language that I think is helpful – I need to finalize it so appreciate your clearance. Talk soon …

Best Regards,

HUNTON ANDREWS KURTH

Shannon S. Broome
Partner/Office Managing Partner San Francisco
sbroome@HuntonAK.com
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202.955.1912
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From: Woods, Clint [mailto:woods.clint@epa.gov]
Sent: Monday, October 01, 2018 9:32 AM
To: Broome, Shannon S.
Subject: Re: 2018-09-30_FINAL ABA_Fall_Conference_-_CLE_Materials_-_Deregulat...docx

Please excuse my delay - I have very minor suggestions that need to be typed up but would not have concerns if this version was finalized. Will follow up on doodle poll. Unfortunately, I will not be getting until late on Thursday. Thanks!

On Oct 1, 2018, at 12:50 AM, Broome, Shannon S. <SBroome@hunton.com> wrote:

All –

We are now officially late with the paper for the ABA conference. The attached reflects the limited comments received and I do think it is in good shape.

Do I have everyone's clearance to get this in? We have beefed up the disclaimer footnote so that no one can be "tagged" with the language in the paper. Again, it is an attempt to be neutral but to lay out the timing and a few of the issues as a "jumping off point" for our talk.

Please let me know if you have any issues with the paper by 3 pm Monday if you can or let me know that I should hold off – but again we are now late and we need a paper for the panel. My plan is to send in at 5 pm eastern barring objection …

Thanks in advance for your assistance in getting this across the finish line!

Best Regards,

<image001.png>

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<2018-09-30_FINAL ABA_Fall_Conference_-_CLE_Materials_-_Deregulat...docx.docx>

American Bar Association
Section on Environment, Energy, and Resources
Fall Conference 2018
San Diego, California

Panel Paper: Deregulation in Focus: The Clean Air Act and States[1]

October 19, 2018

Elections have consequences. That's true regardless of the party that is currently sitting in the White House or which party holds a majority in the Senate or House of Representatives. Since the 2016 election, as with all national elections where a shift in the party of the president occurs, steps are taken by the new administration to evaluate the policies and regulations of the prior administration and to make adjustments that the new president deems appropriate. This panel focuses on steps that the current administration undertook in this regard with respect to the Clean Air Act (CAA), with additional focus on how the states have reacted. The purpose of this paper, which was jointly prepared by all panelists, is to provide background on some of the regulations that have been addressed by the Trump Administration to facilitate a productive discussion.

A number of CAA regulatory programs have been implicated in the efforts of the Trump Administration to evaluate President Obama's regulatory programs and determine if changes are appropriate. While President Trump ran on a platform that promoted jobs and business, his campaign speeches also supported clean air and clean water.[2] Since President Trump took office, EPA has worked to review the actions of the prior administration, with particular focus on

---

[1] The following panelists contributed to this paper: Jonathan D. Brightbill, Shannon S. Broome, David Pettit, Clint Woods. The characterization of any particular position is not to be attributed to a particular author or the author's employer. Nothing in this paper necessarily reflects the views of the Department of Justice, any federal agency.

[2] The allocation of resources at the EPA is not entirely within any administration's control—statutes impose mandatory duties that require the agency to issue certain regulations according to specified schedules. In the case of the CAA Amendments of 1990, Congress specified many deadlines, and since that time, EPA has tried to meet those deadlines, but issuing such regulations often requires extensive and complex analyses (e.g., residual risk analyses for sources of hazardous air pollutants). As a result of the backlog, some of those regulations are now subject to court-ordered deadlines, which can affect EPA's allocation of its resources.

actions taken shortly before the presidential transition.As a result, EPA has issued proposals to revise, and in some cases rescind, regulations for some programs. Under the CAA, we focus below on: the background of the Clean Power Plan (CPP), which has been proposed to be replaced by the Affordable Clean Energy (ACE) regulation; the January 2017 Amendments to the CAA Section 112 Risk Management Program (RMP) regulations, which have been proposed to be substantially revised—and largely rescinded; the EPA greenhouse gas (GHG) standards with respect to state authority under the CAA to regulate vehicle GHGs for motor vehicles and light trucks; and the National Ambient Air Quality Standards (NAAQS) program, where EPA is evaluating the ozone NAAQS which was already in litigation when the presidential transition occurred and remains in effect while decisions are made regarding its status.

EXECUTIVE INITIATIVES ON REGULATION

Soon after taking office in the beginning of 2017, President Trump issued a number of Executive Orders and Presidential Memoranda aimed at regulatory reform, cooperative federalism, aiding domestic manufacturing and energy production, and supporting infrastructure development. These executive actions are briefly described as follows:

1. **Presidential Memorandum, "Streamlining Permitting and Reducing Regulatory Burdens for Domestic Manufacturing" (Jan. 24, 2017)**. This memorandum directs the executive branch to reduce burdens on manufacturing by streamlining permitting. It directs the Department of Commerce to conduct outreach and request public comment on the impact of federal regulations on domestic manufacturing, and to develop a permit streamlining action plan within 60 days after the close of the comment period and to submit it to the President identifying priority actions and recommended deadlines.
2. **Executive Order 13771, "Reducing Regulation and Controlling Regulatory Costs" (Jan. 30, 2017)**. This order requires agencies to identify two regulations for repeal upon

each new significant regulatory proposal and to ensure that the total incremental cost of new regulation to be finalized in fiscal year 2017 is zero. In furtherance of this requirement, the order provides that any new incremental costs associated with new significant regulations shall be offset by the elimination of existing costs associated with at least two prior regulations.

3. **Executive Order 13777, "Enforcing the Regulatory Reform Agenda" (Feb. 24, 2017).** This order creates a structure for identifying opportunities for regulatory reform in federal agencies. It requires agencies to appoint a Regulatory Reform Officer to implement regulatory reform initiatives, requires agencies to form a Regulatory Reform Task Force to evaluate existing regulations and, where appropriate, to make recommendations to the agency head regarding their repeal, replacement, or modification.

4. **Executive Order 13781, "Comprehensive Plan for Reorganizing the Executive Branch" (Mar. 13, 2017)**. This order sets forth a plan to improve the efficiency, effectiveness, and accountability of federal agencies, including, as appropriate, to eliminate or reorganize unnecessary or redundant federal agencies. It directs agencies to submit a proposed plan to OMB to reorganize each covered federal agency, if appropriate, in order to improve the efficiency, effectiveness, and accountability of that agency. It also directs OMB to conduct outreach and request public comment on any proposed plan and to submit the proposed plan to the President.

5. **Executive Order 13783, "Promoting Energy Independence and Economic Growth" (Mar. 28, 2017)**. This order directs the EPA Administrator to review the CPP, as well as related rules and Agency actions. It orders federal agencies to immediately review all agency actions that potentially burden the safe, efficient development of domestic energy

resources. It orders the review of the estimates of the Social Cost of Carbon (SCC), Nitrous Oxide, and Methane for the purpose of Regulatory Impact Analyses. It also disbands the Interagency Working Group on the Social Cost of GHG and ordered the withdrawal of certain technical documents related to SCC. Finally, it rescinds certain prior energy and climate-related Presidential executive orders, memos, and regulatory actions and orders a review of regulations related to U.S. oil and gas development.

6. **Executive Order 13807, "Establishing Discipline and Accountability in the Environmental Review and Permitting Process for Infrastructure Projects" (Aug. 15, 2017).** This order directs that there be "One Federal Decision" for "major infrastructure projects," whereby a single federal agency serves as the lead point of contact for all National Environments Policy Act (NEPA) for issuing a single Record of Decision (ROD) on behalf of all involved agencies. It also requires that authorization decisions for the construction of a major infrastructure project be completed within 90 days of the issuance of a ROD by the lead Federal agency in most circumstances, and "not more than an average of approximately 2 years" after issuance of the Notice of Intent (NOI) to prepare a NEPA Environmental Impact Statement (EIS) or "other benchmark deemed appropriate by the Director of OMB."

7. **Executive Order 13795, "Implementing An America-First Offshore Energy Strategy" (Apr. 28, 2017)**. This order requires the Department of Commerce to review all designations and expansions of National Marine Sanctuaries and Marine National Monuments within the 10-year period prior to the date of the order. It requires the Department of the Interior and Commerce to review numerous rules and guidance pertaining to off-shore energy development for potential revisions or withdrawal.

8. **Presidential Memorandum, "Promoting Domestic Manufacturing and Job Creation - Policies and Procedures Relating to Implementation of Air Quality Standards" (Apr. 12, 2018).** This memorandum directs the EPA Administrator to take specific actions to ensure efficient and cost-effective implementation of the NAAQS program, including with regard to permitting decisions for new and expanded facilities, and with respect to the Regional Haze Program. These actions are intended to ensure that "EPA carries out its core missions of protecting the environment and improving air quality in accord with statutory requirements, while reducing unnecessary impediments to new manufacturing and business expansion essential for a growing economy."

CURRENT STATUS OF SELECTED EPA REGULATORY REFORM EFFORTS

EPA's regulatory reform actions following the above executive directives are summarized as follows:

1. Clean Power Plan

On August 31, 2018, EPA published a proposed rule known as the Affordable Clean Energy or "ACE" rule, which is the Trump Administration's replacement for the Obama Administration's CPP regulations. *See EPA, Emission Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units; Revisions to Emission Guideline Implementing Regulations: Revisions to New Source Review Program; Proposed rule*, 83 Fed. Reg. 44746 (Aug. 31, 2018).

The proposed ACE rule includes revised emission guidelines for the development, submittal, and implementation of state plans to reduce greenhouse gas (GHG) emissions from certain Electric Generating Units (EGUs). The notice states that the Agency is proposing to determine that heat rate improvement measures are the "best system of emission reduction" (BSER) for existing coal-fired EGUs. The notice alsoproposes new regulations for the

implementation of emission guidelines that apply to this source category and any future emission guidelines issued, and proposes revisions to the New Source Review (NSR) permitting program to support the implementation of efficiency projects at EGUs without triggering NSR . EPA is taking comments on the proposed ACE rule through October 30, 2018.

2. Ozone NAAQS

EPA has stated that it is working to review and reform the NAAQS program consistent with the Administration's commitment to regulatory reform, cooperative federalism, and domestic manufacturing (as articulated under the April 2018 Executive Memorandum summarized above and in a "Back-to-Basics" memorandum issued by EPA in response in May 2018). These efforts include a focus on getting "back-to-basics" for NAAQS setting, designations, and implementation.

Such efforts have been implicated in the Agency's review and reconsideration of EPA's October 2015 rule that reduced the ozone NAAQS from 75 parts per billion (ppb) to 70 ppb. Although D.C. Circuit litigation over this decision was held in abeyance for a period of time after the new administration took office, it has recently been reactivated and oral argument has been set for December 18. Importantly, the 2015 ozone standard was not stayed. Thus, under the requirements of the CAA, EPA has been implementing the standard, including by identifying non-attainment areas.

Recently, EPA announced that it has decided against reconsidering the 2015 ozone NAAQS, opting instead to evaluate concerns identified in its expedited review of the 2015 standard under the EPA Back-to-Basics memorandum. Under that memorandum, EPA staff was directed to begin the next ozone NAAQS review so that EPA will be ready to finalize any necessary revisions to the standard by the CAA-required five-year deadline in October 2020. Illustrating the complexity of EPA's task, issues that are expected to be raised in the next review

include issues that were at play in the issuance of the 2015 ozone standard, including, whether the 70-ppb standard should be tightened to 65 or 60 ppb, transparency in relying on studies where the underlying data is not publicly available, proximity of the standard to high background ozone levels, EPA's focus on individual responses in studies designed to evaluate group means, increased uncertainty regarding health effects at lower exposure levels and whether failure to account for that in standard-setting makes revision inappropriate, and whether the secondary standard should be set at a different level than the primary standard; and more.

3. Risk Management Program.

On May 30, 2018, EPA issued a proposed rule, *Accidental Release Prevention Requirements: Risk Management Programs Under the Clean Air Act; Proposed Rule*, 83 Fed. Reg. 24,850 (May 30, 2018) (2018 Proposed RMP Rule) that would rescind or substantially modify provisions added to the RMP regulations via a final rule issued in January 2017 at the end of the Obama administration (2017 RMP Amendments)relating to safer technology and alternatives analyses, third-party audits, incident investigations, information availability, and several other areas. EPA also proposes modifications to provisions of the 2017 RMP Amendments relating to local emergency coordination and emergency exercises and the compliance dates for these provisions.

EPA's efforts at reviewing and potentially rescinding or modifying the 2017 RMP Amendments have been complicated by the recent decision by the D.C. Circuit in *Air Alliance Houston v. EPA* (D.C. Cir. Case No. 17-1155) vacating a final rule issued by the Agency in June 2017 to delay the effective date of the 2017 RMP Amendments (the Delay Rule), which had not yet taken effect when the Trump administration took office. The Delay Rule was intended to allow the Agency "to conduct a reconsideration proceeding and to consider other issues that may benefit from additional comment." 83 Fed. Reg. 24,855. The D.C. Circuit issued the mandate in

this case on September 21, the Delay Rule has been vacated and some provisions of the 2017 RMP Amendments are again effective even though EPA has not yet fully considered comments on the 2018 Proposed RMP Rule or issued a replacement rule. Given the complexity of the 2017 RMP Amendments and the pending substantial modifications of the regulation, there is much uncertainty in this program.

4. GHG Emissions Standards for Passenger Vehicles and Light Trucks.

On August 24, 2018, EPA and the National Highway Traffic Safety Administration (NHTSA) issued a joint proposal to amend certain existing Corporate Average Fuel Economy (CAFE) and tailpipe carbon dioxide (CO_2) emissions standards for passenger cars and light duty trucks and establish new standards for model years (MY) 2021 through 2026. NHTSA/EPA, *The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks; Notice of Proposed Rulemaking*, 83 Fed. Reg. 42,986 (Aug. 24, 2018) ("SAFE Vehicles Proposed Rule"). The proposal, if finalized, would make less stringent CAFE and CO_2 emissions standards for MY 2022-2025 that were preliminarily issued by NHTSA and EPA, respectively, in a 2012 joint rule. In conjunction with these changes, EPA proposes to revoke a 2013 waiver of preemption under CAA Section 209, which allowed California to implement its Advanced Clean Car (ACC) regulations setting GHG emissions standards for MY 2017-2025. EPA also proposes to finalize its related findings that if state standards are preempted under the Energy Policy and Conservation Act (EPCA), EPA cannot issue a waiver of preemption under Section 209(b). EPA further proposes thatbecause GHGs are not subject to air quality standards under the statute, regardless of whether California could obtain a waiver, other states cannot opt into the California program. NHTSA proposes to finalize a finding that California's ACC program—in particular, its GHG and Zero-Emissions Vehicle (ZEV) requirements—is preempted under EPCA.

The joint proposal follows over a decade of debate and regulatory actions over the relationship between EPA and NHTSA with respect to emissions and fuel economy standard-setting under their respective statutory authorities. Also at issue is the proper role of California – which was granted the ability to obtain a waiver from the generally applicable preemption of state standards in CAA Section 209 provided statutory criteria are met.

STATE RESPONSES TO DATE

The response from the states to the above initiatives has been varied, in part, depending on the views of a particular state on the substantive content of the reform initiative, but also on other factors that may be particular to a given state. As a general rule, under the CAA, states have a number of options in terms of their responses to federal regulatory reform initiatives. Many states support such initiatives and have formed coalitions to voice their support in rulemakings, via amicus participation in litigation, or otherwise. Similarly, states that oppose such initiatives often either initiate or intervene to defend them in litigation brought by interest groups or other states. States also may use their regulatory powers to counteract any perceived relaxing of environmental and safety protections at the federal level. An interesting example of this latter approach is California's current proposal to rescind a provision in its motor vehicle emissions regulations that it previously promulgated in a compromise over the debate over federal GHG emissions standards, which provides that automakers' compliance with federal GHG emissions standards would be 'deemed to comply' with California's emissions standards. California's proposal, if finalized, would revise this 'deemed-to-comply' provision by limiting its scope to compliance with the GHG emissions standards enacted by EPA under the previous administration. This action, taken in response to the EPA/NHTSA joint proposal in the SAFE Vehicles Proposed Rule, illustrates the interesting interplay between state and federal regulatory reform efforts.

CONCLUSION

Whether the current regulatory reform efforts will stand the test of time, or survive judicial challenge, will be dictated by future events. What is clear now is that the states with their own regulatory and litigation responses will have something to say about it.

Appointment

From: Veney, Carla [Veney.Carla@epa.gov]
Sent: 3/12/2019 12:15:29 PM
To: 'Broome, Shannon S.' [SBroome@hunton.com]; Schwab, Justin [Schwab.Justin@epa.gov]; Cress, Julie [JCress@hunton.com]; Woods, Clint [woods.clint@epa.gov]; DCRoomARN4045/DC-Ariel-Rios-OGC [DCROOMARN4045@epa.gov]
CC: Shaffer, Patricia [Shaffer.Patricia@epa.gov]; Rakosnik, Delaney [rakosnik.delaney@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]

Subject: EPA/Hunton Andrews Kurth Meeting
Location: EPA Headquarters, 1200 Pennsylvania Avenue (William Jefferson Clinton Building), 4th Floor, Room 4045

Start: 3/12/2019 2:15:00 PM
End: 3/12/2019 3:00:00 PM
Show Time As: Tentative

PLEASE NOTE: The start time has been adjusted. Please enter via our north side entrance. Upon clearing security, you will be escorted to the conference room.

Message

From: Flynn, Aaron M. [flynna@hunton.com]
Sent: 2/6/2019 11:45:35 PM
To: Woods, Clint [woods.clint@epa.gov]; Koerber, Mike [Koerber.Mike@epa.gov]
CC: Fichthorn, Norm [nfichthorn@hunton.com]; Kornylak, Vera S. [Kornylak.Vera@epa.gov]; Werner, Christopher [Werner.Christopher@epa.gov]
Subject: Regional Haze Documentation Requirements
Attachments: Dec. 2012 FR for Arizona.pdf; Comments on Proposed Regional Haze Rule.pdf

Clint, Mike,

It has been a few months since our meeting on regional haze. First, belated thanks for taking the time to talk with us. Second, during our meeting, Mike asked for more information on one point that we raised: problems that have arisen from unclear documentation requirements. I've attached an example of this issue that is described in comments on a proposed rule from a facility owner and operator. EPA's description of and response to those comments appear in the attached 2012 final rule addressing a portion of the regional haze SIP for Arizona.

The relevant pages of the comments include section 6-1 and page 6-3, in particular. The relevant pages of the final rule are pages 72,517, 72,522, and 72,558. I have highlighted the pertinent text in both documents.

I would be happy to discuss this further with you if that would be helpful.

Best,

Aaron

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Senior Director
Environmental Management,
Policy and Compliance

Submitted electronically via www.regulations.gov

September 18, 2012

Thomas Webb, EPA Region 9
Air Division (AIR-2)
75 Hawthorne Street
San Francisco, CA 94105

RE: SRP Comments in Response to EPA's Proposed Rule Related to Approval, Disapproval and Promulgation of Air Quality Implementation Plans; Arizona; Regional Haze State and Federal Implementation Plans – Docket ID No. EPA-R09-OAR-2012-0021, FRL-9700-1

Dear Mr. Webb:

The Salt River Project Agricultural Improvement and Power District (SRP) appreciates the opportunity to provide the attached comments to the U.S. Environmental Protection Agency (EPA) in response to the Agency's proposed rule related to the approval, disapproval and promulgation of regional haze air quality implementation plans for the State of Arizona.

SRP is a political subdivision of the State of Arizona that provides retail electric services to more than 950,000 residential, commercial, industrial, agricultural and mining customers in Arizona. SRP relies on a diverse portfolio of owned and purchased generation resources that includes coal, natural gas, hydroelectric, nuclear, solar, wind, biomass and geothermal. SRP is an owner and/or operator of six coal-fired power plants located in Arizona, New Mexico and Colorado, as well as four natural gas-fired power plants located in Arizona. One of these plants, the Coronado Generating Station (CGS), is addressed in this proposed rule. Therefore, SRP has a clear and significant interest in this present rulemaking effort. In addition to the comments provided with this letter, SRP is a member of the Arizona Utility Group and supports the comments and concerns with the proposed rule expressed by this organization in a separate filing to this rule docket.

SRP is committed to clean air and improved visibility. Indeed, SRP is in the final stages of installing extensive new pollution control equipment at CGS at a cost of over $500 million. Unfortunately, EPA is now proposing to impose additional controls at CGS even before the current equipment installation process is complete. Within the proposed rule as it relates to CGS, EPA proposes to approve Arizona's best available retrofit technology (BART) determinations for the facility's emissions of sulfur dioxide (SO_2) and particulate matter (PM), and to disapprove the state's BART determinations for nitrogen oxides (NO_x) for each of the CGS units. In conjunction with disapproval of Arizona's BART determinations for NO_x, EPA also proposes a federal implementation plan (FIP) with alternate BART determinations with respect to NO_x. The FIP would impose a NO_x BART limit for CGS Unit 1 of 0.050 pounds per million British thermal units (lb/MMBtu), and a NO_x BART limit for CGS Unit 2 of 0.080 lb/MMBtu. To meet the proposed limit for Unit 1, SRP would need to install Selective Catalytic Reduction (SCR) technology on this unit at an estimated additional cost to SRP of $110 million. This expense is in addition to the more than $500 million already spent on new controls at the facility.

SRP supports EPA's proposal to approve Arizona's BART determinations for SO_2 and PM, but strongly disagrees with EPA's decision to propose a FIP to override Arizona's BART determinations for NO_x. The centerpiece of the regional haze program is state primacy. Arizona's SIP is fully consistent with the Clean Air Act (CAA) and EPA's regional haze regulations, and reflects a valid exercise of the state's broad discretion to weigh the BART factors and make BART determinations under the regional haze program. Accordingly, EPA has no basis for proposing to disapprove Arizona's SIP and to promulgate a FIP that is inconsistent with the state's determinations in its complete SIP.

Just as troubling as EPA's failure to recognize Arizona's discretion to select its own regional haze plan is EPA's failure to provide an adequate technical basis for the FIP proposal. The NO_x emissions limit that EPA has proposed for CGS Unit 1 and five other coal-fired power plant units affected by this proposal is the most stringent emissions limit ever proposed by EPA in a BART-related action. As described in the attached comments, SRP has worked with third-party contractors to conduct a detailed analysis of the achievability of EPA's proposed NO_x limit at CGS, and this analysis clearly demonstrates that it is not feasible to continuously comply with this limit. No emission limit can be determined to represent BART for a given facility unless it has been shown to be "achievable" at that facility. EPA has not demonstrated that SCR can achieve this emission rate at CGS either through the development of an SCR conceptual design

or some other similar site-specific analysis. In the absence of such analysis, EPA cannot proceed with the current FIP proposal.

Another area of concern is EPA's cost-estimating techniques. As EPA is aware, SRP is approaching completion of installation of SCR technology to reduce NO_x emissions on Unit 2 at CGS. The actual costs for this installation are expected to be close to $90 million. However, using the Agency's Control Cost Manual and Integrated Planning Model, EPA projects that the cost for this same technology on Unit 1 would be only $57 million. This is a significant discrepancy that demonstrates that EPA's methods do not adequately account for site-specific conditions. When all site-specific conditions are included in a cost estimate for a second SCR on Unit 1, SRP projects the additional equipment will cost SRP customers nearly $110 million — this is due to the increased retrofit difficulty combined with additional equipment requirements associated with this unit. Clearly, EPA's modeled costs are not an appropriate substitute for the site-specific costs developed by a professional engineering firm when conducting a source-specific BART analysis.

Perhaps the most significant SRP concern with the proposed FIP is the fact that although this action is ostensibly to improve visibility, EPA's visibility modeling results fail to demonstrate that there would be any perceptible visibility benefit from imposition of the proposed BART NO_x emission limitations at CGS. Although EPA made many changes to the visibility modeling inputs used by Arizona to enhance the projected visibility benefits for the control options included in the FIP, the results still show that there would be no humanly perceptible change in visibility attributable to use of SCR control technology at CGS. This finding alone is enough to conclude that SRP customers should not be required to spend as much as $110 million on additional control equipment at CGS.

CGS, like the two other coal-fired power plants impacted by this proposed rule, is a vital economic engine for the rural community in which it is located. It provides local tax revenue that supports colleges, schools, roads, health care and other vital community services. EPA's actions have reached the point where they affect the economic viability of coal plants and threaten to remove these valuable assets from areas severely impacted by this country's recession. It seems nonsensical under these conditions to move forward with a costly haze regulation that will not improve visibility.

Arizona developed and submitted a comprehensive SIP that included a large number of measures to address a variety of sources that contribute to regional haze including mobile sources, wildfires and industrial facilities. EPA should consider, and act on, all of these measures together rather than singling out three power plants for imposition of overly stringent NO_x emission limits, especially given EPA's knowledge that NO_x emissions from power plants are responsible for less than 5 percent of the haze in this region. Accordingly, EPA should withdraw the proposed NO_x BART determination for CGS and proceed with full approval of Arizona's SIP.

We appreciate the opportunity to provide the attached comments regarding this proposed rule. If you have any questions or need additional information, please do not hesitate to contact me at Kelly.Barr@srpnet.com or by telephone at (602) 236-5262.

Sincerely,

Kelly J. Barr

cc: Deborah Jordan, U.S. EPA Region IX
Colleen McKaughan, U.S. EPA Region IX
Gina McCarthy, U.S. EPA, w/o attachments
Janet McCabe, U.S. EPA, w/o attachments
Henry Darwin, ADEQ
Eric Massey, ADEQ

COMMENTS ON PROPOSED REGIONAL HAZE RULE

EPA'S PROPOSED RULE RELATED TO APPROVAL, DISAPPROVAL AND PROMULGATION OF AIR QUALITY IMPLEMENTATION PLANS; ARIZONA; REGIONAL HAZE STATE AND FEDERAL IMPLEMENTATION PLANS

DOCKET ID NO: EPA-R09-OAR-2012-0021
FRL-9700-1

PREPARED BY:

SALT RIVER PROJECT
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PHOENIX, ARIZONA 85072

SEPTEMBER 2012

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B Letter to Deborah Jordan, EPA Region IX, from Jim Pratt, SRP, Regarding SRP Response to EPA Letter, Dated July 27, 2012
C Sargent & Lundy LLC – SNCR Capital Cost Estimate Report for Salt River Project Coronado Generating Station – Unit 1
D Letter to Robert Olsen, SRP, from Douglas Kirk, FuelTech, Regarding Salt River Project Coronado Generating Station SNCR NO_x Control Performance, NO_x OUT® and HERT™ SNCR System, Dated September 12, 2012
E AECOM – Visibility Improvement Modeling for the Coronado Generating Station
F Gradient – Comments on Health Benefits from the Proposed Arizona Regional Haze Rule for the Coronado Generating Station

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List of Abbreviations

$/ton	dollars per ton
$/dv	dollars per deciview
ACFM	actual cubic feet per minute
ADEQ	Arizona Department of Environmental Quality
BACT	best available control technology
BART	best available retrofit technology
Btu/kW-hr	British thermal units per kilowatt-hour
CAA	Clean Air Act
CAMD	Clean Air Markets Division
CEMS	continuous emissions monitoring system
CFR	Code of Federal Regulations
CGS	Coronado Generating Station
CO_2	carbon dioxide
CSAPR	Cross-State Air Pollution Rule
dv	deciview
EPA	U.S. Environmental Protection Agency
ESP	electrostatic precipitator
FIP	federal implementation plan
FGD	flue gas desulfurization
fps	feet per second
GCNP	Grand Canyon National Park
GCVTC	Grand Canyon Visibility Transport Commission
IMPROVE	Interagency Monitoring of Protected Visual Environments
IPM	Integrated Planning Model
IWAQM	Interagency Workgroup on Air Quality Modeling
kW	kilowatt
lb/MMBtu	pound per million British thermal units
lb/MWh	pound per megawatt-hour
LNB	low-NO_x burner
MATS	Mercury Air Toxics Standards
MGS	Mohave Generating Station
MOHAVE	Measurement of Haze and Visual Effects
MPP	Mohave Power Project
MW	megawatt
MW_G	gross megawatt
NEEDS	National Electric Energy Database System
NGS	Navajo Generating Station
NO_x	nitrogen oxides

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NREL	National Renewable Environmental Laboratory
NSPS	New Source Performance Standards
NSR	New Source Review
O_2	oxygen
O&M	operations and maintenance
OFA	overfire air
PM	particulate matter
PM_{10}	particulate matter nominally less than 10 microns
ppb	parts per billion
ppm	parts per million
PSD	Prevention of Significant Deterioration
QA	quality assurance
RA	relative accuracy
RATA	relative accuracy test audit
RMB	RMB Consulting and Research, Inc.
S&L	Sargent & Lundy LLC
SCR	selective catalytic reduction
SIP	state implementation plan
SNCR	selective non-catalytic reduction
SO_2	sulfur dioxide
SRP	Salt River Project Agricultural Improvement and Power District
SUSD	startup and shutdown
TSD	technical support document
U1	Unit 1
U2	Unit 2
WRAP	Western Regional Air Partnership
yr	year

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1.0 Introduction

Section 169A of the Clean Air Act (CAA) provides for a visibility protection program and sets forth as a national goal "the prevention of any future, and the remedying of any existing, impairment of visibility in mandatory class I Federal areas [in] which impairment results from man-made air pollution." Congress subsequently addressed regional haze in the 1990 amendments to the CAA through the addition of Section 169B. In compliance with that statutory requirement, the United States Environmental Protection Agency (EPA) published final regulations to address regional haze on July 1, 1999.[1] Under these regulations, states are required to set periodic goals for improving visibility in Class I areas. As states work to reach these goals, they must develop regional haze implementation plans that include enforceable measures and strategies for reducing visibility-impairing pollution.

On February 28, 2011, the Arizona Department of Environmental Quality (ADEQ) submitted a comprehensive State Implementation Plan (SIP) to address regional haze issues related to emissions from sources located within Arizona. This plan established reasonable progress goals for the first planning period of the regional haze program, which ends on July 31, 2018. One component of the comprehensive plan is the assessment and determination of "best available retrofit technology" (BART) for eligible stationary sources, resulting in enforceable emission limitations for certain visibility impairing pollutants.

BART determinations must rest on consideration of the five statutory BART factors and application of EPA's BART Guidelines, promulgated in 2005 and incorporated in the Code of Federal Regulations (CFR) as Appendix Y to Title 40, Part 51.[2] The CAA and EPA's BART Guidelines assign the task of evaluating and weighing the BART consideration factors to the states, and states have considerable leeway in deciding how to assess and weigh the information they develop in the course of a BART analysis.

Arizona based its SIP on a reasonable and well-documented analysis of each of the BART factors – (1) the costs of compliance, (2) the energy and non-air quality environmental impacts of compliance, (3) any existing pollution control technology in use at the source, (4) the remaining useful life of the source, and (5) the degree of improvement in visibility that may reasonably be anticipated to result from the use of such technology – and EPA may not simply ignore that analysis because it would have preferred a different outcome.

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[1] *See* 64 Fed. Reg. 35,714 (July 1, 1999). The 1999 rules were challenged in the U.S. Court of Appeals for the District of Columbia Circuit, and, on May 24, 2002, those rules were vacated in part and sustained in part. EPA responded to the court's ruling by promulgating new regulations on July 6, 2005. 70 Fed. Reg. 39,104 (July 6, 2005).

[2] *See* 70 Fed. Reg. 39,104 (July 6, 2005). Use of the BART Guidelines is mandatory only for power plants exceeding 750 megawatts. States are "encouraged" to follow the Guidelines for other types of sources. *Id.* at 39,108.

However, on July 20, 2012, EPA published a proposed rule that would partially approve and partially disapprove the State of Arizona's SIP, but only as it relates to the BART determinations for three electric generating facilities, including the Coronado Generating Station (CGS), a two-unit, coal-fired facility owned and operated by Salt River Project Agricultural Improvement and Water District (SRP).[3]

With respect to CGS, EPA proposes to approve Arizona's BART determinations for the facility's emissions of sulfur dioxide (SO_2) and particulate matter (PM) and to disapprove the state's BART determinations for nitrogen oxides (NO_x) for each of the CGS units. EPA also proposes a Federal Implementation Plan (FIP) to take the place of Arizona's SIP with respect to BART for NO_x. That FIP would impose a NO_x BART limit for CGS Unit 1 of 0.050 pounds per million British thermal units (lb/MMBtu), based on installation and operation of low-NO_x burners (LNB) and overfire air (OFA) along with selective catalytic reduction (SCR) emission control technology, and a NO_x BART limit for CGS Unit 2 of 0.080 lb/MMBtu, based on installation and operation of LNB/OFA and SCR, consistent with existing CGS consent decree obligations.[4]

These comments detail SRP's concerns regarding EPA's FIP proposal. SRP believes the proposed rule is legally flawed and technically unsupported by the record EPA has provided in conjunction with publication of the rule. In the following sections of this document, SRP provides evidence in support of SRP's continuing belief that Arizona's regional haze SIP must be considered as a whole, and must be fully approved by EPA.

[3] *See* 77 Fed. Reg. 42,834 (July 20, 2012). The other affected facilities are the Apache Generating Station and the Cholla Power Plant.

[4] Each of these limits is based on a 30-day rolling average including periods of startup, shutdown, and malfunction. In the proposed rule, EPA proposes that the NO_x limit for Unit 1 be applicable no later than five years following the effective date of the rule. For Unit 2, the effective date is proposed as June 1, 2014, consistent with current consent decree obligations.

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2.0 Fundamental Issues with EPA's Overall Approach

SRP has several significant concerns with the proposed rule's implementation of regional haze requirements in Arizona, as summarized below:

- The consent decree entered into by SRP and EPA just four years ago, and currently being implemented by SRP, was designed to settle an EPA allegation that emissions from CGS Units 1 and 2 failed to comply with the CAA's "best available control technology" (BACT) requirements, a component of the "prevention of significant deterioration" (PSD) requirements of the CAA that is applicable to certain new or modified sources. That agreement requires SRP to install and operate LNB/OFA on both units, as well as an SCR system on Unit 2. It also establishes a NO_x emission limit of 0.320 lb/MMBtu for Unit 1, a NO_x emission limit of 0.080 lb/MMBtu for Unit 2, and a plant-wide NO_x emission limit of 7,300 tons per year. EPA's BART Guidelines provide that emission limits imposed pursuant to a PSD-related consent decree, such as the consent decree applicable to CGS, should be deemed to satisfy BART. EPA should follow its own guidelines and consider the weight of evidence presented in these comments, and as a result, acknowledge that the consent decree limits not only satisfy all BART obligations for CGS Units 1 and 2, but provide a level of control that is better than BART.

- ADEQ determined that NO_x BART for CGS Units 1 and 2 was LNB/OFA and an emission limit of 0.320 lb/MMBtu. Under the CAA, the state's BART determination is entitled to deference.[5] EPA is not free to second-guess the state's determinations.

- EPA's proposed NO_x BART determination for CGS fails to take the presumptive BART limits into account. Soon-to-be-installed controls at CGS Unit 2, which will result in a 0.080 lb/MMBtu NO_x emission limit for that unit, are far more stringent than the presumptive NO_x limit applicable to CGS. Indeed, EPA in this proposed rule fails even to mention, much less evaluate, the type of emission controls (i.e., combustion controls) on which the presumptive limit is based. EPA is not free to disregard its own presumptive BART limit and its rulemaking determination that, for all units except cyclone units (which are not present at CGS), NO_x BART is presumed to be based on combustion controls only and excludes post-combustion controls such as SCR.

- EPA's decision to propose a NO_x emission limit of 0.050 lb/MMBtu for SCR is unsupported. Indeed, the fact that SRP is installing SCR on CGS Unit 2 and is required to maintain compliance with a 0.080 lb/MMBtu emission limit for that unit pursuant to a BACT-related consent decree confirms that a limit of 0.050 lb/MMBtu is unrealistic and unachievable on a continuous basis.

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

- EPA argues that the emission control costs relied on by Arizona and those prepared by SRP were not calculated in accordance with the BART Guidelines and that they are inconsistent with EPA's Control Cost Manual. The Control Cost Manual is not binding and is recognized as only one reference source for cost information by EPA's BART rules. Moreover, the D.C. Circuit held in *Corn Growers*[6] that site-specific costs must be taken into account. Furthermore, SRP has completed installation of LNB/OFA on both units at CGS and has made significant progress towards completing the installation of SCR on Unit 2 at CGS, and the actual costs incurred are much higher than the costs used by EPA in its proposed BART determination.

- EPA's own calculation of costs in support of its FIP is seriously flawed. EPA's cost assessment relies on an Integrated Planning Model (IPM) base case for capital and annual operating costs for each NO_x control option. BART requires a site-specific analysis. Use of IPM's generic information does not satisfy this requirement. Regardless, the data inputs EPA selected in implementing IPM are incorrect given the site-specific characteristics of CGS. This error by EPA resulted in a significant underestimate of the NO_x control costs used in EPA's analysis.

- EPA argues that visibility impacts were not appropriately evaluated and considered in the SIP. Further, EPA claims that visibility benefits at all potentially impacted Class I areas must be considered. EPA's BART Guidelines do not require that cumulative visibility impacts be used as the basis for BART assessments and does not require that they be considered at all. ADEQ's evaluation of visibility impacts is a valid alternate approach to the consideration of visibility benefits associated with control options, and Arizona's reliance on that analysis is within the state's discretion.

- EPA's refusal to allow use of the most recent and most accurate CALPUFF model (version 6.42) is unreasonable and arbitrary, and contradicts the principle that BART determinations should be based on the best available science. Use of CALPUFF version 6.42 demonstrates that the visibility benefits EPA projects are overstated.

- SRP's modeling of CGS' visibility impacts relies on more appropriate monthly-varying background ammonia concentrations in the ambient air and is more realistic than EPA's reliance on an artificial, uniform "default" value. ADEQ acted within its discretion by relying on the same background ammonia concentrations.

In summary, EPA's proposed rule is seriously flawed and cannot, at least with respect to NO_x BART for CGS, be finalized. The proposal is unlawful because EPA has failed to give the level of deference to the State of Arizona's BART determinations that the CAA requires. EPA has presented no legitimate grounds for disapproving any part of Arizona's SIP, and EPA cannot, therefore, promulgate its own NO_x BART

[6] *Id.*

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determinations for CGS. Further, EPA's proposed FIP and the analysis EPA relies on to support that FIP are inconsistent with the CAA and EPA's own regional haze regulations. Accordingly, the proposed FIP does not reflect a proper NO_x BART determination for CGS, and EPA must withdraw it. Full approval of Arizona's SIP is the only course of action that is consistent with the law and available to EPA.

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3.0 EPA's Proposed Rule Fails to Give Adequate Deference to Arizona

Arizona's regional haze SIP, and not EPA's proposed FIP, is consistent with the CAA and must be fully approved. Arizona's determinations, including its BART determinations for CGS, reflect a proper consideration and weighing of the BART factors and the state's conclusions are, thus, factually correct. Arizona's determinations, moreover, are entitled to an exceptionally high level of deference under the CAA. EPA has ignored its obligation to defer to the state's determinations, and for that reason alone, the proposed rule is unlawful. In addition, EPA's proposed rule does not provide Arizona and affected parties, including SRP, with the procedural safeguards to which the state is entitled under the CAA. Accordingly, for the reasons described below, EPA should withdraw the proposed rule.

3.1 EPA Must Defer to the BART Determinations Made by Arizona

As stated by the U.S. Court of Appeals for the District of Columbia Circuit in *Corn Growers*, the states, not EPA, "play the lead role in designing and implementing [the] regional haze programs" of the CAA and have "broad authority over BART determinations."[7] The D.C. Circuit has recently confirmed this principle, in litigation resulting in the invalidation of EPA's Cross-State Air Pollution Rule (CSAPR), stating that the CAA establishes a strict "federalism bar" that "prohibits EPA from using the SIP process to force States to adopt specific control measures."[8]

EPA is required to defer to a state's BART determinations where the state has considered the five statutory BART factors. The state is empowered to determine how best to weigh each factor, and once the state has made its decision, EPA has no authority to second-guess the conclusions the state has reached, as is the case here. In this proposed rule, EPA simply ignores the deference due to Arizona and proposes to disapprove the state's determinations and impose its own preferred NO_x emission limit for CGS simply because EPA happens to "disagree" with the state's conclusions.[9]

For instance, EPA "disagree[s]" with the manner in which ADEQ evaluated costs and visibility impacts for the various emission control options considered at CGS.[10] EPA admits that ADEQ "developed information regarding each of the five [BART] factors," acknowledging that the state complied with its obligation under the CAA.[11] Nevertheless, because EPA has weighed the factors differently than the state and has chosen to focus on different analyses, EPA proposes disapproval of the state's NO_x emission limit determinations. EPA does this despite recognizing correctly that "[a] state plan need not

[7] *See Corn Growers*, 291 F.3d at 2, 8.

[8] *See EME Homer City Generation, L.P. v. EPA*, No. 11-1302, slip op. at 42 (D.C. Cir. Aug. 21, 2012).

[9] *See* 77 Fed. Reg. at 42,851.

[10] *Id.*

[11] *Id.*

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contain exactly the same provisions that EPA might require" and that EPA's job is simply to "find that the state plan is consistent with the requirements of the Act."[12]

For purposes of the regional haze program, all that is required for a SIP to be consistent with the CAA is that the state consider each of the five BART factors in making its BART determinations. This is exactly what Arizona did. Arizona is entitled to make its own decisions in weighing and assessing the BART factors, and Arizona has done that exactly as the law requires.

EPA purports to acknowledge its statutory obligation to defer to the state's BART determinations when it states, "[i]f Arizona submits a SIP revision that addresses the deficiencies [alleged in EPA's proposed rule] in sufficient time for EPA to review the submission, then we would prefer to act on that submittal, if such action is consistent with our obligations under the CAA and applicable court orders."[13] Of course, it is not deference to the state for EPA, in essence, to invite Arizona to submit a new SIP that conforms to EPA's policy choices. That is little more than an attempted distraction from the proposed rules' infringement on the state's statutorily assigned role as the BART-determining authority under the regional haze program. It is the Arizona SIP submittal that is in front of EPA *now* – not some future potential SIP revision – that merits EPA's full approval.

Moreover, even if Arizona could revise its SIP in a manner that differs in substance from EPA's proposed FIP and that EPA would still approve, it is apparent that EPA's schedule for finalization of its proposed rule does not provide the state with any real opportunity to take advantage of this option. EPA entered into a 2012 consent decree in which the agency agreed to take final action on Arizona's regional haze SIP, with regards to the three facilities impacted by this proposed rule, by November 15, 2012. Absent amendment of that consent decree, that schedule would leave ADEQ with *two months* to prepare a revised SIP, adopt it pursuant to the state's administrative law requirements, and submit it to EPA before EPA takes final action with respect to the current proposed SIP disapproval and proposed FIP – a *clearly impossible task* for the state.[14]

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[12] *See* 77 Fed. Reg. at 42,836. *Luminant Generation Co. v. EPA*, 675 F.3d 917, 921 (5th Cir. 2012) ("With regard to implementation, the Act confines the EPA to the *ministerial function* of reviewing SIPs for consistency with the Act's requirements.") (emphasis added); *see also id.* at 926 ("EPA may consider *only the requirements of the CAA* when reviewing SIP submissions ... This statutory imperative leaves the agency *no discretion to do anything other than ensure that a state's submission meets the CAA's requirements* and, if it does, approve it before the passage of its statutory deadline.") (emphases added).

[13] *See id.* at 42,839; *see also id.* at 42,834 ("We encourage the State to submit a revised SIP to replace all portions of our FIP, and we stand ready to work with the State to develop a revised plan.").

[14] If EPA sincerely wishes to work with the state, it should take the steps necessary to ensure that Arizona would have the time it needs to respond to EPA's proposed disapproval of its NO_x BART determinations. As noted in the proposed rule, EPA published a finding on January 15, 2009 that 37 states, including Arizona, had failed to make all or part of their required regional haze SIP submissions. This finding triggered a two-year deadline, ending on January 15, 2011, for EPA either to promulgate a FIP or to review and approve a submitted SIP to address Arizona's regional haze obligations. *See* CAA § 110(c). EPA missed that deadline and then did not propose action on regional

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In summary, state primacy in BART determinations is a central tenet of the CAA regional haze program. In contravention of the statute, EPA's proposed rule simply ignores that the CAA does not allow EPA to impose its judgment for that of the state. Arizona's action is consistent with its obligations under the law, and EPA must approve the SIP NO_x BART determinations.

3.2 Arizona's BART Determinations are Fully Consistent with the Requirements of the CAA

EPA further attempts to bolster its proposed partial disapproval of Arizona's SIP by arguing that Arizona's NO_x BART determinations "are neither consistent with the requirements of the Act nor with BART decisions that other states have made."[15] However, as these comments demonstrate, Arizona's BART determinations *are* consistent with the CAA, and, even assuming for the sake of argument that Arizona's BART determinations differ from BART determinations made by some other states (which, tellingly, EPA does not identify), such a finding is irrelevant to the approvability of the state's BART determinations.

The centerpiece of the regional haze program is state primacy. Each state must make its *own* BART determinations, based on consideration of the statutory factors, none of which involve BART decisions made by others. Indeed, inherent in the concept of state primacy is the possibility that the states will make decisions that differ from one another and that such differences are valid. Under EPA's proposed contrary interpretation of the CAA, states would have no room to develop differing BART policies or to exercise their independent judgment. They would instead be constrained to adopt BART determinations made by other states. This undermines the CAA's policy of deference to state decision-making, contrary to the statute, its legislative history, and *Corn Growers*.[16] Moreover, EPA fails to explain why – even assuming for the sake of argument that "consistency" of Arizona's BART determinations with other states' BART determinations is required – it is Arizona's SIP rather than other states' "inconsistent" SIPs that merit disapproval.

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haze implementation plan requirements for Arizona until July 2012, one year and five months after that deadline. *See* 77 Fed. Reg. at 42,834. [NOTE: EPA's deadline for action was Jan 2011, as stated in the previous sentence.] Particularly in light of the fact that, at this point, the CAA § 110(c) deadline no longer governs EPA's discretion regarding timing, it is appropriate for EPA to take the time necessary to work with the state to resolve any relevant issues – assuming that EPA does not, as it should, promulgate full approval of Arizona's SIP – rather than proceed immediately to final promulgation of a FIP.

[15] *See* 77 Fed. Reg. at 42,836.

[16] In analyzing the legislative history of the 1977 CAA Amendments, in which Congress enacted the BART provisions, *Corn Growers* makes clear that "Congress intended the states" – not EPA – "to decide which sources impair visibility *and what BART controls should apply to those sources*." *Corn Growers*, 291 F.3d at 8 (discussing legislative history) (emphasis added). Thus, where EPA "attempts to deprive the states of … this statutory authority," EPA acts "in contravention of the [CAA]." *Id.*

In any event, Arizona's BART determinations for CGS are entirely reasonable and, to the extent that other states' BART determinations may be relevant, consistent not only with the action of other states, but with action that EPA has approved (or proposed to approve) for those states. A number of states have determined, rightly, that combustion controls (including LNB/OFA), as called for by Arizona's BART determinations for CGS, are BART for NO_x emissions and that an emission limit in the vicinity of 0.320 lb/MMBtu (as determined by Arizona for CGS) represents BART for NO_x.[17]

EPA's suggestion that Arizona's SIP contains unreasonable, unauthorized, or unprecedented BART determinations is simply wrong. Because the state's determination is based on consideration of the five BART factors and is consistent with the statute and EPA's BART rules, EPA must approve Arizona's NO_x BART determination for CGS.[18]

3.3 EPA Must Take Action on Arizona's SIP Proposal as a Whole

EPA is proceeding to address Arizona's regional haze SIP by dissecting that plan and taking action on various pieces at various times. As noted by EPA, its proposed rule "addresses only the portion of the SIP related to Arizona's determination of Best Available Retrofit Technology (BART) to control emissions from eight units at three electric generating stations: Apache Generating Station, Cholla Power Plant and Coronado Generating Station."[19]

Pursuant to the consent decree EPA chose to execute that sets deadlines for final action on, among other things, Arizona's regional haze SIP, EPA committed to take final action on this proposed rule by November 15, 2012. That same consent decree establishes a July 15, 2013 deadline for final action on the remaining elements of Arizona's regional haze SIP. This bifurcated approach to Arizona's regional haze SIP is inconsistent with the CAA.

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[17] *See* 77 Fed. Reg. 50,602, 50,604 (Aug. 22, 2012) (approving New Hampshire's determination that NO_x BART for Merrimack Station is an emission limit of 0.30 lb/MMBtu); 77 Fed. Reg. 33,022, 33,032 (June 4, 2012) (approving Wyoming's determination that NO_x BART for FMC Westvaco is LNB plus OFA and an emission rate of 0.35 lb/MMBtu); 77 Fed. Reg. 20,894, 20,898 (Apr. 6, 2012) (approving North Dakota's determination that NO_x BART for the applicable limits for Milton R. Young Station are 0.36 lb/MMBtu for Unit 1 and 0.35 lb/MMBtu for Unit 2, and that NO_x BART for Leland Olds Station is 0.35 lb/MMBtu); 77 Fed. Reg. 18,052, 18,065 (Mar. 26, 2012) (proposing to approve Colorado's determination that NO_x BART for CENC Unit 4 is 0.37 lb/MMBtu based on installation and operation of LNB with separated OFA).

[18] *See* CAA § 110(k)(3) (providing that EPA "shall approve [any SIP] submittal as a whole if it meets all of the applicable requirements of this Act"); *see also Train v. Natural Res. Def. Council*, 421 U.S. 60, 79 (1975) ("[T]he Act gives the Agency *no authority to question the wisdom of a State's choices* of emission limitations if they ... satisf[y] the standards of [CAA] § 110(a)(2), and the Agency *may devise and promulgate* a specific plan of its own *only if a State fails to submit an implementation plan which satisfies those standards.*") (emphases added).

[19] *See* 77 Fed. Reg. at 42,834.

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Specifically, Section 110(k)(3) of the CAA requires EPA to act on all elements of Arizona's regional haze SIP submittal at the same time:

> "In the case of any [SIP] submittal on which the Administrator is required to act … the Administrator shall approve such submittal ***as a whole*** if it meets all of the applicable requirements of this [Act]. If a portion of the plan revision meets all the applicable requirements of this [Act], the Administrator may approve ***the plan revision in part and disapprove the plan revision in part***."[20]

Thus, Section 110(k)(3) of the CAA requires EPA either to approve a SIP submittal "as a whole" or to approve that SIP submittal in part and disapprove it in part in a single rulemaking that addresses in its entirety "the plan revision." It is inconsistent with this provision for EPA to break apart a SIP submittal and take final action on individual components of that SIP in a piecemeal fashion. Such a requirement is completely sensible, because it is the plan *as a whole*, with all its elements working together, that must ensure that the CAA's regional haze-related goals are being reached.

Any approach to SIP review and approval other than the approach under Section 110(k)(3) of the CAA would fail to take into account the full array of regulatory choices that Arizona has made to address regional haze.[21] EPA should, therefore, take the necessary measures to ensure that Arizona's SIP is reviewed, and ultimately approved, as a whole.

3.4 EPA Cannot Propose or Finalize a NO_x BART FIP for CGS Until it has Taken Final Action on Arizona's Regional Haze SIP

EPA's authority to propose and then take final action to promulgate a FIP comes into existence only when a state has not submitted a SIP or when, in a case where a state has submitted a SIP, EPA has made a final determination that that SIP is not approvable. As the Supreme Court has held,

> "[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 of § 110(a)(2), and ***the Agency may devise and promulgate a specific plan of its own only if a State fails to submit an implementation plan which satisfies those standards***."[22]

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[20] *See* CAA § 110(k)(3) (emphases added).

[21] This is not a case in which a state has made an incomplete SIP submittal. *See* 77 Fed. Reg. at 42,839 (acknowledging that Arizona's SIP "was determined complete by operation of law on August 28, 2011").

[22] *Train v. NRDC*, 421 U.S. 60, 79 (1975) (citing and describing CAA § 110(c)) (emphasis added); *see* CAA § 110(a)(2)(J) (including visibility requirements among the "standards of § 110(a)(2)").

This principle – that EPA may not propose, let alone promulgate in final form, a FIP in the presence of a submitted SIP that EPA has not determined, after notice-and-comment rulemaking, is unapprovable – is confirmed by sections 307(d)(1)(B), (3), and (6) of the CAA.[23] Under those provisions, any proposed or final FIP must be accompanied by a "statement of basis and purpose," which must include a summary of "the factual data on which the … rule is based" and "the major legal interpretations and policy considerations underlying the … rule."[24] Because the legal and factual predicate for any FIP is the absence of an approvable SIP submission, EPA cannot present the relevant factual, legal, and policy information and rationale necessary to justify a proposed or final FIP rule *until* it has properly taken final action on any relevant SIP before it.

For the reasons discussed above, EPA cannot reasonably or lawfully propose and promulgate a regional haze FIP for Arizona, which has submitted a complete regional haze SIP to EPA, until EPA has made a final determination as to whether that submitted regional haze SIP "satisfies" the Act's regional haze "standards" in CAA sections 110(a)(2)(J) and 169A.[25] EPA can make such a determination only after full review of and – following notice-and-comment rulemaking – final action on that SIP. Thus, EPA's proposal of a FIP for Arizona contravenes the requirements of the CAA and must be withdrawn. Final action on Arizona's SIP must precede any proposed or final action on a FIP for the state.

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[23] The requirements of section 307(d) are more stringent than those of the Administrative Procedure Act. *See Small Refiner Lead Phase-Down Task Force v. EPA*, 705 F.2d 506, 519 (D.C. Cir. 1983).

[24] CAA § 307(d)(3)(A), (C), (6)(A).

[25] *Train v. NRDC*, 421 U.S. at 79.

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4.0 EPA Improperly Ignored the CGS Consent Decree and Presumptive BART Limits in its Selection of Recommended BART Controls

After considering and giving appropriate weight to each of the BART factors, ADEQ determined that NO_x BART for CGS Units 1 and 2 is LNB/OFA with a corresponding emission limit of 0.320 lb/MMBtu.[26] Units 1 and 2 are currently subject to a 0.320 lb/MMBtu NO_x limit, consistent with the state's determination. Unit 2 will be subject to a 0.080 lb/MMBtu NO_x emission limit as soon as the SCR for that unit is installed and operational (i.e., by June 1, 2014), pursuant to the consent decree to which CGS is subject. That limit is clearly significantly more stringent – and is based on a more advanced and expensive emission control technology – than what the state determined to be BART for CGS.

4.1 CGS Consent Decree Controls are Better Than BART

Once SCR is installed on Unit 2, the facility, as a whole, will also be subject to a plant-wide emission limit of 7,300 tons of NO_x per year under the consent decree. This tonnage limit translates to an effective emission rate of 0.20 lb/MMBtu for CGS, as a whole. This limit also represents a level of control that is more stringent than that reflected in the state's NO_x BART determination for CGS and EPA's presumptive NO_x limits.[27] Accordingly, the state's analysis supports a conclusion that the existing NO_x controls at CGS, including the soon-to-be-installed SCR at Unit 2 and the plant-wide NO_x emission limit in the consent decree, are in fact better than BART and that no additional changes to the plant's emission control requirements are warranted.

EPA's BART rules support the conclusion that existing and currently planned CGS controls are better than NO_x BART because those controls, and their associated emission rates, were agreed to by SRP and EPA to resolve allegations of violations of certain requirements of the PSD program[28] for both CGS units. As such, those limits are intended to reflect compliance with the PSD program's BACT requirements.

BACT is defined as:

> "an emission limitation based on the ***maximum degree of reduction*** of each pollutant subject to regulation under this [Act] emitted from or which results from any major emitting facility, which the permitting authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such facility through

[26] *See* 77 Fed. Reg. at 42,842.

[27] It is appropriate to consider the emission rate achieved by CGS as a whole because the BART rules expressly authorize plant-wide averaging to demonstrate compliance with BART requirements. *See* 70 Fed. Reg. at 39,172.

[28] The PSD program is one element of the CAA's New Source Review requirements and applies in areas that meet the national ambient air quality standards.

application of production processes and available methods, systems, and techniques, including fuel cleaning, clean fuels, or treatment or innovative fuel combustion techniques for control of each such pollutant."[29]

BACT applies to newly constructed facilities or existing facilities that undergo a "major modification," whereas BART applies to existing facilities that do not undergo major modification and that are, therefore, not subject to new-source levels of control. Accordingly, BACT, which requires the "maximum degree of reduction" of emissions from new facilities, considering the factors listed in CAA § 169(3), is in almost all circumstances a more stringent requirement than BART (or certainly not less stringent than BART).[30]

EPA recently discussed the relationship between BART for an existing facility, Four Corners Power Plant (FCPP), and BACT for a new facility, Desert Rock Energy Facility:

> "Commenters argue that if Desert Rock was required to meet a limit of 0.05 lb/MMBtu using the same coal as FCPP, the ash content should not hinder FCPP from achieving similarly low NO_x emission rates. EPA notes that if constructed, Desert Rock would have been a ***new, state-of-the-art facility*** specifically designed with boiler characteristics, combustion controls, and post-combustion controls to meet the Best Available Control Technology (BACT) requirements for numerous criteria and non-criteria pollutants. FCPP is an ***existing, over 40-year-old power plant***. The Regional Haze Rule requires a case-by-case BART (best available retrofit technology) determination, which ***need not be equivalent to BACT*** for new facilities."[31]

EPA's BART rules reflect this understanding. They provide that BACT determinations and "NSR [New Source Review]/PSD settlement agreements" generally satisfy BART requirements.[32] EPA recently recognized this principle in its final regional haze rule for North Dakota. That rule explained that, subsequent to EPA's original BART FIP proposal to require SCR at the Milton R. Young Station, a United States District Court held that the State of North Dakota had reasonably determined that NO_x BACT for that facility was 0.36 lb/MMBtu for one of its units and 0.35 lb/MMBtu for the other.[33] EPA concluded that because emission control technology had not changed in any appreciable way since that BACT

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[29] *See* CAA § 169(3) (emphasis added).

[30] *See* R. 95-564, Joint Explanatory Statement of the Committee of Conference (Aug. 3, 1977), *reprinted in* 3 Comm. on Public Works, Legislative History of the Clean Air Act Amendments of 1977 at 535 (1978) (explaining that BART is intended to apply to existing facilities and that the more stringent PSD program will address any visibility impairment that results from emissions from new sources).

[31] 77 Fed. Reg. at 51,620, 51,636 (Aug. 24, 2012) (emphases added).

[32] *See* 70 Fed Reg. at 39,164.

[33] *See* 77 Fed. Reg. at 20,897.

determination was made, it was appropriate to rely on the BACT determination to satisfy BART.[34] A similar situation is present here – CGS is subject to a very recent NSR consent decree that should, pursuant to EPA's BART Guidelines, be deemed to also satisfy the facility's BART obligations.[35]

4.2 EPA Must Consider Presumptive BART Limits

EPA's presumptive BART limits provide further support for accepting the existing CGS emission controls as better than BART. The presumptive BART limits are not mere suggestions or illustrations that EPA can freely ignore. EPA adopted them pursuant to notice-and-comment rulemaking, and they are binding regulatory presumptions that should only be deviated from based on a careful consideration of the BART factors.[36] The presumptive BART limits, moreover, are a part of the BART Guidelines. Thus, their consideration during the course of a BART analysis is compelled by the CAA for facilities such as CGS. The presumptive limits cannot, therefore, simply be ignored, as they are in the proposed rule.[37]

It is important to emphasize that – except for cyclone units, which are not present at CGS – EPA deliberately based the presumptive BART limits for NO_x "on the use of current combustion control technology" and rejected basing those limits on "post-combustion controls such as SCRs."[38] An assessment of the presumptive NO_x limits, which EPA is required to undertake and which EPA failed to

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[34] *Id.*

[35] A report by J. Edward Cichanowicz submitted by Public Service Company of New Mexico to EPA as part of its Supplement to a Petition for Reconsideration of EPA's August 22, 2011 BART FIP for the San Juan Generating Station in New Mexico, 76 Fed. Reg. at 52,388 (Aug. 22, 2011), describes in detail the development of SCR technology from early applications to the current state of the art. *See* Supplement to the Petition of Public Service Company of New Mexico for Reconsideration and Stay of EPA's Final Rule: "Approval and Promulgation of Implementation Plans; New Mexico; Federal Implementation Plan for Interstate Transport of Pollution Affecting Visibility and Best Available Retrofit Technology Determination," Docket No. EPA-R06-OAR-2010-0846, Exhibit C, J. Edward Cichanowicz, "Evaluation of Engineering and Analytical Studies To Assess the Cost of Selective Catalytic Reduction (SCR) NO_x Control Technology for the Public Service Company of New Mexico San Juan Generation Station" (April 2012) (hereinafter "Cichanowicz Report"). That report explains that SCR technology has become increasingly complex since its early deployment at those facilities that presented the least challenging retrofit scenarios, and that SCR retrofit installation costs have increased considerably as installation complexity at more challenging facilities has increased. That report also demonstrates that *SCR has not developed in any significant manner with respect to its ability to achieve deeper levels of control of NO_x emissions since the time that SRP entered into the 2008 consent decree*. Accordingly, EPA has no factual or legal basis for requiring more stringent NO_x emission controls or emission limits than those reflected in the consent decree.

[36] *See* 70 Fed. Reg. at 39,171 ("You may determine that an alternative control level [to the presumptive NO_x limit] is appropriate *based on a careful consideration* of the statutory factors.") (emphasis added).

[37] *See* 77 Fed. Reg. at 42,838. EPA explains that "[i]n making BART determinations for fossil fuel-fired electric generating plants with a total generating capacity in excess of 750 megawatts, states must use the approach set forth in the BART Guidelines," but EPA makes no mention of the presumptive BART limits that are a key element of those Guidelines.

[38] See 70 Fed. Reg. at 39,134.

consider in the proposed rule, demonstrates that controls installed pursuant to the consent decree are better than BART for NO_x at CGS.

The presumptive NO_x BART limit listed in the BART guidelines for the type of units present at CGS (i.e., dry-bottom turbo-fired boilers using sub-bituminous coal) is 0.23 lb/MMBtu, based on the installation and operation of combustion controls only.[39] This limit was established based on an analysis of actual emissions data for dry-bottom wall-fired boilers – a different source category – because there were no turbo-fired boilers equipped with LNB/OFA at the time EPA's guidelines were published. It has since been well documented that turbo-fired boilers cannot achieve NO_x emission rates with combustion controls as low as dry-bottom wall-fired boilers. SRP believes that if EPA were to perform the same analysis today, the presumptive limit for turbo-fired boilers would be equivalent to the emission limit that currently applies to the units at CGS – 0.32 lb/MMBtu.[40]

In any case, the plant-wide emission limit that will soon apply to CGS translates to an effective NO_x emission rate of 0.20 lb/MMBtu, which is plainly below the presumptive NO_x limit. Further, this limit is

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[39] See 70 Fed. Reg. at 39,172.

[40] SRP conducted a detailed review of the procedure used by EPA to establish the presumptive limits for the turbo-fired boilers at CGS. This review included an analysis of the spreadsheet developed by EPA to document the calculation of the presumptive limit for this source category, and a review of the accompanying Technical Support Document.

EPA identified only seven turbo-fired boilers for this analysis, none of which were equipped with LNB/OFA. Therefore, EPA relied on information for dry-bottom wall-fired boilers to develop presumptive limits for the dry-turbo-fired source category.

EPA calculated the level of control that would be expected to be achievable on dry-turbo-fired units (column heading "Calculated Control Case 1a NO_x Emission Rate" in the "Control Case 1a" tab of EPA spreadsheet) as follows:

Post-Controlled NO_x Rate = Pre-Controlled NO_x Rate x (1 – Fraction of Removal)

The "Fraction of Removal" term in the above equation is calculated as follows:

Fraction of Removal = 0.285 + (0.541 x Pre-Controlled NO_x Rate)

In the "NO_x Control Cost & Performance" tab of the EPA spreadsheet, the above "Fraction of Removal" equation is listed as applicable to dry-bottom wall-fired boilers burning sub-bituminous coal that are equipped with LNB/OFA. There is no equation listed for dry-turbo-fired boilers. Therefore, it appears that in the absence of specific information for the dry-turbo-fired source category, EPA applied the equation for dry bottom wall-fired boilers to calculate the expected removal efficiency of LNB/OFA for dry turbo-fired boilers.

Using this assumption, EPA calculated the expected control efficiency from applying LNB/OFA to be approximately 60%, which is likely to be well beyond what can be achieved by installing this control technology. In the CGS BART analysis submitted in February 2008, SRP noted that maximum NO_x emissions from Units 1 and 2, before installing LNB/OFA, are typically 0.433 and 0.466 lb/MMBtu, respectively. Based on information provided by equipment vendors, it was estimated that LNB/OFA would reduce NO_x emissions to a level of approximately 0.32 lb/MMBtu, which would translate to a control efficiency of 35-46%. Actual emissions of NO_x from the boilers at CGS have been close to the 0.32 lb/MMBtu limit since installation of LNB/OFA.

based on installation and operation of combustion controls (LNB/OFA) on Unit 1, consistent with the presumptive limits, and installation and operation of combustion controls (i.e., LNB/OFA) and post-combustion controls (i.e., SCR) on Unit 2, which far exceeds in stringency what the presumptive limits require. Therefore, the limits the consent decree imposes at CGS should be viewed as better than BART, particularly when considering the facility as a whole.[41]

EPA's proposed rule would require the NO_x BART emission limits in the FIP be met on a unit-by-unit basis.[42] However, EPA's own BART rules authorize and encourage application of BART emission limits on a plant-wide basis.[43] The relative distribution of emission reductions across units at a given facility makes no difference from a visibility improvement perspective. Accordingly, EPA should not require the unnecessarily restrictive burden of unit-by-unit BART limits and instead should allow for the option of plant-wide averaging at CGS.

In summary, application of EPA's BART Guidelines supports the conclusion that compliance with the consent decree more than satisfies BART for both CGS units by: (1) meeting the BART Guidelines' presumption that NSR/PSD consent decrees such as the CGS consent decree satisfy BART, and (2) imposing emissions reductions that are greater than the presumptive limits in the BART Guidelines.

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[41] EPA should, in the alternative, recognize that the consent decree, which requires SCR and a 0.080 lb/MMBtu NO_x limit for Unit 2, at the very least resolves BACT for Unit 2 and that this limit also satisfies BART for Unit 2.

[42] 77 Fed. Reg. at 42,865/1-3.

[43] 70 Fed. Reg. at 39,172/2 (stating that the BART-determining authority "should consider allowing sources to 'average' emissions across any set of BART-eligible emission units within a fenceline, so long as the emission reductions from each pollutant being controlled for BART would be equal to those reductions that would be obtained by simply controlling each of the BART-eligible units that constitute [the] BART-eligible source"); *id.* at 39,115/2 (explaining that states may "allow sources to 'average' emissions across a set of BART-eligible emission units within a fenceline, so long as the amount of emission reductions from each pollutant being controlled for BART would be at least equal to those reductions that would be obtained by simply controlling each unit").

5.0 EPA's Control Technology Evaluations are Not Consistent with BART Guidelines

EPA's evaluation of available control technologies and their associated control effectiveness levels is incorrect in several respects, as outlined in this section.

5.1 EPA's Proposed NO_x Emission Rates Associated with Post Combustion Controls are Not Achievable

SRP contracted with multiple third-parties to complete evaluations of the proposed control efficiencies, emission limits, and costs associated with post combustion control implementation at CGS Units 1 and 2. These entities concluded that the NO_x emission limits currently proposed or contemplated for CGS likely will result in on-going compliance issues resulting from CGS's inability to meet these limits on a continuous basis. Unfortunately, EPA would likely perceive these on-going compliance issues as excess emissions that would likely result in enforcement action against CGS, rather than associate these issues with the limits being set incorrectly to begin with.

5.1.1 EPA's Proposed SCR NO_x Emission Limit of 0.050 lb/MMBtu is Unachievable

EPA's proposed BART determination for CGS Unit 1 would impose an exceptionally stringent NO_x emission limit of 0.050 lb/MMBtu, which is premised on the assumption that SCR can achieve this limit continuously on a 30-day rolling average, including periods of startup, shutdown and equipment malfunctions as required by the consent decree. Continuous compliance with such a limit has, however, not been shown to be feasible, and EPA has failed to support either its proposed BART determination or its reliance on this limit in its BART analysis.

No emission limit can be determined to represent BART for a given facility unless it has been shown to be "achievable" at that facility.[44] EPA has not demonstrated through the development of an SCR conceptual design or some other, similar site-specific analysis that SCR can achieve this emission rate at CGS. On the contrary, EPA's proposed rule merely cites "[e]xisting vendor literature and technical studies [that] indicate that SCR systems are capable of achieving a 0.05 lb/MMBtu emission rate (approximately 80–90% control efficiency) and that this emission rate can be achieved on a retrofit basis, particularly when combined with combustion control technology such as LNB."[45] EPA's TSD cites only three documents to support this position.[46] Such a limited level of documentation is not

[44] 40 C.F.R. § 51.301 (definition of "BART").

[45] 77 Fed. Reg. at 42,853.

[46] *See* EPA, Arizona Haze Rule Technical Support Document at 37 & n.69 (July 2012), EPA-R09-OAR-2012-0021-0009 (hereinafter "TSD"). TSD at 37 & n.69.

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persuasive, and in any event fails to even approach compliance with the CAA's requirement that BART determinations be based on a site-specific analysis.

In the TSD, EPA states that "[i]n the absence of source-specific considerations warranting a less stringent control level, we ***presume*** that an emissions limit of 0.05 lb/MMBtu is achievable by these units through the use of SCR in addition to advanced combustion controls."[47] This approach is inconsistent with EPA's own Guidelines. Instead of presuming an emission rate is achievable, especially in the presence of evidence that proves that it is not achievable, EPA must affirmatively establish that its selected BART limit is in fact achievable.

Of particular interest is the fact that EPA justifies its BART determination by citing examples of purported compliance with a 0.05 lb/MMBtu emission limit. However, this is not the limit that EPA is proposing for CGS. EPA has taken a more stringent stance in proposing 0.050 lb/MMBtu, but this limit is not referenced in its feasibility documentation – just 0.05 lb/MMBtu.[48] A 0.050 lb/MMBtu NO_x emission limit is unprecedented for retrofit facilities like CGS.

EPA recently imposed a 0.05 lb/MMBtu NO_x limit in a BART FIP applicable to the San Juan Generating Station in New Mexico.[49] A technical report on that final rule concluded that the limit "appears to be the most stringent NO_x emissions limit ever imposed on any new or existing pulverized coal unit in the United States" and "does not represent a consistently achievable level of emissions for the units at [the facility] even with the use of best available NO_x emission controls and the lowest available emission rate performance guarantee."[50] The legality of that FIP limit is currently subject to challenge in litigation

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[47] *Id.* at 37 (emphasis added).

[48] For example, if NO_x emissions were 0.054 lb/MMBtu over a 30-day rolling average, the unit would be considered *in compliance* with an emission limit of 0.05 lb/MMBtu (due to rounding), whereas the unit would be considered *out of compliance* with an emission limit of 0.050 lb/MMBtu. Clearly, the two limits are not interchangeable.

[49] 76 Fed. Reg. at 52,388 (Aug. 22, 2011), the EPA published a final rule disapproving a portion of the New Mexico interstate transport SIP revision and promulgating a FIP requiring a 0.05 NO_x emission limit for each of the facility's units. [NOTE: The rule does not disapprove New Mexico's regional haze SIP. EPA takes no action on that SIP.]

[50] RMB Consulting & Research, Inc., Technical Memorandum regarding Analysis of the Achievability of the FIP NO_x Limit for San Juan Generating Station and Comparison to Other Ultra-Low NO_x Units at 1, 7 (Oct. 21, 2011) (hereinafter "San Juan RMB Report") (Attachment 2 to Public Service Company of New Mexico's Petition for Reconsideration and Stay of EPA's Final Rule: "Approval and Promulgation of Implementation Plans; New Mexico; Federal Implementation Plan for Interstate Transport of Pollution Affecting Visibility and Best Available Retrofit Technology Determination," Docket ID No. EPA-R06-OAR-2010-0846 (Oct. 21, 2011)). During the course of the litigation over EPA's final rule for New Mexico, EPA asserted that the RMB study is flawed because Havana Unit 9, which the RMB Report references, purportedly achieved a 0.05 lb/MMBtu rate during an 18-month period. Regardless of the merits of this assertion, the RMB conclusion that "there are a significant number of periods where the 30-day average exceeds 0.05 lb/MMBtu, which suggests that the unit would not be able to consistently demonstrate compliance with a FIP-equivalent limit" applying a 30-day average, still stands. *Id.* at 7. Accordingly, such a limit is not "achievable."

pending in the U.S. Court of Appeals for the Tenth Circuit on the grounds that, among other things, the 0.05 lb/MMBtu rate is infeasible and unachievable, particularly on a continuous basis. Even with this pending litigation, EPA has proposed an even more stringent limit for CGS Unit 1 – 0.050 lb/MMBtu.

SRP contracted with two entities, RMB Consulting & Research, Inc. (RMB) and Sargent and Lundy (S&L), to review the ability of the CGS units to achieve the 0.050 lb/MMBtu emission limit proposed by EPA using SCR control technology. Both consultants concluded that a NO_x BART limit of 0.050 lb/MMBtu on a 30-day rolling average is not achievable at CGS.

Specifically, in RMB's analysis, which is included in Attachment A to these comments, they conclude that:

> "Based on our analysis of projected emissions … ***a NO_x emission limit of 0.050 lb/MMBtu does not represent a consistently achievable level of emissions for the units at CGS.*** The data suggests that ***both units will periodically exceed the proposed limit***, which will be inaccurately characterized and reported as excess emissions. RMB also finds that EPA did not adequately consider the impact of SUSD [startup and shutdown] emissions or the ability to measure such emissions during SUSD events in their BART determination. As a result, ***we conclude that the proposed BART NO_x emission limit of 0.050 lb/MMBtu should be rejected for both units***."[51]

In addition, as SRP explained in its July 27, 2012 letter responding to EPA's request for further information regarding the viability of achieving a lower NO_x emission limit for CGS Unit 2, a 0.050 lb/MMBtu NO_x limit cannot be achieved on a continuous basis, even if certain modifications are made to the current design to allow SCR use at lower inlet temperatures.[52] This determination was based on work by S&L who conducted modeling with and without the use of a low-load temperature control system while accounting for typical operating scenarios. S&L's modeling demonstrated that Unit 2 could not comply with a 0.050 lb/MMBtu NO_x limit if there was even one start during the 30-day averaging period, as shown in Table 5-1 on the following page.[53]

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[51] *See* R Barton, S. Norfleet, & B. White, RMB Consulting & Research, Inc., Technical Memorandum: Achievability of the Proposed FIP NO_x Limits for Coronado Generating Station at 12 (Sept. 2012) (emphasis added) (hereinafter "RMB Coronado Report") (Attachment A to these Comments).

[52] *See* letter to Deborah Jordan, EPA, from Kelly Barr, SRP, regarding *SRP Response to EPA Letter Dated July 27, 2012* (Attachment B to these comments).

[53] *See* Sargent & Lundy, LLC, Final Report: Salt River Project (SRP) Coronado Generating Station Unit 2 SCR Review at 10 (Aug. 24, 2012) (hereinafer "S&L Coronado Report") (Attachment B to these Comments).

Table 5-1: 30-Day Rolling Average NO_x Emissions Including Unit Startups and Low-Load Cycling

Modeled Scenario	1 Start Per 30 Operating Days	2 Starts Per 30 Operating Days	3 Starts Per 30 Operating Days
SCR system without low-load temperature control system	0.075 lb/MMBtu	0.083 lb/MMBtu	0.091 lb/MMBtu
SCR system with low-load temperature control system	0.053 lb/MMBtu	0.063 lb/MMBtu	0.072 lb/MMBtu

S&L correctly concluded that even with a low-load temperature control system, Unit 2 could not consistently achieve a NO_x emission limit of 0.050 lb/MMBtu when periods of low-load cycling, startup, and shutdown are taken into account. These types of operating scenarios are typical for both units at CGS.

RMB's analysis also found that the 0.050 lb/MMBtu NO_x emission limit that is being contemplated by EPA is inconsistent with BACT determinations that EPA has approved for new coal-fired units. Specifically, RMB's analysis states:

> "[T]he recently issued BACT limits do not support the FIP NO_x limit for the units at CGS. Although there have been several units permitted with similar emissions limits, none of these limits are directly equivalent (same numeric limit and averaging time, including startup and shutdown periods) to the FIP limit … In addition, all of the above units are based on new construction, which, unlike retrofit units, can be designed to optimize NO_x reduction in other aspects of combustion (i.e. pulverizer design, boiler height, etc.). Notwithstanding, there is also inadequate data available to confirm the long-term achievability of the limits because the units have not begun operation or only recently became operational. ***These findings indicate that the proposed FIP NO_x limit issued for the units at CGS represents the most stringent emission limit suggested for any new or retrofit unit. In addition, the fact that there are no similar units with a long-term operating history at such low emissions levels confirms that EPA failed to adequately consider the achievability of the FIP limit***."[54]

This is notable because BACT is a more stringent requirement than BART. The fact that EPA has not imposed a limit comparable to the limit it proposes as BART for CGS Unit 1 pursuant to the CAA's BACT provisions is compelling evidence that such a limit is far too stringent to reflect a proper BART determination.

[54] See Attachment A, RMB Coronado Report at 11 (emphasis added).

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Moreover, other recent EPA actions support the conclusion that such a limit cannot generally be achieved and cannot be assumed to be achievable at CGS. For example, as part of CSAPR,[55] EPA concluded that a NO_x limit below 0.06 lb/MMBtu is not achievable through retrofit of SCR on coal-fired electric generating units.[56] EPA in fact stated that this "well-controlled emission rate of … 0.06 lbs/MMBtu for NO_x represent[s] the lowest annual emission rate assumed achievable when state-of-the-art pollution control technologies are installed at coal units," and that such a rate is "based on the floor rate[s] used in [EPA] modeling and [is] intended to reflect the lower bound of emission rates that suppliers are willing to guarantee when installing state-of-the-art pollution control equipment (selective catalytic reduction (SCR) …)." [57]

EPA similarly recognized that a 0.05 lb/MMBtu emission limit is unachievable in two recent regional haze rulemakings involving North Dakota and South Dakota. In EPA's Proposed Rule for North Dakota, EPA based its BART analysis on a 0.05 lb/MMBtu emission rate, but then proposed to adopt a 0.07 lb/MMBtu limit because EPA concluded the more stringent rate would not allow a sufficient margin of compliance.[58] And in its final rule for South Dakota, EPA went further and set a NO_x limit of 0.10 lb/MMBtu for an electric generating plant – twice the limit EPA proposes for CGS – again, to allow for an adequate margin of compliance.[59] The proposed rule for Arizona provides no similar or effective mechanism for allowing an adequate margin of compliance for CGS. Even state-of-the-art new facilities have not been required to show continuous compliance with a 0.050 lb/MMBtu NO_x emission rate on a 30-day rolling average basis.[60]

After analyzing purportedly "similar" new-source emission limits, the San Juan RMB Report concluded that not even one of those limits was "directly equivalent" to the 0.05 lb/MMBtu compliance limit imposed by EPA at San Juan.[61] Those "similar" limits were less stringent through various means, including use of a higher numerical limit, exclusion of periods of startup and shutdown, and use of a longer averaging period.[62] Thus, EPA has no basis to impose such a continuous, low emission limit in a retrofit application.

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[55] Although the D.C. Circuit in *EME Homer City Generation, L.P. v. EPA*, – F.3d – 2012 WL 3570721 (D.C. Cir. Aug. 21, 2012) vacated CSAPR, that court had no occasion to address this aspect of CSAPR.

[56] 76 Fed. Reg. at 1,109, 1,115 (Jan. 7, 2011); EPA, Transport Rule Engineering Feasibility Response to Comments, Docket ID No. EPA-HQ-OAR-2009-0491-4529, at 13 (July 6, 2011).

[57] 76 Fed. Reg. at 1,115 & n.3.

[58] 76 Fed. Reg. at 58,570, 58,610 (Sept. 21, 2011).

[59] 77 Fed. Reg. at 24,845, 24,848, 24,849 (Apr. 26, 2012).

[60] *See* San Juan RMB Report at 1, 7-10.

[61] *Id.* at 9.

[62] *Id.* at 8-9.

Further, EPA's proposed NO_x limit for CGS Unit 1 is even more stringent than EPA's recently promulgated Subpart Da new source performance standard (NSPS) for electric utility steam generating units constructed after May 3, 2011.[63] This standard, which applies to new or reconstructed facilities that were constructed more recently than BART-eligible facilities, is 0.70 pounds per megawatt-hour (lb/MWh) gross energy input or 0.76 lb/MWh net energy input. For a heat rate of 9,000 British thermal units per kilowatt-hour (typical of new units), a 0.70 lb/MWh limit is equivalent to 0.077 lb/MMBtu. However, an existing unit likely has a much higher heat rate. Requiring a more stringent emission limit pursuant to BART for units older than those covered by this recently promulgated NSPS is unreasonable and unsupported.

In summary, EPA has not established that a 0.050 lb/MMBtu emission rate is achievable for CGS, and it has not demonstrated that Arizona's selection of a 0.08 lb/MMBtu rate for evaluating SCR was in error. EPA's proposed rule, moreover, contradicts the best available evidence. Accordingly, EPA's FIP and its BART analyses are flawed and invalid and must be withdrawn.

5.1.2 SNCR NO_x Emission Rate Evaluated by EPA is Incorrect

An analysis completed by S&L indicates that typical NO_x removal efficiencies with the use of an SNCR system range from 15-40 percent.[64] The critical parameters that affect the overall performance of an SNCR system include flue gas temperature, residence time within the temperature window, consistent quality of the urea droplet size distribution, amount of reagent injected, reagent distribution within the flue gas, inlet NO_x emissions, and carbon monoxide and oxygen concentrations in the flue gas.

Based on an initial review of the impacts these parameters would have on SNCR implementation at CGS, S&L estimated that the expected NO_X reductions would be 25 percent,[65] but noted that additional studies would be needed to guarantee this performance. S&L's estimate also was verified by an independent vendor, FuelTech, who agreed with this assessment.[66]

It appears that EPA evaluated an emission limit that is based on a higher reduction efficiency (i.e., 30 percent) being applied to a starting NO_x emission limit of only 0.30 lb/MMBtu. As EPA is aware, CGS is currently subject to a NO_x emissions limit of 0.320 lb/MMBtu in its Title V permit following the installation of LNB/OFA on each of the units. Given SRP's current NO_x emission limit and an SNCR

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[63] 77 Fed. Reg. at 9,304, 9,423 (Feb. 16, 2012).

[64] *See* Sargent & Lundy, LLC, Salt River Project Coronado Generating Station – Unit 1: SNCR Capital Cost Estimate Report at 2-2 (Sept. 7, 2012) (hereinafter "S&L Coronado SNCR Cost Estimates") (Attachment C to these Comments).

[65] *Id.* at 2-1.

[66] *See* letter to Robert Olsen, SRP, from Douglas Kirk, FuelTech, regarding *Salt River Project Coronado Generation Station SNCR NO_x Control Performance* (Attachment D to these comments).

control efficiency of 25 percent, the appropriate NO_x emission rate to use in the BART analysis would be 0.24 lb/MMBtu, rather than EPA's assumed value of 0.21 lb/MMBtu. This corrected NO_x emission rate (i.e., 0.24 lb/MMBtu) represents a level that can likely be achieved on a consistent basis based on input from SRP's vendors who have specific SNCR implementation experience.

5.2 EPA's Selected Baseline Emissions Period Eliminated Consideration of LNB/OFA as a Viable BART Control Strategy

EPA's improper lack of deference to Arizona's NO_x BART determination for CGS is reflected throughout the proposed rule and is highlighted by EPA's decision to supplant even the state's assessment of baseline emissions with EPA's own conflicting analysis. As noted in the proposed rule, SRP and the state relied on baseline NO_x emissions developed from "continuous emission monitoring system (CEMS) data from 2001 to 2003."[67] EPA further acknowledges that reliance on this baseline period and on the associated "existing pollution control technology used in the BART analyses" is "***reasonable and generally consistent with the [Regional Haze Rule] and the BART Guidelines***."[68]

Indeed, a memorandum cited in the preamble to EPA's BART Rules states that "BART analyses should be based on the 2000 to 2004 period."[69] Yet in preparing its proposed FIP for CGS, EPA opted to reassess BART using a baseline for NO_x (and SO_2) "based on the maximum daily emissions from recent data in EPA's Clean Air Markets Division (CAMD) database, with data examined for 2008 to 2011."[70] EPA acknowledges that it decided to use this updated baseline because "SRP … installed LNB with OFA on Coronado Units 1 and 2" after the 2000 to 2004 general baseline period.[71]

EPA should have deferred to Arizona's proper assessment of baseline emissions. States have discretion over such decisions, and EPA had no basis for discarding the state's method or its decision to use a baseline derived from data within the 2000 to 2004 period.

In any event, EPA's decision to alter the emission baseline did not necessitate its flawed proposed NO_x BART determination. On the contrary, existing emission controls, reflected in the baseline, can and

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[67] *See* 77 Fed. Reg. at 42,850.

[68] *See Id.* at 42,841 (emphasis added).

[69] *See* 70 Fed. Reg. at 39,143 & n.84; Memorandum from Lydia Wegman and Peter Tsirigotis, 2002 Base Year Emission Inventory SIP Planning: 8-hr Ozone, $PM_{2.5}$, and Regional Haze Programs, Attachment at 3 (Nov. 8, 2002), *available at* http://www.epa.gov/ttn/naaqs/pm/data/epa_m_20021118.pdf.

[70] *See* 77 Fed. Reg. at 42,854.

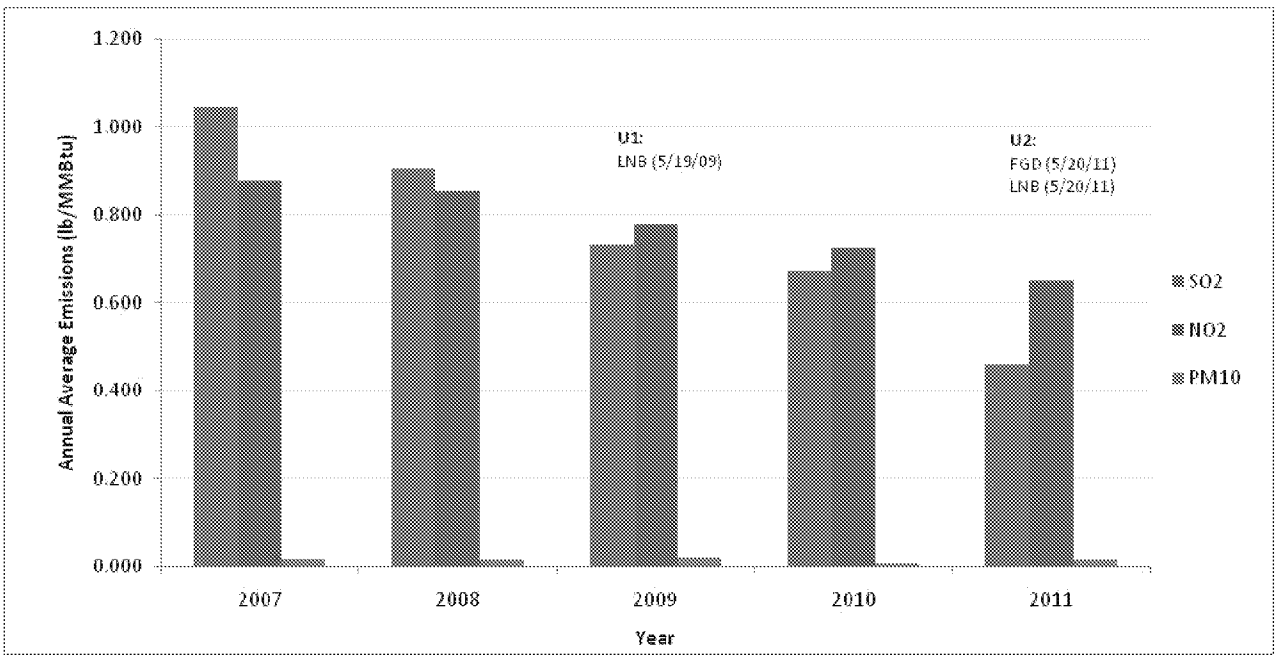
[71] *See Id.* at 42,861; *cf.* 77 Fed. Reg. at 20,894, 20,919 (Apr. 6, 2012) (EPA's final regional haze rule for North Dakota) ("[EPA] do[es] not agree … that it is appropriate to lower the baseline emission rate based on … voluntary installation of combustion controls on Unit 2 in 2010, well after the State established the historic baseline of 2003-2004 for BART planning").

should be evaluated as BART candidates, and EPA has previously approved state determinations that existing controls are BART.[72]

In proposing to adjust the baseline, however, EPA has failed to give proper consideration to LNB/OFA as a viable BART candidate. EPA states, for instance, that it is "examining only one control scenario in our analysis for [CGS] Unit 2, SCR at a more stringent emission rate of 0.050 lb/MMBtu ..."[73] Similarly, EPA states that, with respect to CGS Unit 1, EPA "evaluated SNCR ... and SCR at 0.05 lb/MMBtu."[74] EPA's decision to include LNB/OFA in its baseline NO_x emissions estimate does not and cannot, consistent with the BART rules, foreclose consideration of those controls as BART for CGS. Regardless of whether EPA's rationale for failing to conduct a full assessment of LNB/OFA as a BART candidate is related to EPA's inclusion of these controls in its revised baseline, EPA's improperly truncated BART assessment makes the proposed rule invalid.

Furthermore, as shown in Figure 5-1 below, installation of LNB/OFA on both units at CGS has already resulted in substantial reductions in NO_x emissions that are not contemplated or acknowledged in EPA's analysis.

Figure 5-1: Actual Emission Trends for CGS Units 1 and 2



[72] *See*, e.g., 77 Fed. Reg. at 49,308, 49,314 (Aug. 15, 2012) (concluding that existing SO_2 controls are BART); 77 Fed. Reg. at 41,279, 41,283 (July 13, 2012) (concluding that existing PM controls are BART).

[73] *See* 77 Fed. Reg. at 42,861 to 62.

[74] *See Id.* at 42,863.

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These emission reductions should not be ignored in EPA's analysis simply because EPA delayed review of Arizona's SIP until 2012. EPA should give deference to the baseline emissions period selected by ADEQ in its SIP analysis and fully consider LNB/OFA as an appropriate basis for BART emission limitations for CGS.

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6.0 EPA's Cost of Compliance Analysis is Flawed and Must be Replaced with Site-Specific Costs

SRP provided, and ADEQ reviewed and utilized,[75] site-specific cost estimates for the installation of NO_x emission controls at CGS. Rather than use these site-specific costs, EPA substituted cost estimates developed by its own contractor, without considering the unique characteristics of CGS, to prepare the cost assessment provided in the technical support document that accompanied this proposed rule. In rejecting ADEQ's site-specific cost analysis and substituting EPA's own analysis based on application of its generic Control Cost Manual and flawed use of the Integrated Planning Model, EPA made significant errors and excluded legitimate, real-world costs, resulting in a proposed rule based on a drastic underestimation of control costs. Correction of these errors, as described in this section of SRP's comments, demonstrates that Arizona's BART determination was correct and that EPA's proposed NO_x BART determination must be withdrawn.

6.1 EPA Improperly Ignored Site-Specific Cost Estimates for CGS BART Control Options

In its proposed rule, EPA rejects Arizona's assessment of BART control costs and substitutes its own assessments. EPA's overreaching completely ignores that Arizona has "the lead role in designing and implementing [its] regional haze program" and "broad authority over BART determinations."[76] The assessment and weighing of "the costs of compliance" under CAA § 169A(g)(2), a significant component of a BART determination, is therefore the proper province of the states, and ADEQ fulfilled that role on behalf of Arizona, consistent with the CAA.[77]

EPA attempts to justify its rejection of ADEQ's cost determinations through various unmerited and vague assertions, including, most prominently, EPA's proposed conclusions that: (1) "there are certain aspects of [ADEQ's] cost calculations that we find inconsistent with the BART Guidelines and EPA's Control Cost Manual;"[78] and (2) ADEQ did not have cost information "at a level of detail that allowed for a comprehensive review."[79]

Contrary to the first assertion, ADEQ fully complied with the BART Guidelines and was justified in any deviation from the specific terms of the Control Cost Manual because ADEQ engaged in a reasoned, site-specific cost analysis. As stated in the proposed rule:

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[75] Indeed, as EPA's proposed rule acknowledges, ADEQ requested additional cost information so as to ensure that its own assessment of costs was fully and adequately supported. *See* 77 Fed. Reg. at 42,841.

[76] *See Corn Growers*, 291 F.3d at 3, 8.

[77] *See Id.* at 6-7.

[78] *See* 77 Fed. Reg. at 42,841.

[79] *See Id.* at 42,851. *See also* TSD at 35.

> "ADEQ included information relating to costs of compliance in its RH [regional haze] SIP, including information on ***total annualized costs, cost per ton of pollutant removed, and incremental cost per ton of pollutant removed for the various control options considered***. Cost calculations were prepared by consulting firms on behalf of the facilities as part of their BART analyses that relied on a combination of ***vendor quotes, facility data, and internal cost calculation methodology***. These BART analyses were subsequently submitted to ADEQ. Upon review, ADEQ ***requested certain clarifying information from the facilities regarding these cost calculations, including greater detail on the underlying assumptions and additional supporting documentation. ADEQ received responses of varying detail to these requests, and included this information as part of its RH SIP***."[80]

Thus, it is apparent that Arizona considered the type of cost elements (e.g., total annualized costs, cost per ton of pollutant removed, and incremental costs) that are the central components of a proper BART cost assessment under the BART Guidelines. In such circumstances, there can be no basis for suggesting that the state has acted contrary to the BART Guidelines or the CAA.

Further, EPA's assertion that ADEQ's cost assessment is flawed because it is in some way inconsistent with EPA's Control Cost Manual also fails to justify rejection of the state's cost conclusions and associated BART determinations for CGS. Contrary to EPA's suggestion, the BART Guidelines *promote*, rather than limit, state "flexibility in how they calculate costs."[81] The Guidelines explicitly state that, in addition to considering cost elements discussed in the Control Cost Manual, "[t]he cost analysis ***should also*** take into account any ***site-specific design or other conditions*** … that affect the cost of a particular BART technology option."[82] The Guidelines thus indicate that the Control Cost Manual does not tie a state's hands in assessing control costs:

> "[T]he Control Cost Manual provides a good reference tool for cost calculations, but if there are [cost] elements or sources that are not addressed by the Control Cost Manual or there are additional cost methods that could be used, we [EPA] believe that these could serve as useful information."[83]

If a state adopts a different approach to cost considerations than the one set forth in the Control Cost Manual, as *Corn Growers* directs, if site-specific issues warrant considerations that differ from the

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[80] *See* 77 Fed. Reg. at 42,841 (emphases added).

[81] *See* 70 Fed. Reg. at 39,104, 39,127.

[82] *See Id.* at 39,166 (emphases added).

[83] *See Id.* at 39,127.

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Control Cost Manual, the BART Guidelines indicate that the state "should include" documentation of the information "used for the cost calculations," such as:

> "[A]ny information supplied by vendors that affects … assumptions regarding purchased equipment costs, equipment life, replacement of major components, and any other element of the calculation that differs from the Control Cost Manual."[84]

This is precisely the sort of information that EPA's own proposed rule indicates ADEQ sought and relied on in assessing the cost-of-compliance BART factor for CGS and in reaching its BART determination for that facility.[85] Thus, EPA has no rational basis for rejecting Arizona's BART analysis.

Neither the CAA nor the BART rules dictate specific documentation requirements for the presentation of cost assessment information for a state's BART determination. If EPA was concerned that the state's cost assessment was not adequately detailed or documented, it should have requested additional information from ADEQ before proposing to disapprove ADEQ's analysis and developing a proposed FIP that would substitute EPA's judgment for that of the state. Yet in comments EPA provided to ADEQ regarding Arizona's proposed regional haze SIP, EPA never mentioned any flaws perceived by EPA in the state's assessment of costs (or any other BART factor) applicable to the CGS assessment, and those comments did not indicate that additional cost documentation would be a prerequisite to approval of the state's NO_x BART determination for CGS.[86]

Moreover, given ADEQ's primacy in making BART determinations, ADEQ has discretion to conduct and document its cost assessment at a level that it deems appropriate, and the documentation that supports ADEQ's BART determination is reasonable by any objective standard. ADEQ engaged in a thorough analysis, requesting more information from SRP when needed to inform a well-reasoned decision,[87] and therefore, assessed costs at the level of detail it judged appropriate. And indeed, the supplemental information provided by SRP to the state includes detailed cost breakdowns for each control option considered.[88]

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[84] *See Id*. at 39,166 n.15.

[85] *See* 77 Fed. Reg. at 42,841 (noting that the information relied on by the state included "vendor quotes, facility data, and internal cost calculation methodology").

[86] *See* Arizona Regional Haze State Implementation Plan Under Section 308 of Federal Regional Haze Rule, Appendix E, Letter from Colleen McKaughan, EPA to Eric Massey, ADEQ (Dec. 2, 2010), *available at* http://www.azdeq.gov/environ/air/haze/download/app_e.pdf.

[87] *See* 77 Fed. Reg. at 42,850.

[88] *See* SRP Response to ADEQ Request for Additional BART Information (June 25, 2009), *available at* http://www.azdeq.gov/environ/air/haze/download/110810m.pdf.

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EPA must respect and defer to Arizona's primary authority and the state's adequately detailed and documented cost assessment. Arizona properly determined costs, and EPA has no right to reject the state's analysis. It is EPA's analysis that does not withstand scrutiny and that cannot support a BART determination. Arizona's NO_x BART determination for CGS must therefore be approved and EPA's FIP withdrawn.

6.2 EPA Inappropriately Relied on Flawed Data from the Control Cost Manual and IPM

In its cost analysis, EPA indicates that it "relied on facility data from a number of sources including … EPA's Control Cost Manual," which is now more than a decade old and therefore out of date.[89] EPA's cost assessment departs from the CAA's requirement, as confirmed by the D.C. Circuit in *Corn Growers*, that a BART cost assessment be site-specific.

Instead of relying on information developed for the specific facilities at issue in this rule, as Arizona did, EPA used the IPM to calculate the capital costs and annual operating costs associated with the various NO_x control options that EPA considered.[90] The proposed rule and EPA's TSD say almost nothing about how IPM was used to calculate costs. Instead, EPA directs the public to an EPA contractor report for more information, but no contractor report in the docket for this rulemaking supplies additional detail on precisely how IPM was used. This failing alone renders EPA's proposed rule inconsistent with the CAA's public notice requirements. Moreover, it is apparent that no cost estimate derived from a model designed to produce generalized information about utilities throughout the nation could possibly satisfy the CAA requirement that BART be determined based on a site-specific analysis.

Regardless, SRP and its contractor, S&L, evaluated the costs associated with the post-combustion control equipment presented by EPA in the proposed rule and the supporting TSD to assess the reasonableness of the costs used by EPA in its analysis. SRP maintains that site-specific costs for installation of BART controls are appropriate for use in making a BART determination because neither the Control Cost Manual nor IPM account for site-specific issues that may substantially increase the cost to install and operate NO_x control equipment. To provide EPA with an additional basis for review of

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[89] *See* TSD at 35. Even if EPA updates the dollar figures used in the Control Cost Manual on a regular basis, the Manual is still out-dated because its conception of reasonable costs to include in an assessment of emission controls, like SCR, does not fit the complex retrofit sites that remain in 2012. Further, standard utility accounting procedures now reflect costs that EPA's Control Cost Manual does not include. Indeed, even EPA's own, more recently developed (initially in 2000) Coal Utility Environmental Cost program (CUECOST) accounting methodology reflects current utility costs more realistically than the Control Cost Manual, which reflects utility accounting practices as they were conceptualized over twenty years ago. *See* J. Edward Cichanowicz, Evaluation of Engineering and Analytical Studies To Assess the Cost of Selective Catalytic Reduction (SCR) NO_x Control Technology for the Public Service Company of New Mexico San Juan Generation Station at 4-5 (April 2012).

[90] See 77 Fed. Reg. at 42,852.

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SRP's site-specific costs, SRP also used historical data,[91] and vendor input to revise the IPM inputs utilized by EPA.

Once the IPM costs are revised to reflect appropriate data inputs, the IPM outputs validate the site-specific costs provided by SRP. As such, SRP's site-specific costs should be used as the cost basis for any BART determinations. EPA's generalized approach, on the other hand, is not supported by the record, and fails to even remotely satisfy the CAA's requirement that such assessment be site-specific.

6.3 SRP's Adjusted Inputs to EPA's IPM

6.3.1 Unit Size

EPA's cost analysis used a value of 410.9 gross megawatts (MW_G) for CGS Units 1 and 2, as taken from the National Electric Energy Database System (NEEDS) version 4.10. For the purposes of SRP's model run, SRP evaluated historical operating data where gross output was greater than 430 MW_G to determine an appropriate unit size. Based on this analysis, SRP used a value of 431 MW_G for CGS Units 1 and 2.

Additionally, in the revised IPM Appendix 5-2A, it states that "the elevation of the site must be considered separately and factored into the unit MW [megawatt] size accordingly due to its effects on the flue gas volume."[92] The model provided along with the TSD does not appear to account for the fact that CGS is located approximately 5,000 feet above sea level. As such, SRP has added another factor into the model that accounts for this change in elevation (i.e., an Elevation Factor).

At higher elevations, lower barometric pressure can increase the amount of flue gas generated during combustion. This results in the need to increase the size of equipment to compensate for this additional flue gas flow. The effects of elevation on flue gas requirements can be calculated by computing the ratio of the flow rate in actual cubic feet per minute (ACFM) of the flue gas at sea level versus the ACFM of the flue gas at elevation. This ratio can be reduced to a ratio of absolute barometric pressure at sea level versus absolute barometric pressure at elevation. For this analysis, SRP used an absolute barometric pressure at sea level of 29.9 inches of mercury and an absolute barometric pressure at 5,000 feet above sea level of 24.9 inches of mercury. Accordingly, SRP used a value of 1.20 for the Elevation Factor.

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[91] Where plant historical data is referenced, SRP evaluated plant historical data over an 18-month window, from January 2011 through July 2012, unless otherwise noted.

[92] S & L, IPM Model – Revisions to Cost Performance for APC Technologies: SCR Cost Development Methodology, Final, Appendix 5-2A at 2 (Aug. 2010) (hereinafter "Revised IPM Appendix 5-2A"), *available at* http://www.epa.gov/airmarkt/progsregs/epa-ipm/docs/v410/Appendix52A.pdf.

It is important to note, however, that SRP did not apply the Elevation Factor to fixed operating and maintenance (O&M) costs, which are based upon actual unit size, not flue gas flow rate.

6.3.2 Gross Heat Rate

EPA's cost analysis used a value of 10,503 British thermal units per kilowatt-hour (Btu/kW-hr) for CGS Unit 1 and value of 9,695 Btu/kW-hr for CGS Unit 2. Both of these values were taken from the NEEDS version 4.10 database. In reviewing historical operating data for CGS, the gross heat rate for each unit historically fluctuates between 9,000 and 9,400 Btu/kW-hr, depending on a wide variety of conditions, including unit load, ambient temperature, ambient pressure, and fuel content.

SRP reviewed historical gross heat rate data for each unit when operating at full load. Based on this analysis, SRP used a gross heat rate value of 9,087 Btu/kW-hr for CGS Unit 1 and 9,317 Btu/kW-hr for CGS Unit 2.

6.3.3 NO_x Removal Factor

EPA's cost analysis used a fixed value of 0.875 for the NO_X removal factor. This NO_x removal factor is consistent with the example provided in the revised IPM Appendix 5-2A. However, in EPA's documentation supplement for the EPA Base Case version 4.10 for the Mercury Air Toxics Standard (MATS), EPA indicated that the NO_x removal factor is equal to the NO_x removal efficiency divided by 80.[93] As such, SRP used this equation to calculate a NO_x removal factor of 1.044 for Unit 1 based on a NO_x emission limit of 0.05 lb/MMBtu, and 1.061 and 0.948 for Unit 2 based on a NO_x emission limit of 0.05 lb/MMBtu and 0.08 lb/MMBtu, respectively.

6.3.4 NO_x Removal Efficiency

In EPA's SCR cost analysis, the NO_x removal efficiency is calculated on the basis that the target NO_x emissions are 0.05 lb/MMBtu (or 0.08 lb/MMBtu for the Unit 2 consent decree limit scenario), which is consistent with the revised IPM Appendix 5-2A where it provides "…the lower level of NO_x removal."[94] In calculating the NO_x removal efficiency, EPA also used the average actual NO_x emissions for each unit. This suggests to SRP that EPA's model provides costs on an actual NO_x reduction basis, instead of a permitted basis.

Without a doubt, the actual costs associated with achieving a NO_x emission limit of 0.050 lb/MMBtu would be higher than those costs presented in the EPA cost analysis in order to account for a sufficient

[93] Support documentation for the MATS Rule at 10, *available at* http://www.epa.gov/airmarkets/progsregs/epa-ipm/docs/SuppDoc410MATS.pdf.

[94] Revised IPM Appendix 5-2A, at 2.

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compliance margin. However, to be consistent with the revised IPM Appendix 5-2A and EPA's analysis, SRP's analysis also used a target NO_x emission rate of 0.05 lb/MMBtu.

6.3.5 Ammonia Cost

EPA's cost analysis used a value of $400 per ton of ammonia. SRP attempted to get vendor specific quotes for delivery of ammonia to CGS by rail, but was unsuccessful at receiving budgetary pricing within the comment period provided by EPA.

In the absence of site-specific data, SRP looked to Springerville Generating Station Unit 4 (Springerville 4), which uses anhydrous ammonia in its SCR equipment.[95] Springerville 4 is located less than 30 miles from CGS and utilizes the same rail delivery line, and, as such, SRP believes that ammonia pricing at CGS would be comparable to ammonia pricing for Springerville 4. For this reason, SRP used $752 per ton of ammonia based on recent costs for use of ammonia at Springerville 4.

6.3.6 Operating Labor Rate

EPA's cost analysis used a value of $60 per hour as the operating labor rate. SRP evaluated the loaded wage rates for operations and maintenance staff along with the current scheduling requirements for a variety of staff. Based on this evaluation, SRP used $75 per hour as the operating labor rate in its analysis, as this figure better represents the actual costs.

6.3.7 Base Module Costs

EPA's cost analysis assumed that the base module cost for a low-dust SCR was 25 percent lower than the base module cost for a high-dust SCR, which is unsupported by IPM Appendix 5-2A. SRP disagrees with this assessment as the cost model is based upon flue gas flow, which does not change with dust loading into the SCR. As such, SRP's analysis does not reduce the base module costs due to a low-dust SCR configuration.

6.3.8 Urea Costs

EPA's cost analysis for SNCR assumed urea costs to be approximately $400 per ton (at 50 percent solution, by weight). For the detailed cost estimate for SNCR installation at CGS Unit 1, S&L used $630

[95] SRP owns Springerville Unit 4, but the unit is operated by Tucson Electric Power.

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per ton of urea (at 50 percent in solution, by weight)[96] based on recent costs provided to them by urea suppliers.[97] This cost estimate is based on similar pricing used by S&L in recent SNCR studies.

In addition, SRP notes that IPM Appendix 5-2B correctly calculates urea consumption based on the molar ratio of urea to NO_x. However, when determining the variable O&M costs associated with SNCR, the model does not calculate urea costs on a dry basis, and, as such, predicts variable O&M costs to be half of what they should be. SRP believes it is appropriate to perform this calculation on a dry basis, and SRP's model includes an adjustment to annual urea costs based on using a 50 percent solution, by weight.

6.3.9 Property Taxes and Insurance

EPA's cost analysis, as presented in the proposed rule, included property taxes and insurance in its calculation of annualized capital costs for both the SCR and SNCR model runs. However, in its TSD, EPA excluded these costs in its analysis.[98] Regardless of EPA's changing interpretations, SRP did not include property taxes or insurance in its calculations when determining the annualized capital costs. Even though these costs are not necessary to sustain Arizona's BART determination for CGS, they are legitimate, real-world costs that *Corn Growers* directs EPA to take into account. EPA's failure to do so highlights EPA's consistent failure to follow the BART Guidelines and the CAA.

6.4 SRP's Adjusted IPM Results Still Underestimate Post Combustion Control Costs

Comparing the EPA IPM costs as set forth in the proposed rule and the TSD to the SRP site-specific costs, the SRP site-specific costs are approximately 55 to 77 percent higher than the costs used by EPA in support of the proposed FIP. Given EPA's obvious refusal to use site-specific costs, in contravention of the requirements of the CAA, SRP also re-ran the IPM estimates using more accurate data inputs. These revised IPM costs are 44 to 50 percent higher than the costs used by EPA in support of the proposed FIP. Even using EPA's legally flawed approach to assessing costs, it is clear EPA's cost estimates greatly understate the actual costs that SRP will incur pursuant to EPA's proposed rule.

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[96] *See* Attachment C, S&L Cost Estimate Report, Appendix A. September 7, 2012. Salt River Project Coronado Generating Station – Unit 1: SNCR Capital Cost Estimate Report. Sargent & Lundy, LLC. Included as Attachment C to these comments.

[97] See Appendix A. September 7, 2012. Salt River Project Coronado Generating Station – Unit 1: SNCR Capital Cost Estimate Report. Sargent & Lundy, LLC. Included as Attachment C to these comments.

[98] *See* TSD at 62.

6.4.1 Detailed SCR Cost Comparison

SRP's IPM results for SCR are significantly closer than EPA's cost assessment to the site-specific SCR installation costs provided by S&L. For Unit 2, site-specific SCR installation costs are approximately 7.4 percent higher than the SRP IPM results (at 0.080 lb/MMBtu). These results are within the accuracy indicated by IPM Appendix 5-2A.[99] For CGS Unit 1, site-specific SCR installation costs are approximately 18.6 percent higher than the SRP IPM model results.

The relative agreement between SRP's site-specific installation costs and SRP's IPM SCR results provide further validation that EPA inappropriately relied on flawed data in support of its proposed FIP. A detailed comparison of these costs for Units 1 and 2 is provided in Tables 6-1 and 6-2, respectively.

Table 6-1: IPM Version 4.10 Cost Estimate Outputs for SCR Costs for CGS Unit 1

	EPA Contractor IPM Costs for CGS U1 SCR	SRP IPM Costs for CGS U1 SCR
Target NO_x Rate, lb/MMBtu	0.05	0.05
Base Module SCR Costs	36,515,317	54,583,868
Base Module Reagent Prep Costs	2,356,820	2,300,321
Base Module Air Preheater Costs	-	-
Base Module Balance of Plant Costs	4,959,112	5,141,364
Total Base Costs	***43,831,249***	***62,025,553***
Engineering & Construction Management	4,383,125	6,202,555
Labor Adjustment	4,383,125	6,202,555
Contractor Profit and Fees	4,383,125	6,202,555
Capital, Engineering, and Construction Costs Subtotal	***56,980,624***	***80,633,219***
Total Fixed O&M Costs, per year, per kilowatt (kW)	$0.88/kW	$0.76/kW
Total Variable O&M Costs, $/megawatt-hour (MWh)	$1.10/MWh	$1.36/MWh
Annual O&M Costs	3,572,319	4,492,736
Annualized Capital Costs	6,062,335	7,611,205
Total Annual Costs	***9,634,654***	***12,103,941***

[99] *See* Revised IPM Appendix 5-2A. S&L indicated an expected accuracy of "approximately 11% at 600 MW."

Table 6-2: IPM Version 4.10 Cost Estimate Outputs for SCR Costs for CGS Unit 2

	EPA Contractor IPM Costs for CGS U2 SCR	SRP IPM Costs for CGS U2 SCR	EPA Contractor IPM Costs for CGS U2 SCR	SRP IPM Costs for CGS U2 SCR
Target NO_x Rate (lb/MMBtu)	0.05	0.05	0.08	0.08
Base Module SCR Costs	33,922,728	56,039,147	33,922,728	54,787,943
Base Module Reagent Prep Costs	2,371,545	2,376,286	2,305,543	2,310,152
Base Module Air Preheater Costs	-	-	-	-
Base Module Balance of Plant Costs	4,795,152	5,195,624	4,795,152	5,195,624
Total Base Costs	***41,089,425***	***63,611,057***	***41,023,423***	***62,293,720***
Engineering & Construction Management	4,108,943	6,361,106	4,102,342	6,229,372
Labor Adjustment	4,108,943	6,361,106	4,102,342	6,229,372
Contractor Profit and Fees	4,108,943	6,361,106	4,102,342	6,229,372
Capital, Engineering, and Construction Costs Subtotal	***53,416,253***	***82,694,375***	***53,330,450***	***80,981,835***
Total Fixed O&M Costs, per year, per kilowatt (kW)	$0.88/kW	$0.76/kW	$0.88/kW	$0.76/kW
Total Variable O&M Costs, $/megawatt-hour (MWh)	$1.12/MWh	$1.50/MWh	$1.04/MWh	$1.38/MWh
Annual O&M Costs	3,950,038	5,375,973	3,686,721	4,962,586
Annualized Capital Costs	5,683,111	7,805,764	5,673,983	7,644,112
Total Annual Costs	***9,633,149***	***13,181,736***	***9,360,704***	***12,606,698***

6.4.2 Detailed SNCR Cost Comparison

In determining costs for SNCR equipment at CGS, EPA appears to have used a substantially modified approach. In this approach, EPA does not use the model developed in IPM Appendix 5-2B, but instead assumes that SNCR capital installation costs were $20 per kilowatt.[100] To support this assumption, EPA appears to have adjusted the multiplier rate for Engineering and Construction Management, Labor Adjustment, and Contractor Profit and Fees from 10 percent to 5 percent.[101]

In addition, it also appears that EPA included the use of owner's costs in order to support the assumption that SNCR capital installation costs are $20 per kilowatt. In the TSD issued to support EPA's proposed FIP, EPA rejected costs provided for Arizona Electric Power Cooperative and Arizona Public Service noting that "… certain line item costs not allowed by the EPA Control Cost Manual were included, such as owner's costs …"[102] The use of owner's costs in EPA's own cost calculations indicate an inconsistent stance by EPA with respect to additional line item costs. This provides further validation that EPA inappropriately relied on flawed data in support of its proposed FIP.

In an effort to be consistent with the EPA Control Cost Manual, SRP's IPM evaluation for SNCR does not include purportedly disallowed costs, such as owner's costs or allowance for funds used during construction. In addition, SRP used the recommended rate of 10 percent to calculate Engineering and Construction Management, Labor Adjustment, and Contractor Profit and Fees, which is consistent with the approach defined in IPM Appendix 5-2B. The results of this evaluation are detailed in Table 6-3.

In comparing EPA's SNCR cost estimate to SRP's site-specific costs for SNCR, the site-specific costs are more than twice EPA's IPM results. However, when comparing SRP's IPM SNCR costs to SRP's site-specific costs for SNCR, the site-specific costs are only approximately 14 percent higher than SRP's IPM results. The relative agreement between SRP's IPM results and SRP's site specific costs again supports the conclusion that EPA improperly relied on flawed cost data to support its FIP.

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[100] Cell K52 of the "NO_x-SNCR" TSD cost spreadsheet included with the supporting materials for the proposed rule states "it was assumed that SNCR capital cost was $20/kW for all applications."

[101] Ten percent of the base SNCR capital costs is applied to each Engineering and Construction Management, Labor Adjustment, and Contractor Profit and Fees. *See* Revisions to Cost Performance for APC, Revised IPM Appendix 5-2B, at 2, *available at* http://www.epa.gov/airmarkt/progsregs/epa-ipm/docs/v410/Appendix52B.pdf.

[102] *See* TSD, pgs 22 and 27.

Table 6-3: IPM Version 4.10 Cost Estimate Outputs for SNCR Costs for CGS

	EPA Contractor IPM Costs for CGS U1 SNCR	SRP IPM Costs for CGS U1 SNCR	EPA Contractor IPM Costs for CGS U2 SNCR	SRP IPM Costs for CGS U2 SNCR
Target NO_x Rate (lb/MMBtu)	0.21	0.24	0.21	0.24
Base Module SNCR Costs	6,805,797	2,817,346	6,805,797	2,724,198
Base Module Air Preheater Costs	-	-		-
Base Module Balance of Plant Costs	-	4,305,590	-	4,264,428
Total Base Costs	***6,805,797***	***7,122,938***	***6,805,797***	***6,988,626***
Engineering & Construction Management	340,290	712,294	340,290	698,863
Labor Adjustment	340,290	712,294	340,290	698,863
Contractor Profit and Fees	340,290	712,294	340,290	698,863
Capital, Engineering, and Construction Costs Subtotal	***7,826,667***	***9,259,817***	***7,826,667***	***9,085,214***
Total Fixed O&M Costs, per year, per kilowatt (kW)	$0.35/kW	$0.35/kW	$0.35/kW	$0.34/kW
Total Variable O&M Costs, $/megawatt-hour (MWh)	$1.00/MWh	$1.76/MWh	$0.67/MWh	$1.63/MWh
Annual O&M Costs	3,048,958	5,546,407	2,289,872	5,621,905
Annualized Capital Costs	832,702	874,061	832,702	857,580
Total Annual Costs	***3,881,660***	***6,420,468***	***3,122,574***	***6,479,485***

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SRP acknowledges that at $28.37 per kilowatt,[103] the site-specific installation costs for SNCR equipment at CGS are substantially higher than EPA's presumed rate of $20 per kilowatt. That is because, in developing their detailed cost estimate, S&L determined that additional water treatment equipment and rail unloading equipment will be necessary if SNCR equipment is installed at CGS.[104] Because IPM Appendix 5-2B does not include any consideration for additional water treatment equipment or rail unloading equipment, SRP believes site-specific costs must be used over any modeled costs.

6.4.3 EPA's Reliance on Generic Modeled Costs is Inappropriate and Significantly Lower Than SRP's Site-Specific Costs

SRP's site-specific costs for SCR are based on the actual cost projections associated with the current SCR installation at CGS Unit 2. SRP has already made substantial progress on the Unit 2 SCR installation with more than 40 percent of the project already complete. This percent completion accounts for the fact that the engineering design effort is more than 90 percent complete, and the overall procurement efforts for the project are more than 75 percent complete. As such, these site-specific costs are appropriate for use in any evaluation of BART controls.

As illustrated in Figure 6-1, there is a substantial difference between IPM results and site-specific costs, which further proves that costs used by EPA to support the BART determination for CGS are inaccurate. Specifically, in looking at Figure 6-1, it is important to note that the cost estimates associated with an SCR system on Unit 1 are conservative in that they are based on the costs associated with the Unit 2 SCR, which was designed to comply with a 0.080 lb/MMBtu NO_x emission limit – not a 0.050 lb/MMBtu NO_x emission limit. The Unit 1 SCR costs could increase significantly due to additional investments that may be required to meet a NO_x emission limit of 0.050 lb/MMBtu, including:

- Additional catalyst and an increase to the ammonia injection rate.
- A dry sorbent injection control system to address increased sulfuric acid mist and condensable PM emissions.
- A fabric filter baghouse and ID fans to address increased filterable PM emissions.

These additional investments could be as high as $117 million in addition to the estimated SCR investment for each unit shown in Figure 6-1.

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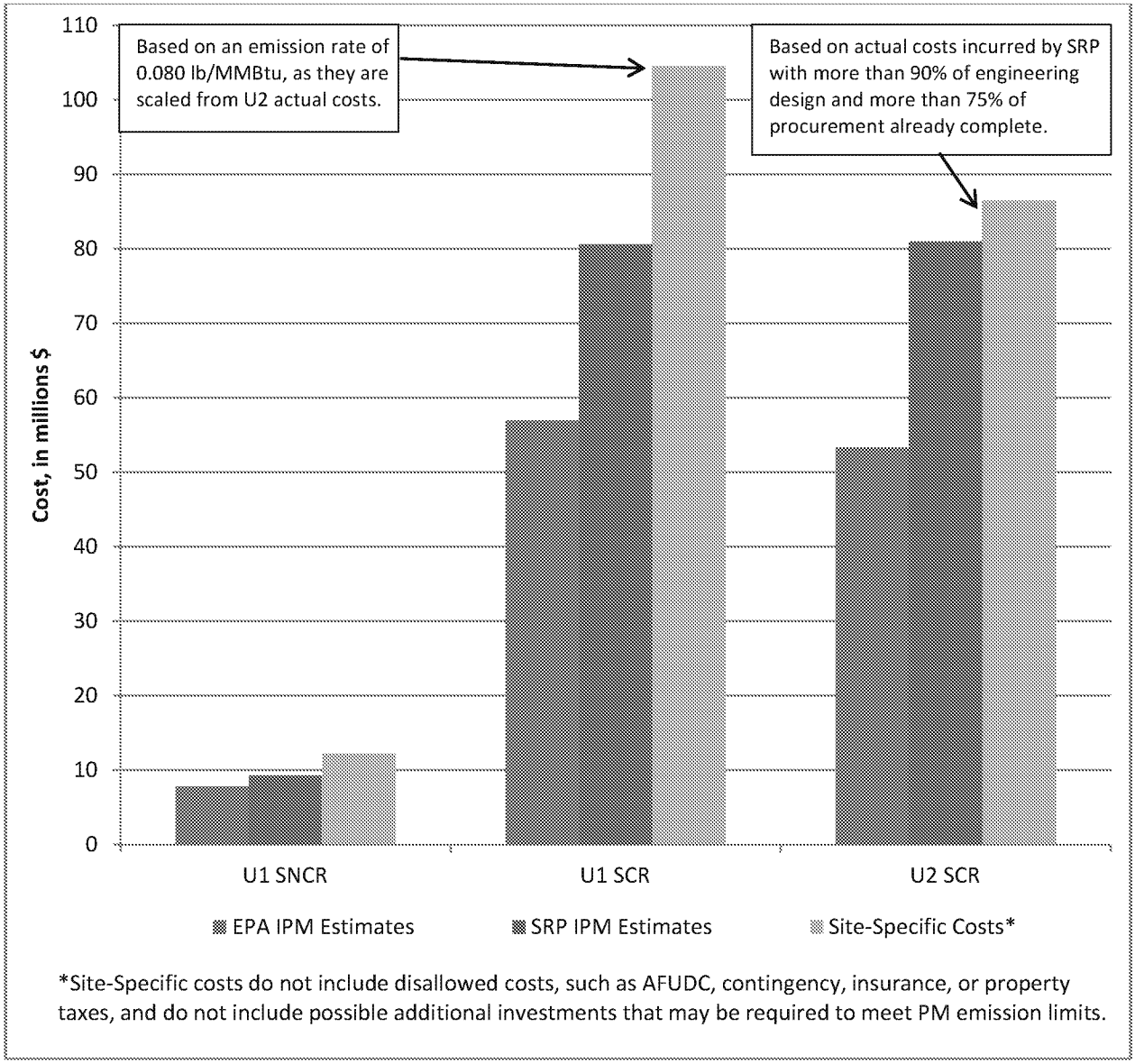
[103] $28.37/kW is lower than the $33/kW stated in S&L's Coronado SNCR Cost Estimate because SRP has removed the contingency costs included in S&L's estimate. These costs were removed based on contingency being purportedly disallowed by EPA's Control Cost Manual. Such costs are, however, real and should figure into a proper, site-specific BART analysis.

[104] See Attachment C, S&L Cost Estimate Report at ES-3.

Figure 6-1: Comparison of IPM Cost Estimates to Site-Specific Cost Estimates for CGS



Even without including these additional costs, the site-specific cost estimate for an SCR system on Unit 1 is almost twice the value used by EPA in its BART determination. For the SCR system on Unit 2, the actual cost incurred by SRP is likewise almost twice the value used by EPA in its BART determination. This documentation clearly demonstrates the importance of using available site-specific cost estimates when conducting a BART determination for CGS.

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6.5 EPA Must Consider the Incremental Costs Between the Control Options

The flaws in EPA's own cost assessment do not result only from EPA's use of the Control Cost Manual and IPM. They also spring from EPA's failure to follow its own rules. The BART Guidelines make clear that the costs of complying with various candidate BART control options should be assessed on an "incremental" basis, which requires "a comparison of the cost and performance level of a control option to the next most stringent control method."[105] EPA did not conduct such an analysis for CGS.

The proposed rule and accompanying TSD both provide, in a table prepared by EPA, a single entry for incremental costs for each of the CGS units. This entry apparently reflects the incremental cost of the most stringent NO_x BART control option compared to the baseline. This is not a complete incremental analysis as it ignores incremental comparisons between identified control options. Accordingly, EPA's incremental cost assessment does not provide the sort of information that the BART Guidelines call for in making BART determinations.

In the absence of a proper NO_x BART assessment, EPA's proposed rule lacks an adequate foundation. The high incremental costs of post-combustion NO_x control technologies when compared to combustion control technologies reinforces the conclusion that post-combustion control technologies cannot be the basis for BART for the units at CGS.

6.6 EPA Must Consider Costs as They Relate to Visibility Improvement

An example of ADEQ's appropriate and tailored approach to cost considerations was its decision to consider, in addition to the cost assessment elements specifically called for in the BART Guidelines, information with respect to the "dollars-per-deciview" cost-effectiveness of different control options.[106] Given the visibility improvement goal of the regional haze program, this approach to choosing the most cost-effective BART control option is reasonable and entirely within the broad discretion afforded to the states under the CAA.

Notably, in the proposed rule, EPA failed to consider the dollars per deciview effectiveness of different control options when it supplanted ADEQ's cost analysis with its own. EPA's decision to exclude rational considerations, such as site-specific costs and cost-effectiveness on a deciview basis, and instead look to limited and outdated information, such as the Control Cost Manual and IPM, has resulted in an unsupported supplanting of ADEQ's BART determination for CGS.

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[105] *See* 70 Fed. Reg. at 39,167.

[106] *See, e.g.*, TSD at 30; *see also* 70 Fed. Reg. at 39,170 (recognizing that states may consider "$/deciview" as a "cost-effectiveness measure").

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7.0 EPA's Proposed NO_x BART Determination Rests on a Flawed Assessment of Visibility Impacts

As described previously in these comments, the state has broad discretion over the manner in which it evaluates the BART factors, including the visibility improvement factor, and EPA lacks authority to disapprove Arizona's BART determination simply because EPA believes that the factor should have been evaluated in a different manner. EPA's proposed rule acknowledges that "ADEQ assessed the degree of improvement in visibility from candidate BART technologies using models and procedures generally in accord with EPA guidance."[107] Nevertheless, EPA proposes to disapprove Arizona's NO_x BART determination for CGS, in part, because the EPA "do[es] not agree" with the state's evaluation of visibility impacts. EPA further says it does not believe that "the visibility impacts were ... ***appropriately*** evaluated and considered."[108] By EPA's own assessment, Arizona's approach to assessing visibility improvement was lawful and permissible; therefore, EPA has no authority to disapprove Arizona's BART determination without explicitly identifying the deficiencies in the state's analysis.[109]

As detailed below, SRP believes EPA's own modeling is deficient because it fails to use the most scientifically credible approach to assess visibility impacts and fails to consider the extensive evidence that NO_x emissions are not a significant contributor to haze in the Colorado Plateau region. Moreover, EPA, through the proposed FIP, seeks to restrict impermissibly Arizona's significant discretion to calculate or consider the visibility benefits across multiple Class I areas by introducing use "cumulative" visibility metric in partial replacement of the state's more reasoned analysis.[110]

7.1 EPA's Modeling Choices Overestimate the Visibility Benefits Associated with BART Control Options

7.1.1 EPA's Use of Outdated CALPUFF Model Chemistry Over-Predicts Visibility Benefits

EPA's BART Guidelines recommend use of the CALPUFF model for evaluating visibility impacts associated with pollution control options included in BART analyses. Over the past decade, several investigators[111]

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[107] *See* 77 Fed. Reg. at 42,841.

[108] *Id.* (emphasis added).

[109] *See Train*, 421 U.S. at 79.

[110] See 77 Fed. Reg. at 42,841.

[111] *See* J. Scire,et al., Southwest Wyoming Regional CALPUFF Air Quality Modeling Study (Vol. I) (2001) (prepared for the Wyoming Dept of Environmental Quality) (hereinafter "Southwest Wyoming Modeling Study"); R Morris. et. al., Evaluation of the CALPUFF Chemistry Algorithms (2005) (presented at A&WMA 98th Annual Conference and Exhibition, June 21-25, 2005 Minneapolis, Minnesota); P. Karamchandani, et.al, Development of an Improved Chemistry Version of CALPUFF and Evaluation Using the 1995 SWWYTAF Data Base (2009) (presented at the Air &

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compared field measurements of sulfates and nitrates with corresponding values predicted by CALPUFF version 5.8, the EPA-approved version for use in BART applications. Those studies concluded that version of the model over-predicts particulate nitrate formation by as much as a factor of 3 to 4 under wintertime conditions.

EPA specifically acknowledged the shortcomings of the current CALPUFF model's chemistry in the preamble to the 2005 BART rule, as follows:

> (1) "[T]he simplified chemistry in the [CALPUFF] model ***tends to magnify the actual visibility effects of that source***,"[112]; and (2) "[w]e understand the concerns of commenters that the chemistry modules of the CALPUFF model are less advanced than some of the more recent atmospheric chemistry simulations. In its next review of the Guideline on Air Quality Models, EPA will evaluate these and other newer approaches."[113]

Despite EPA's recognition of the limitations of CALPUFF version 5.8, and its commitment to review newer approaches, EPA has not yet conducted the promised evaluation of the CALPUFF model and continues to rely on CALPUFF version 5.8 in BART visibility modeling. However, model development has advanced independently, and in November 2010, CALPUFF's developer, TRC, released a new version of CALPUFF (version 6.4; now version 6.42) to fix certain coding "bugs" in the EPA-approved version of the model (version 5.8) and to improve the chemistry module.

Both versions of the CALPUFF model (version 5.8 and version 6.42 with the improved chemistry options) were evaluated by AECOM using the 1995 Southwest Wyoming Technical Air Forum database,[114] available from the Wyoming Department of Environmental Quality. Sulfates and nitrates that were predicted by the two models were compared with actual measured values obtained at the Bridger Wilderness Area site and the Pinedale site. For the two model configurations, the results for sulfates were very similar. However, the EPA-approved CALPUFF model (version 5.8) was found to *significantly over-predict nitrates by a factor of 2 to 3*.

These results are similar to an independent evaluation of CALPUFF conducted by Scire et al.[115] The performance of CALPUFF version 6.42 coupled with use of measured ammonia concentrations (similar

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Waste Management Association Specialty Conference on Guidelines on Air Quality Models: Next Generation of Models, October 28-30, 2009, Raleigh, North Carolina).

[112] *See* 70 Fed. Reg. at 39,121 (emphasis added).

[113] *Id*. at 39,123.

[114] *See* Southwest Wyoming Technical Air Forum, Wyoming Long Term Strategy for Visibility Protection, 2003 Review Report, *available at* http://deq.state.wy.us/aqd/prop/2003AppF.pdf (background and database description).

[115] *See* Southwest Wyoming Modeling Study (Vol. I).

to the monthly varying background ammonia used in the 2008 CGS BART modeling) was much improved, with an over-prediction of approximately 4 percent at the Pinedale site and approximately 28 percent at the Bridger site. These over-predictions were 2 to 3 times less than the over-predictions produced when the EPA-approved CALPUFF version 5.8 was used.[116] This result makes CALPUFF version 6.42 *nearly unbiased* in the evaluation of nitrate concentrations for these databases.

The two models were also evaluated in a sensitivity analysis conducted by Atmospheric and Environmental Research, Inc.[117] Both CALPUFF version 5.8 and CALPUFF version 6.42 were run with the Interagency Workgroup on Air Quality Modeling (IWAQM) default ammonia background concentration of 1 part per billion (ppb). The results showed the same trend as that noted above: *the improved CALPUFF predictions were about a factor of 2 lower than those from the EPA-approved version of CALPUFF*. These results indicated that with the same ammonia background, the more advanced CALPUFF model (version 6.42) would be expected to predict lower nitrate concentrations than the current EPA-approved version 5.8.

The use of CALPUFF version 6.42 supports a state-of-the-art upgrade to the chemistry that EPA indicated was needed in its July 6, 2005 BART Rule. Although EPA has not yet approved the use of CALPUFF version 6.42, SRP had its contractor provide results for this version of the model for EPA's consideration in an important weight-of-evidence demonstration of the more likely visibility effects of NO_X emission reductions at CGS. The results of this analysis are provided in Attachment E to these comments.[118]

7.1.2 EPA's Use of Constant Ammonia Background Concentration Over-Predicts Visibility Benefits

Another factor that leads to over-prediction of nitrate effects on visibility is selection of the background ammonia concentrations used as inputs to the CALPUFF model. EPA used a default constant 1.0 ppb value for background ammonia concentrations in the modeling performed in support of the proposed FIP, rejecting Arizona's use of variable background ammonia concentrations in its visibility modeling.[119] SRP believes Arizona was well within the bounds of its discretion in its choice to rely on variable ammonia concentrations, and EPA has no basis for disapproving that determination. EPA's approach fails to account for known variations in monthly or seasonal ammonia concentrations and is an unrefined approach to visibility modeling.

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[116] *See* J. Scire, et al., New Developments and Evaluations of the CALPUFF Model at 10, 11 (2012) (presented at 10th Conference of Air Quality Models), *available at* http://www.epa.gov/ttn/scram/10thmodconf/presentations/3-5-CALPUFF_Improvements_Final.pdf.

[117] P. Karamchandani, et al, Development of an Improved Chemistry Version of CALPUFF and Evaluation Using the 1995 SWWYTAF Data Base (2009) (presented at the Air & Waste Management Association Specialty Conference on Guideline on Air Quality Models: Next Generation of Models, October 28-30, 2009, Raleigh, North Carolina).

[118] AECOM, Visibility Improvement Modeling for the Coronado Generating Station (Sept. 2012).

[119] See 77 Fed. Reg. at 42,849.

The National Renewable Energy Laboratory (NREL) issued a report in March 2012 in which it evaluated the Navajo Generating Station (NGS) and air visibility regulations. Within this report, NREL found that:

> "[B]ackground ammonia concentrations are a critical factor in predicting ammonia nitrate formation. The assumed ammonia concentrations input to SRP's and EPA's analyses differed significantly … and are likely responsible for the majority of the differences between the SRP and EPA model results. The high nitrate episodes measured at IMPROVE sites in the Colorado Plateau are cold season, rather than warm season events. Similarly, the high nitrate episodes modeled for the Class I areas in the region are cold season, rather than warm season events. Therefore, it is most crucial to get the ammonia concentrations correct in the cool months, as that is when both modeling and monitoring indicate that there can be relatively high nitrate days. Limited studies have been done to date to measure ambient air ammonia concentrations in the Four Corners region … The studies summarized above indicate that in more remote areas of the southwest, especially during winter months, there is much less ammonia available in the atmosphere. The ammonia ranges used by EPA's modeling, ranging from 0.7 ppb to 1 ppb in the winter months, depending on modeled Class I area, are much higher than measured in the above studies. For example, winter month ammonia measured at Mesa Verde was in the 0.1 to 0.2 ppb range. As pointed out in the referenced SRP ammonia study, ***use of EPA's higher ammonia values produces modeled ammonium nitrate concentrations an order of magnitude higher than measured values for many cases***. On the other hand, ***use of the SRP ammonia background values in CALPUFF produces a much better comparison between modeled and measured values***."[120]

Similar to the analysis for NGS, the visibility analysis for CGS included in Arizona's BART analysis used higher ambient ammonia background concentrations in the summer months (May through September), and lower ambient ammonia background concentrations in the winter months (December through February). Use of these factors is consistent with the trend in measured background ammonia concentrations acknowledged in the NREL report.

When the IWAQM Phase 2 guidance[121] was issued fourteen years ago, CALPUFF did not have the capability of accommodating monthly ammonia background concentrations and only allowed a single input value. Since then, CALPUFF has been updated to receive monthly varying ammonia concentrations. Unfortunately, the IWAQM guidance on the recommended input values has not kept pace with the CALPUFF model's capability. It is clear at this time that EPA's reliance on a constant value

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[120] Hurlbut, D., et al. National Renewable Energy Laboratory. Navajo Generating Station and Air Visibility Regulations: Alternatives and Impacts, at 80 (March 2012), *available at* www.nrel.gov/docs/fy12osti/53024.pdf. (emphasis added).

[121] EPA OAQPS, IWAQM Phase 2 Summary Report and Recommendations, EPA-454/R-98-019 (Dec. 1998) *available at* http://www.epa.gov/scram001/7thconf/calpuff/phase2.pdf.

is an outdated approach that is not scientifically credible.

Using ammonia concentration inputs that best reflect ambient conditions results in more accurate CALPUFF predictions, and is the best scientific approach for CALPUFF modeling. Therefore, EPA has no basis for rejecting Arizona's use of variable background ammonia concentrations in disapproving the SIP. Further, EPA's reliance on a constant default value disregards actual advances in the CALPUFF model and renders EPA's own visibility modeling an improper basis on which to make a BART determination. The visibility modeling analysis conducted in support of these comments uses monthly varying background ammonia concentrations (refer to Attachment E to these comments).

7.2 Case Study: Mohave Generating Station Plant Closure

EPA places great reliance on the outcomes of visibility modeling to support BART determinations, but it is clear that CALPUFF is an imperfect modeling tool. This is demonstrated by a recent evaluation of the actual visibility benefits associated with the closing of a large coal-fired power plant in the southwest, the Mohave Generating Station (MGS). MGS was a 1,580 megawatt coal-fired power plant located in Laughlin, Nevada, approximately 75 miles southwest of the Grand Canyon National Park (GCNP). The plant closed on December 31, 2005 following the promulgation of FIP requirements in which MGS was required to install emission controls to reduce emissions of SO_2, NO_x and PM. As stated in EPA's FIP Fact Sheet, "EPA believes that adopting the requirements … is an appropriate way to address concerns regarding the impact of SO_2 emissions from MGS on visibility impairment at the Grand Canyon National Park (GCNP) and will allow for reasonable progress toward the national visibility goal with respect to such impact."[122]

Terhorst and Berkman conducted an analysis after the plant closed to determine whether, in the prolonged absence of plant operations, air quality in the GCNP has improved.[123] The results were as follows:

> "We compared pre- and post-closure visibility in the Canyon and at nearby unaffected sites in order to identify the level of degradation attributable solely to MPP [Mohave Power Project]. After controlling for the prevailing environmental and anthropogenic factors in the region, ***we found virtually no evidence that the MPP closure improved visibility in the Grand Canyon; or, equivalently, that the plant's operation degraded it.*** Mean visibility (deciviews) and light extinction in GCNP did not respond to the closure in a statistically significant fashion. Sulfate levels did drop throughout the park, but not by an amount sufficient to induce a perceptible

[122] *See* EPA, Fact Sheet, Revision of the Visibility FIP for Nevada: Final Rule (June 6, 2001), *available at* http://www.epa.gov/region9/air/mohave/nevadafipfact0202.pdf.

[123] J., Terhorst, et al, *Effect of Coal-Fired Power Generation on Visibility in a Nearby National Park.* 44 Atmospheric Environment (April 2010) (emphasis added).

improvement in visibility. ***We are thus unable to conclude that the closure improved visibility in the Grand Canyon.*** Our findings are consistent with, and indeed were predicted by, the results of tracer/receptor analyses performed over the past two decades, which consistently noted low correlation between MPP emissions and GCNP visibility. They stand in contrast to the various atmospheric transport models employed by Project MOHAVE [Measurement of Haze and Visual Effects], which predicted that visibility would have improved by 5% or more after the closure. Since recent applications of CALPUFF (Nevada Division of Environmental Protection, 2009; Paine and Kostrova, 2008) continue to predict that retrofitting MPP will improve visibility in the Grand Canyon, ***our results raise questions about the reliability of CALPUFF***. These concerns are especially pertinent in light of EPA's designation of CALPUFF as the preferred model for assessing the effects of long-range pollution transport on air quality in Class I visibility areas under the Regional Haze Rule."[124]

This analysis found that, contrary to the predictions of the CALPUFF model, a significant reduction in pollutants from a large power plant did not "induce a perceptible improvement in visibility." This study provides further evidence that there is substantial over-prediction bias associated with the CALPUFF model that EPA did not take into account when considering the visibility improvement factor in evaluating BART control options for CGS.

7.3 EPA Must Consider Visibility Benefits from NO_x Controls within the Context of Nitrate Contributions to Regional Haze

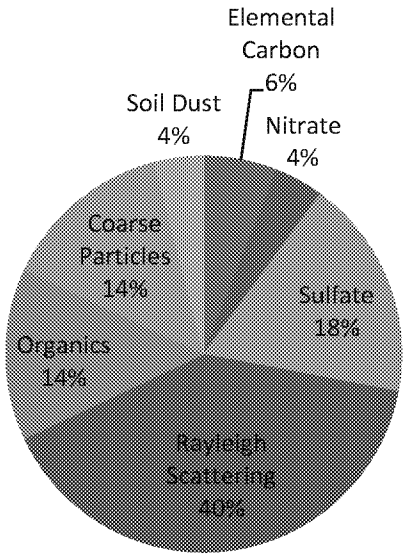
EPA's focus on NO_x emission reductions in the proposed FIP gives the impression that NO_x emissions are a significant contributor to haze in the Colorado Plateau region, where CGS is located. This assertion is contrary to the extensive analysis of haze contributors that has been conducted in this region. Visibility in the Colorado Plateau region, as measured by the Interagency Monitoring of Protected Visual Environments (IMPROVE) monitoring network,[125] is generally excellent and the visibility impairment that does occur is largely attributable to *natural sources*, including Rayleigh scattering, wind-blown dust, and smoke from wildfires. The significance of natural source contribution to haze was illustrated by the

[124] *Id.* (emphasis added).

[125] The IMPROVE program is a cooperative measurement effort governed by a steering committee composed of representatives from federal and regional-state organizations. The IMPROVE monitoring program was established in 1985 to aid the creation of federal and state implementation plans for the protection of visibility in Class I areas (156 national parks and wilderness areas) as stipulated in the 1977 amendments to the Clean Air Act. The objectives of IMPROVE are to: (1) establish current visibility and aerosol conditions in mandatory class I areas; (2) identify chemical species and emission sources responsible for existing man-made visibility impairment; (3) document long-term trends for assessing progress towards the national visibility goal; and (4) with the enactment of the regional haze rule, provide regional haze monitoring representing all visibility-protected federal class I areas where practical. *See* WESTAR Council RA BART Phase II Working Group. Recommendations for Making Attribution Determinations in the Context of Reasonably Attributable BART, (May, 2003), *available at* http://www.wrapair.org/forums/mtf/documents/ravi_bart/Final_RA_BART_Report.pdf.

Grand Canyon Visibility Transport Commission (GCVTC) in their detailed analysis of the relative contributions of emission sources to light extinction (or visibility impairment) over GCNP.[126] The technical analyses performed by the GCVTC further showed that nitrate aerosols are a very small relative contributor to light extinction in GCNP, as shown in Figure 7-1 below.

Figure 7-1: Sources of Light Extinction Over the Grand Canyon National Park



Source: CGVTC

Subsequent analyses conducted by the Western Regional Air Partnership (WRAP) also looked at haze related to nitrate aerosols, including an analysis of NO_x emissions from stationary sources to support state development of long-term strategies for PM and NO_x.[127] The study included analysis of current and future emissions, ambient monitoring data, and limited modeling data. The WRAP concluded that stationary source emissions of PM probably cause *less than 2 percent* of the region's visibility impairment and that stationary source emissions of NO_x, which produce nitrate aerosols, probably cause *only about 2 to 5 percent* of the impairment on the Colorado Plateau.[128]

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[126] *See* Grand Canyon Visibility Transport Commission. Recommendations for Improving Western Vistas (June 10, 1996), *available at* http://www.wrapair.org/WRAP/reports/GCVTCFinal.PDF.

[127] *See* 40 CFR 51.309 (d)(4)(v).

[128] WRAP Market Trading Forum. Stationary Source NO_x and PM Emissions in the WRAP Region: An Initial Assessment of Emissions, Controls, and Air Quality Impacts. Final Report, at I-3 (Oct. 1, 2003), *available at* http://www.cabq.gov/airquality/pdf/appendixho.pdf.

In the 1999 regional haze rule, EPA directed states to consider all sources of man-made haze in developing long-term strategies.[129] While there is a significant focus on BART for major stationary sources in the first planning period, it is clear that there are numerous other contributors to regional haze, and EPA's FIP fails to recognize this bigger picture. While imposition of new NO_x emission control requirements under the FIP will result in a quantitative reduction in emissions, actual achievement of any appreciable visibility benefits will not occur because NO_x from power plants is a very small contributor to regional haze impairment.

Arizona properly determined that combustion controls satisfy BART requirements for CGS, following EPA's direction in the regional haze regulations for states to "base their decisions on the need for, and levels of, emissions targets for these pollutants on the degree to which such pollutants contribute to regional haze impairment in the Class I areas addressed by their SIPs".[130] Arizona's proposed NO_x BART emission limits recognize that costly post-combustion controls are not justified given the negligible degree to which stationary source NO_x emissions contribute to regional haze visibility impairment.

7.4 EPA Improperly Dismisses Arizona's Visibility Impacts Analysis

The proposed rule correctly acknowledges that, "the RHR [regional haze rule] and the BART Guidelines do not prescribe a particular approach to calculating or considering visibility benefits across multiple Class I areas."[131] Indeed, the CAA and the BART rules leave states with considerable discretion as to the manner in which they will take visibility impacts, including impacts that may occur in more than one Class I area, into account. EPA's proposed rule seeks impermissibly to restrict that congressionally granted state discretion, and it is, therefore, unlawful.

EPA's proposed rejection of Arizona's visibility impacts analysis for CGS is also irreconcilably at odds with EPA's own rules and its guidance to the states. The BART Guidelines make clear that, in assessing projected visibility improvements from candidate BART controls, a state is to:

> "[A]ssess the visibility improvement based on the modeled change in visibility impacts for the pre-control and post-control emission scenarios. ***You [the state] have flexibility to assess visibility improvements due to BART controls by one or more methods.*** You ***may*** consider the frequency, magnitude, and duration components of impairment."[132]

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[129] *See* 64 Fed. Reg. at 35,735.

[130] *See Id.* at 35,752.

[131] *See* 77 Fed. Reg. at 42,841.

[132] *See* 70 Fed. Reg. at 39,170 (emphasis added).

There is, in short, no prescribed method for states to consider and weigh this factor. Thus, EPA has no legal grounds for disapproving a SIP based on the "method" the state has chosen to consider visibility impacts or improvements.

In assessing projected visibility impacts associated with emissions from CGS and possible BART candidate controls, Arizona decided to evaluate a visibility index derived from an average of modeled visibility improvements at the nine Class I areas closest to CGS. This approach to evaluating this BART factor was well within the state's extraordinarily broad discretion to assess visibility under the BART rules, and the proposed rule itself describes the method chosen by Arizona as "somewhat similar to the sum of benefits over the nine areas," (i.e., the cumulative methodology that EPA now appears to prefer).[133] Moreover, at one point in the preamble to the proposed rule, EPA appears to acknowledge that the methodology Arizona used for CGS is acceptable even under EPA's improperly limited view of state discretion in this area. Specifically, EPA stated:

> "[A] more complete assessment of the degree of visibility improvement for candidate BART controls would include consideration of the number of areas affected and the degree of visibility improvement expected in all areas. One could conduct this type of analysis by summing the benefits over the areas, ***or by some other quantitative or qualitative procedure***."[134]

EPA does not explain how or why Arizona's "quantitative … procedure" of averaging deciview (dv) impacts associated with CGS emissions is in any way inconsistent with the statute, EPA's rules, or even *EPA's own statement in this proposed rule* as to what it expects from states.

In conducting its own visibility assessment to support its proposed FIP for CGS, EPA decided to "rel[y] heavily on the maximum dv improvement and the number of areas showing improvement, with cumulative improvement providing a supplemental measure that combines information on the number of areas and on individual area improvement."[135] But whatever EPA's preference, EPA has no discretion to substitute its method or its conclusion for those of the state, which is precisely what EPA has done in its proposed rule.

The BART rules provide no support for the conclusion that such a cumulative-impact approach is *required* of states. On the contrary, the rules make clear that the initial focus is expected to be – and that at a minimum the states have authority to rest their analysis on – the most impacted area, which

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[133] *See* 77 Fed. Reg. at 42,850.

[134] *See Id.* at 42,841 (emphasis added).

[135] *See Id.* at 42,857.

often will be the "nearest Class I area" to the facility in question.[136] The rules then indicate that it is appropriate to take account of not only impacts at the nearest Class I area but also impacts at other nearby Class I areas, for the purpose of "determin[ing] whether effects at those [other] areas ***may be greater than*** **at the** ***nearest*** Class I area."[137] Of critical importance is that EPA's rules then state: "If the highest modeled effects are observed at the nearest Class I area, ***you [i.e., the state] may choose not to analyze the other Class I areas any further*** as additional analyses might be unwarranted."[138]

Even EPA's own proposed rule for Arizona confirms that EPA's cumulative approach has not traditionally been applied, characterizing the maximum-impacted-area approach as "the typical visibility metric."[139] Likewise, in another recent regional haze rulemaking, EPA itself relied exclusively on a maximum impact area approach to assessing visibility impairment. EPA's final rule establishing a BART FIP for the Reid Gardner Generating Station in Nevada is based on consideration of visibility in the maximum impact area alone even though EPA found that Reid Gardner's emissions affected visibility in five Class I areas.[140] If EPA is free to deviate from the cumulative visibility assessment methodology, then Arizona surely is as well.

It is thus abundantly clear that EPA's BART rules envision – or, at a minimum, *allow* – a visibility improvement analysis that is focused on visibility impacts in the most impacted area. Arizona's consideration of an average visibility impacts index is, if anything, an even more thorough type of evaluation than that required by the BART rules. EPA's own proposed rule and its BART Guidelines demonstrate that Arizona's consideration of visibility impacts associated with CGS emissions not only is fully consonant with the BART rules, but is an even more searching assessment than what is required by the law.

Although EPA makes clear its policy preference for the use of a "cumulative" visibility impacts assessment (which in any event it has no grounds for imposing on Arizona), there is no sound public policy reason for adopting such a methodology. EPA explains its rationale for attempting to require adoption of the cumulative impacts approach in the following manner:

> "Note that the issue here is not whether an individual in a given time and place would perceive the deciview benefits occurring at different Class I areas and under possibly different

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[136] *See* 70 Fed. Reg. at 39,170 ("One important element of the [modeling] protocol is in establishing the receptors that will be used in the model. The receptors that [the state] use[s] should be located in the nearest Class I area with sufficient density to identify the likely visibility effects of the source.").

[137] *Id.* at 39,162 (emphasis added).

[138] *Id.* (emphasis added).

[139] See 77 Fed. Reg. at 42,851.

[140] See 77 Fed. Reg. at 50,936 and 50,945; EPA "did not rely on the specific metric advocated by the commenters, i.e. the sum of benefits over the areas."

meteorological conditions. Rather, the issue is accounting in some way for the full set of expected visibility benefits. A national program for addressing regional haze must inherently address the multiple areas that occur in a region."[141]

To be relevant to the environmental effect that the regional haze program addresses, the metric by which visibility improvement is determined for purposes of assessing BART for a particular facility *must* reflect actual human perception of visibility.[142] Indeed, human perceptibility is the only metric that actually can account for the full set of expected visibility benefits because it is the only metric that can differentiate between actual benefits and de minimis or hypothetical changes in visibility conditions. The cumulative-impact approach has no tie to human perception and can only distort a BART analysis. It arbitrarily magnifies the benefit that might be associated with emission limitations at a single source.

The cumulative-impact approach's artificial inflation of projected visibility benefits is demonstrated by the fact that this methodology would yield different results if a given Class I area were subdivided into two or more areas, increasing the benefit simply by increasing the number of locations to which the analysis applies. Similarly, the arbitrary nature of this approach is illustrated by the fact that it would equate an accumulation of vanishingly small – indeed, merely theoretical – visibility "benefits" in several different areas with a much larger and plainly perceptible improvement in a single area. It cannot reasonably be asserted that visibility improvements that are imperceptible in each of several Class I areas can be the equivalent of – or even deemed more significant than – a much larger and humanly perceptible improvement in a single area.

Accordingly, EPA's reliance on purported cumulative visibility impacts to support its proposed disapproval of Arizona's NO_x BART determination for CGS is unjustified and unsound. This approach cannot be imposed on a state, and a state's decision not to use it is no basis for disapproving the state's SIP.

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[141] See 77 Fed. Reg. at 42,841 n.26.

[142] The fact sheet accompanying the proposed rule asserts that "[a] difference of 0.5 deciviews is generally considered a perceptible change." See EPA, Fact Sheet, Proposed Partial Approval and Partial Disapproval of Arizona's Regional Haze Plan and Proposed Federal Plan (July 27, 2012), *available at* http://www.epa.gov/region9/air/actions/pdf/az/az-haze-factsheet.pdf. This assertion is unsupported. The regional haze rules and BART Guidelines indicate that 1.0 dv may generally be considered the threshold for human perceptibility. *See* 64 Fed. Reg. at 35,726-27; 70 Fed. Reg. at 39,120. Moreover, the most recent science confirms that a 0.5 dv change in visibility conditions is *not* humanly perceptible. Indeed, the best available evidence establishes that a much more significant change is required before the human eye can detect a shift in conditions. *See*, e.g., *Development and Applications of a Standard Visual Index*, 28 Atmospheric Environment, 1049-1054 (1994) (finding that a change of approximately 1 to 2 dv is necessary for human perception); *Just-Noticeable Differences in Atmospheric Haze*, 52 Journal of the Air &Waste Management Association, 1238-1243 (2002) (finding that a change of at least 1.8 dv is necessary for human perception). Accordingly, EPA's assertion that a 0.5 dv change is perceptible to a human observer is unjustified and inconsistent with the best available scientific information.

7.5 EPA's 0.5 Deciview Threshold is Without Basis

EPA cannot possibly justify its proposed disapproval of the Arizona SIP with respect to CGS NO_x BART requirements on the basis of the magnitude of projected visibility improvements from candidate BART controls. First, like the CAA itself, EPA's own BART rules give states essentially unlimited discretion in determining appropriate "thresholds" to use in considering whether projected visibility improvements do or do not warrant a particular control. The BART Guidelines merely make a "***[s]uggestion***" that states "[u]se … a comparison threshold, as is done for determining if BART-eligible sources should be subject to a BART determination."[143] Thus, there is not even a requirement that states use *any* sort of comparison threshold in considering the visibility-improvement BART factor for a given facility.

If a state does choose to use a comparison threshold, it may do so "in a number of ways," which may take into account, "e.g.[,] the number of days or hours that the threshold was exceeded, a single threshold for determining whether a change in impacts is significant, or a threshold representing an x percent change in improvement."[144] EPA stated, in promulgating the BART Guidelines, that using a comparison threshold is "***an***" – not necessarily "***the***" – "appropriate way to evaluate visibility improvement," but emphasized that:

> "[T]he States have flexibility in setting absolute thresholds, target levels of improvement, or de minimis levels since the deciview improvement must be weighed among the five [BART] factors, and States are free to determine the weight and significance to be assigned to each factor. For example, a 0.3, 0.5, or even 1.0 deciview improvement may merit stronger weighting in one case versus another, so one "bright line" may not be appropriate."[145]

Thus, EPA is without basis for establishing in the proposed rule a 0.5 dv comparison threshold[146] as a touchstone for analysis of impacts from CGS BART controls. Even if EPA could impose a 0.5 dv comparison threshold, it is only by substituting its own preferred modeling methodology (something EPA cannot lawfully do, as discussed herein) that EPA can project that requiring SCR at Unit 1[147] at an unprecedented low emission rate would *barely* yield a projected improvement of more than 0.5 dv at *one* area.[148] But, as discussed above, EPA cannot impose any comparison threshold on a state – let

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[143] See 70 Fed. Reg. at 39,129-30, 39,170 (emphasis added).

[144] *Id.* at 39,130.

[145] *Id.*

[146] See 77 Fed. Reg. at 42,851 and 42,863-64 & Table 23.

[147] In this EPA control case, the Unit 1 SCR is in addition to SCR with a 0.080 lb/MMBtu BART limit at Unit 2.

[148] *See* 77 Fed. Reg. at 42,863-64 & Table 23.

alone one as low as 0.5 dv – which even EPA has acknowledged can be considered below the level of human perceptibility.[149]

[149] *See* 64 Fed. Reg. at 35,726-27; 70 Fed. Reg. at 39,120.

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8.0 EPA Must Properly Account for Energy and Non-Air Quality Environmental Impacts

In the proposed rule, EPA describes, in general terms, Arizona's analysis of the energy and non-air quality environmental impacts of BART controls for CGS. EPA states, for instance, that Arizona identified "only minor energy and non-air quality impacts for SO_2 or PM_{10} [particulate matter nominally less than 10 microns] control strategies."[150] The proposed rule also notes, however, that the state's analysis identified more significant energy and non-air quality environmental effects associated with various NO_x control options. For instance, the state concluded that SCR "will cause an additional pressure drop in the flue gas system due to the catalyst, increasing power requirements."[151] The state also concluded that the use of either SCR or SNCR will affect the ammonia levels in fly ash and "could affect the decision of facility managers to sell or dispose of fly ash" and that SCR and SNCR "may involve potential safety hazards associated with the transportation and handling of anhydrous ammonia."[152]

It is appropriate and necessary to consider each of these significant impacts in the course of completing a five-factor analysis to select BART. However, EPA's proposed rule states only that "ADEQ did not cite any of these potential energy and non-air impacts as the basis for eliminating any otherwise feasible control strategies for NO_x," and that "EPA concurs that these impacts do not warrant elimination of any of the control options."[153] And in the proposed rule's specific assessment of Arizona's BART determinations for CGS, EPA fails even to mention the energy and non-air quality environmental impacts factor.[154]

EPA similarly downplays this factor in its revised BART determination in the proposed FIP,[155] presenting the narrow conclusion that "potential energy and non-air quality impacts do not warrant elimination of any of the otherwise feasible control options for NO_x at any of the sources."[156]

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[150] *See* 77 Fed. Reg. at 42,841.

[151] *See Id.*

[152] *See Id.*

[153] *See Id.*

[154] *See Id.* at 42,849-52.

[155] *See Id.* at 42,853, (stating that SCR and other NO_x emission controls at CGS "may also have modest energy impacts" and that the costs of such impacts "are included in the cost analyses and are not considered further in this section"); *Id.* at 42,853-54, (suggesting that SCR and SNCR will not have a significant impact on fly ash ammonia content and that such an impact can be mitigated); *Id.* at 42,854, ("EPA concludes that the use of ammonia does not pose any additional safety concern as long as established safety procedures are followed.").

[156] *See Id.* at 42,854.

EPA's assessment of energy and non-air environmental impacts and its narrow evaluation of whether consideration of this factor, in isolation, "eliminat[es]" any control option are untenable. The state identified significant energy and non-air quality environmental impacts associated with requiring SNCR or SCR at CGS. These impacts are not only relevant in cases where they are an independent reason for eliminating a particular control option from consideration. On the contrary, this factor must be weighed and considered *in conjunction with* the other BART factors in the overall assessment of what control option constitutes BART for a particular source. EPA's approach minimizes the role that this factor can conceivably play in a BART analysis, which is beyond EPA's authority.[157]

[157] *Cf. Corn Growers*, 291 F.3d at 6-7 (finding that EPA's original 1999 regional haze rules had improperly divorced consideration of the BART visibility benefits factor from the other BART factors).

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9.0 Full Approval of Arizona's BART Determinations is the Only Appropriate Course of Action Available to EPA

SRP agrees with EPA's proposed approval of Arizona's BART determinations for PM and SO_2. However, after detailed review of the proposed rule, SRP believes EPA's proposed BART determination for NO_x is unsupported by EPA's analysis of the five BART factors. Use of LNB/OFA on both CGS units meets the BART requirements for CGS, as demonstrated by Arizona's BART assessment.

9.1 EPA Must Accept Arizona's BART Determination for NO_x

Arizona's NO_x BART analysis – a complete and thorough five-factor analysis conducted in accordance with the BART Guidelines – resulted in a reasonable and appropriate determination for NO_x BART for CGS. In response to EPA's proposed alternate BART determination in the proposed FIP, SRP performed an assessment of the critical components of a BART analysis for CGS, including control costs and the visibility improvements associated with the control options. The results of this analysis are summarized in Table 9-1.

SRP evaluated the Class I area with the highest visibility impacts when considering modeled baseline emissions – Petrified Forest National Park – which is also the closest Class I area to CGS. Petrified Forest is the appropriate focus of analysis because EPA's rules state "if the highest modeled effects are observed at the nearest Class I area, ***you [i.e., the state] may choose not to analyze the other Class I areas any further*** as additional analyses might be unwarranted."[158]

Because BART is a component of the CAA's visibility program, it is more crucial to evaluate control costs in relation to the visibility improvements that may be expected using a dollars per deciview ($/dv) metric. Such an analysis is presented in Table 9-1.

EPA's BART regulations do not establish (nor do they require states to establish) any specific thresholds for cost-effectiveness, and EPA should defer to Arizona's approach on this issue. However, it is clear that the incremental cost per deciview of each control scenario is significantly higher than the cost per deciview presented in ADEQ's proposal. In looking at the costs on a $/dv basis, it is clear that LNB/OFA represents a reasonable level of control under BART.

[158] *See* 70 Fed. Reg. at 39,170.

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Table 9-1: Cost and Visibility Analysis for NO_x Emissions from CGS Units 1 and 2 Using CALPUFF Version 5.8

Control Option[1]	Emission Rate (lb/MMBtu)[2]	Emissions Removed from Baseline (tons/yr)	Total Annualized Cost ($/yr)	Cost Effectiveness ($/ton)		Visibility Improvement at Class I Area with Maximum Impact[3] (deciviews)		Visibility Improvement Cost Effectiveness ($/deciview)	
				Average	Incremental from Previous	Change from Baseline	Incremental from Previous	Change from Baseline	Incremental from Previous
Baseline	U1 = 0.433 U2 = 0.466	-----	-----	-----	-----	-----	-----	-----	-----
U1 = LNB/OFA U2 = LNB/OFA	U1 = 0.320 U2 = 0.320	5,840	$3,887,623	$666	-----	0.58	-----	$6,702,798	-----
U1 = LNB/OFA U2 = LNB/OFA/SCR	U1 = 0.320 U2 = 0.080	11,005	$14,419,323	$1,310	$2,039	0.76	0.18	$18,972,793	$58,509,444
U1 = LNB/OFA/SNCR U2 = LNB/OFA/SCR	U1 = 0.240 U2 = 0.080	12,912	$20,502,986	$1,588	$3,190	0.85	0.09	$24,121,160	$67,596,256
U1 = LNB/OFA/SCR U2 = LNB/OFA/SCR	U1 = 0.050 U2 = 0.080	17,449	$28,053,146[4]	$1,608	$1,664	1.12	0.27	$25,047,452	$27,963,556

[1] LNB = low-NO_x burners; OFA = overfire air; SCR = selective catalytic reduction; SNCR = selective non-catalytic reduction
[2] lb/MMBtu = pounds per million British thermal unit
[3] Petrified Forest National Park was the Class I area with the highest estimated baseline visibility impacts at 1.69 deciviews, based on baseline emissions.
[4] This figure does not include additional particulate matter controls that may be necessary to ensure the particulate matter emission limits in CGS' Title V permit can be continuously achieved. If additional particulate matter controls are required, negligible visibility improvement would be achieved, but costs would escalate significantly as previously described in SRP's letter to EPA dated August 24, 2012 (refer to Attachment B to these comments).

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Even without considering other energy and non-air quality environmental impacts associated with the implementation of SNCR or SCR, it is clear that the negligible visibility benefits realized from implementation of post-combustion controls are not justified by the exorbitant cost.

In support of SRP's continuing belief that CALPUFF version 6.42 is the more scientifically credible model to use for BART visibility analyses, SRP also evaluated visibility improvement based on this updated model. The results from this analysis are summarized in Table 9-2 and echo the results obtained with CALPUFF version 5.8. However, CALPUFF version 6.42 provides a more realistic estimate of the potential visibility improvements that may be achieved with additional emission controls. As such, use of CALPUFF version 6.42 results in cost-effectiveness values that provide even stronger evidence that selection of post combustion controls as BART for CGS is inappropriate and unsupportable.

Regardless of which CALPUFF model version is used, the results remain the same – LNB/OFA represents NO_x BART for CGS Units 1 and 2. EPA should, therefore, withdraw its proposed rule with respect to NO_x BART at CGS and affirm Arizona's NO_x BART determination for CGS.

9.2 EPA's BART Determination for PM is Reasonable and Appropriate

SRP supports EPA's proposed approval of Arizona's PM BART determination for CGS. That proposed determination is consistent with the CAA, and is supported by the technical record in this rulemaking.

Within the proposed rule, EPA specifically requested comment on "whether additional cost-effective upgrades to the existing electrostatic precipitators (ESPs) are available that would warrant a lower emission limit."[159] SRP does not believe any upgrades to the ESPs are warranted as part of the BART determination, as SRP has in place a plan to optimize performance of the existing equipment. As part of the consent decree between SRP and EPA for CGS, SRP is required to operate the ESPs "at all times when the Unit it serves is in operation to maximize PM emission reductions, provided that such operation of the ESP is consistent with the technological limitations, manufacturers' specifications, and good engineering and maintenance practices for the ESP."[160] This requirement also is reflected in CGS' current Title V operating permit.

[159] *See* 77 Fed. Reg. at 42,851.

[160] See Civil Action No. 2:08-cv-1479-JAT. Consent Decree ¶ 63, *United States of America v. Salt River Project Agricultural Improvement and & Power District*, No. 08-1479 (D. Ariz. Dec. 22, 2008). Filed August 12, 2008.

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Table 9-2: Cost and Visibility Analysis for NO_x Emissions from CGS Units 1 and 2 Using CALPUFF Version 6.42

Control Option[1]	Emission Rate (lb/MMBtu)[2]	Emissions Removed from Baseline (tons/yr)	Total Annualized Cost ($/yr)	Cost Effectiveness ($/ton)		Visibility Improvement at Class I Area with Maximum Impact[3] (deciviews)		Visibility Improvement Cost Effectiveness ($/deciview)	
				Average	Incremental from Previous	Change from Baseline	Incremental from Previous	Change from Baseline	Incremental from Previous
Baseline	U1 = 0.433 U2 = 0.466	-----	-----	-----	-----	-----	-----	-----	-----
U1 = LNB/OFA U2 = LNB/OFA	U1 = 0.320 U2 = 0.320	5,840	$3,887,623	$666	-----	0.84	-----	$4,628,123	-----
U1 = LNB/OFA U2 = LNB/OFA/SCR	U1 = 0.320 U2 = 0.080	11,005	$14,419,323	$1,310	$2,039	1.02	0.18	$14,136,591	$58,509,444
U1 = LNB/OFA/SNCR U2 = LNB/OFA/SCR	U1 = 0.240 U2 = 0.080	12,912	$20,502,986	$1,588	$3,190	1.09	0.07	$18,810,079	$86,909,471
U1 = LNB/OFA/SCR U2 = LNB/OFA/SCR	U1 = 0.050 U2 = 0.080	17,449	$28,053,146[4]	$1,608	$1,664	1.29	0.20	$21,746,625	$37,750,800

[1] LNB = low-NO_x burners; OFA = overfire air; SCR = selective catalytic reduction; SNCR = selective non-catalytic reduction
[2] lb/MMBtu = pounds per million British thermal unit
[3] Petrified Forest National Park was the Class I area with the highest estimated baseline visibility impacts at 1.69 deciviews, based on baseline emissions.
[4] This figure does not include additional particulate matter controls that may be necessary to ensure the particulate matter emission limits in CGS' Title V permit can be continuously achieved. If additional particulate matter controls are required, costs would escalate as previously described in SRP's letter to EPA dated August 24, 2012 (refer to Attachment B to these comments).

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SRP also notes that the PM limit in the recently promulgated MATS Rule[161] will be more stringent than the PM limit that EPA rightly proposed to approve as BART. As it makes sense for BACT to be more stringent than BART, it likewise is appropriate for the MATS requirements to impose more stringent compliance obligations on utilities than a BART determination. The MATS are intended to protect the public health from hazardous air pollutants, while BART is aimed at aesthetic concerns that Congress intended the states to address very gradually.

Accordingly, EPA's proposed approval of Arizona's PM BART determination is consistent with both EPA's obligation to defer to state's BART determinations and objectively reasonable when viewed in light of what is required under MATS.

9.3 EPA's BART Determination for SO_2 is Reasonable and Appropriate

SRP supports EPA's proposed approval of Arizona's SO_2 BART determination for CGS, and the technical record demonstrates that approval is warranted.

In the proposed rule, EPA specifically requested comment on "whether a lower emission limit may be achievable when the units are burning a lower-sulfur coal."[162] It is entirely inappropriate for EPA to establish a BART limit that would be premised on any restriction of SRP's fuel supply. This type of restriction would increase unit operating costs and reduce operational flexibility, and EPA provides no technical record to support consideration of this emissions reduction option. Furthermore, for reasons discussed above in Section 9.2, the effective SO_2 emission rate established in the MATS rule will be more stringent than Arizona's SO_2 BART determination.

Accordingly, EPA's proposed approval of Arizona's SO_2 BART determination is both consistent with EPA's obligation to defer to state's BART determinations and objectively reasonable when viewed in light of what is required under MATS.

[161] See Fed. Reg. Vol. 77, No. 32. National Emission Standards for Hazardous Air Pollutants from Coal- and Oil-Fired Electric Utility Steam Generating Units and Standards of Performance for Fossil-Fuel-Fired Electric Utility, Industrial-Commercial-Institutional, and Small Industrial-Commercial-Institutional Steam Generating Units. February 16, 2012.

[162] *See* 77 Fed. Reg. at 42,852.

10.0 SRP's Review of EPA's Proposed Enforceability Requirements

EPA's proposed rule fails to adequately consider a number of issues that will impact the enforcement of the proposed BART emission limits, including the proposed compliance schedule, monitoring requirements, reporting requirements, and notification requirements. Each of these issues is described in more detail in this section.

10.1 EPA Must Implement an Appropriate Compliance Schedule

EPA's proposed rule would require CGS Unit 1 to comply with EPA's proposed 0.050 lb/MMBtu NO_x emission limit "within five years of final promulgation of this FIP consistent with the compliance times for the NO_x limits at the other units."[163] EPA requested comment on whether a shorter compliance schedule "may be practicable for this unit."[164] SRP reiterates its opposition to EPA's NO_x limit for CGS Unit 1. However, should EPA proceed to impose SCR control on this unit, a five-year compliance period is certainly warranted.

The CAA and EPA's regional haze rules provide in general for a five-year compliance period after EPA's SIP approval or FIP promulgation.[165] EPA may require compliance within a specified shorter time only if, and to the extent, that compliance within that shorter period is shown to be "practicable."[166] No such demonstration has been made by EPA, and considering the complex nature of an SCR control installation project, the record supports allowing the full five-year period for compliance with a FIP limit premised on use of SCR technology.

SRP currently estimates the total duration of time required to install SCR on CGS Unit 2 to be 48 months. Installation of the SCR equipment on CGS Unit 2 reduces the available space for installation of SCR equipment on CGS Unit 1, and as such, increases even more the complexity of such an installation for that unit. In addition, as noted in SRP's Response to EPA Dated July 27, 2012 (refer to Attachment B to these comments), installation of an SCR system on CGS Unit 1 would likely require the installation of low-load temperature control equipment on both units in order to allow SRP to meet load cycling demands. This additional equipment, combined with the increased complexity of installing SCR equipment on Unit 1, supports the need for a full five-year compliance period.

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[163] *See* 77 Fed. Reg. at 42,864.

[164] *Id.*

[165] *See* CAA § 169A(g)(4); 40 CFR § 51.308(e)(1)(iv).

[166] *See* 40 CFR § 51.308(e)(1)(iv).

10.2 EPA Must Modify the Monitoring Requirements to be Consistent with Existing Requirements

In several instances, monitoring requirements set out in the proposed rule are not consistent with existing requirements that apply to the CGS units. If EPA proceeds to impose additional controls at CGS beyond those specified in the consent decree and already included in the CGS permit, EPA must align these requirements to eliminate unnecessary and unreasonable compliance burdens.

10.2.1 Use of 40 CFR Part 75 for SO_2 and NO_x

EPA proposes to require coal-fired units, like CGS Units 1 and 2, to operate, maintain, and calibrate an SO_2, NO_x and diluent (oxygen (O_2) or carbon dioxide (CO_2)) CEMS, and a stack gas volumetric flow rate monitor (stack flow monitor) according to 40 CFR Part 75.[167] Data from those monitoring systems would be considered "valid" and must be used in determining compliance with the applicable SO_2 and NO_x limits, as long as all of the CEMS required to calculate lb/MMBtu are not "out-of-control" as defined in 40 CFR Part 75.[168] When any CEMS is "out-of-control," EPA proposes to treat the data as missing.[169]

SRP supports and appreciates the use of the monitoring system certification and quality assurance (QA) procedures in 40 CFR Part 75. SRP also agrees that failure to obtain valid data should simply be treated as missing data, without use of any data substitution procedures. However, EPA's proposed definition of "valid" data is broader than 40 CFR Part 75. Under 40 CFR Part 75, data that are not "out-of-control" (as defined in 40 CFR § 72.2 and 40 CFR Part 75) may also be considered "invalid" under certain circumstances.

For example, if a QA test is not performed within the specified data validation window or grace period, the data recorded by the monitoring system are considered invalid for 40 CFR Part 75 reporting unless the Administrator approves use of the data by petition.[170] On the other hand, data that might otherwise be considered invalid under § 75.20(b), following a change to a monitoring system, also can be retroactively validated using procedures specified in that rule. Although such events do not occur frequently, and do not necessarily mean that data from the monitoring system are unreliable, adopting a different definition of "valid" data for this rule than under 40 CFR Part 75 would create data

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[167] *See* proposed § 52.145(e)(5); 77 Fed. Reg. at 42,870.

[168] Although 40 CFR Part 75 does not contain a definitions section, the substantive provisions in 40 CFR Part 75 (*e.g.*, § 75.24 and App. B) make clear when a monitoring system is "out-of-control." The term "out-of-control" also is defined for 40 CFR Part 75 purposes in 40 C.F.R. § 72.2.

[169] *See* proposed § 52.145(e)(5); 77 Fed. Reg. at 42,870.

[170] *See, e.g.,* 40 CFR Part 75, App. B §§ 2.1.5, 2.2.4(b) & 2.3.3(c), § 75.66.

management issues that are not justified.[171] As a result, SRP requests that EPA define "valid" data as those data recorded by a monitoring system that are valid for reporting under 40 CFR Part 75 either as specified by the rule or, at the source's option, as otherwise approved by the Administrator.[172]

EPA also should make clear that the "bias" adjustment procedures in 40 CFR Part 75 do not apply to data used to calculate the 30-day rolling averages. Use of the 40 CFR Part 75 "bias" adjustment procedure is not appropriate in this context because 40 CFR Part 75 does not allow downward adjustment of data that are determined to be "biased" high. For this reason, EPA has never required sources to use 40 CFR Part 75 bias-adjusted data in any command-and-control rule.[173] Allowing use of unadjusted data also would be consistent with SRP's obligations under its consent decree.[174]

In sum, EPA should utilize 40 CFR Part 75 under this rule in the same way it has used 40 CFR Part 75 in other non-market-based contexts.

10.2.2 Proposed Additional Relative Accuracy Requirements

40 CFR Part 75 requires each SO_2, NO_x and diluent concentration monitor and each stack flow monitor to meet relative accuracy test audit (RATA) requirements on an individual basis. Rather than rely on 40 CFR Part 75 to ensure accuracy, EPA proposes to impose an additional 20 percent relative accuracy (RA) specification to both SO_2 and NO_x, measured in pounds per hour, and to heat input.[175] Because neither the preamble nor any other document in the docket discusses these additional specifications, the sampling requirements associated with these additional tests are not clear. However, because stack flow data are required to calculate both pounds per hour and heat input, and RATAs generally require simultaneous sampling of required parameters, it appears that EPA intends to require reference method sampling of stack flow (*e.g.*, using EPA Method 2) simultaneously with each SO_2, NO_x and diluent

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[171] If EPA adopts a different definition of "valid" for this rule, SRP will have to design software that can maintain two separate databases of "valid" data – one for the FIP and one for 40 CFR Part 75 – even if EPA relies solely on 40 CFR Part 75 QA specifications to validate data, as SRP suggests below.

[172] In some instances where data would otherwise be considered invalid under 40 CFR Part 75 (*e.g.*, because a QA test was performed late), sources have filed, and the Administrator has granted, petitions requesting validation of data recorded by the monitoring system without any adjustment based on other technical assessments (*e.g.*, the subsequent passing of the required QA test without any adjustment). In such cases, EPA should allow use of the data under the FIP as well without any additional petition requirement.

[173] *See* 40 CFR §§ 60.48Da(j)(2), 60.49Da(b)(4)(iii), (c)(2), (d) & (m) (prohibiting use of bias-adjusted SO_2, NO_x, diluent, and volumetric flow data in Subpart Da).

[174] *See* Consent Decree ¶¶ 45, 58, *United States v. Salt River Project Agric. Improvement & Power Dist.*, No. 08-1479 (D. Ariz. Dec. 22, 2008) (declaring that SO_2 and NO_x emissions "data need not be bias adjusted").

[175] See proposed § 52.145(e)(5)(i)(B); 77 Fed. Reg. at 42,870. EPA does not propose a pound per hour RA specification for SO_2, but does propose recordkeeping for such a specification. Proposed § 52.145(e)(7); 77 Fed. Reg. at 42,870.

concentration reference method run. Reference method testing of stack flow to meet 40 CFR Part 75 RATA requirements generally is not conducted simultaneously with pollutant concentration reference method measurements.

SRP objects to these proposed additional requirements. Imposing additional RATA specifications will not increase the accuracy of any monitoring system, but would increase the difficulty and cost of testing. It also could result in additional missing data if tests must be repeated to meet the specifications.

Consider an example in which both of the monitoring systems needed to calculate NO_x in pounds per hour (the NO_x CEMS and stack flow monitor) and both of the monitoring systems needed to calculate heat input (the diluent CEMS and stack flow monitor) pass their RA specifications and thus have adequate performance individually, but do not pass the combined pounds per hour and heat input specifications. Because all three individual monitors are working well, the only realistic option will be to rerun the RATAs.

If EPA has data to suggest that the proposed combined specifications are consistently achievable, or that imposing a combined specification would provide necessary and significant improvement in RATA results for individual monitoring systems, EPA must provide that information and solicit comment on it. EPA also must address the increased burdens and how the potential loss of data associated with failure of the RA specifications might affect compliance with the proposed emission limitations and data availability specifications.

When EPA first proposed 40 CFR Part 75 in 1991, EPA also proposed to impose a combined RA specification for SO_2 and flow monitoring systems (SO_2 in pounds per hour) starting in January 2000.[176] However, EPA did not finalize that proposed specification and, after more than 20 years, the section remains "reserved."[177] Later, when EPA adopted trading programs for NO_x in pounds per hour under CSAPR, EPA never even proposed (let alone finalized) such combined specifications.

Similarly, although EPA has recently imposed output-based standards under the NSPS that require calculation of SO_2 and NO_x in pounds per hour, EPA also has relied on the individual RA specifications in 40 CFR Parts 60 and 75 to quality assure the relevant data.[178] If combined RA specifications were necessary to ensure the accuracy of mass emissions data, EPA surely would have adopted them in those contexts.

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[176] *See* 56 Fed. Reg. at 63,002 (Dec. 3, 1991). In that proposal, EPA made clear that reference method testing of stack flow and SO_2 had to be performed simultaneously. Proposed 40 CFR Part 75, App. A § 6.6.3; 56 Fed. Reg. at 63,311.

[177] *See* 40 CFR Part 75, App. A § 3.3.5.

[178] *See* 40 CFR §§ 60.43Da, 60.44Da; 77 Fed. Reg. at 9,450-53.

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EPA's failure to adopt combined specifications cannot be explained by a lack of data. Utilities have been reporting initial and annual SO_2, NO_x, diluent, and stack flow monitor RATA results to EPA since 1994. However, the lack of such specifications might be explained by EPA's prior conclusions that existing RATA performance likely cannot be significantly improved. When EPA last examined RATA results reported under 40 CFR Part 75, the reported values were significantly better than the existing 40 CFR Part 75 RA specifications. However, at least for SO_2, NO_x and CO_2, EPA expressed concern that promulgating specifications closer to the achieved results would approach the variability in the reference methods themselves, and thus, might be beyond the limits of current monitoring technology.[179]

In short, because sources already were doing what is necessary to obtain the best RA results they could reasonably achieve, EPA determined that imposing more stringent specifications would not improve accuracy and could result in additional failures due solely to reference method variability. If sources already are doing the best they can, imposing additional combined RA specifications would be similarly unjustified.

EPA's proposed combined RATA specifications also are flawed in that they fail to provide the necessary alternative specifications for low-emitters. The current SO_2, NO_x and diluent CEMS and flow monitor RA specifications are ±10.0 percent, or ±7.5 percent to qualify for an annual RATA. However, for SO_2 and NO_x RATAs with average reference method results ≤150.0 parts per million (ppm), 40 CFR Part 75 provides an alternative RA specification of ±15.0 ppm, or ±12.0 ppm to qualify for an annual RATA.[180] For CO_2 and O_2, 40 CFR Part 75 provides an alternative RA specification of ±1.0 percent, or ±0.7 percent to quality for an annual RATA.[181] Finally, for RATAs with an average volumetric flow rate ≤10.0 feet per second (fps), 40 CFR Part 75 provides an alternative specification of ±2.0 fps, or ±1.5 fps to qualify for an annual RATA.[182]

The 40 CFR Part 75 low-emitter specifications, which have been in the regulations since initial promulgation, are patterned after similar alternative specifications in 40 CFR Part 60 and are necessary to account for the manner in which the mean emissions value during the RATA is used in the RA equation (because the mean emissions value is used in the denominator of the RA equation, lower

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[179] Acid Rain Program: Determinations Under EPA Study of Bias Test and Relative Accuracy and Availability Analysis: Notice of Proposed Determinations and Proposed Rulemaking, 63 Fed. Reg. at 28,195, 28,198 (May 21, 1998).

[180] *See* 40 CFR Part 75, App. A §§ 3.3.1, 3.3.7 &App. B. § 2.3.1.2(e).

[181] *See* 40 CFR Part 75, App. A § 3.3.3 & App. B § 2.3.1.2(h).

[182] *See* 40 CFR Part 75, App. A § 3.3.4 & App. B § 2.3.1.2(d).

average emissions result in a larger relative percentage error).[183] Notably, when EPA proposed a combined SO_2/flow RA specification in 1991, EPA exempted low-emitting units from that specification.[184]

To proceed with combined RA specifications, EPA also would need to either propose (and solicit comment on) alternative low-emitter combined specifications that have been demonstrated to be consistently achievable, or exempt units meeting any of the applicable 40 CFR Part 75 low-emitter thresholds from those specifications. SRP notes the importance of such specifications to CGS Units 1 and 2, given the units' low SO_2 and NO_x emission rates.

10.2.3 Proposed CEMS Data Availability Requirements

Although 40 CFR Part 75 requires the calculation of percent monitor data availability for each SO_2, NO_x and diluent CEMS and each flow monitor, it does not establish any minimum availability requirement for any monitoring system. In the FIP, EPA proposes to require that each unit obtain valid (*i.e.*, not "out-of-control") *hourly* SO_2 and NO_x emissions data (in lb/MMBtu) for at least 90 percent of the unit's operating hours for each calendar quarter.[185] SRP does not believe that a data availability requirement is necessary to provide incentives for collection of valid 40 CFR Part 75 data, and EPA has provided no other rationale for its proposal.

Source owners and operators already have sufficient incentive to obtain valid data in order to avoid the increasingly conservative (and ultimately punitive) missing data substitution procedures that apply under 40 CFR Part 75.[186] Even without missing data substitution, sources have significant incentive to have good data availability, since data loss reduces the amount of data available to compensate for emissions variability (thus effectively making the proposed limit more stringent).

SRP also is concerned that EPA's proposed quarterly availability specification is too stringent. Even properly maintained monitoring systems sometimes fail QA tests and are deemed "out-of-control." A failed test (particularly a test like the RATA that takes hours to complete) sometimes can result in a significant missing data period, despite the owners' and operators' best efforts. If a unit has a significant missing data event during a calendar quarter in which it also has a significant period of unit downtime (*e.g.*, as a result of an outage), the percent of operating hours during the quarter with valid data could easily be less than 90 percent. It is in part for this reason that 40 CFR Part 75 measures data availability over each 8,760-operating-hour period.[187]

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[183] *See* 56 Fed. Reg. at 63,068-69.

[184] Proposed 40 CFR Part 75, App. A. § 3; 56 Fed. Reg. at 63,309.

[185] Proposed § 52.145(e)(5)(ii)(B) & (iii)(B); 77 Fed. Reg. at 42,870.

[186] *See* 63 Fed. Reg. at 28,198 (evaluating percent monitor data availabilities under 40 CFR Part 75 to determine whether to adjust the missing data thresholds).

[187] *See* 40 CFR § 75.32(a)(2).

Moreover, for monitoring systems that are used to calculate SO_2 or NO_x in pounds per hour, 40 CFR Part 75 data availability is based on a single CEMS, and not on collection of hourly values from multiple CEMS. Under EPA's proposed calculation procedures for 30-day rolling average emission rates, loss of data from any one of the three monitoring systems required for that calculation (an SO_2 or NO_x CEMS, a diluent CEMS, and a stack flow monitor) would result in loss of a valid hour.[188]

In short, to the extent EPA based its evaluation of the reasonableness of the proposed 90 percent criterion on 40 CFR Part 75 data availability, that evaluation is seriously flawed. EPA should either eliminate the unnecessary requirement or provide data to justify its proposed requirement that take into account the differences described above.

10.2.4 Use of Methods 201A and 202 for Determining PM Emissions

To determine compliance with the PM limit in the proposed rule, EPA proposes to require annual performance stack tests and compliance with the applicable Compliance Assurance Monitoring plan developed under 40 CFR Part 64. In the proposed regulatory language, EPA (like ADEQ's plan) identifies Methods 201A and 202 of 40 CFR Part 51, Appendix M, as the applicable methods for performance tests.[189] Method 201A uses a particle-sizing device to collect *filterable* PM emissions with diameters of either 10 or 2.5 micrometers for measurement. Method 202 uses an impinger system to collect *condensable* PM for measurement after *filterable* PM has been removed. If used together, Methods 201A and 202 measure *total* PM (*i.e.*, the combination of *filterable* PM of the chosen size cut-off and *condensable* PM).

In the preamble to the proposed rule, EPA solicits comment on whether other test methods should be allowed or required in order to remain consistent with ADEQ's BART determination and the resulting proposed PM_{10} emission limit. Specifically, EPA recognizes that the PM_{10} emission limit that ADEQ adopted did not take into account the potential impacts on *total* PM emissions from the SCR that EPA proposes to require under the FIP. SCR can result in creation of sulfuric acid mist (a *condensable* PM), which is not controlled by the required ESP. With this increase, the PM limit would effectively be more stringent than ADEQ intended.[190]

To avoid that result, while still ensuring proper operation of the ESP, EPA asks whether another method that does not capture *condensable* PM would be more appropriate. As examples, EPA cites Methods 5 or 5e (in combination with Methods 1-4) of 40 CFR Part 60, Appendix A, and Method 201. Method 5 is a

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[188] Proposed § 52.145(e)(5)(ii)(B) & (iii)(B); 77 Fed. Reg. at 42,870.

[189] Proposed § 52.145(e)(6); 77 Fed. Reg. at 42,870.

[190] *See* 77 Fed. Reg. at 42,851.

filterable PM method typically used for utility sources without a wet scrubber.[191] Method 5 does not measure particle size. Method 5e is a *filterable* PM method developed specifically for the wool fiberglass insulation manufacturing industry. SRP assumes the reference to Method 5e was in error, and that EPA intended to reference Method 5I (which applies to low-level *filterable* PM from a variety of stationary sources). Method 201 is the original method for collecting *filterable* PM_{10} with a particle sizer. Method 201 was updated and expanded, but not replaced, by Method 201A. EPA describes Method 201A as the "typical method used for filterable PM_{10}."[192]

SRP shares EPA's concerns regarding use of Method 202. Not only will Method 202 collect *condensable* PM that was not considered by ADEQ (or EPA) when establishing the proposed PM_{10} limit of 0.03 lb/MMBtu, the method also has been shown to have a high bias when used at sources with wet control devices.[193] CGS has recently installed new wet flue gas desulfurization (FGD) systems on both units at CGS to meet the 2008 consent decree deadlines.[194] Even if the actual *condensable* PM created by the SCR was not sufficient to render the proposed limit unachievable with the ESP, SRP would have little confidence that Method 202 could accurately measure the *condensable* fraction at CGS on a consistent basis. If the artifact EPA sought to reduce was not eliminated, CGS could fail to meet the emission limit simply as a result of the test method. SRP strongly believes no PM limit can be imposed that includes *condensable* PM without conducting testing with the proposed test method (in this case Method 202) to show that the proposed PM emission limit can be consistently achieved with that method.

CGS's wet scrubbers also render Methods 201 and 201A inapplicable. Although not explicit in Method 201, both methods rely on a particle sizing device that cannot be used in the presence of water droplets, like those found in the stack following a wet FGD system. EPA clarified this point in Method 201A and discussed the limitations in the preamble to its final rule.[195]

Although SRP expects sulfuric acid mist generation as a result of the SCR to be minimal (in part due to CGS's use of low-sulfur coal), some sulfuric acid mist may be created. Because use of Method 202 not only would include *condensable* PM sulfuric acid mist emissions that were not considered in establishing

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[191] *See* 40 CFR § 60.46(d)(2) (Subpart D NSPS); *Id.* § 60.50Da(e) (Subpart Da NSPS).

[192] See 77 Fed. Reg. at 42,851.

[193] Revisions by EPA to Method 202 in 2010 reduced, but did not eliminate, the "formation of reaction artifacts that could lead to inaccurate measurements of condensable particulate matter." 75 Fed. Reg. at 80,118, 80,118 (Dec. 21, 2010).

[194] 77 Fed. Reg. at 42,842, Table 3, Consent Decree ¶¶ 48-49, *United States v. Salt River Project Agric. Improvement & Power Dist.*, No. 08-1479 (D. Ariz. Dec. 22, 2008).

[195] *See* 40 CFR Part 51, App. M, Method 201A § 1.5 ("To measure filterable PM_{10} and $PM_{2.5}$ in emissions where water droplets are known to exist, we recommend that you use Method 5..."); 75 Fed. Reg. at 80,121 ("Method 201A cannot be used to measure emissions from stacks that have entrained moisture droplets (e.g., from a wet scrubber stack)...").

the proposed PM limit, but also could overstate the actual emissions, SRP agrees with EPA's suggestion that only a *filterable* PM test method be used. However, SRP does not agree that Method 201 or 201A are valid options. Both units have wet FGD systems and the resulting entrained moisture droplets in the stack emissions render these methods inapplicable.

In the preamble to the proposed rule, EPA describes CGS's PM emission limit under the consent decree as a PM_{10} limit of 0.030 lb/MMBtu.[196] That limit, however, is not a limit on PM_{10}, but rather on filterable PM measured with "Method 5, Method 5B, or Method 5I, App. A-6, Method 17, or alternative stack tests or methods that are requested by SRP and approved by EPA and Arizona DEQ."[197] CGS's Title V permit requires use of those methods as well.[198]

Because of the above-described issues with use of Methods 201A and 202, SRP requests that (consistent with CGS's consent decree and Title V permit) EPA specify use of Method 5, 5B, 5I, or an alternative method requested by the source owner or operator and approved by EPA and ADEQ. Although Methods 5, 5B, and 5I would include in the measurement *filterable* PM above the PM_{10} size threshold, ADEQ (and SRP) already have evaluated the achievability of the proposed limit with similar methods. As a result, SRP does not object to any additional conservativeness that use of those methods may impose.

10.3 EPA Must Modify the Quarterly Reporting Requirements to be Consistent with Existing Requirements

EPA proposes to require submission of reports to EPA Region IX within 30 days of the end of each calendar quarter listing (1) the daily 30-day rolling emission rates for SO_2 and NO_x, and (2) the results of any RATA performed during the quarter.[199] Although SRP does not object to reporting of this information to EPA, the proposed reporting duplicates (and is inconsistent with) the semi-annual reporting requirement under Title V and the RATA reporting required under 40 CFR Part 75.[200]

Specifically, CGS's Title V permit requires semi-annual reporting of 30-day rolling averages for SO_2 and NO_x along with the compliance certification. Those reports are due roughly 45 days after the end of the semi-annual period.[201] SRP's consent decree also requires semi-annual reporting to the Director of the

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[196] *See* 77 Fed. Reg. at 42,851.

[197] *See* Consent Decree ¶¶ 28, 65, *United States v. Salt River Project Agric. Improvement & Power Dist.*, No. 08-1479 (D. Ariz. Dec. 22, 2008).

[198] ADEQ, Title V Permit # 52639, Attachment B, Conditions II.D.1.b, II.D.1.c & II.D.5.

[199] *See* proposed § 52.145(e)(8); 77 Fed. Reg. at 42,870.

[200] Ordinarily, EPA must address such potential inconsistencies and duplication in its Information Collection Request (ICR) to the Office of Management and Budget, but in this case EPA has asserted that no ICR is required because EPA has limited this FIP to only three sources. 77 Fed. Reg. at 42,866.

[201] ADEQ, Title V Permit # 52639, Attachment A Condition VII, Attachment B Conditions II.E.4 & II.G.3.f.

Air Division at U.S. EPA Region IX within 60 days after each half of the calendar year, and allows use of the Title V reports.[202]

SRP should not have to report on a quarterly basis information that SRP already is required to submit semi-annually to the same EPA Regional Office. EPA has provided no reason for the duplication and increase in reporting frequency.

With respect to RATA results, SRP already is electronically reporting detailed RATA data for the relevant CGS monitoring systems to EPA under 40 CFR Part 75 at a similar frequency.[203] EPA should allow SRP to use the 40 CFR Part 75 reporting to satisfy any such reporting obligation under the FIP. To the extent EPA Region IX wants to view the results of a particular RATA in hard copy, 40 CFR Part 75 allows the Region to request a hardcopy report within the later of 45 days after completing the RATA or 15 days after receiving the request. EPA should utilize this existing provision, which was designed to allow access to hardcopy information without mandating automatic duplicative reporting of results. In SRP's experience, EPA Regional Offices are rarely interested in reviewing RATA reports.

10.4 EPA Must Modify the Notification Requirements within the Proposed Rule

EPA proposes to require the owner or operator of a source to notify EPA within two weeks of "completion of installation of combustion controls or Selective Catalytic Reactors on any of the units subject to this section."[204] SRP does not object to providing notice of completion of actions required under the final FIP. However, the proposed notification is both overly broad and overly prescriptive.

First, because there is no requirement under the proposed FIP or Arizona's regional haze SIP for installation of combustion controls at CGS, there is no basis for including in the FIP any requirement that SRP provide notice to EPA with respect to installation of such controls. Although ADEQ identified LNB/OFA as BART for CGS, those systems already were installed at Units 1 and 2 under the consent decree[205] and therefore will not be installed under a FIP or regional haze SIP. EPA should clarify the proposed provision by requiring notice only of new controls that will be required to meet the FIP or regional haze SIP.

Second, the proposed deadline is unclear and unreasonable. Installation of controls is a complex process, and the point at which that process is "complete" may not be immediately clear. At a

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[202] *See* Consent Decree ¶¶ 91, 92 & 142, *United States v. Salt River Project Agric. Improvement & Power Dist.*, No. 08-1479 (D. Ariz. Dec. 22, 2008).

[203] *See* 40 CFR §§ 75.59(a)(5), 75.64(a)(5).

[204] *See* proposed § 52.145(e)(8)(a); 77 Fed. Reg. at 42,870.

[205] *See* Consent Decree ¶¶ 23, 41 & 42, *United States v. Salt River Project Agric. Improvement & Power Dist.*, No. 08-1479 (D. Ariz. Dec. 22, 2008).

minimum, EPA must revise the requirement to use a more objective term and allow sufficient time for owners and operators to comply.

Third, the proposed requirement duplicates reporting already required for a new add-on NO_x emission control under 40 CFR Part 75. Specifically, when an add-on NO_x emission control (or an FGD) is installed, 40 CFR Part 75 requires the designated representative to provide notice to EPA and to "the appropriate EPA Regional Office" of "the date that reagent is first injected into" the control device.[206] Although 40 CFR Part 75 does not provide a specific deadline for such notices,[207] it makes little sense to require owners and operators to provide notice of the same event (*i.e.*, startup of the SCR) twice. EPA should rely on (and if necessary refer to) the notice required under Part 75.

[206] *See* 40 CFR §§ 75.4(e)(1)(ii), 75.61(a).

[207] The 40 CFR Part 75 provision that establishes deadlines for notice of the planned date of use (and, if different, the actual date of use) of a new stack or FGD does not refer to add-on NO_x controls or injection of reagent. *See Id.* § 75.61(a)(2).

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11.0 EPA's Assertion of Health Benefits is Unsubstantiated by the Proposed Rule

In its proposed rule, EPA states "to the extent this proposed rule will limit emissions of NO_x, SO_2, and PM_{10}, the rule will have a beneficial effect on children's health by reducing air pollution."[208] Additionally, in an accompanying fact sheet, EPA also stated that "pollutants that contribute to haze are the same emissions that impair human health."[209]

SRP contracted with Gradient to review EPA's statements regarding health benefits associated with the proposed rule. Gradient concluded that it is inappropriate for EPA to make this claim as the rule documentation does not provide any scientific evidence that current emissions from any of the facilities that are the subject of this proposed rulemaking, including CGS, result in health impacts to communities (including children) or that limiting emissions would provide health benefits to those communities (refer to Attachment F to these comments).

Before EPA may make a claim that the proposed rule will result in health benefits, EPA must conduct a health risk evaluation that follows the four basic steps of any valid risk assessment process: hazard identification, dose-response, exposure assessment, and risk characterization. The proposed rule's docket does not appear to include any evidence that such an evaluation has taken place. As such, EPA must acknowledge that the proposed rule has not been shown to have a beneficial effect on children's health or any other public health endpoint, and that EPA's previous statements on this issue are misleading and unsubstantiated.

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[208] *See Id.* at 42,868.

[209] See U.S. EPA, Fact Sheet, Proposed Partial Approval and Partial Disapproval of Arizona's Regional Haze Plan and Proposed Federal Plan (updated July 27, 2012), *available at* http://www.epa.gov/region9/air/actions/pdf/az/az-haze-factsheet.pdf.

12.0 Conclusion

EPA proposes to approve Arizona's BART determinations for emissions of SO_2 and PM, and to disapprove the Arizona's BART determinations for NO_x for each of the CGS units. EPA also proposes a FIP to take the place of Arizona's SIP with respect to the NO_x BART determination. That FIP would impose a NO_x BART limit for CGS Unit 1 of 0.050 lb/MMBtu, based on installation of LNB/OFA and SCR, and a NO_x BART limit for CGS Unit 2 of 0.080 lb/MMBtu, based on installation and operation of LNB/OFA and SCR, consistent with CGS' existing consent decree obligations.

This document outlines SRP's significant concerns with EPA's proposed approach to implementation of the regional haze regulations in Arizona. These concerns are summarized below:

- Arizona's BART determination established a NO_x BART emissions limit of 0.320 lb/MMBtu based on installation and use of LNB/OFA. Under the CAA, the state's BART determination is entitled to deference. EPA is not free to second-guess the state's determinations. Arizona developed and submitted a comprehensive SIP that included a large number of measures to address a variety of sources that contribute to regional haze, including mobile sources, wildfires and industrial facilities. EPA should consider, and act on, all of these measures together rather than single out three power plants for imposition of overly stringent NO_x emission limits.

- The consent decree entered into by SRP and EPA just four years ago, and currently being implemented by SRP, was designed to settle an EPA allegation that emissions from CGS Units 1 and 2 failed to comply with the CAA's BACT requirements, a component of the PSD requirements of the CAA that is applicable to certain new or modified sources. That agreement requires SRP to install and operate LNB/OFA on both units, as well as an SCR system on Unit 2. It also establishes a NO_x emission limit of 0.320 lb/MMBtu for Unit 1, a NO_x emission limit of 0.080 lb/MMBtu for Unit 2, and a plant-wide NO_x emission limit of 7,300 tons per year. EPA's BART Guidelines provide that emission limits imposed pursuant to a PSD-related consent decree, such as the consent decree applicable to CGS, should be deemed to satisfy BART. EPA should follow its own guidelines and consider the weight of evidence presented in these comments, and as a result, acknowledge that the consent decree limits not only satisfy all BART obligations for CGS Units 1 and 2, but provide a level of control that is better than BART.

- EPA's proposed NO_x BART determination for CGS fails to take the presumptive BART limits into account. Soon-to-be-installed controls at CGS Unit 2, which will result in a 0.080 lb/MMBtu NO_x emission limit for that unit, are far more stringent than the presumptive NO_x limit applicable to CGS. Indeed, EPA in this proposed rule fails even to mention, much less evaluate, the type of emission controls (i.e., combustion controls) on which the presumptive limit is based. EPA is not free to disregard its own presumptive BART limit and its rulemaking determination that, for all

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units except cyclone units (which are not present at CGS), NO_x BART is presumed to be based on combustion controls only and excludes post-combustion controls such as SCR.

- EPA's proposed BART determination for CGS Unit 1 would impose an exceptionally stringent NO_x emission limit of 0.050 lb/MMBtu, which is premised on the assumption that implementation of SCR technology can continuously achieve this limit on a 30-day rolling average basis. Continuous compliance with such a limit, however, has not been shown to be feasible, and EPA has failed to support either its proposed BART determination or its reliance on this limit in its BART analysis. A 0.050 lb/MMBtu NO_x emission limit is unprecedented for retrofit facilities like CGS, and is inconsistent with BACT determinations that EPA has approved for new coal-fired units.

- EPA argues that the emission control costs relied on by Arizona and those prepared by SRP were not calculated in accordance with the BART Guidelines and that they are inconsistent with EPA's Control Cost Manual. The Control Cost Manual is not binding and is recognized as only one reference source for cost information by EPA's BART rules. Furthermore, SRP has actual, site-specific cost information associated with the installation of LNB/OFA on both units at CGS and installation of SCR on Unit 2 at CGS that demonstrates EPA estimation techniques do not provide an accurate estimate of BART control costs.

- EPA's own calculation of costs in support of its FIP is seriously flawed. EPA's cost assessment relies on an IPM base case for capital and annual operating costs for each NO_x control option. BART requires a site-specific analysis. Use of IPM's generic information does not satisfy this requirement. Regardless, the data inputs EPA selected in implementing IPM are incorrect given the site-specific characteristics of CGS. This error by EPA resulted in a significant underestimate of the NO_x control costs used in EPA's analysis.

- EPA failed to consider the dollars-per-deciview cost effectiveness of different control options when it supplanted ADEQ's cost analysis with its own analysis in the proposed rule. EPA's decision to exclude rational considerations, such as site-specific costs and cost-effectiveness on a deciview basis, and instead look to outdated and limited information, such as the Control Cost Manual and IPM, has resulted in an unsupported supplanting of Arizona's BART determination for CGS.

- EPA's refusal to allow use of the most recent and most accurate CALPUFF model (version 6.42) is unreasonable and arbitrary, and contradicts the principle that BART determinations should be based on the best available science. Use of CALPUFF version 6.42 demonstrates that the visibility benefits EPA projects in association with BART control options are overstated.

- SRP's modeling of CGS' visibility impacts relies on more appropriate monthly-varying background ammonia concentrations in the ambient air and is more realistic than EPA's reliance

on an artificial, uniform "default" value. Arizona acted within its discretion by relying on the same background ammonia concentrations.

- EPA argues that visibility impacts were not appropriately evaluated and considered in the SIP. Further, EPA claims that visibility benefits at all potentially impacted Class I areas must be considered. EPA's BART Guidelines do not require that cumulative visibility impacts be used as the basis for BART assessments and does not require that they be considered at all. ADEQ's evaluation of visibility impacts in support of Arizona's BART determination is a valid alternate approach to the consideration of visibility benefits associated with control options. Arizona's reliance on that analysis is within the state's discretion.

- EPA's assessment of energy and non-air quality environmental impacts must be weighed and considered *in conjunction with* the other BART factors in the overall assessment of what control option constitutes BART for a particular source. EPA's approach minimizes the role that this factor can conceivably play in a BART analysis, which is beyond EPA's authority.

- EPA's proposed rule fails to adequately consider a number of issues that will impact the enforcement of the proposed BART emission limits, including the proposed compliance schedule, monitoring requirements, reporting requirements, and notification requirements.

- EPA must first conduct a health risk evaluation that follows the four basic steps of any valid risk assessment process before EPA may make a claim that the proposed rule will result in health benefits. The proposed rule's docket does not appear to include any evidence that such an evaluation has taken place.

In conclusion, EPA's proposed rule is seriously flawed and cannot, at least with respect to the NO_x BART for CGS, be finalized. EPA has failed to give the level of deference to the State of Arizona's BART determinations that the CAA requires. EPA has presented no legitimate grounds for disapproving any part of Arizona's SIP, and EPA cannot, therefore, promulgate its own NO_x BART determinations for CGS. Further, EPA's proposed FIP and the analysis EPA relies on to support that FIP are inconsistent with the CAA and EPA's own regional haze regulations. Accordingly, the proposed FIP does not reflect a proper NO_x BART determination for CGS, and EPA must withdraw it. Full approval of Arizona's SIP is the only course of action that is consistent with the law and available to EPA.

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Part III

Environmental Protection Agency

40 CFR Part 52
Approval, Disapproval and Promulgation of Air Quality Implementation Plans; Arizona; Regional Haze State and Federal Implementation Plans; Final Rule

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 52

[EPA–R09–OAR–2012–0021, FRL–9754–3]

Approval, Disapproval and Promulgation of Air Quality Implementation Plans; Arizona; Regional Haze State and Federal Implementation Plans

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: EPA is taking final action to approve in part and disapprove in part a portion of Arizona's State Implementation Plan (SIP) submittal for its regional haze program and to promulgate a Federal Implementation Plan (FIP) for the disapproved elements of the SIP. The State and Federal plans are to implement the regional haze program in Arizona for the first planning period through 2018. This final rule addresses only the portion of the SIP related to Arizona's determination of Best Available Retrofit Technology (BART) to control emissions from eight units at three electric generating stations: Apache Generating Station, Cholla Power Plant and Coronado Generating Station. Consistent with our proposal, EPA approves in this final rule the State's determination that the three sources are subject to BART, and approves the State's emissions limits for sulfur dioxide (SO_2) and particulate matter less than or equal to 10 micrometers (PM_{10}) at all the units, but disapproves Arizona's BART emissions limits for nitrogen oxides (NO_X) at the coal-fired units of the three power plants. We also are promulgating a FIP that contains new emissions limits for NO_X at these coal-fired units and compliance schedules for implementation of BART as well as requirements for equipment maintenance, monitoring, recordkeeping and reporting for all units and all pollutants at the three sources. In today's action, we are revising some elements of the proposed FIP in response to comments and additional information that we received.

DATES: *Effective date:* This rule is effective January 4, 2013.

Compliance dates: The owners/operators of each unit subject to this final rule shall comply by the dates specified in the regulatory text.

ADDRESSES: EPA has established docket number EPA–R09–OAR–2012–0021 for this action. Generally, documents in the docket are available electronically at *http://www.regulations.gov* or in hard copy at EPA Region 9, 75 Hawthorne Street, San Francisco, California. Please note that while many of the documents in the docket are listed at *http://www.regulations.gov,* some information may not be specifically listed in the index to the docket and may be publicly available only at the hard copy location (e.g., copyrighted material, large maps, multi-volume reports or otherwise voluminous materials), and some may not be available at either locations (e.g., confidential business information). To inspect the hard copy materials, please schedule an appointment during normal business hours with the contact listed directly below.

FOR FURTHER INFORMATION CONTACT: Thomas Webb, U.S. EPA, Region 9, Planning Office, Air Division, Air-2, 75 Hawthorne Street, San Francisco, CA 94105. Thomas Webb can be reached at telephone number (415) 947–4139 and via electronic mail at *webb.thomas@epa.gov.*

SUPPLEMENTARY INFORMATION: Throughout this document, wherever "we," "us," or "our," is used, we mean the United States Environmental Protection Agency (EPA).

Definitions

For the purpose of this document, we are giving meaning to certain words or initials as follows:

(1) The words or initials *CAA* or *Act* mean or refer to the Clean Air Act, unless the context indicates otherwise.

(2) The initials *ACC* refer to the Arizona Corporation Commission.

(3) The initials *ACCCE* mean or refer to American Coalition for Clean Coal Electricity.

(4) The initials *ADEQ* mean or refer to the Arizona Department of Environmental Quality.

(5) The initials *AEPCO* mean or refer to Arizona Electric Power Cooperative.

(6) The initials *AFUDC* mean or refer to allowance for funds used during construction.

(7) The term *Apache* refers to Apache Generating Station.

(8) The initials *APS* mean or refer to Arizona Public Service Company.

(9) The words *Arizona* and *State* mean the State of Arizona.

(10) The initials *BART* mean or refer to Best Available Retrofit Technology.

(11) The term *BART units* refers to Apache Generating Station Units 1, 2 and 3; Cholla Power Plant Units 2, 3 and 4 and Coronado Generating Station Units 1 and 2.

(12) The initials *CBI* mean or refer to Confidential Business Information.

(13) The initials *CCM* mean or refer to EPA's Cost Control Manual.

(14) The initials *CEMS* mean or refer to continuous emission monitoring system.

(15) The term *Cholla* refers to Cholla Power Plant.

(16) The term *Class I area* refers to a mandatory Class I Federal area.[1]

(17) The term *coal-fired BART units* refers to Apache Generating Station Units 2 and 3; Cholla Power Plant Units 2, 3 and 4 and Coronado Generating Station Units 1 and 2.

(18) The initials *COFA* mean or refer to close-coupled overfire air.

(19) The term *Coronado* refers to Coronado Generating Station.

(20) The initials *CY* mean or refer to Calendar Year.

(21) The initials *EGU* mean or refer to Electric Generating Unit.

(22) The initials *ESPs* mean or refer to electrostatic precipitators.

(23) The words *EPA, we, us* or *our* mean or refer to the United States Environmental Protection Agency.

(24) The initials *FGD* mean or refer to flue gas desulfurization.

(25) The initials *FGR* mean or refer to flue gas recirculation.

(26) The initials *FIP* mean or refer to Federal Implementation Plan.

(27) The initials *FLMs* mean or refer to Federal Land Managers.

(28) The initials *FR* mean or refer to the **Federal Register**.

(29) The initials *GEP* mean or refer to Good Engineering Practice.

(30) The initials *IMPROVE* mean or refer to Interagency Monitoring of Protected Visual Environments monitoring network.

(31) The initials *IWAQM* mean or refer to Interagency Workgroup on Air Quality Modeling.

(32) The initials *IPM* mean or refer to Integrated Planning Model.

(33) The initials *LNB* mean or refer to low-NO_X burners.

(34) The initials *LTS* mean or refer to Long-Term Strategy.

(35) The initials *MMBtu* mean or refer to Million British thermal units.

(36) The initials *MW* mean or refer to megawatts.

(37) The initials *MWh* mean or refer to megawatt hours.

(38) The initials *NEI* mean or refer to National Emission Inventory.

(39) The initials NH_3 mean or refer to ammonia.

(40) The initials NO_X mean or refer to nitrogen oxides.

(41) The initials *NP* mean or refer to National Park.

[1] Although states and tribes may designate as Class I additional areas which they consider to have visibility as an important value, the requirements of the visibility program set forth in section 169A of the CAA apply only to "mandatory Class I Federal areas."

(42) The initials *NPRM* mean or refer to Notice of Proposed Rulemaking.
(43) The initials *O&M* mean or refer to operation and maintenance.
(44) The initials *OC* mean or refer to organic carbon.
(45) The initials *OFA* mean or refer to over fire air.
(46) The initials *PM* mean or refer to particulate matter.
(47) The initials PM_{10} mean or refer to particulate matter with an aerodynamic diameter of less than 10 micrometers (coarse particulate matter).
(48) The initials $PM_{2.5}$ mean or refer to fine particulate matter with an aerodynamic diameter of less than 2.5 micrometers.
(49) The initials *PNG* mean or refer to pipeline natural gas.
(50) The initials *ppm* mean or refer to parts per million.
(51) The initials *PSD* mean or refer to Prevention of Significant Deterioration.
(52) The initials *RACT* mean or refer to Reasonably Available Control Technology.
(53) The initials *RAVI* mean or refer to Reasonably Attributable Visibility Impairment.
(54) The initials *RATA* mean or refer to relative accuracy test audit.
(55) The initials *RHR* mean or refer to the Regional Haze Rule, originally promulgated in 1999 and codified at 40 CFR 51.301–309.
(56) The initials *RMB* refer to RMB Consulting & Research, Inc.
(57) The initials *RMC* mean or refer to Regional Modeling Center.
(58) The initials *RP* mean or refer to Reasonable Progress.
(59) The initials *RPG* or *RPGs* mean or refer to Reasonable Progress Goal(s).
(60) The initials *RPOs* mean or refer to regional planning organizations.
(61) The initials *SCR* mean or refer to Selective Catalytic Reduction.
(62) The initials *SIP* mean or refer to State Implementation Plan.
(63) The initials *SNCR* mean or refer to Selective Non-catalytic Reduction.
(64) The initials SO_2 mean or refer to sulfur dioxide.
(65) The initials *SOFA* mean or refer to separated over fire air.
(66) The initials *SRP* mean or refer to Salt River Project Agricultural Improvement and Power District.
(67) The initials *TCI* mean or refer to total capital investment.
(68) The initials *tpy* mean tons per year.
(69) The initials *TSD* mean or refer to Technical Support Document.
(70) The initials *VOC* mean or refer to volatile organic compounds.
(71) The initials *WA* mean or refer to Wilderness Area.
(72) The initials *WEP* mean or refer to Weighted Emissions Potential.
(73) The initials *WFGD* mean or refer to wet flue gas desulfurization.
(74) The initials *WRAP* mean or refer to the Western Regional Air Partnership.

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I. Background

A. Summary of Our Proposed Action

Our notice of proposed rulemaking (NPRM) was signed on July 2, 2012, and was published in the **Federal Register** on July 20, 2012.[2] In that notice, we proposed to approve in part and disapprove in part a portion of Arizona's Regional Haze SIP (submitted on February 28, 2011) and proposed a FIP to address the deficiencies in the disapproved portions of the SIP. The proposed rule addressed the BART requirements for eight units at three electric generating stations: Arizona Electric Power Company's (AEPCO) Apache Generating Station (Apache) Units 1, 2 and 3; Arizona Public Service's (APS) Cholla Power Plant (Cholla) Units 2, 3 and 4; and Salt River Project's (SRP) Coronado Generating Station (Coronado) Units 1 and 2. We did not propose action on any other part of Arizona's SIP related to the remaining requirements of the Regional Haze Rule (RHR). In summary, we proposed the following:

Proposed Approval: We proposed to approve Arizona's determination that the following sources and units are subject to BART: Apache Units 1, 2 and 3; Cholla Units 2, 3 and 4; and Coronado Units 1 and 2 (collectively "BART units"). We proposed to approve Arizona's BART emissions limits for SO_2 and PM_{10} at all three sources and units and the emissions limit for NO_X at Apache Unit 1.

Proposed Disapproval: We proposed to disapprove Arizona's BART emissions limits for NO_X at all of the coal-fired BART units (i.e., all of the BART units except for Apache Unit 1). We also proposed to disapprove the compliance schedules and requirements for equipment maintenance and operation, including monitoring, recordkeeping and reporting requirements for BART at all of the BART units, since these were not included in the SIP submittal.

Proposed FIP: The proposed FIP contained BART emissions limits for NO_X at all of the coal-fired BART units, as well as compliance deadlines and requirements for equipment maintenance and operation, including monitoring, recordkeeping and reporting, to ensure the enforceability of the BART limits for all of the BART units. Because our proposed FIP emission limits would likely result in changes in stack conditions from those anticipated in the SIP, we invited comment on whether an alternative test method to the one required in the SIP is acceptable for PM_{10}. In addition, we specifically sought comment on whether we should require lower SO_2 emissions limits or removal efficiency requirements for any of the coal-fired BART units. Finally, in the regulatory text in our NPRM, we proposed to incorporate by reference into the FIP two provisions of the Arizona Administrative Code, R18–2–310 and R18–2–310.01, which we characterized as establishing an affirmative defense for excess emissions due to malfunctions.[3]

B. Legal Basis for Our Final Action

Our action is based on an evaluation of Arizona's Regional Haze SIP submitted on February 28, 2011, to meet the requirements of Section 308 of the RHR. We evaluated the SIP against the requirements of the RHR and Clean Air Act (CAA) sections 169A and 169B. We also applied the general SIP requirements in CAA section 110. Our authority for action on Arizona's Regional Haze SIP is based on CAA section 110(k). Our authority to promulgate a FIP is based on CAA section 110(c).

II. Overview of Final Action

EPA is taking final action to approve in part and disapprove in part a portion of Arizona's SIP for Regional Haze, and to promulgate a FIP for the disapproved elements of the SIP. This final rule only addresses the BART requirements for the eight BART units identified above.

[2] 77 FR 42834.

[3] Those provisions also include an affirmative defense for excess emissions due to startups and shutdowns, which we did not intend to incorporate.

Most notably, and with the exception of Apache Unit 1, the FIP includes NO_X emission limits for all the units that are achievable with SCR. At this time, EPA is not taking action on the State's other BART determinations or any other parts of the SIP regarding the remaining requirements of the RHR.

EPA takes very seriously a decision to disapprove any state plan. To approve a state plan, EPA must be able to find that the state plan is consistent with the requirements of the CAA and EPA's regulations. Further, EPA's oversight role requires us to ensure fair implementation of CAA requirements by states across the country, even while acknowledging that individual decisions from source to source or state to state may not have identical outcomes. In this instance, for the reasons described in our proposal and in this document, we find that the State's NO_X BART determinations for the coal-fired units are not consistent with the applicable statutory and regulatory requirements. Furthermore, the Arizona Regional Haze SIP does not include the necessary compliance schedules and requirements for equipment maintenance and operation, including monitoring, recordkeeping and reporting requirements for BART. As a result, EPA believes this final disapproval is the only path that is consistent with the Act at this time.

We encourage the State to submit a revised SIP to replace all portions of our FIP, and are ready to work with the State to develop a revised plan. The CAA requires states to prevent any future and remedy any existing man-made impairment of visibility in 156 national parks and wilderness areas designated as Class I areas. Arizona has a wealth of such areas. The three power plants affect visibility at 18 national parks and wilderness areas, including the Grand Canyon, Mesa Verde and the Petrified Forest. The State and EPA must work together to ensure that plans are in place to make progress toward natural visibility conditions at these national treasures.

III. Final BART Determinations

This section is a summary of EPA's final action on the BART determinations for the BART units at Apache, Cholla and Coronado electric generating stations. Please refer to Table 1 that compares this final rule to the proposal that was published on July 20, 2012. Where EPA has modified our proposal to respond to comments or additional information, we explain our analysis in the next section titled "EPA's Responses to Comments." We have fully considered all comments on our proposal, and have concluded that some changes are warranted based on public comments and additional information we received in response to questions raised in the proposal.

Final Approval: EPA is approving Arizona's determination that the following sources and units are subject to BART: Apache Units 1, 2 and 3; Cholla Units 2, 3 and 4; and Coronado Units 1 and 2 (collectively "BART units"). We are approving the emissions limits for NO_X, PM_{10} and SO_2 at Apache Unit 1 as proposed. We are approving the State's emissions limits for PM_{10} and SO_2 for all the units.

Final Disapproval: Based on our evaluation described in the proposal and in this document, we are disapproving the State's BART emissions limits for NO_X at all the BART units except for Apache Unit 1, for which the SIP's BART determination consists of fuel switching to pipeline natural gas (PNG). We also are disapproving the compliance schedules and requirements for equipment maintenance and operation, including monitoring, recordkeeping and reporting requirements for BART at all the BART units since these were not included in the Arizona Regional Haze SIP.[4]

Final Federal Implementation Plan: We are promulgating a FIP that includes emissions limitations representing BART for NO_X at all the coal-fired BART units. The FIP also includes compliance schedules and requirements for equipment maintenance, monitoring, testing, recordkeeping and reporting for all the BART units. For PM_{10} at all units, we allow the use of Method 5 as an alternative to Method 201A/202. In addition, the FIP includes a removal efficiency requirement for SO_2 on Cholla Units 2, 3 and 4, which will ensure that the scrubbers on these units are properly operated and maintained. Finally, we are incorporating into the FIP an affirmative defense provision for excess emissions due to malfunctions.[5]

We have revised certain elements of our proposed FIP based on public comments and additional information as follows:

- *Apache Units 2 and 3:* The final emissions limit for NO_X is 0.070 pounds per million British thermal units (lb/MMBtu) determined as an average of the two units, based on a rolling 30-boiler-operating-day average. Compared to the proposed emissions limit of 0.050 lb/MMBtu on each unit, this higher limit and the addition of a two-unit average provides an extra margin of compliance to account for periods of startup and shutdown as well as additional operational flexibility for Apache given AEPCO's status as a small entity. When either one of the two units is not operating, its emissions from its own preceding thirty boiler-operating-days will continue to be included in the two-unit average. The final compliance date for this NO_X limit remains five years from the date of publication of this final rule. For SO_2 and PM_{10} we are extending the compliance deadline to four years from publication of this final rule in order to provide AEPCO with sufficient time to implement upgrades to the existing scrubbers and electrostatic precipitators (ESPs) at these units.
- *Cholla Units 2, 3 and 4:* The final emissions limit for NO_X is 0.055 lb/MMBtu determined as an average of the three units, based on a rolling 30-boiler-operating-day average. Compared to the proposed emissions limit of 0.050 lb/MMBtu on each unit, the higher limit and three-unit average provide an extra margin of compliance to account for periods of startup and shutdown. When any of the three units is not operating, its emissions from its own preceding thirty boiler-operating-days will continue to be included in the three-unit average. As proposed, the final compliance date to install and operate controls is five years from the date of publication of this final rule. For SO_2, we are adding a removal efficiency requirement of 95 percent for the scrubbers on Cholla Units 2, 3 and 4, in order to ensure that these scrubbers are properly operated and maintained, consistent with 40 CFR 51.308(e)(1)(v). We are retaining the other compliance deadlines as proposed, except for Cholla Unit 2, where we are extending the

[4] For each BART source, the SIP must include a requirement to install and operate control equipment as expeditiously as practicable (40 CFR 51.308(e)(1)(iv)); a requirement to maintain control equipment (40 CFR 51.308(e)(1)(v)); and procedures to ensure control equipment is properly operated and maintained, including requirements for monitoring, recordkeeping and reporting (40 CFR 51.308(e)(1)(v)).

[5] In the regulatory text in our NPRM, we proposed to incorporate by reference into the FIP two provisions of the Arizona Administrative Code, R18–2–310 and R18–2–310.01, which we characterized as establishing an affirmative defense for excess emissions due to malfunctions. However, those provisions also include an affirmative defense for excess emissions due to startups and shutdowns, which we did not intend to incorporate. As explained below, the emission limits that we are promulgating today include an adequate margin of compliance to account for periods of startup and shutdown. Accordingly, as indicated by the title of this provision in our proposed regulatory text ("Affirmative Defense for Malfunctions"), we are only incorporating into the FIP the malfunction-related provisions of these rules and not the startup and shutdown provisions. Our final regulatory text clarifies this distinction and also incorporates the definition of malfunction.

compliance deadline to April 1, 2016, for both SO_2 and PM_{10} in order to provide APS with sufficient time to install a new wet flue gas desulfurization (FGD) system and fabric filter on this unit.

• *Coronado Units 1 and 2:* The final emissions limit for NO_X is 0.065 lb/MMBtu determined as an average of the two units, based on a rolling 30-boiler-operating-day average. Compared to the proposed emissions limits of 0.050 on Unit 1 and 0.080 on Unit 2, this new limit based on a two-unit average provides an extra margin of compliance to account for startup and shutdown. When either one of the two units is not operating, its emissions from its own preceding thirty boiler-operating-days will continue to be included in the two-unit average. The final compliance date for the two units is five years from the date of publication of this final rule.

TABLE 1—SUMMARY OF CHANGES FROM PROPOSAL TO FINAL RULE: EMISSIONS LIMITS (LB/MMBTU) AND COMPLIANCE DATES IN SIP AND FIP

Source	NO_X		PM_{10}		SO_2	
	Proposal	Final	Proposal	Final	Proposal	Final
Apache Unit 1	0.056, Five years	0.056, Five years	0.0075, 180 days	0.0075, 180 days	0.00064, 180 days	0.00064, 180 days.
Apache Unit 2	0.050, Five years	0.070 (across two units)	0.03, 180 days	0.03, Four years	0.15, 180 days	0.15, Four years.
Apache Unit 3	0.050, Five years	Five years	0.03, 180 days	0.03, Four years	0.15, 180 days	0.15, Four years.
Cholla Unit 2	0.050, Five years	0.055 (across three units)	0.015, Jan 1, 2015	0.015, Apr 1, 2016	0.15, 180 days	Add 95 percent efficiency Apr 1, 2016.
Cholla Unit 3	0.050, Five years	Five years	0.015, 180 days ...	0.015, 180 days	0.15, 180 days	Add 95 percent efficiency 1 year.
Cholla Unit 4	0.050, Five years		0.015, 180 days ...	0.015, 180 days	0.15, 180 days	Add 95 percent efficiency 1 year.
Coronado Unit 1	0.050, Five years	0.065 (across two units)	0.03, 180 days	0.03, 180 days	0.08, 180 days	0.08, 180 days.
Coronado Unit 2	0.080, June 1, 2014.	Five years	0.03, 180 days	0.03, 180 days	0.08, 180 days	0.08, 180 days.

IV. EPA's Responses to Comments

We are responding to comments on our proposed rule published on July 20, 2012.[6] We held an initial public hearing in Phoenix, Arizona, on July 31, 2012. In response to concerns that more time was needed to analyze the proposal and develop comments, we added two additional public hearings in Holbrook and in Benson, Arizona, on August 14 and 15, respectively, and extended the public comment deadline to September 18, 2012.[7] The three public hearings were attended by hundreds of citizens, local and state government officials, workers and officials from the power plants, and representatives from environmental organizations. Testimony and comments from the three public hearings are organized in the docket by location and available for viewing at *www.epa.gov/region9/air/actions/arizona.html* and *http://www.regulations.gov.*

We also received a number of written comments, including extensive comments from stakeholders and government agencies who offered policy and technical analyses addressing the details of our proposed rule. These stakeholders included AEPCO, APS, SRP, PacifiCorp, Arizona Utilities Group (AUG), National Park Service (NPS), Arizona Department of Environmental Quality (ADEQ), and a consortium of conservation organizations (National Parks Conservation Association, Sierra Club, Physicians for Social Responsibility—Arizona Chapter, Dine' Citizens Against Ruining Our Environment, Grand Canyon Trust, and San Juan Citizens Alliance) represented by Earthjustice. All of the comments we received along with attached technical reports and analyses are available for review in the docket.

A. General Comments on ADEQ's Approach to BART

1. ADEQ's Identification of BART Sources

Comment: One commenter (Earthjustice) stated that EPA must provide further factual support for its determination that Cholla Unit 1 is not BART-eligible. The commenter indicated that the record lacks the requisite support for this conclusion. Recounting the history of ADEQ's finding that Unit 1 is not BART-eligible, the commenter noted that APS claimed, and ADEQ concurred, that Unit 1 is not BART-eligible based on a 50-year-old document entitled "Operating Notes For May 1962" which allegedly shows that Unit 1 began operations on May 1, 1962, and was thus placed into operation just months before the August 7, 1962, BART-eligibility cut-off. The commenter added that EPA apparently approved, without any scrutiny, ADEQ's determination that Cholla Unit 1 is not BART-eligible.

The commenter (Earthjustice) requested that EPA properly analyze the BART-eligibility of Cholla Unit 1. Specifically, the commenter requested that EPA identify which "aspects of the process by which ADEQ identified its eligible-for-BART and subject-to-BART sources" it disagrees with, the basis of each disagreement, and whether any such disagreement implicates Cholla Unit 1. In addition, the commenter stated that EPA's independent analysis of this issue must be supported by the following information, which is needed to verify the actual date that Cholla Unit 1 began operating:

• The document entitled "Operating Notes for May 1962" referenced in ADEQ's SIP;

• All available 1962 operating records for Cholla Unit 1;

• All initial CAA construction and operating permits issued to Cholla Unit 1;

• All emissions data from the year 1962 for Cholla Unit 1;

• Notes of the meeting between ADEQ and APS in August 2007 or any other time ADEQ and APS discussed the BART-eligibility of Cholla Unit 1; and

• Any other documentation that either supports or contradicts whether Cholla Unit 1 was placed into

[6] 77 FR 42834.

[7] 77 FR 45326 (July 31, 2012).

commercial operation before August 7, 1962.

Response: We did not specifically propose to take action on ADEQ's determination that Cholla Unit 1 is not BART-eligible and our statement that "we do not agree with all aspects of the process by which ADEQ identified its eligible-for-BART and subject-to-BART sources" was not intended to apply to this unit. Nonetheless, we agree with the commenter that it is appropriate to give some consideration to this issue in the context of today's rulemaking action, which covers ADEQ's BART determinations for the other three units at Cholla.

Contrary to the commenter's assertion, the WRAP did not find Cholla Unit 1 subject to BART. The WRAP document cited by the commenter merely indicates that ADEQ notified APS on July 13, 2007 that Cholla Units 1–4 were "Potentially Subject to BART."[8] The WRAP's "Arizona BART Eligibility TSD" further explains that:

> [Cholla] Unit 1 is listed as potentially date eligible as information shows that the emissions unit was in service only 2 months prior to the cut-off date. Recommend requesting additional supporting documentation for final determination.[9]

ADEQ received this additional documentation from APS in August 2007 in the form of a document dated May 23, 1962, and entitled "Operating Notes For May 1962."[10] This document indicates that, "[o]n Tuesday, May 1, 1962, unit [#1 was] placed into commercial operation."[11] After reviewing this documentation, ADEQ concurred that Unit 1 was not BART eligible.[12]

Following the close of the public comment period, we requested and received from APS a copy of the "Operating Notes For May 1962" along with additional information concerning the operation of Cholla Unit 1.[13] We have placed these materials in the docket and, based on our initial review, we believe this documentation is sufficient to confirm ADEQ's determination that this unit is not BART-eligible. However, because this question was not addressed in our proposed rulemaking, we are not taking final action on it at this time. We intend to address Cholla Unit 1's BART eligibility when we take action on the remainder of the Arizona Regional Haze SIP.

2. ADEQ's BART Control Analyses

Comment: One commenter (PacifiCorp) states that EPA improperly focuses on only two factors, costs and visibility improvement, in rejecting the ADEQ's entire NO_X BART determination. The commenter states that EPA inappropriately places more weight on these factors.

Response: EPA disagrees with the comment that we inappropriately focused on costs and visibility improvement in our decision to disapprove ADEQ's NO_X BART determinations. As outlined in our proposal, we considered ADEQ's evaluation of the energy and non-air quality environmental impacts of compliance of the control technologies, any existing pollution control technology in use at each of the sources, and the remaining useful life of each source, to be generally reasonable and consistent with the RHR and the BART Guidelines.[14] However, we also found that the costs of control were not calculated in accordance with the BART Guidelines, and that the visibility impacts were not appropriately evaluated and considered. These findings formed part of the basis for our disapproval of ADEQ's NO_X BART determinations.

Comment: Several commenters objected to EPA's use of non-specific and undefined parameter levels for both the "cost-effectiveness" and "sufficient visibility improvement" parameters in rejecting ADEQ's SIP. One commenter (Pacificorp) further noted that states cannot meet EPA's specific targets unless and until those targets are clearly defined.

Response: The RHR and the BART Guidelines do not require the development of specific thresholds, but rather require evaluation of each BART determination on a case-by-case basis for each source.[15] We have not established a specific cost threshold that makes a particular control option BART based on just a dollars per ton number, and there is not a specific target, either in terms of cost-effectiveness or visibility improvement, for ADEQ to meet. All five factors must be evaluated and weighed to determine the level of control that is BART on a case-by-case basis.

a. ADEQ's Approach to Costs of Compliance

Comment: One commenter (NPS) agreed with EPA's conclusions that the costs of control were not calculated by ADEQ in accordance with the BART Guidelines and that costs were included for items not allowed by EPA Control Cost Manual (CCM or the Manual) (e.g., owner's costs, surcharge, escalation, and Allowance for Funds Utilized During Construction—AFUDC), which inflates the total cost of compliance and the cost per ton of pollutant reduced. According to the commenter, a review of industry data (detailed in Appendix A of the commenter's submission) indicates that the total capital investment (TCI) for SCR retrofits is typically about $200/kW, while the TCI estimates for Apache and Cholla equaled or exceeded $250/kW.

The commenter (NPS) noted that the BART Guidelines recommend use of the Manual if vendor data are not available. The commenter conducted detailed cost analyses of SCR using an approach that the commenter believes is similar to that used by EPA in its evaluation of SCR on the Colstrip power plant—using the cost methodologies of the Manual and relying on EPA's Integrated Planning Model (IPM) to reflect the most recent cost levels. The commenter observed that most of the ADEQ SCR cost estimates were based on TCI costs that were relatively high ratios of the reported direct capital costs (DCC). The commenter indicated that according to the Manual, the ratio of TCI to DCC is 141 percent, while ADEQ's estimates were as follows:

- At Apache, TCI is 179 percent of DCC for both units and included $6 million in costs for each unit not typically allowed by EPA.
- At Cholla, TCI is 258 percent of DCC for all three units and included $11 million in costs for Units 2 and 3 (each) and $15 million for Unit 4 that are not typically allowed by EPA.
- At Coronado, data were not sufficient to calculate these values.

The commenter asserted that this supports EPA's concern that control costs submitted by the utilities either included costs not typically allowed by EPA or were inadequately documented.

Response: We appreciate the information provided by the National Park Service and are in agreement that ADEQ's cost estimates of SCR are overestimated. As indicated in our proposal, our cost estimates for SCR generally produced lower values than those in the Arizona Regional Haze SIP,

[8] Exhibit 17 to Earthjustice Comments, WRAP BART Clearinghouse (Oct. 24, 2008).

[9] "Supporting Documentation on Emissions Unit Bart Eligibility Analysis", section 5.1.2.

[10] Arizona Regional Haze SIP at page 155.

[11] *Id.*

[12] *Id.*

[13] Email from Sue Kidd, APS, to Colleen McKaughan, EPA (October 10, 2012, 9:17 a.m.) and attachments.

[14] See 77 FR 42841.

[15] See, e.g., BART Guidelines, 40 CFR Part 51, Appendix Y, section IV.D.5 ("a 0.3 deciview improvement may merit a stronger weighting in one case versus another, so one "bright line" may not be appropriate.")

and at a level that we consider cost-effective. Although we recognize that NPS's estimates produce even lower values than those from our proposal, we have not updated our own cost estimates to reflect NPS's comments since we already consider SCR to be cost-effective. We do note that in order to address the comments from the utilities, we have performed supplemental cost analyses for each facility based on the costs provided by the utilities, and in doing so have accounted for those costs not allowed by CCM methodology.

Comment: Two commenters (ADEQ and AUG) stated that EPA did not and cannot show that ADEQ failed to consider relevant cost information in making its BART determination, the State fully complied with its CAA obligations, and EPA's rationale is insufficient to reject ADEQ's cost determinations. AUG asserted that:

> Arizona has expressly stated that it has considered each of the BART factors. EPA plainly cannot—and does not—demonstrate that Arizona failed to take the costs of compliance with BART emission limits into consideration. The state is required to do no more than that, and EPA cannot lawfully disapprove the state's determinations on the basis that the Agency would prefer a different form of, or format for, explanation of those determinations.

The commenters further stated that the other reason EPA rejected ADEQ's cost determinations is that EPA believed that ADEQ relied on inadequately documented costs. The commenters contended that there is nothing in the CAA or BART rules that requires a state to present any particular level of cost documentation or that limits a state's discretion in its consideration of the cost factor in making a BART determination.

Response: We disagree with this comment. First, while Arizona may have "expressly stated" that it considered each of the BART factors, it must do more than "state" that it considered a BART factor, but must also provide some type of analysis demonstrating that it considered the BART factors.[16] Although ADEQ has presented information relevant to each of the BART factors, it has not provided an explanation regarding how this information was used to develop its BART determinations. Specifically in the case of cost calculations, the Arizona Regional Haze SIP includes relevant information for multiple NO_X control options, but does not provide evidence that this information has been analyzed in any way. In the case of Apache and Coronado, the Arizona Regional Haze SIP does not analyze this cost information in even a qualitative manner. In the case of Cholla, the terms "least expensive" and "most expensive" are used, but only in the context of providing a reference for visibility impacts, and not in the context of an evaluation of costs. This does not constitute "consideration," as it involves little more than ensuring the presence of cost values, with no judgment, analysis, or interpretation of their meaning.

Second, we disagree with the commenter's characterization of our disapproval as based on a "preference" for a different format or form of explanation for ADEQ's BART determinations. As discussed in the previous paragraph, ADEQ has not discussed its BART determination rationale, particularly with regard to costs of compliance, in *any* format. While ADEQ's RH SIP does include cost information, it provides no explanation regarding how, or even if, this cost information was used in arriving at its NO_X BART determinations. Although we agree that the RHR does provide states significant discretion in their consideration of the BART factors, AUG's comment presupposes that these costs were considered. The Arizona Regional Haze SIP does not indicate that they were considered.

Comment: ADEQ noted that the same principles were used for the PM_{10} and SO_2 BART evaluations as were used for the NO_X BART evaluation, yet EPA accepted the approach for only PM_{10} and SO_2.

Response: We disagree that we accepted ADEQ's approach for PM_{10} and SO_2. Although we did not disapprove ADEQ's PM_{10} and SO_2 BART determinations, the absence of a disapproval of these determinations should not be construed to represent acceptance of the approach by which they were developed. We acknowledge that ADEQ took a similar approach in its analyses for PM_{10} and SO_2 as for NO_X, and that these analyses exhibit the same deficiencies we have noted elsewhere for the NO_X BART determinations. However, we did not disapprove the PM_{10} and SO_2 determinations because we find that the shortcomings in these analyses did not result in unreasonable BART determinations and therefore were generally "harmless errors."

With regard to PM_{10}, we note that ADEQ determined the most stringent control technology (fabric filters) was BART for each of the Cholla units. For Apache and Coronado, ADEQ determined that the current control technology (hot-side ESPs) was BART and eliminated the most stringent control technology (fabric filters). We note that PM emissions from EGUs typically contribute only a small percentage of the modeled visibility impact from EGUs, and that controlling their emissions results in very small visibility benefit. For example, CALPUFF visibility modeling performed by WRAP indicates that for Apache, the maximum baseline PM_{10} visibility impact at the most affected Class I area (Chiricahua NM) is 0.04 dv.[17] Assuming that a more stringent control technology could achieve 100 percent PM control and eliminate this entire visibility impact, a more stringent PM_{10} BART determination would therefore achieve, at most, a visibility benefit of 0.04 dv. Although ADEQ did not document its analysis or weighing of the five factors in arriving at the PM_{10} BART determinations for Apache or Coronado, additional analysis would not have the potential to result in selection of a more stringent control technology in light of the small potential for visibility benefit.

With regard to SO_2, ADEQ selected the most stringent control technology (wet FGD) for all units at Apache, Cholla, and Coronado. Although ADEQ did not "take into account the most stringent emission control level that the technology is capable of achieving," correcting for this flaw would not have the potential to result in the selection of a more stringent control technology, since wet FGD, which is the most stringent control technology, was already selected as BART. Further discussion of our evaluation of ADEQ's BART analyses for PM_{10} and SO_2 is provided below.

Comment: The commenters stated that one of EPA's reasons for rejecting ADEQ's cost determinations is because the costs are inconsistent with the CCM. The commenters noted that use of the outdated Manual is not required by the CAA or the BART rules and provide references in which EPA has stated that the Manual is only one tool that can be used but that other cost data should also be considered.

Response: We partially agree with this comment. We acknowledge that our BART guidelines state, "In order to maintain and improve consistency, cost estimates should be based on the [CCM], where possible" and that "[w]e believe that the [CCM] provides a good

[16] See, e.g., BART Guidelines, 40 CFR Part 51, Appendix Y, section IV.E.2. ("You should provide a justification for adopting the technology that you select as the 'best' level of control, including an explanation of the CAA factors that led you to choose that option over other control levels.")

[17] See Docket Item No. B–12, "Summary of WRAP RMC BART Modeling for Arizona."

reference tool for cost calculations, but if there are elements or sources that are not addressed by the Control Cost Manual or there are additional cost methods that could be used, we believe that these could serve as useful supplemental information." [18] The Manual contains two types of information: (1) Study level cost estimates of capital and operation and maintenance (O&M) costs for certain specific types of pollution control equipment, such as SCR, and (2) a broader costing methodology, known as the overnight method. We agree that the language of the BART Guidelines does not require strict adherence to the study level equations and cost methods used to estimate capital and O&M costs.

We consider the use of the broader costing methodology used by the CCM, the overnight method, as crucial to our ability to assess the reasonableness of the costs of compliance. Evaluation of the cost of compliance factor requires an evaluation of the cost-effectiveness associated with the various control options considered for the facility. A proper evaluation of cost-effectiveness allows for a reasoned comparison not only of different control options for a given facility, but also of the relative costs of controls for similar facilities. If the cost-effectiveness of a control technology for a particular facility is outside the range for other similar facilities, the control technology may be rejected as not cost-effective.[19] In order for this type of comparison to be meaningful, the cost estimates for these facilities must be performed in a consistent manner. Without an 'apples-to-apples' comparison of costs, it is impossible to draw rational conclusions about the reasonableness of the costs of compliance for particular control options. Use of the CCM methodology is intended to allow a fair comparison of pollution control costs between similar applications for regulatory purposes. This is why the BART guidelines specify the use of the CCM where possible [20] and why it is reasonable for us to insist that the CCM methodology be observed in the cost estimate process. However, we note that the overnight method has been used for decades for regulatory control technology cost analyses, and that its use ensures equitable BART determinations across states and across sources.

Comment: One commenter (SRP) stated that ADEQ appropriately considered the "dollars-per-deciview" cost-effectiveness of different control options, which is reasonable and entirely within the broad discretion afforded to the states under the CAA. SRP stated that because BART is a component of the CAA's visibility program, it is more crucial to evaluate control costs in relation to the visibility improvements that may be expected using a dollars per deciview ($/dv) metric.

Response: The BART Guidelines require that cost-effectiveness be calculated in terms of annualized dollars per ton of pollutant removed, or $/ton, but also list the $/deciview ratio as an additional cost-effectiveness measure that can be employed along with $/ton for use in a BART evaluation.[21] However, the $/dv metric is only useful to the extent that it reflects appropriately calculated costs and visibility benefits. As explained elsewhere in this document, we have determined that ADEQ did not evaluate costs and visibility benefits in a manner consistent with the RHR and the BART Guidelines. Therefore, while ADEQ certainly had the discretion to take $/dv into consideration as part of its BART analyses, the values that it relied upon in doing so were not reasonable.

b. ADEQ's Approach to Energy and Non-Air Quality Environmental Impacts

Comment: One commenter (SRP) stated that EPA inappropriately downplayed the energy and non-air quality factor in its review of ADEQ's BART analysis. Another commenter (ADEQ) noted that because fly ash ammonia residues have the potential to contaminate ground and surface waters, ADEQ included potential environmental impacts and the economics of disposing the fly ash in its BART analysis.

Response: We do not agree that we inappropriately downplayed the energy and non-air quality environmental impacts factor in our review of ADEQ's BART analyses. ADEQ provided only brief consideration of this factor in its BART analyses and did not explain how it weighed this factor against the other statutory factors. Because ADEQ's analysis of this factor was limited in scope, our evaluation of this factor in reviewing the SIP was similarly limited. We discuss our analysis of this factor in our FIP action below.

c. ADEQ's Approach to Degree of Visibility Improvement

Comment: Several commenters (American Coalition for Clean Coal Electricity (ACCCE), AEPCO, APS, AUG, Navajo Nation, PacifiCorp, SRP) asserted that EPA improperly dismissed ADEQ's visibility impacts analyses. The commenters cited the BART Guidelines (70 FR 39170, July 6, 2005) to assert that there is no prescribed method for states to consider and weigh visibility impacts and, thus, EPA has no legal grounds for disapproving a SIP based on the method the State has chosen to consider visibility impacts or improvements. The commenters added that whatever EPA's preference, it has no discretion to substitute its method or its conclusion for those of the State. According to the commenters, it is clear that the BART rules envision—or, at a minimum, allow—a visibility improvement analysis that is focused on visibility impacts in the most impacted area.

Regarding ADEQ's BART determination at Coronado in particular, one commenter (SRP) noted that ADEQ evaluated a visibility index derived from an average of modeled visibility improvements at the nine Class I areas closest to Coronado. The commenter asserted that this approach was well within the State's discretion to assess visibility under the BART rules. Another commenter (AUG) argued this consideration of an average visibility impacts index is an even more thorough type of evaluation than that required by the BART rules.

One commenter (AEPCO) added that EPA's proposal to disapprove ADEQ's NO_X BART determinations was largely based on its concern with ADEQ's reliance on the Western Regional Air Partnership (WRAP) modeling.

By contrast, another commenter asserted that since the facilities' modeling results indicated that controls would contribute to visibility improvements in multiple Class I areas, ADEQ should consider these benefits rather than looking at the benefits in only a single Class I area. The commenter believes that overlooking significant visibility benefits in this way considerably understates the overall benefit of controls to improved visibility. The commenter contended that the procedure followed by ADEQ is not a sufficient basis for making BART determinations for sources with substantial benefits across many Class I areas.

Response: EPA's proposed disapproval of ADEQ's NOx BART determinations was not based on any concern with the WRAP modeling

[18] BART Guidelines, 40 CFR Part 51, Appendix Y, section IV.D.4.a.

[19] See *Id.* section IV.D.4.f ("A reasonable range [of cost-effectiveness values] would be a range that is consistent with the range of cost-effectiveness values used in other similar permit decisions over a period of time.")

[20] BART Guidelines, 40 CFR Part 51, Appendix Y, section IV.D.4.

[21] BART Guidelines sections IV.D.4.c and IV.E.

protocol, upon which ADEQ relied for its BART analyses. On the contrary, we found that the modeling procedures relied upon by ADEQ were "in accord with EPA guidance." [22] However, we noted that ADEQ's use of the results of modeling in making BART decisions was "problematic in several respects." [23] In other words, our concern with the visibility analysis was not with the technical adequacy of the modeling itself, but rather with how ADEQ interpreted the results of this modeling.

In its BART analyses for Apache and Cholla, ADEQ considered visibility improvements only at the single Class I area with the greatest modeled impact from a facility. This neglects improvements that would occur at other nearby Class I areas, and in general is not adequate for assessing the overall visibility benefit from candidate BART controls. As noted by commenters, the BART Guidelines provide that, "[i]f the highest modeled impacts are observed at the nearest Class I area, [a State] may choose not to analyze the other Class I areas any further and additional analyses might be unwarranted." [24] Commenters argued that this language shows that Arizona's exclusive focus on improvements at a single Class I area is allowed under the BART Guidelines. However, this language is not intended as an invitation for states to ignore significant visibility improvements at multiple Class I areas. Rather, it is intended to provide a way of streamlining a complex and difficult modeling exercise where "an analysis may add a significant resource burden to a State." [25] For example, when the visibility benefits at the most impacted Class I area alone are sufficient to justify the selection of the most stringent control technology as BART, then analysis of additional areas would be unnecessary and the state could conserve resources by not modeling the impacts on those additional areas. Here, by contrast, ADEQ did not perform its own modeling at all, but instead relied on modeling performed by contractors for the facilities. This modeling indicated that the installation of more stringent controls (i.e., SNCR or SCR) would result in visibility benefits at multiple Class I areas, yet ADEQ chose to consider the benefits only at the most impacted area. Where, as here, the benefits of controls have been modeled for a number of surrounding areas and consideration of these benefits is useful in determining the appropriate level of controls, EPA does not agree that these benefits may be ignored.[26]

While there may be no single prescribed method to consider and weigh visibility impacts, the BART Guidelines do require that certain visibility impacts be included in the considering and weighing. EPA disagrees that state flexibility extends to categorically excluding consideration of visibility improvements occurring at multiple Class I areas. Considering benefits at multiple areas does not necessarily require use of the "cumulative" improvement approach (i.e., the direct sum of improvements at all the areas), but does require that improvements at those areas be taken into account in some way. For example, one could simply list visibility improvements at the various areas, and qualitatively weigh the number of areas and the magnitudes of the improvements. However, ADEQ did not do this for any of the sources covered by this action.

With respect to ADEQ's consideration of visibility improvements for Coronado, EPA agrees that average visibility index used by ADEQ could be acceptable in itself as part of assessing multiple area impacts and improvements; indeed it is a variant of the cumulative improvement approach. However, without any consideration of particular area improvements, the averaging process causes especially large benefits at some individual areas to be diluted or lost, effectively discounting some of the more important effects of the controls. In addition, the approach is counter to ADEQ's emphasis elsewhere in the SIP on the importance of considering the visibility improvement at the single area having the largest impact from a given facility. Finally, ADEQ provided no discussion of how the results of the visibility index were weighed against the other BART factors.

In addition, ADEQ considered visibility improvements from controls on only a single emitting unit at a time, despite the fact that each of the three sources has multiple BART-eligible units. This neglects the full improvement that would result from controls on the facility, with the potential for dismissing emitting unit benefits that are individually small, but that collectively could have a significant visibility benefit. The RHR requires RH SIPs to include a "determination of BART for each BART-eligible source in the State that emits any air pollutant which may reasonably be anticipated to cause or contribute to any impairment of visibility in any mandatory Class I Federal area." [27] The BART Guidelines explain that, "[i]f the emissions from the list of emissions units at a stationary source exceed a potential to emit of 250 tons per year for any visibility-impairing pollutant, then that collection of emissions units is a BART-eligible source." [28] Therefore, it is that collection of units for which one must make a BART determination. The Guidelines state "you must conduct a visibility improvement determination for the source(s) as part of the BART determination. * * *" [29] This requires consideration of the visibility improvement from BART applied to the facility as a whole.

The RHR and the Guidelines do not preclude consideration of visibility improvement from controls on individual units, but that would be in addition to considering the improvement from the whole facility. The BART Guidelines clearly allow for the consideration of technical feasibility and cost-effectiveness on a unit-by-unit basis where appropriate, but those considerations fall under different factors than the assessment of the degree of visibility improvement, and do not remove the obligation to consider visibility improvement from BART applied to the facility as a whole. In sum, while the State has some flexibility in choosing a specific procedure to consider these cumulative area and multiple unit benefits, when such benefits are significant, it is not reasonable to ignore them altogether as ADEQ did.

Comment: One commenter (NPS) agrees with EPA that the ammonia background concentration assumed by ADEQ for Cholla and Coronado may be too low, ranging from 1 part per billion (ppb) down to 0.2 ppb. According to the commenter, EPA guidance recommends the use of a 1 ppb ammonia background for areas in the west, absent compelling evidence to the contrary.

Other commenters (APS and AUG) state that the Interagency Workgroup on Air Quality Modeling (IWAQM) recommended value of 1ppb is outdated and should not be used now that better data have been gathered and since the CALPUFF model was updated to allow for monthly, rather than yearly, average ammonia concentrations. APS also noted that EPA Region 9 has explicitly

[22] 77 FR 42841.

[23] *Id.*

[24] BART Guidelines, 40 CFR Part 51, Appendix Y, section IV.D.5.

[25] See 70 FR 39126.

[26] See, e.g., 76 FR 52388, 52430 (San Juan Generating Station); 77 FR 51620, 51631–51632 (Four Corners Power Plant); and 77 FR 51915, 51922–51923 (Roseton and Danskammer Generating Stations).

[27] 40 CFR 51.308(e)(1)(ii).

[28] 40 CFR Part 51, Appendix Y, section II.A.4.

[29] *Id.* section IV.D.5.

approved the use of the same monthly-varying background ammonia concentrations, which were based on actual field measurements, in running the CALPUFF model for two other sites located close to Cholla and that were used by ADEQ in its analysis. These values range from 1 ppb during the summertime to 0.2 ppb during cold winter months. EPA has also stated in response to comments on the Montana regional haze FIP (77 FR 57864, September 18, 2012) that "it is preferable to use ambient ammonia measurements when such data are available rather than using default background ammonia concentrations." Another commenter (Navajo Nation) agrees that EPA should use actual, recorded data wherever possible, especially ammonia background values. AUG concludes that EPA has no basis for rejecting the use of refined background ammonia concentration values in disapproving the SIP.

Response: The IWAQM Guidance [30] is the only guidance available for choosing ammonia background concentrations. Because of the paucity of monitoring data and the uncertainty in other ammonia estimation methods, EPA concludes that it is appropriate to use the default 1 ppb from the IWAQM Guidance.

As stated by the commenter, EPA did originally accept monthly varying ammonia values of 0.2 to 1.0 ppb for BART analyses performed by AECOM for APS for the Four Corners Power Plant (FCPP), and by SRP for the Navajo Generating Station (NGS). However, shortly after that, the USDA Forest Service brought to EPA's attention ammonia monitored in the Four Corners area showing concentrations up to 3 ppb, described in a journal paper [31] by Mark Sather and others. EPA and the Forest Service also estimated ammonia concentrations by "back calculating" the amount of ammonia needed to form the ammonium nitrate and ammonium sulfate collected at Arizona and New Mexico sites in the IMPROVE monitoring network. This yielded concentrations ranging from 0.4 to 1.3 ppb, with winter values considerably higher than the AECOM 0.2 ppb recommended by the commenter.[32] Since this method accounts only for ammonium, and not remaining free gaseous ammonia, the total ammonia originally available to form visibility-impairing compounds may actually be higher. Because of uncertainty in the "back-calculation" method, and criticism of it, EPA relied on it in the FCPP FIP only as corroboration for the IWAQM default of 1 ppb.[33] Nevertheless, it supports the idea that winter ammonia levels in the Class I areas affected by emissions from sources in Arizona are likely substantially higher than 0.2 ppb.

EPA agrees with commenters that it would be preferable to use actual monitoring data to determine background ammonia concentrations. However, much of the existing data cited by the commenters is from other states, and so is unlikely to be representative for evaluating visibility impacts at Arizona's Class I areas. Further, the data comprises only ammonia itself, and not ammonium; or if it does include ammonium, that is not cited by the commenters. Visibility-impairing ammonium sulfate and ammonium nitrate are formed from ammonia, SO_2, and NO_X. Therefore the ammonium represents part of the pool of ammonia that could be available to interact with the SO_2 and NO_X from a facility and contribute to visibility impacts, and should be accounted for in estimating ammonia background concentrations. In several of the research papers [34] cited by commenter APS, the amount of measured ammonium is comparable to and at times much greater than the amount of ammonia.

New ammonia monitoring data were collected by SRP at several sites between NGS and the two nearest Class I areas, Capitol Reef National Park and Grand Canyon National Park, from December 2009 through April 2010. The monitoring report,[35] cited by commenter APS, describes a surprisingly high spatial variability in ammonia concentrations. The two monitors in the Cameron area south of NGS (and east-southeast of the Grand Canyon) showed consistent concentration differences despite being less than five miles from each other; this may be due to relatively localized ammonia sources. These sites also showed consistently lower measurements than the Halls Crossing site, north of NGS (and southwest of Capitol Reef). The range in concentrations was comparable to the range seen between the AECOM values at the low end, and EPA's back-calculated values at the high end. Unfortunately, because of the variability and its unknown causes, the data collected did not lead to a clear picture of appropriate and representative ammonia background concentrations to use with CALPUFF.

In any case, as mentioned above, some nearby monitored data reported in Sather's paper show considerably higher ammonia than recommended by some commenters, so it is not clear that values lower than 1 ppb should be used. EPA concludes that there is not a compelling case for using ammonia background concentrations other than the 1 ppb found in the only authoritative guidance document available on this topic and supported by the FLMs.

Comment: Two commenters (APS and AUG) noted that the RHR and BART Guidelines are silent regarding whether visibility improvements should be modeled on a unit-by-unit basis or a plant-wide basis, and there is no legal requirement that units be modeled aggregately. Given that visibility benefits are approximately additive, the commenters contend that it is unreasonable for EPA to conclude that

[30] *Interagency Workgroup On Air Quality Modeling (IWAQM) Phase 2 Summary Report And Recommendations For Modeling Long Range Transport Impacts* (EPA–454/R–98–019), EPA OAQPS, December 1998, *http://www.epa.gov/scram001/7thconf/calpuff/phase2.pdf.*

[31] Mark E. Sather *et al.*, "Baseline ambient gaseous ammonia concentrations in the Four Corners area and eastern Oklahoma, USA". *Journal of Environmental Monitoring*, 2008, 10, 1319–1325, DOI: 10.1039/b807984f.

[32] See, e.g., Proposed Rule: Source Specific Federal Implementation Plan for Implementing Best Available Retrofit Technology for Four Corners Power Plant: Navajo Nation Technical Support Document, pages 59–61, 65–66, 68–73.

[33] *Id.* at page 68.

[34] *RoMANS—Rocky Mountain Atmospheric Nitrogen & Sulfur Study*, William C. Malm and Jeffrey L. Collett. National Park Service, CSU–CIRA, Fort Collins, CO. ISSN 0737–5352–84. October 2009. *http://www.nature.nps.gov/air/Studies/romans.cfm.* Table 3.9 on p.3–38 shows ammonium comparable to or about half of ammonia, depending on measurement method. It also shows that the spring time mean and maximum ammonium are about 0.22 and 0.57 μg/m³, respectively, or 0.38 and 0.78 ppb; and the mean and maximum ammonia are about 0.38 and 1.0 μg/m³ or 0.51 and 1.4 ppb. The sum of these means and maxima is 0.81 and 2.2 ppb, respectively. Figure 4.26 on p.4–26 shows daily sums of ammonium and ammonia, with values of 2.5–5 μg/m³ or 3.6–7.2 ppb occurring frequently. These are substantially higher than values cited by the commenters. "NH_3 Monitoring in the Upper Green River Basin, Wyoming", by John V. Molenar, H. James Newell, Jeffrey Collett, *et al.* Extended Abstract #70, A&WMA Specialty Conference "Aerosol & Atmospheric Optics: Visual Air Quality and Radiation", Moab, Utah, 28 April—2 May 2008, p.3 Figure 1 and p.4 Figure 3 show ammonium comparable to ammonia in summer and far greater in winter. "Aerosol Ion Characteristics During the Big Bend Regional Aerosol and Visibility Observational Study," Taehyoung Lee, Sonia M. Kreidenweis & Jeffrey L. Collett Jr. *Journal of the Air & Waste Management Assoc.* vol.54, issue 5, 2004, pages 585–592. DOI:10.1080/10473289.2004.10470927, Table 1 p. 587 shows ammonium about four times as high as ammonia.

[35] "Measurements of Ambient Background Ammonia on the Colorado Plateau and Visibility Modeling Implications", Salt River Project, Dr. Ivar Tombach, Consultant, and Robert Paine, AECOM Environment, September 2010.

ADEQ's BART analyses failed to consider any significant visibility effect merely because ADEQ modeled the units separately. In addition, AUG notes that it is necessary to determine the effects of emissions from units individually so that projected visibility impacts can be considered in light of costs and other impacts associated with BART-candidate controls for that particular unit, and modeling units together could obscure these comparisons.

Response: Considering the visibility benefits of multiple units together does not preclude a state from also considering individual unit benefits, as well as individual unit costs. EPA does not agree that modeling the units together obscures these other comparisons. Rather, the benefit of controls for an entire BART-eligible source is a factor that should be considered along with those other comparisons. In any case, whether considered unit by unit or all units together, visibility improvement has no effect on the assessment of cost-effectiveness as measured by dollars per ton of reductions.

B. Comments on ADEQ's Individual BART Analyses and Determinations

1. ADEQ's BART Analyses and Determinations for Apache Unit 1

Comment: One commenter (NPS) concurred with ADEQ's and EPA's proposals for BART at Apache Unit 1.

Response: We acknowledge NPS's concurrence.

2. ADEQ's BART Analyses and Determinations for Apache Units 2 and 3

a. ADEQ's BART Analysis and Determination for NO_X

Comment: One commenter (Earthjustice) commended EPA's decision to disapprove ADEQ's NO_X BART determination for Apache Units 2 and 3. The commenter stated that EPA correctly concluded that ADEQ's BART determination for NO_X inflated the costs of more-stringent NO_X controls by including costs not allowed by EPA Cost Control Manual, provided little reasoning about the visibility benefits of additional NO_X controls, and did not weigh the visibility impacts at all nearby Class I areas. The commenter asserted that because ADEQ's BART analysis does not comply with the RHR's requirements, EPA must disapprove ADEQ's BART determinations for Apache Units 2 and 3.

Response: We agree that ADEQ's BART analysis for Apache Units 2 and 3 does not comply with the RHR's requirements. As discussed further below, we performed a supplemental analysis using the version of AEPCO's cost estimate that adheres to our assumptions regarding costs that are allowed by the CCM (i.e., capital costs for the installation of SCR with LNB and OFA of $164.9 million), and we also considered the fact that AEPCO is a small entity under the Regulatory Flexibility Act.[36]

b. ADEQ's BART Analysis and Determination for PM_{10}

Comment: One commenter (NPS) agreed with ADEQ and EPA that BART for PM_{10} at Apache Units 2 and 3 is upgrades to the existing electrostatic precipitators (ESPs) and a PM_{10} emissions limit of 0.03 lb/MMBtu. The commenter noted that ADEQ stated that PM_{10} emissions would be measured by conducting EPA Method 201/202 tests.

In contrast, a second commenter (Earthjustice) disagreed with EPA's proposal to approve ADEQ's PM_{10} BART determination for Apache Units 2 and 3. The commenter contended that EPA proposed to approve the BART determination despite acknowledging that ADEQ did not conduct a full BART analysis for PM_{10} because it overestimated costs and failed to consider upgrades to the existing ESPs. However, the commenter believes that lower emission rates are achievable and, as a result, that EPA should disapprove ADEQ's BART determination, conduct a full five-factor BART analysis and set a lower emission limit as BART for PM_{10}. According to the commenter, the Sahu report demonstrates that nearly 150 EGUs across the nation with a variety of PM controls achieve emission rates lower than 0.03 lb/MMBtu. The commenter asserted that neither ADEQ nor EPA provided any explanation why Apache Units 2 and 3 could not similarly meet a lower emission limit.

Response: As we noted in our proposal, ADEQ's BART analysis did not demonstrate that all potential upgrades to the existing ESPs at Apache Units 2 and 3 were fully evaluated or that the costs were calculated in compliance with the Control Cost Manual. However, we concluded that this was a harmless error because of the relatively small visibility improvement associated with PM_{10} reductions from these units.[37] Therefore, we proposed to approve ADEQ's determination that BART for PM_{10} at Apache Units 2 and 3 is upgrades to the existing ESPs and a PM_{10} emissions limit of 0.03 lb/MMBtu.

One commenter asserted that this limit is too lenient, since other coal-fired units are achieving lower limits, based on test data submitted by various utilities to EPA as part of an Information Collection Request (ICR) for the Mercury and Air Toxics (MATS) Rule.[38] EPA disagrees with this comment. The MATS Rule establishes an emission standard of 0.030 lb/MMBtu filterable PM (as a surrogate for toxic non-mercury metals) as representing Maximum Achievable Control Technology (MACT) for coal-fired EGUs.[39] This standard derives from the average emission limitation achieved by the best performing 12 percent of existing coal-fired EGUs (taking into account the variability in the testing results for these facilities), based upon to the same test data referred to by the commenter.[40] The BART Guidelines provide that, "unless there are new technologies subsequent to the MACT standards which would lead to cost-effective increases in the level of control, you may rely on the MACT standards for purposes of BART."[41] Therefore, we are approving ADEQ's determination that a PM_{10} limit of 0.03 lb/MMBtu represents BART for these units.

c. ADEQ's BART Analysis and Determination for SO_2

Comment: One commenter (Earthjustice) disagreed with EPA's proposal to approve ADEQ's SO_2 BART determination at Apache Units 2 and 3. The commenter states the approval is contrary to the RHR because ADEQ's BART determination is not supported by a valid five-factor analysis. The commenter states that EPA cannot speculate that it would reach the same conclusion as ADEQ, and it must undertake an independent full five-

[36] As explained in our proposal, a firm primarily engaged in the generation, transmission, and/or distribution of electric energy for sale is small if, including affiliates, the total electric output for the preceding fiscal year did not exceed 4 million megawatt hours. 77 FR 42867. AEPCO sold under 3 million megawatt hours in 2011 and is therefore a small entity.

[37] 77 FR 42847.

[38] Information Collection Request For National Emission Standards For Hazardous Air Pollutants (NESHAP) for Coal- And Oil-Fired Electric Utility Steam Generating Units (OMB Control No. 2060-0631). See *http://www.epa.gov/ttn/atw/utility/utilitypg.html* for detailed information obtained through this ICR.

[39] 77 FR 9304, 9450, 9458 (February 16, 2012) (codified at 40 CFR 60.42Da(a), 60.50Da(b)(1)).

[40] See Memorandum from Jeffrey Cole (RTI International) to Bill Maxwell (EPA) regarding "National Emission Standards for Hazardous Air Pollutants (NESHAP) Maximum Achievable Control Technology (MACT) Floor Analysis for Coal- and Oil-fired Electric Utility Steam Generating Units for Final Rule" (Dec. 16, 2011).

[41] 40 CFR Part 51, Appendix Y, Section IV.C.

factor BART analysis. The commenter argues that an SO_2 limit of 0.04 lb/MMBtu is achievable and cost-effective for Apache Units 2 and 3 according to the Sahu report. The commenter further asserts that, based on this report, scrubber upgrades can achieve SO_2 removal efficiencies of 98 percent and should have been investigated.

Another commenter (NPS) noted that that AEPCO's BART reports indicate that uncontrolled SO_2 emissions are 0.69 lb/MMBtu, and that the ADEQ BART proposal would reduce SO_2 emissions by 78 percent down to 0.15 lb/MMBtu. Based on the SO_2 control data submitted by the commenter, the commenter asserted that other BART upgrades are achieving higher removal efficiencies and/or lower SO_2 limits. The commenter believes that the existing scrubbers can be upgraded to achieve better removal efficiency and lower emission rates than the 78 percent and 0.15 lb/MMBtu proposed by EPA. The commenter cited various examples of upgraded scrubbers achieving limits of less than 0.15 lb/MMBtu or removal rates of greater than 90 percent.

By contrast, ADEQ and AEPCO expressed opposition to both a lower limit and a removal efficiency requirement. ADEQ asserted that "the limits included in the state SIP submittal are acceptable as BART" and "imposing dual-limitations will be unnecessary and burdensome for the facility." AEPCO commented that ADEQ permit conditions, which require SO_2 absorption systems to be operated and maintained at all times in a manner consistent with good air pollution control practices for minimizing emissions, is sufficient, and an additional control efficiency limit is not necessary. An efficiency limit would also require modification to the monitors to include the capability to measure scrubber inlet SO_2 in addition to stack emissions, which would require additional capital and O&M expenditures.

Response: We proposed to approve ADEQ's determination that BART for SO_2 at Apache Units 2 and 3 is upgrades to the existing scrubbers with an associated emission limit of 0.15 lb/MMBtu (30-day rolling average). However, we also solicited comment on whether an efficiency requirement should be part of the BART requirement, since Apache has the ability to use coal from various sources that have varying sulfur content. After reviewing the comments received on our proposal, we have concluded that the emission limit set by ADEQ appropriately reflects BART for SO_2 at these units and that a removal efficiency requirement would not be appropriate for these units.

While new wet scrubbers are capable of achieving 95 percent or better removal of SO_2,[42] the Apache scrubbers were manufactured in the 1970s and designed to meet a limit of 0.8 lb/MMBtu (i.e., a control efficiency of up to 70 percent).[43] For such existing scrubbers achieving greater than 50 percent control, the BART Guidelines (which are not mandatory for these units) do not provide a presumptive limit or removal efficiency, but recommend consideration of cost-effective scrubber upgrades designed to improve the system's overall SO_2 removal efficiency.[44] In August 2009, AEPCO provided information to ADEQ concerning potential scrubber upgrades at Apache Units 2 and 3.[45] AEPCO noted that it was in the process of upgrading its limestone grinding system and described other potential upgrades, such as improving operation of the scrubber bypass damper system, upgrading the mist eliminator wash system, adding another sieve tray, and modifying the flue gas inlet. The enclosed "Wet FGD Implementation Plan" indicated that AEPCO intended to proceed with upgrading the limestone grinding system, improving operation of the scrubber bypass damper system, and upgrading the mist eliminator wash system, but that "[t]he remaining wet FGD options were not selected on the basis of low probability of successfully making a significant difference in scrubber performance and/or high cost."[46]

Based on this information, we conclude that no further cost-effective scrubber upgrades are likely to be feasible for this facility and we are therefore deferring to ADEQ's determination that 0.15 lb/MMBtu represents BART for these units. Given the age of these scrubbers, we find that an additional removal efficiency requirement would be unnecessarily burdensome. This approach is consistent with our consideration of AEPCO's status as a small entity in our FIP determination. We note that our final FIP includes a requirement to maintain and operate air pollution control equipment at all units in "a manner consistent with good air pollution control practices for minimizing emissions" at all times. We expect that this requirement will help to ensure that the scrubbers on Apache Units 2 and 3 are properly maintained and operated under all conditions.

3. ADEQ's BART Analyses and Determinations for Cholla Units 2, 3 and 4

Comment: One commenter (APS) remarked that EPA stated that APS's contractor did not provide supporting information for its capital cost estimate, such as detailed equipment lists. The commenter argues that detailed equipment lists are typically not necessary for the level of accuracy needed for the process selection phase of a project and noted that its contractor used vendor quotes for the major pieces of equipment and factors for construction, balance of plant, electrical, owner's costs, surcharges, AFUDC and contingency.

Response: We do not agree with this comment. The BART Guidelines provide that:

> You should include documentation for any additional information you used for the cost calculations, including any information supplied by vendors that affects your assumptions regarding purchased equipment costs, equipment life, replacement of major components, and any other element of the calculation that differs from the [CCM].[47]

Thus, detailed cost documentation is necessary to the extent that cost assumptions differ from the CCM. In this case, several of ADEQ's and APS's cost assumptions for control costs at Cholla differed from the CCM, but no such documentation was provided as part of the Arizona Regional Haze SIP.

a. BART Analysis and Determination for NO_X

Comment: One commenter (Earthjustice) commended EPA's decision to disapprove ADEQ's NO_X BART determination for Cholla Units 2, 3 and 4. The commenter stated that EPA correctly concluded that ADEQ's BART determination for NO_X inflated the costs of more-stringent NO_X controls by including costs not allowed by the Manual, and substantially underestimated the visibility benefits of additional NO_X controls. The commenter asserted that because ADEQ's BART analysis does not comply with the RHR's requirements, EPA must disapprove ADEQ's BART determinations for Cholla Units 2, 3 and 4.

[42] See BART Guidelines, 40 CFR Part 51, Appendix Y, section IV.E.4.

[43] See Apache Title V Permit Technical Support Document (2007), Table 9; Title V Permit (2007), Attachment B, section II.E.1.a.

[44] See BART Guidelines, 40 CFR Part 51, Appendix Y, section IV.E.4.

[45] Letter from Michelle Freeark, AEPCO, to Trevor Baggiore, ADEQ (July 8, 2009).

[46] *Id.*

[47] 40 CFR Part 51, Appendix Y, section IV.4.a., note 15.

Response: As explained in our proposal and elsewhere in this document, we agree that ADEQ's BART analyses and determinations for NO_X at Cholla Units 2, 3 and 4 do not comply with the requirements of the CAA and RHR. We are therefore disapproving these determinations.

b. BART Analysis and Determination for PM_{10}

Comment: One commenter (NPS) agreed with EPA's proposal to approve ADEQ's BART determination for Cholla Units 2, 3 and 4 of an emission limit of 0.015 lb/MMBtu for PM_{10} based on the use of fabric filters, the most stringent control technology available. In contrast, a second commenter (Earthjustice) disagreed with EPA's proposal to approve ADEQ's PM BART determination for Cholla Units 2, 3 and 4. The commenter contended that EPA proposed to approve the BART determination despite acknowledging that ADEQ did not conduct a full BART analysis for PM because fabric filters are the most stringent PM control technology available and ADEQ's 0.015 lb/MMBtu emission limit is "consistent" with other EGUs employing fabric filters (citing 77 FR 42849). However, the commenter believes that lower emission rates are achievable with fabric filters and, as a result, that EPA should disapprove ADEQ's BART determination, conduct a full five-factor BART analysis and set a lower emission limit as BART for PM_{10}. According to the commenter, the BART Guidelines' exemption from a full five-factor analysis for the most stringent control technology is not applicable in this case because improvements to the fabric filters are possible and a lower emission rate is thus achievable.

The latter commenter (Earthjustice) stated that had EPA conducted the PM_{10} BART analysis required by the RHR, it would show that an emission rate lower than 0.015 lb/MMBtu is BART for Cholla. According to the commenter, an expert report accompanying the commenter's submission (the "Sahu report") demonstrates that upgrades to the fabric filters can achieve a lower emission limit and, moreover, that nearly 100 EGUs across the nation with a variety of PM controls achieve emission rates lower than 0.015 lb/MMBtu. The commenter asserted that neither ADEQ nor EPA provided any explanation why Cholla Units 2, 3 and 4 could not similarly meet a lower emission limit.

Response: We are finalizing our approval of ADEQ's PM_{10} BART determination at Cholla Units 2, 3 and 4. We find that an emission limit of 0.015 lb/MMBtu represents what can be continuously achieved with a properly operated baghouse on these units. The fabric filters (i.e., baghouses) at Cholla will all be new since they are scheduled to be installed between 2008 and 2016. Recent PSD BACT limits for coal-fired EGUs with new baghouses have typically ranged from 0.01 to 0.015 lb/MMBtu using Method 5.

As to the commenter's position that bag material selection would influence the level of PM that could be achieved, EPA notes that there are a number of factors that influence a utility's selection of proper bag material such as bag life, compatibility with exhaust gas stream and control of other pollutants such as mercury (Hg) or sulfuric acid mist (H_2SO_4). In addition, it should be noted that the latest revision to the EGU NSPS requires modified units to meet a PM limit of 0.015 lb/MMBtu.[48] Also, as noted above, the recent EGU MATS rule sets a PM emissions standard of 0.03 lb/MMBtu, and the BART Guidelines provide that, "unless there are new technologies subsequent to the MACT standards which would lead to cost-effective increases in the level of control, you may rely on the MACT standards for purposes of BART."[49] Therefore, we are finalizing our proposed approval of ADEQ's BART determination for PM_{10} at Cholla Units 2, 3 and 4.

c. ADEQ's BART Analysis and Determination for SO_2

Comment: Citing various examples of lower SO_2 limits at other coal-fired units, one commenter argued that the existing scrubbers at Cholla can be upgraded to achieve lower emission rates than the 0.15 lb/MMBtu proposed by EPA. Based on the SO_2 control data submitted by the commenter, the commenter asserted that other BART upgrades are achieving higher removal efficiencies and/or lower SO_2 limits.

Another commenter (Earthjustice) disagreed with EPA's proposal to approve ADEQ's SO_2 BART determination for Cholla Units 2, 3 and 4. The commenter states the approval is contrary to the RHR because ADEQ's BART determination is not supported by a valid five-factor analysis, which the commenter believes had flaws in its cost and visibility improvement analyses. The commenter alleged that EPA proposed to approve the SO_2 BART determinations based on unsupported speculation that the outcome would be the same if EPA performed the BART analysis required by the RHR, although EPA identified nothing in the docket to support its claim that a full BART analysis would have yielded the same result. The commenter states that EPA cannot speculate that it would reach the same conclusion as ADEQ, and it must undertake an independent full five-factor BART analysis.

The commenter further stated that ADEQ's SO_2 BART analysis for Cholla Units 2, 3 and 4 is also flawed because ADEQ failed to analyze controls and upgrades that would result in emission rates lower than the BART Guidelines' presumptive BART limits. According to the commenter, EPA has recognized multiple times that the presumptive BART limits are merely the starting point for the BART determination, not the ending point. Moreover, the commenter asserted that the presumptive limits are often outdated with the result that appropriate consideration of the five statutory BART factors can result in far lower emission rates than presumptive BART. The commenter cited statements by EPA Region 6 (76 FR 64186, 64203, October 17, 2011, regarding proposed actions on Arkansas' RH SIP) and EPA Region 9 (77 FR 51633 regarding the final RH FIP for the Four Corners Power Plant).

Earthjustice also presented documentation that the commenter believes to show that lower SO_2 emission limits are achievable and cost-effective at Cholla Units 2, 3 and 4. According to the commenter, a report submitted with the comments (the "Stamper report")[50] shows that a proper BART determination for Cholla would have found that 98 percent SO_2 control efficiency achieving a 0.04 lb/MMBtu emission limit is BART for the units, and that even with the less-stringent 95 percent SO_2 control efficiency that is the basis of ADEQ's BART determinations, ADEQ should have required an SO_2 emission limit of 0.10 lb/MMBtu because 0.15 lb/MMBtu limit does not reflect 95 percent SO_2 removal.

Another commenter (APS) noted that the SO_2 content of the coal source for the Cholla plant is up to 3.0 lbs/MMBtu, and the maximum rate of removal that will be continuously achievable after the plant upgrades its scrubbers is 95 percent. Therefore, the commenter asserts that 0.15 lb/MMBtu is the

[48] 77 FR 9450 (February 16, 2012) (codified at 40 CFR 60.42Da).

[49] 40 CFR Part 51, Appendix Y, Section IV.C.

[50] Attachment 1 to Earthjustice Comments, Technical Support Document to Comments of Conservation Organizations, Proposed Arizona Regional Haze Partial SIP Approval and Partial FIP SO_2 and NO_X BART Determinations for Cholla Units 2, 3 and 4 (September 17, 2012), prepared by Victoria Stamper.

maximum achievable SO_2 emissions limit.

Response: A number of commenters indicated that lower emission levels are being achieved at other sources with wet FGDs and western coal. However, none of these examples are based on coal with as high a potential SO_2 level as the coal that is currently burned at Cholla. APS historically burned coal from the McKinley mine located on the Navajo Reservation at the Cholla units. Following the closure of this mine, APS obtained coal from various sources until the company signed a long-term contract for coal from the El Segundo and Lee Ranch mines in New Mexico.[51] The sulfur content of coal from these two mines is substantially higher than Powder River Basin (PRB) coal and also much higher than coal from the former source, the McKinley mine.[52] The current coal contract for these units indicates that the typical sulfur content of this coal is equivalent to 2.4 lb/MMBtu SO_2 and can be as high as 3.0 lb/MMBtu.[53] Given that the transition to this coal has already occurred and that company has entered into a contract to continue purchasing this coal until 2024, we consider emissions based on this coal supply to "represent a realistic depiction of anticipated annual emissions for the source." [54] The RHR and the BART Guidelines do not require states to restrict or alter a facility's selection of the coal supply in order to meet a specific limit.

APS's comments on the proposal indicate that the company intends to upgrade the existing SO_2 controls at Unit 2 to a new wet flue gas desulfurization (FGD) system, identical to those already installed on Units 3 and 4.[55] APS further explained that:

> The coal source for [Cholla] is El Segundo and Lee Ranch coal with an SO_2 content of up to 3.0 lbs/mmBtu.The maximum rate of removal that will be continuously achievable after the scrubber upgrades * * * are performed is 95 percent. If compliance is determined on a 30-day rolling average basis, the maximum SO_2 emission limit achievable at Cholla on a continuous basis is, therefore, 0.15 lb/mmBtu. [56]

Given this information, EPA finds that the ADEQ BART limit of 0.15 lb/MMBtu represents BART for SO_2 at these units. As noted by APS, this limit would require a removal efficiency of 95 percent when these units are burning this "worst-case" (highest-sulfur) coal (i.e., 3.0 lb/MMBtu). Therefore, we are finalizing our approval of ADEQ's BART limit of 0.15 lb/MMBtu of SO_2 for these units.

However, we remain concerned that this worst case coal is not representative of the typical coal that APS will receive from the El Segundo and Lee Ranch mines. APS's current contract for this coal indicates that the minimum sulfur content is equivalent to 1.88 lb/MMBtu of SO_2 for the El Segundo coal and 1.64 lb/MMBtu of SO_2 for the Lee Ranch Coal.[57] When burning this lower-sulfur coal, the units would only need to achieve 90 to 92 percent control in order to meet the BART limit of 0.15 lb/MMBtu of SO_2. While APS has stated that the scrubbers on Cholla Units 2, 3 and 4 will be able to continuously achieve a removal efficiency of 95 percent, the Arizona Regional Haze SIP does not include a requirement or procedures to ensure that the scrubbers are operated and maintained to achieve this level of control. Therefore, in order to ensure that these scrubbers are properly operated and maintained, consistent with 40 CFR 51.308(e)(1)(v), we are finalizing a removal efficiency requirement for SO_2 of 95 percent on a 30-day rolling basis for Cholla Units 2, 3 and 4. This requirement is explained further under "Comments on Enforceability Requirements in EPA's BART FIP."

4. ADEQ's BART Analyses and Determinations for Coronado Units 1 and 2

a. ADEQ's BART Analysis and Determination for NO_X

Comment: One commenter (NPS) agreed with EPA that ADEQ's BART selection of LNB with OFA for Coronado is not adequately supported for the following reasons:

- ADEQ did not consider the typical visibility metrics of benefit at the area with maximum impact, nor benefits summed over the areas.
- Using the default 1 ppb ammonia background concentration would have increased estimated impacts and control benefits.
- There is no weighing of the visibility benefits and visibility cost-effectiveness for the various candidate controls and the various Class I areas.
- ADEQ does not indicate whether it considered any cost thresholds to be reasonable or expensive in analyzing the costs of compliance for the various control options.

Similarly, another commenter (Earthjustice) supported EPA's disapproval of ADEQ's NO_X BART determination for Coronado Units 1 and 2. For the reasons discussed by the commenter above for Cholla Units 2, 3 and 4, the commenter agreed with what the commenter said was EPA's conclusion that all of ADEQ's BART determinations are fatally flawed in numerous respects (e.g., inflated costs and underestimated visibility benefits). Specific to Coronado, the commenter agreed that ADEQ failed to provide detailed and verifiable cost information and to properly consider the costs of compliance for each control option in its BART analysis (citing 77 FR 42851). In addition, the commenter indicated that ADEQ failed to properly evaluate the visibility benefits of more-stringent NO_X controls at Coronado, used a novel and unapproved metric to measure visibility benefits, failed to consider cumulative visibility benefits across all affected Class I areas, and used incorrect background ammonia concentrations in its modeling. The commenter added that ADEQ also failed to explain how it evaluated the five statutory BART factors and selected BART based on the factors. The commenter asserted that because ADEQ's BART analysis does not comply with the RHR's requirements, EPA properly disapproved ADEQ's NO_X BART determinations for Coronado.

Response: We agree that ADEQ's BART analysis for NO_X at Coronado Units 1 and 2 did not comply with the requirements of the CAA and RHR.

Comment: One commenter (SRP) stated that EPA must accept ADEQ's BART determination for NO_X because it was a complete and thorough five-factor analysis conducted in accordance with the BART Guidelines and resulted in a reasonable and appropriate determination of NO_X BART for Coronado.

Response: We do not agree with this comment. As explained in the NPRM and elsewhere in this document, ADEQ's BART determinations for NO_X did not comply with the requirements of the RHR or the BART Guidelines. Therefore, we are finalizing our disapproval of these NO_X BART determinations, including the determinations at Coronado Units 1 and 2.

b. ADEQ's BART Analysis and Determination for PM_{10}

Comment: One commenter (NPS) agreed with EPA's proposal to approve ADEQ's PM_{10} BART determination for

[51] See "Additional APS Cholla BART response", Appendix B.

[52] See, e.g., "APS Cholla Unit 2 BART report", Table 2–2.

[53] See "Additional APS Cholla BART response", Appendix B, Section 6.2.

[54] BART Guidelines, 40 CFR Part 51, Appendix Y, section IV.D.4.d.

[55] "Comments of Arizona Public Service Company", page 27.

[56] *Id.* page 63.

[57] See "Additional APS Cholla BART response", Appendix B, Section 6.2.

Coronado Units 1 and 2, noting that that emissions of PM_{10} from Coronado Units 1 and 2 are currently controlled by hot-side ESPs and that, in terms of the consent decree, SRP is required to optimize its ESPs to achieve a PM_{10} emission rate of 0.030 lb/MMBtu.

Another commenter (SRP) stated that EPA's approval of the Arizona BART determination for PM_{10} is reasonable and appropriate, believing it to be consistent with the CAA and supported by the technical record in this rulemaking. The commenter does not believe any upgrades to the ESPs are warranted as part of the BART determination, as SRP has in place a plan to optimize performance of the existing equipment. The commenter noted that as part of the consent decree between SRP and EPA for Coronado, SRP is required to operate the ESPs "at all times when the Unit it serves is in operation to maximize PM emission reductions, provided that such operation of the ESP is consistent with the technological limitations, manufacturers' specifications, and good engineering and maintenance practices for the ESP," and this requirement also is reflected in Coronado's current Title V operating permit.

The commenter also noted that the PM_{10} limit in the recently promulgated MATS Rule will be more stringent than the PM_{10} limit proposed as BART. The commenter indicated that it makes sense for BACT to be more stringent than BART, and it likewise is appropriate for the MATS requirements to impose more stringent compliance obligations on utilities than a BART determination since MATS is intended to protect the public health from hazardous air pollutants, while BART is aimed at aesthetic concerns that Congress intended the states to address very gradually.

In contrast, a third commenter (Earthjustice) disagreed with EPA's proposal to approve ADEQ's PM_{10} BART determination for Coronado Units 1 and 2. The commenter contended that EPA proposed to approve the BART determination despite acknowledging that ADEQ did not conduct a full BART analysis for PM_{10} because EGUs with ESPs elsewhere have BART limits of 0.03 lb/MMBtu. However, the commenter believes that lower emission rates are achievable and, as a result, that EPA should disapprove ADEQ's BART determination, conduct a full five-factor BART analysis and set a lower emission limit as BART for PM_{10}. According to the commenter, the Sahu report demonstrates that nearly 150 EGUs across the nation with a variety of PM controls achieve emission rates lower than 0.03 lb/MMBtu. The commenter asserted that neither ADEQ nor EPA provided any explanation why Coronado Units 1 and 2 could not similarly meet a lower emission limit.

Response: EPA acknowledges that ADEQ did not perform a rigorous five-factor BART analysis for PM_{10} at Coronado. However, a full five-factor analysis would be very unlikely to result in a change of control technology for PM_{10}. Modeling of visibility impacts from direct PM_{10} emissions has shown very small impairment for EGU PM_{10} emissions in comparison to visibility impairment resulting from SO_2 and NO_X emissions. The existing hotside ESPs at Coronado Units 1 and 2 control PM_{10} by greater than 98 percent. In addition, SRP is required under a Consent Decree to optimize the performance of these ESPs and to meet a PM limit of 0.030 lb/MMBtu as measured by Method 5.[58] The consent decree also requires Coronado to install and conduct performance specification testing of a particulate matter CEMS (PMCEMS).

Installing the best control, a baghouse, would result in a cost exceeding $100,000/ton of additional PM removed. From a cost and visibility improvement standpoint, it is not justifiable to require replacement of controls that can achieve a reasonably low emission level on a continuous basis. As noted previously, 0.030 lb/MMBtu is the limit for filterable PM in the recently issued EGU MATS rule. Therefore, we are finalizing our approval of ADEQ's BART determination for PM_{10} at these units.

c. ADEQ's BART Analysis and Determination for SO_2

Comment: One commenter (NPS) noted that the consent decree between EPA and SRP requires installation of wet flue gas desulfurization (WFGD) systems on both Coronado units to achieve a 30-day rolling average SO_2 removal efficiency of at least 95 percent or a 30-day rolling average SO_2 emissions rate of no greater than 0.080 lb/MMBtu. The commenter added that EPA proposed to approve ADEQ's BART SO_2 emission limit of 0.08 lb/MMBtu (30-day rolling average) for Coronado Units 1 and 2, which the commenter indicated would be consistent with the more stringent limits on WFGD upgrades that the commenter has seen.

One commenter (SRP) stated that EPA's approval of ADEQ's BART determination for SO_2 is reasonable and appropriate, believing it to be supported by the technical record. In response to EPA's request for comment on whether a lower emission limit may be achievable when the units are burning a lower-sulfur coal, the commenter responded that it is inappropriate for EPA to establish a BART limit that would be premised on any restriction of SRP's fuel supply. According to the commenter, this type of restriction would increase unit operating costs and reduce operational flexibility, and EPA provides no technical record to support consideration of this emissions reduction option.

Another commenter (Earthjustice) disagreed with EPA's proposal to approve ADEQ's SO_2 BART determination. The commenter states the approval is contrary to the RHR because ADEQ's BART analyses are not supported by a valid five-factor analysis. The commenter states that EPA cannot speculate that it would reach the same conclusion as ADEQ, and it must undertake an independent full five-factor BART analysis, which the commenter believes would result in a SO_2 BART limit of 0.04 lb/MMBtu based on a 30-day rolling average. Earthjustice further asserted that, according to the Sahu report, WFGD can achieve SO_2 removal efficiencies of 98 percent and the use of low-sulfur coals, which can further reduce SO_2 emissions, also should have been investigated.

Response: EPA does not agree that we should disapprove the ADEQ BART determination and set an emission limit as low as 0.04 lb/MMBtu for SO_2. EPA does acknowledge that while burning some coals, such as from PRB, these limits can be achieved at new units (though only achieved continuously over longer than 30-day averages), but EPA does not find that this limit would be consistently achievable at Coronado. Coronado receives its coal supply by rail line and has access to various sources of coal including PRB, Colorado and New Mexico coals. As mentioned previously, the RHR and the BART Guidelines do not require emission limits to be set at a level that would restrict the flexibility of EGUs to use available coals with varying sulfur content.

The consent decree between EPA and SRP described in our proposal requires installation of wet flue gas desulfurization (WFGD) systems (i.e., new scrubbers) at both units at Coronado by January 1, 2013. These scrubbers are required to achieve either 0.080 lb/MMBtu of SO_2 or 95 percent reduction of SO_2 across the FGD, both

[58] Consent Decree in *United States* v. *Salt River Project*, CV 08–1479–PHX–JAT (entered Dec. 19, 2008).

over a rolling 30-day basis.[59] ADEQ has selected 0.08 lb/MMBtu as the BART emission limit for these units. We find that this is an appropriate limit for these units and are finalizing our approval of this determination.

We also note that the recently promulgated EGU MATS rule, which uses an SO_2 limit as an acceptable surrogate for limiting the emissions of hazardous acid gases, has set the limit at 0.20 lb/MMBtu of SO_2 for existing EGUs like Coronado Units 1 and 2.[60]

C. General Comments on EPA's BART FIP Analyses and Determinations

1. Selection of Baseline Period

Comment: Several commenters expressed disagreement with our general approach to the selection of baseline periods. One commenter (NPS) stated a general preference for the use of a baseline period that represents pre-control emissions, as advised in the BART Guidelines, to estimate baseline emissions for the purpose of calculating the average cost-effectiveness of the complete control system (e.g., combustion controls plus SCR). The commenter believes that this avoids any biasing of the calculations by sources that install combustion controls during the BART evaluation process. NPCA asserted that the "proper" baseline for BART determinations is 2001–2004. ADEQ asserted EPA violated the RHR provision in 51.308(d)(2)(i), which specifies the period for establishing baseline visibility conditions as 2000–2004, by using the period between 2008 and 2011 as a baseline period for EPA's BART analyses.

Response: We disagree that our use of updated baseline periods for BART determinations is inappropriate or inconsistent with the CAA or the RHR. While the RHR specifies 2000–2004 as the baseline for purposes of measuring reasonable progress at Class I areas during the first implementation period,[61] neither the RHR nor the BART Guidelines require that this particular timeframe be used as the baseline for BART determinations at individual sources. Rather, the Guidelines provide that, for purposes of calculating the costs of compliance:

> The baseline emissions rate should represent a realistic depiction of anticipated annual emissions for the source. In general, for the existing sources subject to BART, you will estimate the anticipated annual emissions based upon actual emissions from a baseline period.[62]

This provision is consistent with the statutory requirement that each BART determination take into consideration "any existing pollution control technology in use at the source."[63] While the Guidelines do not specify particular dates for this "baseline period" for BART analyses, in order to "represent a realistic depiction of anticipated annual emissions for the source" the baseline can account for controls already installed on the source, or, where appropriate, controls which are required to be installed in the near future.

In many instances, the 2000–2004 time frame was used as a baseline period for BART determinations because this time frame reflected existing controls in use at BART sources at the time BART analyses were performed, following the issuance of the final BART Guidelines in 2005. In Arizona's case, the initial BART analyses were performed in 2007, using baseline periods that varied by source: 2002–2007 for Apache; 2001–2003 for Cholla; and 2001–2003 for Coronado.[64] These periods appear to reflect controls in existence at the time that these BART analyses were performed. Our proposed disapproval of certain aspects of Arizona's BART determinations was not based on any flaw in the choice of baseline period.

However, having proposed to disapprove Arizona's BART determinations for NO_X on other grounds, we were obligated to conduct our own five-factor BART analyses for NO_X for these sources. At the time we conducted our analysis in 2011 and 2012, several of these units had been retrofitted with additional NO_X controls that were not in place between 2000 and 2004. In particular, Cholla had installed LNB on Units 2, 3 and 4 in 2008 to 2009, and Coronado had installed LNB at Unit 1 in 2009.[65] In addition, during this time period, Cholla completed its transition to a different coal with much higher potential NO_X emissions.[66] Thus, in order to take into account existing controls and to ensure that the baseline period accurately represented anticipated future emissions, we updated the baseline period for each unit to ensure that it reflected these changes.[67]

With respect to Coronado Unit 2, we also took into account the federally-enforceable emissions limits set by a Consent Decree between the United States and SRP, which was entered in 2008.[68] Again, this is consistent with the BART Guidelines, which provide that:

> When you project that future operating parameters (e.g., limited hours of operation or capacity utilization, type of fuel, raw materials or product mix or type) will differ from past practice, and if this projection has a deciding effect in the BART determination, then you must make these parameters or assumptions into enforceable limitations. In the absence of enforceable limitations, you calculate baseline emissions based upon continuation of past practice.[69]

Consistent with this provision, for Coronado we used the consent decree-mandated NO_X emission limit of 0.08 lb/MMBtu in order to ensure that the baseline emissions rate would represent a realistic depiction of anticipated annual emissions for Unit 2.

We note that such an "updated baseline" might not be appropriate in all instances. For instance, if it appeared that controls had been installed early in order to avoid a more stringent BART determination, it would presumably not be appropriate to use a baseline representing these new controls. We find no evidence of such intent here. Rather, with respect to Coronado, the installation of new NO_X and SO_2 controls was required by a consent decree. With respect to Cholla, the installation of newly installed NO_X and SO_2 controls coincided with increases in potential emissions of these pollutants resulting from a change in coal supply.[70] Therefore, the more recent baseline is likely to be more representative of future operating conditions at these units.

Contrary to the assertions of some commenters, use of updated baselines did not unfairly penalize those sources that reduced their NO_X emissions in advance of a final BART determination. Rather, the updated baseline effectively *lowered* the baseline visibility impacts from these sources by reducing the baseline emissions. As a result, the projected benefits of additional controls

[59] Consent Decree in *United States* v. *Salt River Project*, CV 08–1479–PHX–JAT (entered Dec. 19, 2008).

[60] 77 FR 9490 (February 16, 2012), codified in Table 2 to Subpart UUUUU of 40 CFR Part 63.

[61] See 40 CFR 51.308(d)(2)(i).

[62] BART Guidelines, 40 CFR Part 51, Appendix Y, section IV.D.4.d.1

[63] CAA 169A(g)(2), 42 U.S.C. 7491(g)(2); see also 40 CFR 52.308(e)(ii)(A).

[64] See, e.g., SIP Appendix D at 4; Apache Unit 2 BART analysis at 2–2; Cholla.

[65] 77 FR 42859, 42861. Although no new NO_X controls were installed at Apache during this timeframe, we determined that more recent emissions data (2008–2011 rather than 2005–2007) were more likely to represent future emissions. 77 FR 42856.

[66] 77 FR 42856, 42859, 42861.

[67] 77 FR 42861.

[68] Consent Decree in *United States* v. *Salt River Project*, CV 08–1479–PHX–JAT (entered December 19, 2008).

[69] BART Guidelines, 40 CFR Part 51, Appendix Y, section IV.D.4.d.2.

[70] See Docket Item B–09, "Additional APS Cholla BART response", Appendix B, Section 6.2.

were less than if we had used the original baseline. This approach is consistent with the RHR and the BART Guidelines because it accurately reflects controls in place at the time we performed our BART analysis. Nonetheless, in order to address commenters' concerns about the effect of the updated baselines on our proposed determinations, we have also taken into account the original baseline periods considered by ADEQ, as part of the supplemental cost analyses described below.

Finally, we note that the use of a more recent baseline for purposes of our BART analyses does not alter the baseline used for purposes of measuring reasonable progress. As noted by several commenters, the RHR specifies that, for purposes of setting RPGs and measuring progress:

> The period for establishing baseline visibility conditions is 2000 to 2004. Baseline visibility conditions must be calculated, using available monitoring data, by establishing the average degree of visibility impairment for the most and least impaired days for each calendar year from 2000 to 2004. The baseline visibility conditions are the average of these annual values.[71]

In its Regional Haze SIP, Arizona used IMPROVE monitoring data from 2000–2004 to calculate baseline visibility for the best and worst visibility days for each Class I Area.[72] Since these baseline visibility conditions are calculated based on monitored conditions at Class I areas, they reflect actual emissions that occurred during the 2000–2004 time frame, rather than any subsequently implemented controls.

In developing its long-term strategy, a state must consider *inter alia* "[e]missions limitations and schedules for compliance to achieve the reasonable progress goal" and the "anticipated net effect on visibility due to projected changes in point, area, and mobile source emissions over the next 10 years." [73] This would include any reductions in emissions from BART sources that are implemented prior to a final BART determination, as well as any reductions resulting from such a determination. Thus, in setting its RPGs for 2018, a state may receive "credit" for any reductions achieved during the first implementation period, regardless of whether or not those reductions are reflected in the "baseline" emissions for a particular BART source.

EPA has not yet proposed action on Arizona's RPGs or long-term strategy. Our ultimate action on these elements of the plan will take into consideration all emissions reductions achieved during the first implementation period, consistent with the requirements of the CAA and the RHR.

2. Control Efficiencies and Emission Reductions for Alternative Controls

Comment: One commenter (NPS) concurred with EPA's reliance on an SCR level of performance of 0.05 lb/MMBtu. The commenter noted that this level is consistent with EPA's determination for the San Juan Generating Station in New Mexico and EPA's assumptions for the Colstrip and Corette power plants in Montana.

Response: We acknowledge the commenter's concurrence. As described further below, information received in comments on our proposal continues to support the use of an SCR level of performance of 0.05 lb/MMBtu on an annual average basis. Accordingly, we have retained the use of 0.05 lb/MMBtu in our cost calculations (which are based on annual emissions). However, in setting emission limits on a 30-day rolling average basis, it is necessary to account for startup and shutdown events, which raise the average emission rates over this shorter period of time. Therefore, we have revised our proposed emission limits for SCR at each of the sources. As explained below, we have also taken into account other site-specific factors in revising the emissions limits. In the case of Apache Units 2 and 3, we have performed a supplemental analysis using AEPCO's cost estimates that are allowed by the CCM (capital costs for the installation of SCR with LNB and OFA of $164.9 million). We also considered comments, the size of the Apache facility, AEPCO's classification as a small entity, the economic effects of requiring the use of SCR on Apache Units 2 and 3, and AEPCO's arguments regarding an SCR emissions limit of 0.07 lb/MMBtu. As discussed below in this preamble, we have concluded that in this case it is appropriate to revise the 30-day rolling average SCR limit to 0.070 lb/MMBtu, with a "bubble" across Apache Units 2 and 3. In the case of Cholla, we have taken into account the need to accommodate startup and shutdown events in the 30-day rolling average and have revised the limit to 0.055 lb/MMBtu, with a bubble across Units 2, 3 and 4. Finally, in the case of Coronado, we have taken into account both the need to accommodate startup and shutdown events, as well as the existing consent decree, which sets an emission limit of 0.080 lb/MMBtu for Unit 2. Based on these considerations, we have set a two-unit 30-day rolling average limit of 0.065 lb/MMbtu. For each of the three sources, we have established the compliance determination method such that when one unit is not operating, the emissions from its own preceding thirty boiler-operating-days will continue to be included in the 30-day rolling average. In the case of Coronado, for example, during periods when only one unit operates, this method allows the one operating unit to average out short-term emission spikes by using the most recent thirty boiler-operating-day value from the non-operating unit. Otherwise, averaging across units would not be possible during such periods, since the emissions value from the non-operating unit would be zero since it is not operating.

Comment: One commenter (Earthjustice), based on a report submitted with the comments (the "Sahu report"), stated that SCR can achieve greater NO_X reductions and visibility benefits at less cost than EPA's calculations. According to the commenter, while SCR systems are capable of achieving 90 percent or greater removal, EPA's proposed NO_X emission limit of 0.05 lb/MMBtu represents control levels of less than 90 percent at each of the Apache, Cholla and Coronado units. Accordingly, the commenter believes that EPA should have analyzed SCR with an emission limit of 0.04 lb/MMBtu because this level is achievable at 90 percent removal.

The commenter (Earthjustice), based on a separate report submitted with the comments (the "Stamper report"), stated that SCR systems are capable of achieving 90 percent or greater removal and EGUs elsewhere are subject to NO_X emission limits as low as 0.03 lb/MMBtu. The commenter cited several Prevention of Significant Deterioration (PSD) permit limits based on BACT determinations, including a 0.03 lb/MMbtu limit at Plant Washington, issued by Georgia Environmental Protection Division, and 0.035 lb/MMBtu for Desert Rock, issued by EPA Region 9. Accordingly, the commenter believes that EPA should have analyzed SCR with an emission limit of 0.04 lb/MMBtu because this level is achievable at 90 percent control for each of the units.

Response: We agree with the information provided by the commenters that SCR technology has the potential to achieve 90 percent and greater rates of removal, as well as achieve emission rates of less than 0.05 lb/MMBtu. However, we disagree with the commenter's assertion that emission limits associated with BART must meet the lowest emission rate achieved with

[71] 40 CFR 51.308(d)(2)(i).

[72] AZ Regional Haze SIP at page 39.

[73] 40 CFR 51.308(d)(3)(v)(G).

that technology at any coal-fired power plant. The RHR provides that:

> The determination of BART must be based on an analysis of the best system of continuous emission control technology available and associated emission reductions achievable for each BART-eligible source that is subject to BART * * *[74]

Additionally, the BART Guidelines state that: "[i]n assessing the capability of the control alternative, latitude exists to consider special circumstances pertinent to the specific source under review, or regarding the prior application of the control alternative"[75] and that "[t]o complete the BART process, you must establish enforceable emission limits that reflect the BART requirements * * *".[76] The five-factor BART analysis described in the Guidelines is a case-by-case analysis that considers site-specific factors in assessing the best technology for continuous emission controls. After a technology is determined as BART, the BART Guidelines require establishment of an emission limit that reflects the BART requirements, but does not specify that the emission limit must represent the maximum level of control achieved by the technology selected as BART. While the BART Guidelines and the RHR do not preclude selection of the maximum level of control achieved by a given technology as BART, the emission limit set to reflect BART must be determined based on a consideration and weighting of the five statutory BART factors. Therefore, limits set as BACT during PSD review (e.g., Desert Rock), or emission rates achieved from the operation of individual facilities under an emissions trading program (e.g., Clean Air Act Interstate Rule (CAIR)) may provide important information, but should not be construed to automatically represent the most appropriate BART limit for a given technology.

Comment: Several commenters (APS, AEPCO, SRP, AUG, Pacificorp) note that the proposed NO_X emission rate, as based on SCR technology, is more stringent than many other EPA actions. In its comments, SRP provided a contractor's report that found that the proposed limit is inconsistent with BACT determinations that EPA has approved for new coal-fired units in the following ways:

- Although there have been several units permitted with similar emissions limits, none of these limits are directly equivalent (same numeric limit and averaging time, including startup and shutdown periods).
- These units are based on new construction, which can be designed to optimize NO_X reduction in other aspects of combustion (i.e., pulverizer design, boiler height, etc.).
- There is inadequate data available to confirm the long-term achievability of the limits because the units have not begun operation or only recently became operational.

Other commenters note that, as part of the Cross State Air Pollution Rule (CSAPR), EPA concluded that a NO_X limit below 0.06 lb/MMBtu is not achievable through retrofit of SCR on coal-fired electric generating units.[77] AEPCO and APS also note that based on data from the RACT/BACT/LAER Clearinghouse, new coal-fired EGUs with SCR are only required to achieve 0.05 lb/MMBtu averaged over 12 months, and it is not appropriate to assume that a retrofit coal-fired unit can achieve this limit averaged over 30 days. SRP notes that the proposed limit for Coronado Unit 1 is more stringent than the recently promulgated NSPS for electric utility steam generating units constructed after May 3, 2011 (40 CFR part 60, subpart Da), which establishes a limit of 0.70 lb/MWh (0.077 lb/MMBtu) for new units, and 1.1 lb/MWh (0.11 lb/MMbtu) for modified units. APS also provided a report, originally prepared by RMB Consulting & Research, Inc. (RMB) for comment on the Regional Haze FIP for San Juan Generating Station, suggesting that the Subpart Da limits represent the most stringent level of available control. The RMB report states that EPA's Guidelines indicate that state regulatory agencies should consider NSPS limits in the BART evaluation except in cases where the NSPS might be considered outdated (e.g., "technology determinations from the 1970s or early 1980s"), which is not the case for the recently promulgated NSPS Subpart Da.

Response: We do not agree that our consideration of a NO_X emission limit of 0.050 lb/MMBtu was inappropriate. We note that, in its submitted comments, Earthjustice identified several recently issued permits that establish emission limits for SCR that are more stringent than our proposal. While limits set as BACT during PSD review may provide important information about the capabilities of various control technologies, they should not be construed to automatically represent (or in this context, constrain) the determination of what the most appropriate BART limit representative of a given technology is for a given facility. The emission limit set to reflect BART must be determined based on a consideration and weighing of the statutory BART factors. Although there are some similarities between the top-down BACT determination process and the five-step BART determination process, we note that a BACT determination is based almost exclusively on cost-effectiveness, and does not, for example, take visibility improvement at Class I areas into account.[78]

One of the commenters noted that in IPM modeling performed in support of the CSAPR rulemaking, we used an SCR emission rate of 0.06 lb/MMBtu for certain retrofit coal-fired EGUs, stating that this was the most stringent emission rate assumed achievable for retrofit units. It is important to note that IPM is a tool that operates using a large number of variables with values determined based upon a wide variety of assumptions. These assumptions, and the values upon which they are based, will necessarily change based upon the needs and context of the project or rulemaking for which IPM is used. It is therefore not appropriate to automatically consider a particular assumption or variable value (in this case, SCR emission rate) used in one application of IPM to represent a uniform standard or constraint against which all other uses of IPM should be compared.

In the case of the CSAPR rulemaking cited by the commenter, IPM was used to set state-wide budgets for NO_X based on assumptions that would be minimally achievable to a broad array of covered sources. The emission data and constraints fed into IPM therefore represented sector-wide modeling assumptions, which is a much different use and context than a BART determination, which must "take into account the most stringent emission control level" in order to establish a source-specific emission limit. As a result, we disagree that the 0.06 lb/MMBtu assumption used in the CSAPR rulemaking should be construed to

[74] 40 CFR 51.308(e)(1)(ii)(A).

[75] BART Guidelines, 40 CFR Part 51, Appendix Y, section IV.D.3.

[76] *Id.* section V.

[77] Citing 76 FR 1109, 1115, January 7, 2011; EPA, Transport Rule Engineering Feasibility Response to Comments, Docket ID No. EPA–HQ–OAR–2009–0491–4529, at 13, July 6, 2011.

[78] We note that a Class I area impact analysis must be performed by certain PSD projects as part of the permit application process. However, the visibility results are not used in the BACT determination, which is typically determined prior to performing the visibility modeling, and are not used to determine the appropriate level of control except in those cases where the visibility impact is sufficiently high to warrant mitigation measures that end up involving additional emission reductions.

represent the most stringent emission control level for SCR.

Similarly, we also disagree that the recently promulgated NSPS Subpart Da represents the most stringent emission control level for SCR. First, we acknowledge that while the BART Guidelines state that "EPA no longer concludes that the NSPS level of controls automatically represents 'the best these sources can install'"[79] this was written in the context of older NSPS subparts with technology evaluations that could potentially be outdated and not representative of current pollution control technology performance. We also acknowledge that, while the BART Guidelines provide for "situations where NSPS standards do not require the most stringent level of available control for all sources within a category" and cite NSPS Subpart GG (stationary gas turbines) as a subpart that does not consider post-combustion controls,[80] the recently promulgated NSPS Subpart Da does consider post-combustion controls such as SCR.[81]

Despite this language, however, we disagree with the commenter's assertion that NSPS Subpart Da represents the most stringent emission control level for SCR, or that an NSPS Subpart, even a recently promulgated one, should be treated as a "floor" for establishing BART emission limits. While the BART Guidelines provide that, "you may rely on MACT standards for purposes of BART,"[82] they do not indicate that the same is true for the NSPS standards. An NSPS standard must establish an emission rate that is appropriate for all the units within its category,[83] which in the case of Subpart Da includes a variety of boiler types, coal types, and baseline emission rates that may not be representative of the Apache, Cholla, and Coronado units. Specifically in the case of the RMB report, which was prepared for the San Juan Generating Station, the assertion that the Subpart Da standards represent the most stringent level of available control is undermined by the report's findings that emission modeling indicates that the San Juan units could achieve NO_X emission rates in the range of 0.047 to 0.068 lb/MMBtu, which are emission rates lower than the Subpart Da standards.

Comment: Multiple commenters (AUG, APS, SRP) stated that EPA must consider presumptive BART limits. The commenters asserted that EPA cannot ignore presumptive BART limits because, as part of the BART Guidelines, they are binding regulatory presumptions that should only be deviated from based on a careful consideration of the BART factors (70 FR 39171).

EPA's Proposed Rule, however, does not reflect any such consideration. Indeed, EPA's Proposed Rule never even mentions the presumptive limits except to note that Arizona considered them. (77 FR 42847). The nature of and basis for EPA-established presumptive NO_X BART limits for the relevant units at Apache, Cholla, and Coronado show that EPA's determination in its proposed FIP that SCR—a much more costly, post-combustion technology—represents BART at these facilities is, at least, presumptively incorrect. Because EPA failed to consider the presumptive limits in developing its proposed FIP's BART limits for NO_X, the Proposed Rule is flawed and must be withdrawn.

The commenters also note that the RHR also established presumptive BART emission limits for NO_X emissions from fossil fuel-fired units through notice-and-comment rulemaking. The presumptive NO_X emissions limits for coal-fired EGUs vary according to individual source characteristics, including fuel firing configuration (tangential/wall-fired, opposed wall-fired, cyclone) and type of fuel burned (bituminous, sub-bituminous, lignite, etc.). Commenters also argued that, because EPA shifted the baseline for BART, it did not include combustion controls, such as LNB, in its analysis, and only considered higher cost post-combustion controls (SNCR and SCR).

Response: We disagree with the commenters' assertions that we ignored the presumptive BART NO_X limits. Because Apache, Cholla and Coronado all have access to and have historically burned both bituminous and sub-bituminous coal,[84] there is no single presumptive NO_X limit that applies to any of these units.[85] Therefore, rather than rely upon the numerical values of the presumptive NO_X limits listed in the BART Guidelines, we have considered the technological basis for presumptive NO_X BART limits, such as the use of combustion control technology, boiler type, and coal type, as part of the five-factor analysis we performed for each facility. For each source, we considered combustion controls as a potential option for BART.[86]

We also disagree with commenters' assertions that our selection of non-presumptive BART technology as BART is flawed or presumptively incorrect. In the BART Guidelines EPA explained that:

> For coal-fired EGUs greater than 200 MW located at greater than 750 MW power plants and operating without post-combustion controls (*i.e.* SCR or SNCR), we have provided presumptive NO_X limits, differentiated by boiler design and type of coal burned. You may determine that an alternative control level is appropriate based on a careful consideration of the statutory factors. For coal-fired EGUs greater than 200 MW located at power plants 750 MW or less in size and operating without post-combustion controls, you should likewise presume that these same levels are cost-effective. You should require such utility boilers to meet the following NO_X emission limits, unless you determine that an alternative control level is justified based on consideration of the statutory factors.[87]

Therefore, the presumptive emission limits in the BART Guidelines are rebuttable, and the five statutory factors enumerated in the BART Guidelines provide the mechanism for establishing different requirements. Specifically, as explained in the preamble to the BART Guidelines:

> If, upon examination of an individual EGU, a State determines that a different emission limit is appropriate based upon its analysis of the five factors, then the State may apply a more or less stringent limit.[88]

Thus, the establishment of presumptive BART limits, and the corresponding technology upon which those limits are based, does not preclude states or EPA from setting limits that differ from those presumptions. The five-factor analysis we performed for these facilities demonstrates that, taking into consideration the expected remaining useful life and the existing controls present at the facilities, SCR is cost-effective, results in the most visibility improvement of all feasible control technologies, and that these factors are not outweighed by SCR's potential energy and non-air quality environmental impacts. As a result, regardless of the appropriateness of SCR

[79] BART Guidelines, 40 CFR Part 51, Appendix Y, section IV.D.1, n. 13.

[80] *Id.* section IV.D.1.

[81] 40 CFR Part 60, Subpart Da.

[82] *Id.* section IV.C.

[83] Or subcategories, which Subpart Da does not establish except for "new" and "modified" units.

[84] See, e.g., Final Report, Apache Unit 2 BART Analysis, Table 3–1 (December 2007); Cholla Unit 2 BART Report, page ES–2; SRP Comments on Proposed Rule (September 2012), RMB Technical Memorandum, page 3.

[85] See BART Guidelines, 40 CFR Part 51, Appendix Y, Table 1.

[86] At Apache Units 2 and 3, we considered combustion controls (LNB plus OFA) as one of the control scenarios. At Cholla and Coronado, combustion controls were considered as part of the baseline emission rate and were a potential BART option in the event that the five-factor analysis indicated that no additional controls beyond the baseline were justified.

[87] BART Guidelines, 40 CFR Part 51, Appendix Y, section IV.E.5.

[88] 70 FR 39132.

as a control technology for most units on a national scale, our five-factor analyses establish that NO_X BART limits more stringent than the presumptive limits are appropriate for these units.

3. Costs of Compliance

Comment: Several commenters stated that EPA inappropriately conducted its cost analysis using generalized data and a regional model, whereas the CAA requires a BART determination to be based, in part, on a site-specific cost evaluation. One commenter (Navajo Nation) stated that EPA should justify its use of the IPM and explain why it did not use or request line item costs from the facilities to make its analysis more site-specific. This commenter also stated that EPA's reliance on the IPM is misplaced because the model integrates health-based regulations and not the RHR.

Another commenter (SRP) added that the proposed rule and the TSD say almost nothing about how IPM was used to calculate costs, instead directing the public to an EPA contractor report for more information. The commenter asserted that no contractor report in the docket for the rulemaking supplies additional detail on precisely how IPM was used. The commenter believes that this failing renders EPA's proposed rule inconsistent with the CAA's public notice requirements.

Response: As described in our proposal, the IPM is a multi-regional linear programming model of the U.S. electric power sector. IPM relies upon a very large number of data inputs and provides forecasts of least-cost capacity expansion, electricity dispatch, and emission control strategies for meeting energy demand and environmental, transmission, dispatch, and reliability constraints. EPA has used IPM to evaluate the cost and emissions impacts of proposed policies, such as the recent Mercury and Air Toxics Standard (MATS) to limit pollutant emissions from the electric power sector.

We wish to clarify that, for our proposed action on Arizona's Regional Haze SIP, we did not actually run IPM. Rather, we used one component of IPM, specifically, the component that develops the costs of air pollution control technologies. Broadly speaking, IPM relies upon numerous components and sub-components to specify constraints and variable values that feed into the model algorithms used during an actual IPM model run. The air pollution control cost development component is just one of these numerous components. We relied upon the cost information and equations contained in this component by manually placing them into a spreadsheet that calculated the capital and O&M costs associated with pollution control options. While we relied upon the results of these spreadsheet calculations, we did not then use those results to run IPM, as the type of information generated by an actual IPM model run (e.g., generation dispatch decisions, capacity decisions) is not relevant to our action. We documented our use of the equations from IPM's air pollution control technology cost component by placing the raw cost calculation spreadsheet in the docket for our proposal.[89] This spreadsheet contained the IPM equations, corresponding variable values, selected notes regarding assumptions and variable ranges as well as selected tables from IPM Base Case v4.10 documentation. Since we did not perform an actual IPM model run, the spreadsheet and contractor's report in the docket for our proposal sufficiently document our use of the cost methodologies from the IPM air pollution control cost component.

We disagree with commenters' characterization of the cost development methodology contained in IPM as generalized or outdated. As noted in the documentation for IPM's cost development methodology for SCR, the cost estimate methodology is based upon two databases of actual SCR projects.[90] These databases include 2004 and 2006 industry cost estimates prepared for the Midwestern Ozone Group (MOG), and a proprietary in-house database maintained by engineering firm Sargent & Lundy (S&L). The MOG information was cross-referenced with actual 2009 projects, and escalated accordingly. S&L then used the information in these databases to develop the equations described in the cost component taking into account the pre-control NO_X emission level, degree of reduction, coal type, facility size, and numerous other unit-specific factors. While a costly engineering evaluation that included site visits would potentially produce a more refined cost estimate that could be considered more site-specific than our own, we disagree that our approach has produced cost estimates that are either "generic" or "generalized."

Comment: Several commenters contended that where specific knowledge is available, the CCM is oriented to allow and provide for the use of such information. The commenters also note that the RHR explicitly provides that the cost analysis should take into account any site-specific information that affect the costs of a particular BART technology option, and the *Corn Growers* court explained that BART determinations must be made on a source-specific basis.

Response: While we agree that BART determinations must be made on a source-specific basis, we do not agree that site-specific information is required for all aspects of a BART analysis. Nonetheless, in order to address commenters' concerns that our proposal was based on cost information that was insufficiently site-specific and that the costs of the SCR with LNB and OFA control option, in particular, are not representative of actual installation costs at these facilities, we have performed a supplemental cost analysis. The supplemental cost analyses for each facility are described in Section IV.D of this document, and incorporate much of the cost information provided by the facilities in their comments. In performing this supplemental cost analysis, we have adopted a "hybrid" approach that relies on cost estimates provided by the facilities for certain line items, but still retains the use of the CCM methodology as described in the following response.

Comment: Several commenters stated that EPA's cost estimating techniques are flawed and its reliance on the outdated EPA CCM led to underestimates of costs. Several of these commenters noted that EPA claimed that owner's costs, surcharges and Allowance for Funds Used During Construction (AFUDC) are not allowed by EPA's CCM and refute that these costs are not allowed by the Manual. The commenters state that while the Manual does not have specific line items for owner's costs and surcharges, it discusses some of the items that roll up into these categories. APS, for example, states that:

> Owner's costs are home office and plant support costs that are charged directly to specific projects. These would include costs related to project management, engineering, construction support, start-up, training, etc. Surcharges are home office costs associated with a project that may not be charged directly to that project. These costs would be related to overhead loads, procurement, accounting, finance, etc.[91]

APS also notes that there is a line item for AFUDC in the Manual but provides that it is assumed to be zero percent, but that in its experience AFUDC is a real cost and is never zero percent. In

[89] Document ID: EPA–R09–OAR–2012–0021–0008, File name: G–15_MODELING_FILES_EGU_BART_Costs_Apache_Cholla_Coronado_FINAL2.

[90] *http://www.epa.gov/airmarkets/progsregs/epa-ipm/docs/v410/Appendix52A.pdf.*

[91] APS comments, page 12.

addition, the commenters state neither the CAA nor the BART Guidelines require the Manual to be used to determine the costs of compliance.

Response: With regard to owner's costs and surcharges, we agree with commenters' assertions that the CCM does discuss some of the items that roll up into these line items as they have described in comments. For the control option of SCR with LNB and OFA, for example, the CCM does provide for "Engineering and Home Office Fees" [92] that could potentially include some of the home office and plant support costs described in comments. These types of costs are often included in estimates under some type of engineering/procurement/project services line item. In the case of the cost estimates provided by the utilities (both those submitted to ADEQ as part of the original BART analysis, and those submitted to us in comments on our proposal), we note that their cost estimates are not organized to list line item(s) that clearly correspond to "Engineering and Home Office Fees," and do not provide information indicating where these costs may be included. As a result, while owner's costs and surcharge are not line items included in the CCM, in this instance, as a conservative assumption, we have included the portion of owner's costs/surcharge in the total cost, up to the value specified for "Engineering and Home Office Fees" indicated by the CCM.

We disagree with commenters' assertions that AFUDC is a cost that should be incorporated into our cost analysis, as it is inconsistent with CCM methodology. The utility industry uses a method known as "levelized costing" to conduct its internal comparisons, which is different from the methods specified by the CCM. Utilities use "levelized costing" to allow them to recover project costs over a period of several years and, as a result, realize a reasonable return on their investment. The CCM uses an approach sometimes referred to as overnight costing, which treats the costs of a project as if the project were completed "overnight", with no construction period and no interest accrual. Since assets under construction do not provide service to current customers, utilities cannot charge the interest and allowed return on equity associated with these assets to customers while under construction. Under the "levelized costing" methodology, AFUDC capitalizes the interest and return on equity that would accrue over the construction period and adds them to the rate base when construction is completed and the assets are used. Although it is included in capital costs, AFUDC primarily represents a tool for utilities to capture their cost of borrowing and return on equity during construction periods. AFUDC is not allowed as a capitalized cost associated with a pollution control device under CCM's overnight costing methodology, and is specifically disallowed for SCRs (i.e., set to zero) in the CCM.[93] Therefore, in reviewing other BART determinations, EPA has consistently excluded AFUDC.[94]

Comment: The ACCCE notes that the Manual specifically states that it does not directly address the controls needed to control air pollution at EGUs, citing the following quote from the Control Cost Manual:

> * * * this Manual does not directly address the controls needed to control air pollution at electrical generating units (EGUs) because of the differences in accounting for utility sources. Electrical utilities generally employ the EPRI Technical Assistance Guidance (TAG) as the basis for their cost estimation processes.

Response: We disagree with the commenter's assertion that the CCM does not address control costs needed to control air pollution at EGUs. The quote cited by the commenter contains a footnote that reads as follows:

> This does not mean that this Manual is an inappropriate resource for utilities. In fact, many power plant permit applications use the Manual to develop their costs. However, comparisons between utilities and across the industry generally employ a process called "levelized costing" that is different from the methodology used here.[95]

The quote is merely a factual observation that electric utilities, in their planning and cost estimating for their own purposes, use a different accounting method than required by the CCM. The footnote clarifies that the CCM is appropriate for utilities for regulatory purposes.

4. Energy and Non-Air Environmental Impacts

Comment: One commenter (ADEQ) stated that EPA should consider the costs associated with fly ash ammonia removal in selecting BART. Further, additional problems during disposal of fly ash may cause environmental damage and should not be discounted.

Response: EPA disagrees with this comment. First, we note that ammonia adsorption in the fly ash is expected to be minimal from SCR because excess ammonia would likely react with sulfuric acid to form particulate ammonium sulfate or ammonium bisulfate, which would not pose the same odor problem in fly ash reuse as adsorbed ammonia. Second, the facilities' own BART analyses did not include costs of fly ash disposal or ammonia removal in the cost estimates for SCR, which indicates that they do not consider these potential costs to be significant. Finally, we note that the Arizona Department of Transportation has designated fly ash from each of the three sources as approved material.[96] As explained in our proposed rulemaking and the accompanying TSD, the presence of ammonia does not impact the integrity of the use of fly ash in concrete.[97] Therefore, we have no information that suggests that installation of SCR would result in a change to the facilities' current fly ash disposal and re-use practices.

Comment: One commenter (SRP) stated that EPA downplayed the energy and non-air quality factor its revised BART determination in the proposed FIP, presenting the narrow conclusion that potential energy and non-air quality impacts do not warrant elimination of any of the otherwise feasible control options for NO_X at any of the sources. The commenter asserted that this narrow consideration of this factor is not tenable because this factor must be weighed and considered in conjunction with the other BART factors in the overall assessment of what control option constitutes BART for a particular source. The commenter believes that EPA's approach minimizes the role of this factor in a BART analysis, which is beyond EPA's authority.[98]

Response: EPA does not agree with this comment. The RHR and the BART Guidelines allow the reviewing authority (State, Tribe, or EPA) the discretion to determine how to weigh and in what order to evaluate the

[92] As described in Table 2–5 of the CCM, Engineering and Home Office Fees represent 10 percent of purchased equipment costs.

[93] CCM (Tables 1.4 and 2.5 show AFUDC value as zero).

[94] See, e.g., 77 FR 20894, 20916–17 (Apr. 6, 2012) (explaining in support of the North Dakota Regional Haze FIP, "we maintain that following the overnight method ensures equitable BART determinations * * *."); 76 FR 52388, 52399–400 (August 22, 2011) (explaining in the New Mexico Regional Haze FIP that the Manual does not allow AFUDC).

[95] EPA Air Pollution Cost Control Manual, Sixth Edition page 1–3.

[96] Approved Materials Source List, Fly Ash, Natural Pozzolan, and Lime, Revised July 10, 2012, available at *http://www.azdot.gov/Highways/Materials/*.

[97] See 77 FR 42853–4284, TSD at 38.

[98] Citing *Corn Growers*, 291 F.3d at 6–7 (finding that EPA's original 1999 regional haze rules had improperly divorced consideration of the BART visibility benefits factor from the other BART factors).

statutory factors (cost of compliance, the energy and non-air quality environmental impacts of compliance, any existing pollution control technology in use at the source, the remaining useful life of the source, and the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology), as long as the reviewing authority justifies its selection of the "best" level of control and explains the CAA factors that led the reviewing authority to choose that option over other control levels.[99] In this case, having disapproved the state's BART determinations for NO_X at several units, "all of the rights and duties that would otherwise fall to the State accrue instead to EPA." [100] This includes a significant degree of discretion in deciding how to weigh the five factors, so long as that weighing is accompanied by reasoned explanation for adopting the technology selected as BART, based on the five factors, and in accordance with the BART Guidelines. EPA has provided a detailed explanation of our BART evaluation process and five-factor analyses in our proposal, TSD and elsewhere in this document. We have weighed the potential energy and non-air environmental quality impacts of the various control options along with the other statutory factors in our BART analyses and have concluded that impacts do not warrant elimination of any of the otherwise feasible control options for NO_X at any of the sources.[101]

5. Remaining Useful Life of the Source

Comment: One commenter (APS) did not dispute EPA's assumption of a twenty-year useful life of the emission control equipment in its annualized cost calculations.

Response: EPA agrees with the commenter that this is an appropriate assumption for these sources.

6. Degree of Improvement in Visibility

Comment: One commenter (NPS) agreed with EPA that a more complete assessment of visibility improvement for candidate BART controls would include consideration of the number of areas affected and the degree of improvement expected at all Class I areas rather than focusing on a single area. The commenter commended EPA for its reliance on deciview improvement and the number of areas showing improvement, plus its consideration of cumulative improvement, which provides a supplemental measure that combines information on the number of areas and on individual area improvement.

In contrast, several commenters (ADEQ, AEPCO, APS and AUG) disagreed that EPA's new visibility metric, "cumulative visibility improvement," is an appropriate metric, asserting that this metric incorrectly inflates the estimated visibility improvements of various control options and should not be used. The commenters further stated that this metric does not appear anywhere in the CAA, RHR or BART Guidelines, and that these rules and guidelines specifically give discretion to states to determine how to take into account visibility impacts in a BART evaluation. In addition, the RHR (at 70 CFR 39170) supports identifying the single Class I area that would have the greatest visibility effects from emission controls and does not support adding improvements from multiple Class I areas in determining visibility effects. The commenters affirmed that EPA should use a change in deciview at the Class I area with the highest impact as its visibility metric, consistent with EPA's RHR and the method used by other EPA regions and states.

The commenters further stated that to be relevant to the environmental effect that the regional haze program addresses, the metric by which visibility improvement is determined for purposes of assessing BART for a particular facility must reflect actual human perception of visibility. The commenters added that the cumulative impact approach used by EPA has no tie to human perception and can only distort a BART analysis. The commenters believe that this approach arbitrarily magnifies the benefit that might be associated with emission limitations at a single source.

Response: EPA agrees with NPS on the need to consider visibility improvements at all the nearby Class I areas as part of a comprehensive assessment of the degree of visibility improvement due to BART controls. EPA disagrees with some other commenters that cumulative improvement over multiple areas is an inappropriate metric, or that examining a single Class I area is sufficient. The cumulative improvement metric (i.e., the simple sum of impacts or improvements over all the Class I areas) is not intended to correspond to a single human's perception at a given time and place. The approach is simply one way of assessing improvements at multiple areas, for consideration along with other visibility metrics. Another approach would be to simply list visibility improvements at the various areas, and qualitatively weigh the number of areas and the magnitudes of the improvements. The cumulative sum is simply an easily understood and objective way of weighing cumulative visibility improvement, as part of the overall BART decision.

Comment: One commenter performed NO_2 modeling by scaling tropospheric column NO_2 derived from satellite measurements, as portrayed in imagery from the Institute of Environmental Physics, University of Bremen, Germany. The commenter states that SCR would reduce NO_2 closer to background levels.

Response: While the facilities considered for BART control are not the only NO_X sources in the area, the commenter's scaling of the concentrations in the satellite images according to the reductions expected from SCR can give a rough idea of its NO_2 benefit. However, to assess visibility impacts, the model used must account for the formation of visibility-impairing ammonium nitrate particles. Under the BART Guidelines, CALPUFF is the recommended model that incorporates this nitrate chemistry. Alternative models could potentially be used if they had the ability to handle this and other chemical transformations and had undergone a rigorous performance evaluation.

Comment: One commenter (NPS) commended EPA for the thoroughness of its visibility modeling analyses and the methodologies used. The commenter noted that EPA used CALPUFF methods 6 and 8 and modeled against annual average and 20 percent best natural background conditions. The commenter also pointed out that EPA modeled all pollutants while varying NO_X emissions to evaluate the effects of changing this one pollutant.

Response: EPA acknowledges the comment. It was our intention to estimate visibility impacts accurately and transparently so that one could more easily compare results to earlier applications of CALPUFF and clearly understand the effect of old versus revised IMROVE equations (methods 6 and 8) as well as alternative natural background conditions. We modeled all pollutants together in order to account for chemical interactions among the various pollutants and also the nonlinear dependence of deciviews upon extinction.

Comment: One commenter (APS) stated that EPA's proposal noted that it is appropriate to use Method 6a, 6b, 8a or 8b in CALPOST within the CALPUFF model, yet EPA inappropriately rejected

[99] See BART Guidelines, 40 CFR Part 51, appendix Y, section IV.E.2.

[100] Central Arizona Water Conservation Dist. v. EPA, 990 F.2d 1531, 1541 (9th Cir. 1993).

[101] See 77 FR 42853–4284, TSD at 38.

ADEQ's use of Method 6a in its own analysis and instead used Method 8b, which yielded higher predicted visibility improvements in Class I areas.

Response: EPA did not reject ADEQ's use of visibility method 6a, which remains a viable method for past visibility modeling work under an agreed upon protocol. Method 6a comprises CALPOST Method 6, the old IMPROVE equation for translating pollutant concentration into visibility impacts, and annual average (the "a") natural background concentrations. However, for new visibility modeling, such as EPA performed for the FIP, method 8b is preferable. Method 8b comprises CALPOST Method 8, the revised IMPROVE equation, and best 20 percent of days (the "b") natural backgrounds. The revised IMPROVE equation has superior performance for assessing visibility, and is recommended by the Federal Land Managers for regional haze assessments performed for New Source Review permitting.[102] EPA believes that using the best 20 percent of days as a basis for background concentrations is desirable since visibility impacts due to emissions from facilities are most noticeable on the best days, that is, most visible to visitors of Class I areas. EPA assessed the results of both methods (and also the "6b" and "8a" combinations), but primarily relied on 8b as the most appropriate method in the BART context.

Comment: One commenter (APS) objected to EPA shifting the CAA's mandate to compare costs and benefits under the BART program to an assessment of "cost-effectiveness" ($/ton) without specifying the threshold level of what is cost-effective. APS also noted that in the absence of a specific threshold for cost-effectiveness, the FLMs have referred to a benchmark of $20 million per deciview as the upper limit. The commenter also presented data showing the incremental costs of going from LNB/OFA to SNCR or SCR to be over $20 million per deciview for Cholla.

Response: The commenter is correct that the BART Guidelines list the $/deciview ratio as an additional cost-effectiveness metric that can be employed along with $/ton for use in a BART evaluation, and we have included this information in our proposal. While the FLMs have indicated that they consider $20 million/dv to be a benchmark for average cost-effectiveness, we note that the BART Guidelines do not require the development of a specific threshold. The BART Guidelines, however, require that cost-effectiveness be calculated in terms of annualized dollars per ton of pollutant removed, or $/ton.[103] We considered cost of controls by discussing the total capital costs, annual costs, $/ton, and incremental $/ton, and considered the degree of visibility improvement by discussing the individual and cumulative deciview improvement resulting from the various control technology options, as well as the percent change in improvement. Our consideration of other metrics in addition to $/dv in no way relegates visibility improvement to a secondary role. Finally, we note that the FLMs' recommended "benchmarks" for dollars per deciview are for average dollars per deciview not *incremental* dollars per deciview.[104] Neither the BART Guidelines nor the FLMs recommend consideration of incremental dollars per deciview.

Comment: One commenter (NPS) cautioned against any implication in EPA's analyses that visibility improvement must exceed 0.5 dv to be significant. The commenter believes that such an approach would be contrary to the BART Guidelines.

Response: EPA agrees that the 0.5 dv threshold for "contribute to visibility impairment" is only for the initial Subject-to-BART screening test and it is a maximum even for that purpose, according to the BART Guidelines.[105] Smaller improvements from controls should be considered in BART determinations, since they can be beneficial in considering effects from controls on multiple sources.[106] We have used the 0.5 dv level simply as one point of comparison, a "benchmark" or "yardstick," to gauge the magnitude of impacts under various control scenarios.

Comment: Several commenters (APS, AUG, Navajo Nation, PacifiCorp and SRP) asserted that EPA's proposed NO_X BART determination rests on a flawed assessment of visibility impacts. The commenters made the following arguments to support their contention that EPA's modeling overestimates the visibility benefits associated with BART control options. First, EPA used an outdated version of the CALPUFF model (version 5.8) that over-predicts visibility benefits. Based on citations provided by the commenters, CALPUFF version 6.42 has been shown to provide better agreement with observed levels of nitrates. The commenters provided modeling results using CALPUFF version 6.42 for EPA's consideration. Second, EPA's outdated use of constant ammonia background concentration of 1.0 ppb over-predicts visibility benefits and fails to account for known monthly or seasonal variations. EPA inappropriately rejected ADEQ's use of variable background concentrations, which was well within the state's discretion. Several of these commenters also noted that a case study[107] by Terhorst and Berkman based on the 2005 closure of the Mohave Generating Station found virtually no evidence that closure resulted in improved visibility at the Grand Canyon. In addition, SRP stated that EPA must consider visibility benefits from NO_X controls within the context of nitrate contributions to regional haze. Studies of visibility impairment on the Colorado plateau show that nitrate aerosols contribute only two to five percent to haze.

Response: EPA disagrees with the commenters that any new CALPUFF version should be used for the BART determination. EPA relied on version 5.8 of CALPUFF because it is EPA-approved version in accordance with the Guideline on Air Quality Models ("GAQM", 40 CFR 51, Appendix W, section 6.2.1.e). EPA updated the specific version to be used for regulatory purposes on June 29, 2007, including minor revisions as of that date. The approved CALPUFF modeling system includes CALPUFF version 5.8, level 070623, and CALMET version 5.8 level 070623. CALPUFF version 5.8 has been thoroughly tested and evaluated, and has been shown to perform consistently with the initial 2003 version in the analytical situations for which CALPUFF has been approved. Any other version, and especially one with such fundamental differences in its handling of chemistry, would be considered an "alternative model", subject to the provisions of GAQM section 3.2.2(b), requiring full model

[102] *Federal Land Managers' Air Quality Related Values Work Group (FLAG) Phase I Report—Revised (2010)*, U.S. Forest Service, National Park Service, U.S. Fish and Wildlife Service, October 2010. *http://www.nature.nps.gov/air/Pubs/pdf/flag/FLAG_2010.pdf.*

[103] BART Guidelines section IV.D.4.c.

[104] See, e.g. National Park Service Comments on Best Available Retrofit Technology for Apache, Cholla, and Coronado Power Plants in Arizona (September 17, 2012) at 6.

[105] BART Guidelines, 40 CFR Part 51, Appendix Y, section III.A.1 ("As a general matter, any threshold that you use for determining whether a source "contributes" to visibility impairment should not be higher than 0.5 deciviews.")

[106] See, e.g. 70 FR 39129 ("Even though the visibility improvement from an individual source may not be perceptible, it should still be considered in setting BART because the contribution to haze may be significant relative to other source contributions in the Class I area.")

[107] Terhorst, Jonathan and Berkman, Mark, "Effect of Coal-fired Power Generation on Visibility in a Nearby National Park", *Atmospheric Environment* 44, 2524, 2530 (Apr. 2010).

documentation, peer-review, and performance evaluation. No such information for the later CALPUFF versions that meet the requirements of section 3.2.2(b) has been submitted to or approved by EPA. Experience has shown that when the full evaluation procedure is not followed, errors that are not immediately apparent can be introduced along with new model features. For example, changes introduced to CALMET to improve simulation of over-water convective mixing heights caused their periodic collapse to zero, even over land, so that CALPUFF concentration estimates were no longer reliable.[108]

The change from CALPUFF version 5.8 to CALPUFF 6.4 is not a simple model update to address minor issues, but a significant change in the model science that requires its own rulemaking with public notice and comment before it can be relied on for regulatory purposes.

Furthermore, it should be noted that the US Forest Service and EPA review of CALPUFF version 6.4 results for a limited set of BART applications showed that differences in its results from those of version 5.8 are driven by two input assumptions not associated with the chemistry changes in 6.4. Use of the so-called "full" ammonia limiting method and finer horizontal grid resolution are the primary drivers in the predicted differences in modeled visibility impacts between the model versions. These input assumptions have been previously reviewed by EPA and the FLMs and have been rejected based on lack of documentation, inadequate peer review, and lack of technical justification and validation.

Introducing a new regulatory model is a long process. EPA intends to conduct a comprehensive evaluation of the latest CALPUFF version along with other "chemistry" air quality models, including a full statistical performance evaluation, verification of its scientific basis, and determination of whether the underlying science has been incorporated into the modeling system correctly. To accommodate such a model, there would have to be an evaluation of the effect on the regulatory framework for its use, including in New Source Review permitting, and also changes to the Guideline on Air Quality Models and other modeling guidance, in consultation with the FLMs. CALPUFF version 5.8 has already gone through this comprehensive evaluation process and remains EPA-approved version, and is thus the appropriate version for EPA's BART determinations of these facilities.

The ammonia issue has already been addressed above. EPA believes that there is no compelling alternative to the use of the default 1 ppb background concentration.

The Terhorst & Berkman study cited by the commenter is worthy of consideration as the Regional Haze program evolves, but one study does not invalidate CALPUFF, which has had multiple performance evaluations and has gone through public comment and rulemaking. It also does not remove the legal requirement to perform BART determinations for eligible facilities.

While nitrate appears to be a smaller contributor to visibility impairment than some other compounds, section 169A of the Clean Air Act requires BART determinations on BART-eligible EGUs regardless of ambient visibility conditions. Application of BART is one means by which we can ensure the continuation of downward emission and visibility impairment trends. Modeling shows maximum visibility impacts of 1.2 to 4.5 deciviews depending on the facility, which are not negligible contributions to visibility impairment. Even if an individual pollutant or source category appears small to some commenters, the many segments of the emissions inventory taken together do cause visibility impairment, and each must be addressed in order to make progress towards the national goal of remedying visibility impairment from man-made pollution. EPA identifies stationary sources as an important category to evaluate under the Regional Haze program, including a BART analysis.

Comment: Several commenters argued that the proposed FIP is inconsistent with the goal of the RHR, which is to make progress toward natural visibility conditions by the year 2064. Another commenter added that Arizona's energy providers have already invested time and money (hundreds of millions of dollars) in order to reach the long-term goal of achieving natural background visibility by 2064, and that the accelerated timeline proposed by the rule would result in astronomical costs. Another commenter stated that EPA is front-loading as many emission reductions as possible in the first five years of this program, while ignoring other causes of visibility impairment, such as fires, in its FIP. Other commenters suggested that Arizona's haze is produced by a number of environmental factors, like pollution from wildfires, garbage burning along the Mexico/US border, and dust storms.

Response: We do not agree that we are front-loading emission reductions or that we have lost sight of the "end goal." While the goal of the regional haze program is to achieve natural visibility conditions in all mandatory Class I Federal areas by 2064, the requirement for states to implement BART applies only during the first planning period ending in 2018.[109] Where a State has not met the RHR requirements related to BART, EPA is obligated to disapprove that portion of the State's submittal. And, as explained elsewhere in this document, because the FIP clock has already expired for the Arizona Regional Haze plan, we are required to promulgate a FIP for any disapproved portion of the SIP. Our action fulfills part of this duty.

We agree that there are various other factors that contribute to haze at Arizona's Class I areas. However, these other factors are not relevant to the BART requirements, which govern today's action. Under the RHR, causes of haze other than BART sources are addressed under separate requirements for reasonable progress and a long-term strategy. We will address the remaining requirements of the RHR for the first implementation period in Arizona, including requirements for reasonable progress toward the 2064 goal, in a separate rulemaking action.

D. Source-Specific Comments on EPA's BART Analyses and Determinations

1. EPA's BART Analysis and Determination for NO_X at Apache Units 2 and 3

a. Control Efficiencies

Comment: Various commenters (ADEQ, AEPCO and AUG) asserted that EPA's proposed BART determination for Apache Units 2 and 3 was premised on the assumption that SCR can achieve an emission limit of 0.050 lb/MMBtu continuously on a 30-day rolling average, including periods of startup, shutdown and equipment malfunctions, but that this limit has not been shown to be feasible. They argued that EPA had failed to support either its proposed BART determination or its reliance on this limit in its BART analysis. In addition, AEPCO and AUG stated that EPA inappropriately relied on vendor information to support an emission rate of 0.050 lb/MMBtu using SCR. AEPCO also noted that it considered this support anecdotal and stated that it

[108] "CALPUFF Regulatory Update", Roger W. Brode, Presentation at Regional/State/Local Modelers Workshop, June 10–12, 2008; *http://www.cleanairinfo.com/regionalstatelocalmodelingworkshop/archive/2008/agenda.htm.*

[109] See 40 CFR 51.308(f) (future Regional Haze plans must address reasonable progress and long-term strategy, but not BART).

cannot form the basis for a BART determination, as BACT rules expressly provide that EPA does "not consider a vendor guarantee alone to be sufficient justification that a control option will work." AEPCO requested that if EPA retains the SCR limits, that they be set at 0.07 lb/MMBtu due to the infeasibility of complying with a lower limit at the Apache station. Also, due to the load-following and cycling nature of the units and the need to accommodate startups and shutdowns, AEPCO requested that any lower limits be set as an annual average limit.

Response: We partially agree with this comment. In our proposal, our analysis was based on an SCR annual average design value of 0.050 lb/MMBtu, which was subsequently proposed as a rolling 30-day average emission limit. We disagree that our use of 0.050 lb/MMBtu as an annual average design value is merely anecdotally supported or based on vendor literature/guarantees alone. As discussed in our proposal, the ability of SCR to achieve control efficiencies in the range of 80 to 90 percent is well established. Although the information included in our proposal did include vendor estimates, it also included summaries of SCR control efficiencies that were achieved in practice. We have further supplemented the record to include more recent examples illustrating that SCR, as a technology, is capable of achieving control efficiencies in the range of 80 to 90 percent. For the Apache units, an annual average emission rate of 0.050 lb/MMBtu represents 87 to 89 percent control. While these values represent the upper range of SCR control and are more stringent than the control efficiencies used in the BART analyses prepared by AEPCO,[110] we reaffirm that these values are appropriate, given that they are still within the range of what is achievable with SCR and that the Apache units are among the highest baseline NO_X emission rate units considered in our proposal. We agree with the commenter that, when establishing a 30-day rolling average BART emission limit that would apply at all times, it is appropriate to accommodate emissions associated with startup and shutdown events in developing the emission limit. SRP raised similar concerns in comments on Coronado 1 and 2. As discussed in more detail in our responses on Coronado, SRP submitted information suggesting that the Coronado units cannot achieve an SCR emission rate of 0.050 lb/MMBtu on a rolling 30-day average and could only achieve in the range of 0.053 to 0.072 lb/MMBtu.[111] We have reviewed the analyses provided by SRP and note that while the results of SRP's analysis indicate that Coronado could meet a 0.050 lb/MMBtu limit on an annual average basis,[112] we agree that the Coronado units cannot achieve an SCR emission rate of 0.050 lb/MMBtu on rolling 30-day average. As a result, we conclude that 0.050 lb/MMBtu is appropriate as annual average design value, but not as 30-day rolling average emission limit at the Coronado units. While we acknowledge that Apache 2 and 3 are not identical to the Coronado units, we do note the following similarities:

- Both the Apache and Coronado units are of the same boiler type (Riley turbo).
- Both the Apache and Coronado units were constructed and placed into operation at approximately the same time. Construction commenced on the Apache units in 1976, and they were placed into operation in 1979. The Coronado units were placed into operation in 1979 and 1980.
- Both the Apache and Coronado units have access to, and could potentially use, a bituminous and sub-bituminous coal blend.[113]
- Although the historical operating profiles of the Apache and Coronado units are not identical, both the Apache and Coronado units are cycling units that exhibit a greater number of startup and shutdown events than baseload units.

Based on these similarities, we similarly conclude that the Apache units cannot achieve an SCR emission rate of 0.050 lb/MMBtu on a rolling 30-day average, but that use of 0.050 lb/MMBtu as an annual average design value is appropriate. We agree that when establishing a rolling 30-day BART emission limit that is based upon an annual average design value, it is appropriate to provide a compliance margin for periods of startup and shutdown. In addition to considering the boiler type, age of the units, and coal type to which Apache has access, we also note that AEPCO meets the definition of "small entity" as established for electric utility companies by the U.S. Small Business Administration.[114] We considered AEPCO's small entity status[115] and how to provide AEPCO with operational flexibility consistent with application of the five-factor BART analysis. Based on these considerations, we have decided to raise the rolling 30-day average emission limit from the proposed level of 0.050 lb/MMBtu to 0.070 lb/MMBtu. A rolling 30-day average of 0.070 lb/MMBtu represents an upward revision of 40 percent from an annual average design value of 0.050 lb/MMBtu and corresponds to the upper end of the range of lb/MMBtu values considered achievable by SRP's analysis. We consider this magnitude of upward revision appropriate to accommodate emissions from startup and shutdown events, as well to provide AEPCO a sufficient measure of operational flexibility as a small entity. In addition, in response to comments requesting that emission limits be established across units,[116] consistent with the BART Guidelines,[117] we have decided to set the emission limit as a "bubble" limit across Apache Units 2 and 3. We are therefore finalizing a 30-day rolling average BART emission limit of 0.070 lb/MMBtu for Apache Units 2 and 3 as a "bubble" across these two units.

Comment: One commenter (AEPCO) requested that if EPA establishes an

[110] See Docket Items B–03 and B–04, Appendix A. AEPCO's calculations are based on 83–85 percent SCR control efficiency, and 24-hour average emission rates of 0.07 lb/MMBtu.

[111] As discussed in further detail in the responses on Coronado, this range of values corresponds to an SCR unit designed to operate during all periods of normal operation and loading conditions.

[112] As discussed in further detail in the responses on Coronado, this is specifically in regards to Coronado Unit 1.

[113] The Apache units have access to a number of bituminous and sub-bituminous coal blends. See, e.g., Final Report, Apache Unit 2 BART Analysis, Table 3–1 (December 2007). While the Coronado units currently burn 100 percent sub-bituminous Powder River Basin coal, they have historically burned a mixture of PRB with bituminous coal. See SRP Comments on Proposed Rule (September 2012), RMB Technical Memorandum, page 3.

[114] As noted in our NPRM (77 FR 42867).

[115] See EPA's Action Development Process, Final Guidance for EPA Rulewriters: Regulatory Flexibility Act as amended by the Small Business Regulatory Enforcement Fairness Act, November 2006, at 3. This EPA guidance document states that prior to the enactment of the Small Business Regulatory Enforcement Fairness Act, EPA exceeded the requirements of the Regulatory Flexibility Act (RFA) by preparing a regulatory flexibility analysis for every rule that would have any impact on any number of small entities. In view of the changes made by SBREFA, however, EPA decided to implement the RFA as written—a regulatory flexibility analysis as specified by the RFA is not required simply because the rule has some impact on some number of small entities: "Instead, such analysis will be required only in cases where we will not certify that the rule will not have significant economic impact on a substantial number of small entities", but "It remains EPA policy that program offices should assess the direct adverse impact of every rule on small entities and minimize any adverse impact to the extent feasible, regardless of the magnitude of the impact or the number of small entities affected."

[116] Although AEPCO did not specifically request this, this comment was made in comments submitted by Arizona Utility Group on behalf of all of the utilities. As a result, we are also establishing bubble limits for the Apache units.

[117] BART Guidelines, 40 CFR Part 51, Appendix Y, section V ("You should consider allowing sources to "average" emissions across any set of BART-eligible emission units within a fenceline * * *).

SNCR limit, that the limits for Apache Units 2 and 3 be set at 0.23 lb/MMBtu. The commenter notes that while there are some differences in past utilization, the units are functionally identical and that, based on the best information available, a limit of 0.23 lb/MMBtu is likely the best consistently achievable limit given the load-following, unit-cycling and startup and shutdown issues that must be addressed as part of unit operation.

Response: Although AEPCO stated in comments that "based on the best information available, a limit of 0.23 lb/MMBtu is likely the best achievable limit" and cited unit cycling and startup/shutdown issues, AEPCO did not provide any information in its comments documenting how or to what extent these issues justify a 0.23 lb/MMBtu emission limit (rolling 30-day average). We note that AEPCO's original BART analysis also identified an SNCR emission estimate of 0.23 lb/MMBtu, but did not discuss the extent to which startup, shutdown, and malfunction events are accounted for in this emission rate.

We note, however, that SRP also provided information in its comments regarding SNCR performance at Coronado Unit 1. Again, because of the similarities between the Apache units and the Coronado units, we consider it useful to examine information provided for the Coronado units in evaluating SNCR performance and an appropriate SNCR emission limit for the Apache units. As noted in our responses to comments on Coronado, SRP submitted a conceptual design estimate for SNCR for Coronado 1 that included a vendor estimate of 25 percent control efficiency from LNB emission rates. As noted in our responses for Coronado, while this is less stringent than the 30 percent SNCR control efficiency used by our contractor, we consider it a reasonable estimate. Based upon 25 percent control efficiency, annual average emission rates for the SNCR with LNB and OFA option are presented in Table 2.

TABLE 2—APACHE: SNCR EMISSION RATE ESTIMATE

[Annual average]

Control technology	Control efficiency (percent) [1]	Apache 2 (lb/MMBtu)	Apache 3 (lb/MMBtu)	Average across units (lb/MMBtu)
OFA		0.37	0.44	0.40
LNB+OFA	30	0.26	0.31	0.28
SNCR+LNB+OFA	25	0.19	0.23	0.21

[1] This represents the incremental control efficiency from the previous control option, not the overall control efficiency from the baseline case of OFA.

If we were to establish a BART emission limit corresponding to the use of SNCR technology, we would use the annual average SNCR emission rates presented in Table 2 as our basis, rather than our original estimates based on 30 percent SNCR control efficiency. As noted in a separate response, when using an annual average design emission rate to establish a rolling 30-day limit that will apply during periods of startup, shutdown, and malfunction, we consider it appropriate to provide some type of measure that provides a compliance margin for such events. First, we would set the SNCR emission limit as a "bubble" limit across Apache 2 and 3. As seen in Table 2, the annual average SNCR emission rate, averaged across both units, is 0.21 lb/MMBtu. A 0.23 lb/MMBtu emission limit, as requested by AEPCO, established on a rolling 30-day average represents an approximate 10 percent increase from the 0.21 lb/MMBtu annual average emission rate. We would consider this magnitude of upward revision appropriate to accommodate startup, shutdown, and malfunction events as well as the unit cycling nature of the Apache units. As a result, if established, we would consider the BART emission limit corresponding to the SNCR with LNB and OFA option to be 0.23 lb/MMBtu, established as a bubble across both units.

For the purposes of our cost calculations or visibility modeling, however, we have retained the use of our original SNCR emission rates. A less stringent SNCR emission rate would, by itself, primarily serve to make the next most stringent control option, SCR, appear to remove a greater amount of emissions. This in turn would make the SCR control option appear more incrementally cost-effective (i.e., by removing a greater amount of emissions, relative to SNCR, for the same cost). As discussed in our proposal and in other responses to comments, we already consider SCR to be cost-effective, and it is not determinative to our decision to find that SCR is "even more" incrementally cost-effective.

b. Costs of Compliance

Comment: Two commenters (NPS and Earthjustice) conducted their own analyses of the cost and cost-effectiveness of SCR with LNB and OFA for reducing emissions of NO_X at Apache Units 2 and 3. NPS used the cost methodologies of the CCM, relied on the IPM to reflect the most recent SCR cost levels, and submitted the detailed calculations as Appendix B to its comments. The commenter's analysis yielded cost-effectiveness values of $2,392/ton to $3,144/ton. The commenter noted that EPA's analysis yielded cost-effectiveness values of $2,275/ton to $2,908/ton, which EPA considers cost-effective. According to Earthjustice, when the cost-effectiveness of SCR is calculated using more accurate costs and proper baselines, the result is a cost-effective SCR investment that reduces NO_X at a cost of $2,640/ton at Unit 2 and $2,275/ton at Unit 3.

Response: Based upon a review of the commenters' calculations, we recognize that there are certain aspects of cost calculations that would result in lower $/ton values under different assumptions. As noted in our proposal, we already consider the SCR with LNB and OFA control option to be cost-effective at $/ton values that are somewhat higher than those calculated by the commenters. As a result, we decline to modify our estimates of cost-effectiveness to reflect these comments, as it is not in any way determinative to our decision to find that SCR is "even more" cost-effective or that the incremental cost-effectiveness value between SCR and SNCR is "even more" incrementally cost-effective.

Comment: One commenter (AEPCO) stated EPA underestimated the site-specific costs for installing SCR at Apache, due principally to EPA's substitution of general data used in the IPM model for the site-specific data used by ADEQ. The commenter stated that EPA needs to reevaluate its numbers in light of AEPCO's site-

specific analysis. For operation and maintenance costs, AEPCO estimates total costs of $1,760,000, which is slightly lower than EPA's estimate of $1,822,463, with the main difference due to EPA's higher allowance for maintenance. For the base unit costs, EPA used a 25 percent reduction factor for "low dust" for Unit 3. AEPCO's vendors do not believe there will be any substantial reduction in cost based on "low dust," and estimates that installed costs will be approximately $39,094,000 compared to EPA's estimate of $33,279,000 for this unit. AEPCO estimates that the bare module cost will be near $48,119,000, rather than the $25,599,000 that EPA estimates, because EPA only included costs for induced draft (ID) fan upgrades and did not account for the additional costs of upgrading existing or running new electrical service to support the additional electrical loads required by SCR. The commenter also stated that EPA did not include contractor indirect costs and contingency with the capital, engineering and construction costs, nor did EPA include any owner's costs or allowance for funds during construction, including interest during construction. AEPCO does not believe EPA should disallow these costs. AEPCO's estimates with these costs are $85,666,000, compared with EPA's estimate of $33,279,000.

The commenter stated that based on AEPCO's estimated installed costs of SCR, the cost burden is disproportional to the benefits. Adding the costs of SCR to EPA's estimate for LNB and OFA, the annualized cost is $3,508 per ton and $13.9 million per deciview.

Another commenter (ACCCE) stated that EPA's proposal to require SCR at Apache Units 2 and 3 must be abandoned due to the high costs of SCR. The commenter notes that according to EPA's estimates, costs of SCR with LNB and OFA would be about $6 million for each unit, while the annualized costs of LNB and OFA estimated by ADEQ are only about $533,000 per unit. In addition, the commenter notes that the marginal improvement in visibility with SCR over LNB and OFA would be less than 1 deciview.

Response: We disagree with commenters' assertions that we underestimated the costs of SCR, or that the cost of SCR is disproportional to its benefits. In developing our proposed action for Apache Units 2 and 3, we examined the cost estimates for the SCR with LNB and OFA control option contained in AEPCO's original BART analysis.[118] By comparison, the SCR with LNB and OFA cost estimates we developed for our proposed action [119] do not differ significantly. A comparison of capital cost, total annual cost, and cost-effectiveness for these two estimates are summarized in Tables 3 and 4.

TABLE 3—APACHE UNIT 2: COST COMPARISON OF SCR WITH LNB AND OFA

	Capital cost ($)	Total annual cost ($/yr)	Emissions removed (tpy)	Average cost-effectiveness ($/ton)
EPA estimate	$44,779,657	$5,869,299	2,019	$2,908
AEPCO original estimate	48,740,300	6,102,740	3,250	1,878

TABLE 4—APACHE UNIT 3: COST COMPARISON OF SCR WITH LNB AND OFA

	Capital cost ($)	Total annual cost ($/yr)	Emissions removed (tpy)	Average cost-effectiveness ($/ton)
EPA estimate	$43,812,028	$6,103,078	2,683	$2,275
AEPCO original estimate	48,740,300	6,062,302	2,778	2,182

We note that while we used a different cost estimation methodology than AEPCO, our estimates of capital cost and total annual cost are very similar to the company's original estimates and differ, for example, by only 8 percent and 4 percent (respectively) at Apache Unit 2. More importantly, we note that AEPCO's original estimates for Apache Units 2 and 3 actually show lower $/ton values than our own, meaning that AEPCO's original estimate indicates that SCR with LNB and OFA is cost-effective.

In submitted comments, AEPCO provided multiple analyses comparing our SCR (stand alone) cost estimate with revised estimates prepared by engineering firm Burns and McDonnell.[120] AEPCO provided two sets of revisions: one in which it retained our assumptions regarding costs not included in the CCM, such as AFUDC and owner's costs, and another set in which it included those costs. In both cases, these analyses also contained revisions in order to reflect capital costs and O&M costs that AEPCO considered more representative and appropriate for the Apache units. These revisions included the following:

- Higher bare module SCR costs, involving the inclusion and upward revision of specific constituent cost items (e.g., concrete and piling, ductwork);
- Use of lower cost reduction for the low-dust SCR design as reflected in bare module cost (10 percent cost reduction, compared to a 25 percent cost reduction used in our estimate);
- Use of higher capacity factor (0.85 for both units, compared to 0.62 and 0.71);
- Lower SCR NO_X removal efficiency (based on an SCR emission rate of 0.07 lb/MMBtu, compared to 0.05 lb/MMBtu);
- Inclusion of an additional 15 percent engineering, procurement, contracting fee (not included in our cost estimate); and
- And certain other different assumptions regarding O&M costs that result in similar total O&M costs.

AEPCO then included our estimate of LNB and OFA costs with its SCR (standalone) costs to arrive at its overall cost estimate for the SCR with LNB and OFA control option. As discussed elsewhere in this preamble, we have decided to finalize a 30-day rolling average BART emission limit of 0.070

[118] Docket Item No. B–01, Arizona Regional Haze SIP, Appendix D, page 49.

[119] See 77 FR 42856, Table 16.

[120] The analysis was included in Attachment 1 to AEPCO's Comments on the page titled "SCR Capital Cost Comparison."

lb/MMBtu for Apache Units 2 and 3, and a "bubble" across these two units to provide AEPCO an adequate margin for compliance. Although this 30-day limit accommodates the possibility of multiple startups in a given 30-day period, we expect such spikes to be smoothed out over the course of a year, so that the annual average remains closer to 0.05 lb/MMBtu. For the other items noted above, such as bare module SCR costs, we are willing to defer to AEPCO's judgment on these issues in order to address AEPCO's concerns that our cost estimate was insufficiently site-specific. As a supplemental cost estimate, we have used the version of AEPCO's cost estimate that adheres to our assumptions regarding costs that are allowed by the CCM. As shown in Table 5, this results in revised SCR with LNB and OFA cost-effectiveness values of $3,450/ton and $2,973/ton for Apache 2 and 3, respectively, that are still within a range that we consider cost-effective when considered in conjunction with the visibility improvement associated with SCR.

TABLE 5—APACHE 2 AND 3: COST ESTIMATE OF SUPPLEMENTAL SCR WITH LNB AND OFA

Parameter	Apache 2	Apache 3	Notes
SCR Capital Cost ($)	71,938,250	71,938,250	1
LNB+OFA Capital Cost ($)	10,543,189	10,543,189	2
SCR+LNB+OFA Capital Cost ($)	82,481,439	82,481,439	
Interest Rate (percent)	7.0	7.0	
Equipment Lifetime (years)	20	20	
Capital Recovery Factor	0.094	0.094	2
Annualized Capital Cost ($/yr)	7,785,664	7,785,664	
Fixed O&M ($/yr)	466,000	466,000	1
Variable O&M ($/yr)	1,294,600	1,294,600	1
Total Annual O&M ($/yr)	1,760,600	1,760,600	
Total Annual Cost ($/yr)	9,546,264	9,546,264	
Heat Rate (MMBtu/hr)	2,316	2,223	2
Baseline Emission Rate (annual average lb/MMBtu)	0.371	0.438	
SCR Emission Rate (annual average lb/MMBtu))	0.050	0.050	2
SCR Control Efficiency (percent)	87	89	
Annual Capacity Factor	0.85	0.85	1
Baseline Emissions (tpy)	3,198	3,625	
SCR Emissions (tpy)	431	414	
Emissions Removed (tpy)	2,767	3,211	
Annual Cost ($/yr)	9,546,264	9,546,264	
Emissions Removed (tpy)	2,767	3,211	
Average Cost-Effectiveness ($/ton)	3,450	2,973	

Comment: One commenter (AEPCO) stated that according to EPA's estimates of SNCR costs, the incremental costs of SNCR with LNB and OFA compared to LNB and OFA are $3.3 million with a maximum incremental improvement of 0.47 dv at Chiricahua Wilderness Area. The commenter stated that this improvement in deciviews is insignificant compared with cost.

Response: As described above, EPA is not limited to considering incremental costs and benefits in comparing BART alternatives. The visibility benefits of SNCR at Chiricahua are a full 1 deciview with an annual cost of $6.6 million and a cost-effectiveness of $2,056 $/ton averaged over the two emitting units. In this case, even the incremental cost-effectiveness of $2,837 $/ton is well within the range that we consider cost-effective. The incremental visibility benefit of 0.47 dv is also substantial, and additional benefits would occur at multiple Class I areas. Considered as a contribution to visibility impairment, EPA disagrees that this improvement from SNCR is insignificant.

Comment: One commenter (AEPCO) stated that the Appendix Y BART Guidelines (40 CFR 51, App. Y, section IV.E.3.2) provide that the State and EPA must consider the economic effects of BART determinations. AEPCO estimates that to install and operate SCR with LNB and OFA, rates would need to rise by more than 17.5 percent. Further, the units could have to shut down if the cost of power from those units is out of line with the cost of power in the open market. Moreover, due to contract expirations, AEPCO has no certainty that even its existing 147,643 meters will be available to defray costs. AEPCO asserted that these factors are exactly the types of circumstances that were designed to be acknowledged in the BART Guidelines.

One commenter (AEPCO) stated that EPA failed to follow the requirements of CAA section 51.308 and Appendix Y in its cost analysis by failing to review the affordability of the final cost on AEPCO as a single facility cooperative, but rather examined only the cost per ton and the cost per deciview. EPA should also consider the implications of AEPCO's cooperative status and its limitations in obtaining funding for capital improvements. As a single generating station, with multiple units subject to BART requirements, the cooperative is unable to spread costs over unaffected units, other facilities or a large system of units and ratepayers. Also, as a cooperative, AEPCO is owned by its members and cannot sell stock or other equities to raise funding, and must seek long-term financing from the Rural Utilities Service, which has a limited budget and is being asked to fund efforts for other cooperatives and rural utilities to meet CAIR, CSAPR, other SIP initiatives, and the upcoming EGU MACT. In addition, the terms of AEPCO's mortgage agreement would necessitate a rate increase of more than 16 percent to accommodate SCR, and it is not certain whether the Arizona Corporation Commission (ACC) would grant such a rate increase or what the long term impact would be on AEPCO's working and patronage capital.

AEPCO also stated that the operating and financing costs are unreasonable for the Apache plant. EPA estimates the SCR system alone will have operating and maintenance costs of $3.3 million,

which is 35 percent of AEPCO's total net revenue of $9.5 million for 2010 and more than the net revenue of $1.9 million for 2011. AEPCO estimates that it will need to increase rates by $22.5 million a year over the O&M costs just to finance SCR with LNB and OFA on Units 2 and 3. This combined cost is 14 times AEPCO's net revenues in 2011 and 2.8 times 2010 net revenues. This cost does not include other expenditures that will be required for Units 1, 2 and 3 for BART. With only 147,643 metered customers and with many of these customers in low income areas, rate increases for these customers are not trivial. The commenter also stated that SNCR also is not affordable due to the operating costs. AEPCO estimates SNCR with LNB and OFA operating costs to be $6.8 million, which is three times AEPCO's net revenue 2011 and over two-thirds of net revenues in 2010.

Another commenter (Earthjustice) stated that SCR costs will not threaten AEPCO's continued viability or have a severe impact on its operations, which are the only two affordability conditions allowed to be considered under the BART Guidelines (Appendix Y, Section IV.E.3.). The commenter noted that guidance and case law on Reasonably Available Control Technology (RACT) and BACT determinations, which make clear that affordability issues are given relatively little weight, are instructive for BART determinations due to the similar analysis. For RACT and BACT, the commenter explained that Congress intended that all sources in a source category bear similar costs for pollution reduction and that sources should not be able to avoid cost-effective controls due to poor financial position, as this would reward inefficient or poorly-managed sources. The commenter cited two cases regarding RACT and BACT economic feasibility (*Michigan* v. *Thomas,* 805 F.2d 176, 180 (6th Cir. 1986), Nat'l Steel Corp., Great Lakes Steel Div. v. Gorsuch, 700 F.2d 314, 324 (6th Cir. 1983)). The commenter also noted that detailed economic data is required for sources to raise affordability issues under RACT and BACT, and the detailed economic analysis called for in the BART Guidelines should be similarly robust where EPA considers affordability issues for "unusual circumstances." The commenter also stated that Apache's continued viability is not threatened, based on a report by Paul Chernick at Resource Insight Inc., which shows that AEPCO's average operating margin over the last four years would cover 185 percent of the annual debt repayment for the SCR system, and the current equity capital of $94 million in 2011 would cover the entire cost of installation. The report also shows that AEPCO will receive refunds from a settlement with two railroads totaling $63 million. The commenter further refuted that AEPCO may not be able to borrow sufficient funds for SCR. The commenter stated that RUS loan funds are not raised or subsidized by taxpayers, and the RUS does not anticipate any shortage in funding. In addition, the commenter claimed that the National Rural Utility Cooperative Finance Corporation (NRUCFC) is financed by private investors, and AEPCO should not have any difficulty borrowing from the NRUCFC, if necessary.

Another commenter (ACCCE) stated that the large costs of SCR may adversely impact AEPCO and its customers due to AEPCO's small size, the low income profiles of AEPCO's service area, and AEPCO's ability to obtain financing. The commenter urges EPA to give full consideration to AEPCO's comments submitted June 29, 2012, on these issues.

Commenters from AEPCO's member cooperatives stressed the unique economic and engineering challenges they face—low population density, the demands of servicing vast remote areas with rugged topography, and transmission grid capacity limitations that make it difficult to import power. They noted that the majority of their power comes from the Apache Generating Station, so the cost impact of SCR installation would be especially acute, resulting in rate increases ranging from an estimated 15 percent to 30 percent. The commenters pointed out that their customer base has average incomes well below the national and Arizona averages, and would be especially hard hit by large rate increases; many customers struggle to pay their power bills as it is. The commenters stated that AEPCO and the associated cooperatives cannot finance or absorb the costs of SCR at the Apache Generating Station. The commenters indicated that closure of the large, load-following coal-fired units would threaten the reliability of the electrical system, particularly with the limited capacity of the local grid to import power from other areas.

Another commenter (Earthjustice) cited a report by Paul Chernick at Resource Insight Inc., which estimates that any rate increases at Apache would be limited to a 2 percent to 5 percent increase at most, resulting in an average extra cost of $3.28 per month on customer bills. The commenter stated that this is reasonable, as average annual increases have been up to 3 times as high as this increase, and this rate will likely be offset by a settlement award of $63 million. The commenter also noted that while the incomes of its customer base are relatively low, the cost of living in the area is also lower than the national average. The commenter further noted that utilities in similarly economically disadvantaged areas have successfully installed modern pollution controls costing significantly more than the cost of SCR at Apache.

Response: It is not EPA's intention to endanger the economic viability of Apache Generating Station or to place an undue burden on AEPCO's customers. EPA has considered the comments on these issues very carefully. Regarding the legal basis for our decision, neither the CAA nor the RHR requires states or EPA to consider the affordability of controls or ratepayer impacts as part of a BART analysis. Rather, the CAA and RHR require consideration of "the costs of compliance, the energy and non-air quality environmental impacts of compliance, any existing pollution control technology in use at the source, the remaining useful life of the source, and the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology." [121]

The BART Guidelines do allow for (but do not require) the consideration of "affordability" as part of the "costs of compliance" under certain circumstances, noting that:

1. Even if the control technology is cost effective, there may be cases where the installation of controls would affect the viability of continued plant operations.

2. There may be unusual circumstances that justify taking into consideration the conditions of the plant and the economic effects of requiring the use of a given control technology. These effects would include effects on product prices, the market share, and profitability of the source. Where there are such unusual circumstances that are judged to affect plant operations, you may take into consideration the conditions of the plant and the economic effects of requiring the use of a control technology. Where these effects are judged to have a severe impact on plant operations you may consider them in the selection process, but you may wish to provide an economic analysis that demonstrates, in sufficient detail for public review, the specific economic effects, parameters, and reasoning * * * Any analysis may also consider whether other competing plants in the same industry have

[121] CAA section 169A(g)(2), 42 U.S.C. 7491(g)(2); 40 CFR 51.308(e)(1)(ii)(A).

been required to install BART controls if this information is available.[122]

We interpret the question of affordability as a specific question of whether the viability of continued plant operations will be affected by the pollution control technology in question. Although one commenter asserted that the costs of SCR with LNB and OFA could cause a shutdown of Apache Units 2 and 3 if it causes power costs from those units to be out of line with the cost of power on the open market, the commenter did not provide evidence or analysis that supports this assertion. We agree that the terms of AEPCO's mortgage require AEPCO to have sufficient revenue to meet the financial metrics of Times Interest Earned Ratio and Debt Service Coverage ratio. But AEPCO is eligible to finance additional debt related to air pollution controls, and it has not shown that such financing is unavailable to it. Securing a rate increase from ACC may be time consuming, and thus supports our decision to grant AEPCO five years for installation of such controls. However, the information provided to us does not show that installation of SCR would affect the viability of continued plant operations. AEPCO is not being treated differently from other competing plants in its industry: many other electric utilities, including other rural electric cooperatives, are also being required to install BART controls.

Nonetheless, we performed additional analysis to understand better the impacts of the proposed pollution controls on AEPCO as a small entity. As we explained in our proposal, the U.S. Small Business Administration (SBA) defines an electric utility company as small if, including its affiliates, it is primarily engaged in the generation, transmission and/or distribution of electric energy for sale and its total electric output for the preceding fiscal year did not exceed 4 million megawatt hours (MWh).[123] In 2011, AEPCO member cooperatives sold 2,453,272 MWh of electricity.[124] As explained in the proposal, we conducted an initial assessment of the potential adverse impacts on AEPCO of requiring SCR with LNB and OFA. Using publicly available information, EPA estimated that the annualized cost of requiring SCR in Units 1 and 2 would likely be in the range of 3 percent of AEPCO's assets and between 6 and 7 percent of AEPCO's annual sales. We noted in the NPRM that the projected costs of SCR with LNB and OFA are approximately $12 million per year, and that this exceeds AEPCO's net margins of $9.5 million in 2010 and $1.9 million in 2011,[125] although the report by Paul Chernick at Resource Insight Inc., submitted by Earthjustice, notes that AEPCO's margin in 2008 was $17.4 million.

In addition to conducting this initial economic impact assessment, we requested information from AEPCO on the economics of operating Apache Generating Station and what impact the installation of SCR may have on the economics of operating Apache Generating Station. We received a description of plant conditions and potential economic effects before the NPRM was published,[126] and received additional information during the comment period. We noted in the NPRM that if our analysis of this information indicated that installation of SCR would have a severe impact on the economics of operating Apache Generating Station, we would incorporate such considerations in our selection of BART.

The BART cost figures provided in this final action do not include other expenditures that will be required for Apache Units 1, 2 and 3 to meet the BART emission limits included in Arizona's Regional Haze SIP. Under the CAA, EPA is not permitted to consider economic feasibility when taking action on a SIP.[127] To the extent these costs are relevant to our FIP action, we note that AEPCO did not provide any cost estimates for the required upgrades to the existing ESPs and scrubbers at Apache Units 2 and 3 and estimated that the total first year annualized cost of the required controls at Apache Unit 1 (LNB and FGR) would be $0.552 million.[128] These costs are two orders of magnitude lower than the SCR costs described elsewhere in this document. Therefore, even if we were to take them into account, they would not substantially affect our analyses.

Regarding the comment that the cost of SCR with LNB and OFA at Apache could be covered with funds from AEPCO's operating margins or legal settlements, while Apache Generating Station does have annual operating margins that vary according to various conditions, it is not necessarily true that AEPCO can cover the costs of pollution control equipment exclusively from these funds, or from the settlement agreement mentioned in the comment. Because AEPCO is a member-owned utility, operating margins and other surplus funds may be earmarked to be returned to its member cooperatives on a rotating basis. While some of these funds may be available for capital expenditures such as pollution controls, we have assumed for the purpose of our analysis that financing will be necessary to achieve the pollution reductions required by our action.

For electric utilities, EPA has not customarily analyzed or considered ratepayer impacts in BART determinations.[129] Nevertheless, we also analyzed ratepayer impacts in an effort to assess the potential effects of our action on AEPCO as a small entity. EPA requested an electricity rate analysis through our contractor, EC/R Inc., to assist us in evaluating the possible electricity rate increases discussed in the comments above. Our contractor noted that AEPCO's analysis appears to place the entire burden of the incremental capital and O&M costs on its Member Co-ops and their retail customers. However, the analysis should account for a share of the SCR cost going to off-system sales volumes and not only allocated to member rates. The contractor's Incremental Cost Model calculated an increment in revenue requirements for AEPCO's member cooperatives of 12.7 percent under the scenario that spreads the incremental SCR cost across all kWh produced at Apache, both Member Co-ops and off-system or non-Member sales. Under the alternative scenario that the incremental cost for SCR is covered exclusively by member cooperatives, the incremental revenue

[122] BART Guidelines, 40 CFR Part 51, Appendix Y, section IV.E.3.

[123] 77 FR 42866–42867; see also 13 CFR 121.201, footnote 1.

[124] Annual Report for year ending December 31, 2011, from AEPCO to Arizona Corporation Commission.

[125] See Docket Item H–1 Arizona Electric Power Cooperative, Inc. Annual Report Electric for Year Ending December 31, 2011 submitted to Arizona Corporation Commission Utilities Division, available at *http://www.azcc.gov/Divisions/Utilities/Annualpercent20Reports/2011/Electric/Arizona_Electric_Power_Cooperative_Inc.pdf.*

[126] Docket Item C–16, Letter from Michelle Freeark (AEPCO) to Deborah Jordan (EPA), AEPCO's Comments on BART for Apache Generating Station, June 29, 2012.

[127] *Union Electric Co.*, v. *EPA*, 427 U.S. 246, 255–66 (1976); 42 U.S.C. 7410(a) (2).

[128] Arizona Regional Haze SIP, Appendix D, Table 10.3; see also Comments of Arizona Electric Power Cooperative, Inc., Proposed Disapproval of AZ RH SIP and EPA's Proposed RH BART FIP (September 18, 2012) page 9. In our proposal, we noted that these control cost calculations include costs that are disallowed by EPA's Control Cost Manual, such as owner's costs and AFUDC. Both of these elements have the effect of inflating cost calculations and thus the cost-effectiveness of the various control options considered. See 77 FR 4284.

[129] Exceptions include EPA's Regional Haze FIP for Hawaii, where we analyzed potential rate impacts due to the unique energy situation in Hawaii, 77 FR 61478, 61488, and EPA's BART FIP for Four Corners Power Plant, where we examined potential rate impacts as part of tribal consultation, 77 FR 51620, 51625–51626.

requirement was 15.4 percent.[130] As explained in the preceding responses, this analysis is based on a capital cost for the installation of SCR with LNB and OFA of $164.9 million, which matches the costs claimed by AEPCO in their comment letter minus certain charges excluded by EPA CCM. This difference in the estimated capital cost for SCR also accounts for much of the discrepancy between AEPCO's and Earthjustice's estimates of electricity rate increases, since Earthjustice's estimate was based on the capital cost estimates originally published in our NPRM.

AEPCO sells electricity through its member cooperatives, and not directly to residential and business customers, but EC/R also analyzed the impact of an increase in the cost of electricity generation on the monthly bills of electricity users serviced by AEPCO's Member Co-ops. Table 6 indicates the incremental retail costs of electricity to end users under the two scenarios mentioned above. The potential rate increases for residential users in 2019, the first full year of incremental capital expenditures for pollution controls installed in 2017 (and the year with the largest incremental cost impact), range from 4.5 percent, or $5.75 per month over 2011 rates, to 10.6 percent, or $10.75 per month over 2011 rates.[131] EC/R noted that the assumptions it made in constructing its model may cause the impact to rates to be conservatively overstated.

TABLE 6—INCREMENTAL RETAIL COSTS DUE TO SCR

[As 2019 costs would impact 2011 retail rates]

Scenario	Range of outcomes	Residential class only			Combined residential, commercial & industrial		
		Percent Increase (percent)	Average $ per year per customer	Average $ per month per customer	Percent Increase (percent)	Average $ per year per customer	Average $ per month per customer
A: Members Pay all SCR Costs.	Low	5.4	$83	$6.92	5.8	$125	$10.42
	High	10.6	129	10.75	12.0	220	18.33
B: Members Pay Portion of SCR Costs.	Low	4.5	69	5.75	4.8	103	8.58
	High	8.8	107	8.92	9.9	182	15.17

While these projected rate increases are not trivial, they are comparable to average historical rate increases for AEPCO, Arizona, and U.S. ratepayers.[132] They are also projected to occur seven years in the future. Again, in discussing the limitations of this retail rate analysis, EC/R noted that the results of the retail rate assessment should be considered conservative by design.

Regarding the comment that utilities in similarly economically disadvantaged areas have successfully installed modern pollution controls costing significantly more than the cost of SCR at Apache, we note that none of the installed controls listed in Earthjustice's comment letter were installed under the RHR. Accordingly, EPA cannot rely on them as precedents for the Apache Generating Station BART analysis.

Regarding the comment on the economic vulnerability of AEPCO's ratepayer population, EPA reviewed the supplemental information on per capita and median household incomes. Because electric utility bills are likely paid at the household and not individual, or per capita, level, we believe that median household income is an appropriate metric for assessment. We used census data to compare household income levels in the areas served by AEPCO's Class A member cooperatives to average household incomes in the United States. In 2011 the median income for U.S. households was $50,502. Using the supplemental information provided by AEPCO, we calculated that the median income for AEPCO's Member Co-ops' ratepayers was $49,303. In addition, we aggregated the data on median household income by zip code into four incomes ranges. Seventy-one percent of the median household incomes by zip code were in the $40,000 and above income ranges and twenty-nine percent were in the median household income range of $20,000 to $39,999. We found that the household incomes in AEPCO's Member Co-ops' service area are in the same range as average U.S. household income, so an increase in AEPCO's electricity rates should not cause greater hardship than a similar increase elsewhere in the country.[133] EPA's responsibility under the CAA and the RHR is to implement BART at Apache Generating Station. As discussed elsewhere in this document, the five-factor analysis indicates SCR with LNB and OFA represents BART for NO_X at Apache Units 2 and 3. While the analyses conducted by EPA and the commenters attempted to project the revenue requirements and possible rate increases that would be required if SCR with LNB and OFA are required at Apache, BART and other environmental regulatory requirements form only one part of the complex business conditions under which utility rate decisions take place, especially over extended time periods. It is the responsibility of utility companies to work with the appropriate regulatory agencies to implement any necessary rate changes in a manageable fashion.

Accordingly, because neither these projected rate increases nor any submitted information or analysis indicate that a requirement to install SCR with LNB and OFA will affect the viability of Apache Generating Station, EPA is finalizing its determination that this level of control represents BART. However, we are also taking into account AEPCO's status as a small entity as part of our determination. In particular, in its comments on our proposal, AEPCO requested that "EPA set the final BART limits in terms of lb/MMBtu only and not as a specified technology" to provide AEPCO with

[130] Apache Plant: Report on SCR Incremental Cost Assessment. Prepared by Energy Strategies, LLC for EC/R, Inc. (November 2012).

[131] *Id.*

[132] Energy Information Administration (EIA) State Historical Tables for 2011, Released: October 1, 2012. Average Price by State by Provider, 1990–2011. *http://www.eia.gov/electricity/data/state/avgprice_annual.xls*, last accessed November 5, 2012.

[133] Arizona Regional Haze SIP. BART Determination for Apache Generating Station, Supplemental Economic Analysis. Memorandum from Larry Sorrels and Robin Langdon, EPA Office of Air Quality Planning and Standards (November 5, 2012).

"maximum flexibility." [134] AEPCO also requested that if EPA decided to finalize emission limits consistent with SCR that the limits be set at 0.07 lb/MMBtu.[135] Given the unusual status of AEPCO as a small entity and a rural electric cooperative, we believe that it is consistent with EPA policy to minimize adverse impact to this small entity to the extent that such action is feasible and consistent with our BART analysis. To allow this small entity the maximum flexibility that is consistent with our analysis of the five factors, we have determined that it is appropriate to set the BART limit as a 30-day rolling average 0.070 lb/MMBtu limit, with a five year compliance deadline. As AEPCO noted, this approach may allow minor changes in configuration of the optimal system to allow AEPCO's compliance at somewhat lower cost. This 30-day rolling average 0.070 lb/MMBtu limit is also applied as a "bubble" across Units 2 and 3. This approach allows for short term emission spikes from startups and provides this small entity with additional operational flexibility within the constraints of the BART emissions limit.

Comment: One commenter (AEPCO) stated that EPA should not consider fuel switching from the current mix to all natural gas at Apache Unit 1 to be costless. AEPCO states that if it loses the ability to use multiple fuels, its negotiating leverage with natural gas suppliers will be greatly reduced, and it will not be able to obtain gas at reasonably competitive rates. AEPCO argued that this cost at Apache Unit 1 should be considered by EPA in its overall evaluation of the affordability of controls at Apache.

Response: EPA is approving ADEQ's emissions limit for Apache Unit 1. As noted by the commenter, Tables 6 and 7 of our proposed action (77 FR 42844) listed "fuel switch to PNG" as a control option in the context of the PM_{10} and SO_2 BART analyses, in addition to "fuel switch to low-sulfur fuel oil." The annualized costs for both options were listed as zero in both analyses. The information contained in Tables 6 and 7 does not represent our analysis for Apache Unit 1, but reflects the information contained in ADEQ's PM_{10} and SO_2 BART analyses. ADEQ's BART analyses for Apache 1 eliminated more stringent control technologies such as fabric filters and wet FGD, and determined that a fuel switch to natural gas was BART. Natural gas is a commodity, and its price fluctuates due to factors beyond the constraints on AEPCO's ability to use multiple fuels. However, the BART emissions limit we are establishing for Apache Units 2 and 3 will still allow AEPCO a choice of using multiple fuels across the units at the Apache facility.

b. Visibility Improvement

Comment: One commenter (NPS) agreed with EPA's analysis of the visibility impacts of the alternative NO_X control options for Apache Units 2 and 3 at the various impacted Class I areas, as presented in EPA's TSD, including EPA's conclusions that "the improvements from SCR are substantially greater than for the other candidate controls" and that "the modeled degree of visibility improvement supports SCR as BART for Apache." The commenter also indicated that it compiled BART analyses data from across the United States, which revealed that the average cost per deciview proposed by either a state or a BART source is $14 to $18 million. The commenter pointed out that for all of the NO_X control options at the Apache plant, including SCR, both the $/max deciview and the $/cumulative deciview are well below this range.

Response: We acknowledge the commenter's agreement with our analysis. Our supplemental analysis, discussed in more detail above, was conducted using a capital cost for the installation of SCR with LNB and OFA of $164.9 million. For the 0.070 limit on Apache Units 2 and 3 that we are finalizing in this action, this supplemental analysis found an average cost per deciview ($/max deciview) of $12.7 million and a cumulative average cost per deciview ($/cumulative deciview) of $3.1 million.

c. Other Comments

Comment: One commenter noted that EPA is required by the Executive Order on Environmental Justice to consider all potential economic and environmental impacts on minorities and low-income populations that its decisions on BART, in this case, will have on AEPCO and its customers. The commenter stated that over four in ten of AEPCO's customers are minorities. In similar remarks, another commenter cautioned EPA that such increases would impact at-risk populations.

Response: In establishing BART requirements for the facilities in this final rulemaking, EPA is increasing the level of environmental protection for all affected populations by requiring substantial NO_X emission reductions. Thus, EPA does not expect any disproportionately high and adverse human health or environmental effects on any population, including any minority or low-income population from our final action. Disadvantaged populations also will be able to enjoy the visibility improvements in Class I areas anticipated from the emissions reductions required by this final rulemaking.

EPA took several steps to ensure transparency and meaningful participation in the rule development process for this BART FIP. In response to numerous requests, we extended the public comment period on our proposal and increased the number of public hearings in Arizona from one to three. In addition, all three hearings had Spanish language interpretation services and the hearing on August 14 in Holbrook, Arizona, also offered interpretation in Diné.

We disagree that Executive Order 12898 requires EPA to consider the economic effects of our proposed action on disadvantaged populations. As EPA's Environmental Appeals Board (EAB) has explained:

> Executive Order 12898 instructs federal agencies to address, as appropriate, "disproportionately high and adverse human health or environmental effects of [their] programs, policies, and activities on minority and low-income populations * * *." The Executive Order, thus, speaks to human health and environmental effects; it does not require federal agencies to consider issues regarding cost or rate changes.[136]

Therefore, Executive Order 12898 does not require us to consider potential economic effects. Nonetheless, as explained elsewhere in this document, in consideration of AEPCO's status as a small entity and consistent with EPA policy encouraging consideration of the potential social and economic impacts of EPA actions,[137] we have conducted an analysis of the affordability of installing SCR at Apache Units 2 and 3. This analysis indicates that installation of SCR would not affect the viability of continued plant operations at Apache and would result in an average rate increase for residential member utility customers of (at most) $11 per month in 2019 compared to 2011 rates.

Comment: One commenter indicated that because AEPCO is a small electric cooperative, EPA is required by the Regulatory Flexibility Act to prepare a regulatory flexibility analysis for this rulemaking.

[134] AEPCO Comments page 18.

[135] *Id.*

[136] In re: Upper Blackstone Water Pollution Abatement District, Order Denying Review In Part and Remanding In Part, NPDES Appeal Nos. 08–11 to 08–18 & 09–06. (May 28, 2010) slip op at 105. (internal citation omitted).

[137] See, e.g., Interim Guidance on Considering Environmental Justice During the Development of an Action page 4, footnote 4.

Response: We agree that AEPCO is considered small entity for purposes of the Regulatory Flexibility Act (RFA). However, the RFA does not require a regulatory flexibility analysis when a rule has an impact on only *one* small entity (as opposed to a significant impact on a substantial number of small entities). Nonetheless, EPA policy is to assess the direct adverse impact of every rule on small entities and minimize any adverse impact to the extent feasible, regardless of the magnitude of the impact or number of small entities affected. Therefore, we gave AEPCO additional opportunities to participate in the rulemaking process. Specifically, prior to issuing our proposed rule, we informed AEPCO that our proposed action would address BART requirements for units at AEPCO's Apache facility. We also requested information from AEPCO on the economics of operating Apache Generating Station and what impact the installation of SCR may have on the economics of operating Apache Generating Station. We have considered the comments we received concerning AEPCO's status as a small entity and the potential economic impact of our proposed action on AEPCO. Our discussion of affordability above includes our response to these comments and delineates the changes we made from our initial proposal in order to give AEPCO flexibility as a small entity. We have also taken into consideration the potential impact of the reporting, recordkeeping, and other compliance requirements of this rule, as set forth in the regulatory text. Because AEPCO is an electric utility that is already subject to reporting, recordkeeping and other compliance requirements under the CAA, AEPCO already has access to the professional skills necessary for the preparation of the reports and records necessary for compliance with the FIP.

2. Cholla Units 2, 3 and 4

a. Selection of Baseline Period

Comment: Several commenters asserted that EPA incorrectly and inappropriately changed the control baseline period in its NO_X BART analysis for Cholla. APS and PacifiCorp contend that the 2011 NO_X emissions were already controlled by LNB and OFA at Cholla Units 2, 3 and 4, which penalized APS and PacifiCorp for their voluntary use of these controls. In addition, since LNB and OFA were already in use, EPA inappropriately only considered higher cost post-combustion controls (SCR and SNCR) in its BART analysis. If the baseline remained 2001–2006, LNB and OFA would also have been considered in the analysis. APS noted that EPA concurred with ADEQ's BART determination for SO_2 and PM_{10} emissions for these same units using a baseline of 2001–2006. In addition, one commenter (Earthjustice) asserted the baseline period (2008–2011) understates NO_X emissions reductions compared to the baseline period of 2001–2004.

In contrast, one commenter (NPS) concurred with EPA's use of 2011 as the baseline period for Cholla units 2, 3 and 4 since it represents the first complete calendar year at which it is certain that the Cholla plant operated using the full quantity of a higher NO_X-emitting coal that the plant is committed to purchase under its current coal contract. The commenter submitted a graph of annual NO_X emission rates for the units at the Cholla plant, which the commenter believes to show the impact of recently added combustion controls and higher-NO_X coal.

Response: As explained in a previous response, we do not agree that use of the updated baseline for Cholla was incorrect or inappropriate. Moreover, updating the baseline did not eliminate LNB and OFA from consideration as BART, since existing controls can constitute BART if additional controls are not warranted based on the five-factor analysis. For example, EPA recently approved a determination by Colorado that existing LNB at Comanche Units 1 and 2 constituted BART where "the State determined that the added expense of achieving lower limits through different controls was not reasonable based on the high cost-effectiveness [$9,900/ton] coupled with the low visibility improvement (under 0.2 dv) afforded." [138] In this case, by contrast, the cost-effectiveness of post combustion controls is reasonable and the expected visibility improvements are substantial, as explained below. Nonetheless, in order to address the commenter's concerns that we did not properly consider LNB and OFA as a potential control option and therefore precluded a BART determination of LNB and OFA, we have used a baseline period of 2001–2003, which corresponds to the period used in APS's original BART analysis. Our supplemental cost analysis for Cholla is summarized in Table 10.[139]

b. Control Efficiencies

Comment: In arguing against the achievability of EPA's proposed limit, one commenter (APS) noted that according to the study that EPA placed in the docket (IPM Model—Revisions to Cost and Performance for APC Technologies, 2010, Sargent & Lundy), the Agency's minimum emissions limit of 0.05 lb/MMBtu is specific to Powder River Basin coal and the minimum level for bituminous coal is 0.07 lb/MMBtu. The commenter also stated that because this is a minimum emissions level, it is probably too aggressive even for a BART determination based on bituminous coal. The commenter also stated that these rates may be appropriate for new units under ideal conditions as BACT are not appropriate for BART.

Another commenter (AUG) stated that EPA's record in support of the putative achievability of a 0.050 lb/MMBtu emission limit at Apache, Cholla, and Coronado is extremely thin and unpersuasive. AUG states that EPA has not, for instance, demonstrated through the development of an SCR conceptual design or some other, similar site specific analysis that SCR can achieve this emission rate at any of these particular facilities, and that EPA must affirmatively establish that its selected BART rate is in fact achievable at these facilities.

In addition, AUG asserted that EPA's proposed limit of 0.050 lb/MMBtu is inconsistent with the following EPA actions:

- As part of CSAPR, EPA concluded that a NO_X limit below 0.06 lb/MMBtu is not achievable through retrofit of SCR on coal-fired electric generating units.[140]
- In EPA's proposed rule for North Dakota, EPA based its BART analysis on a 0.05 lb/MMBtu emission rate, but then proposed to adopt a 0.07 lb/MMBtu limit because EPA concluded the more stringent rate would not allow a sufficient margin of compliance (citing 76 FR 58570, 58610, September 21, 2011).
- In its final rule for South Dakota, EPA set a NO_X limit of 0.10 lb/MMBtu for an electric generating plant to allow for an adequate margin of compliance (citing 77 FR 24845, 24848, 24849, April 26, 2012).
- In Colorado's recently approved regional haze SIP, the NO_X BART for Craig Station is an emission rate of 0.27 lb/MMBtu based on SNCR and SCR for their units and the NO_X BART for

[138] 77 FR 18052, 18066 (March 15, 2012) (Proposed Rule); pre-publication version of Final Rule, signed September 10, 2012, available at: *http://www.epa.gov/region8/air/FinalActionOnColoradoRegionalHazePlanSep2012.pdf.*

[139] A spreadsheet titled "Supplemental Cost Analysis 2012–11–15.xls" is in the docket.

[140] Citing 76 FR 1109, 1115, January 7, 2011; EPA, Transport Rule Engineering Feasibility Response to Comments, Docket ID No. EPA-HQ-OAR-2009-0491-4529, at 13, July 6, 2011.

Hayden Station is an emission rate of 0.07 lb/MMBtu for one unit and 0.08 lb/MMBtu at another unit based on SCR.

Response: We disagree that the SCR emission rate for the Cholla units should be established at 0.07 lb/MMBtu per IPM guidance for bituminous coal. Based on the coal information provided in the original Cholla BART analyses,[141] the Lee Ranch/El Segundo Mine coal being used at Cholla does exhibit some properties that would fall in the range of bituminous coal (nitrogen and moisture content), but also exhibits properties that fall in the range of sub-bituminous coal (fixed carbon, heat value). As a result, we do not agree that the Lee Ranch/El Segundo coal can clearly be classified as a bituminous coal.

More broadly, we disagree with commenters' assertion that 0.05 lb/MMBtu (rolling 30-day average) is an inappropriate SCR emission limit for the Cholla units. Although BART determinations are performed on a site-specific basis, the process for establishing the technical feasibility of a control technology and its associated emission performance level are described in the BART Guidelines as follows:

> It is important, however, that in analyzing the technology you take into account the most stringent emission control level that the technology is capable of achieving. You should consider recent regulatory decisions and performance data (e.g., manufacturer's data, engineering estimates and the experience of other sources) when identifying an emissions performance level or levels to evaluate.
>
> In assessing the capability of the control alternative, latitude exists to consider special circumstances pertinent to the specific source under review, or regarding the prior application of the control alternative. However, you should explain the basis for choosing the alternate level (or range) of control in the BART analysis. Without a showing of differences between the source and other sources that have achieved more stringent emissions limits, you should conclude that the level being achieved by those other sources is representative of the achievable level for the source being analyzed.[142]

We therefore disagree with commenters' assertion that the BART Guidelines require a SCR conceptual design or other site specific engineering analysis in order to demonstrate a level of performance. The BART Guidelines indicate that one should take into account the most stringent emission control level that the *technology* is capable of achieving and then document any special circumstances for selecting an alternate level or range of control in the BART analysis.

In our proposal, we explained that SCR, as a technology, can achieve a level of performance between 80 to 90 percent reduction, even on a retrofit basis, and especially when combined with LNB and OFA. Although the commenters indicate that they do not consider our support for this position persuasive, they have not specifically disputed the claim that SCR can, as a technology, achieve this level of performance. We have included additional documents, including vendor experience lists of SCR projects, which indicate that SCR has been capable of achieving this level of performance.[143] In determining whether special circumstances exist at the Cholla units that may justify using a different range of control, we examined the Clean Air Markets Database (CAMD) for tangential coal-fired units operating with SCR, either stand alone or in conjunction with LNB and OFA, and on a retrofit basis. We identified the 10 best such performing units, and have listed them in Table 7. In addition, we have listed their best-performing annual average emission rate as well as the percent reduction associated with that emission rate by comparing it to annual average emission rates from its pre-SCR period of operation.[144]

TABLE 7—BEST PERFORMING TANGENTIAL COAL-FIRED EGUS WITH RETROFIT SCRS

State	Facility name	Unit ID	SCR Emission rate		Control efficiency (percent)	Control technology
			(lb/MMBtu)	Year		
TX	W A Parish	WAP7	0.038	2007	73	SCR [1]
TX	W A Parish	WAP8	0.038	2006	77	SCR [1]
VA	Chesterfield Power Station	6	0.041	2009	89	SCR+LNB+COFA/SOFA
NC	Marshall	3	0.045	2011	85	SCR+LNB+SOFA
TN	Kingston	6	0.051	2009	88	SCR+LNB+SOFA
TN	Kingston	8	0.052	2009	88	SCR+LNB+SOFA
TN	Kingston	9	0.052	2009	89	SCR
TN	Kingston	7	0.054	2009	88	SCR+LNB+SOFA
MN	Boswell Energy Center	3	0.054	2009	86	SCR+LNB+SOFA
TX	Sandow	4	0.059	2011	83	SCR+LNB+SOFA

[1] In the case of the Parish units, we note that their <80 percent control efficiency is the result of low pre-SCR emission rates.

In the case of the Cholla units, which are also tangential coal-fired EGUs, our estimate of the level of performance of the SCR with LNB and OFA control option corresponds to 80 to 85 percent control efficiency, which is in the low- to mid-range of SCR performance. We used these control efficiencies in our cost calculations on an annual average basis, and in our visibility modeling on a 24-hour average basis.[145] Although the commenters have stated that they disagree with this level of control efficiency and the emission rate associated with it, they have not submitted information for the Cholla units documenting special circumstances that would justify a lower effective range of control efficiency for SCR. In fact, we note that certain aspects of APS's own BART analyses for the Cholla units are based upon control efficiencies in a similar range. The original BART analyses performed by APS and submitted to ADEQ included visibility modeling indicating that SCR with LNB and OFA can achieve in the range of 83 to 86 percent control efficiency for Cholla Units 2, 3 and 4. APS calculated these control

[141] "Additional APS Cholla BART response", Appendix B.

[142] BART Guidelines, 40 CFR Part 51, Appendix Y, section IV.D.3.

[143] Kurtides, Ted "Lessons Learned from SCR Reactor Retrofit", Presented at COAL–GEN (August 6–8, 2003); Hitachi SCR/NO_X catalyst experience (February 2010); Haldor Topsoe SCR catalyst reference list (October 2009); Institute of Clean Air Companies, "White Paper—Selective Catalytic Reduction Control of NO_X emissions from Fossil Fuel-fired Electric Power Plants" (May 2009).

[144] "Tangentially-fired coal unit SCR retrofit emission data."

[145] See 77 FR 42859, Table 18.

efficiencies based upon the difference between the highest 24-hour average emission rate observed over a 2001–2003 baseline period and a 24-hour average SCR emission rate of 0.07 lb/MMBtu. This information is summarized in Table 8.

TABLE 8—SCR WITH LNB AND OFA CONTROL EFFICIENCY ESTIMATE

[APS estimate]

Unit	Baseline NO_X emissions (24-hour average)			SCR+LNB+OFA Emission rate	
	(lb/MMBtu) [1]	Control tech	Period	(lb/MMBtu)	Control efficiency [2] (percent)
Cholla 2	0.503	CCOFA	2001–03	0.07	86
Cholla 3	0.410	CCOFA	2001–03	0.07	83
Cholla 4	0.415	CCOFA	2001–03	0.07	83

[1] Per Table 2–1 of the original BART analysis for each unit, Docket Items B–06 through B–08.
[2] Per Appendix A of the original BART analysis for each unit, Docket Items B–06 through B–08.

APS submitted updated visibility modeling to us as part of comments on our proposal, and with the exception of Cholla Unit 2, the baseline emissions and associated SCR control efficiencies do not differ from the original analysis.[146] We note that APS did not use SCR emission rates consistent with these control efficiencies in other aspects of its BART analysis, such as on an annual average basis in cost calculations. If the control efficiencies calculated by APS are applied to baseline annual average emission rates, the Cholla units can achieve the values in Table 9. These values are consistent with our own estimates of SCR with LNB and OFA performance, and support the use of a 0.05 lb/MMBtu emission rate, on an annual average basis, in our cost calculations.[147]

TABLE 9—SCR WITH LNB AND OFA EMISSION RATE

[Per APS Control Efficiency Estimate]

Unit	Baseline NO_X emissions (Annual ave)			SCR+LNB+OFA emission rate	
	(lb/MMBtu)	Ctrl tech	Period	Control efficiency (percent)	(lb/MMBtu)
Cholla 2	0.326	CCOFA	2001–03	86	0.045
Cholla 3	0.304	CCOFA	2001–03	83	0.052
Cholla 4	0.296	CCOFA	2001–03	83	0.050

With regard to establishing the BART emission limit of 0.05 lb/MMBtu on a rolling 30-day average, the commenters note that in the proposed Regional Haze FIP for North Dakota, we stated the following for the Milton R Young Station Unit 1, a coal-fired boiler for which we also proposed a NO_X BART determination based on the use of SCR technology:

> In proposing a BART emission limit of 0.07 lb/MMBtu, we adjusted the annual design rate of 0.05 lb/MMBtu upwards to allow for a sufficient margin of compliance for a 30-day rolling average limit that would apply at all times, including startup, shutdown, and malfunction.[148]

The commenter also notes that we approved South Dakota's Regional Haze SIP that established a BART emission limit of 0.10 lb/MMBtu (30-day rolling) for Big Stone I, based on the use of SCR technology, also citing a need for compliance margin for BART limits that must apply at all times including startup, shutdown, and malfunction (77 FR 24849). We agree with the commenter that it is appropriate to accommodate startup and shutdown events when establishing a rolling 30-day BART emission limit. Since these events, particularly startup, generate elevated levels of emissions, the particular day during which such an event occurs will appear as a short-term "spike." On an annual average basis, such short-term spikes can be averaged with 365 other values that allow them to be "smoothed out."[149] Since the limit was established on a shorter averaging period than the design basis (from 365 days to 30 days), there are fewer days (i.e., data values) with which such short-term spikes can be "smoothed out." In the instances noted by the commenter, a less stringent value (from 0.05 to 0.07 for MR Young 1) was established for the shorter averaging period.

In order to accommodate emissions from startup and shutdown events, we are finalizing two revisions to our proposed emission limit of 0.050 lb/MMBtu (rolling 30-day average). First, we are finalizing the limit as a "bubble" limit across Cholla Units 2, 3 and 4. By establishing the rolling 30-day limit

[146] In the visibility modeling submitted a part of their comments, APS apparently identified a higher maximum 24-hour average value from the 2001–2003 baseline period than the one identified in Table 8 for Cholla Unit 2. This results in an estimated SCR with LNB and OFA control efficiency of 87 percent.

[147] In addition, APS's comments also included an SNCR design estimate based upon LNB performance of 0.22 lb/MMBtu. Achieving an SCR emission rate of 0.05 lb/MMBtu from this emission rate would represent only 77 percent control efficiency. This is well within the range of what SCR can achieve, even with a lower inlet NO_X emission rate.

[148] 76 FR 58610.

[149] The precise method by which such short term spikes will be 'smoothed out' over the period of a year will vary based upon the precise compliance determination methodology. The suggestion that it would be averaged with the other 364 days' values is just a generic description of one type of averaging process.

across all three units, this allows the spike in emissions associated with a startup/shutdown event at one unit to be smoothed with the emission values from the other operating units. Second, we are also finalizing a less stringent value in order to establish an emission limit that accommodates the startup and shutdown events associated with the operating profile of the Cholla units. In determining what magnitude of revision is appropriate, we examined the emissions of the Cholla units, as reported to CAMD, over a 2001–2003 baseline period.[150] We calculated annual average emission rates and 30-day rolling average emission rates using a calculation methodology corresponding to a bubble limit across all three units.[151] Based on this methodology, we determined that the maximum annual average emission rate for these units was approximately 0.32 lb/MMBtu, while the maximum 30-day rolling average emission rate was approximately 0.35 lb/MMBtu. This represents an 8 percent difference between the highest rates observed on an annual and 30-day rolling average. We recognize that this variability between annual average and 24-hour average emission rates is based on operation of the Cholla units with LNB and OFA, and may not be directly representative of the variability associated with operation of SCR. We are therefore finalizing an emission rate of 0.055 lb/MMBtu as a bubble limit across Cholla Units 2, 3 and 4, which represents a 10 percent upward revision from the annual average design value. When combined with the 3-unit bubble, this represents an emission limit that we consider appropriate to ensure design and operation of the emission control system to provide the best available retrofit control.

Comment: EPA based LNB/SOFA emission rates on 2011 NO_X emissions rates, which is not an accurate assessment of the capability of the installed LNB and SOFA. Arizona set the BART limit for Cholla Units 2, 3 and 4 at 0.22 lb/MMBtu. All three units were able to meet this limit in their acceptance test after LNB and SOFA were retrofitted, and APS believes they can meet it long term. In addition, an SNCR design study performed by Black and Veatch indicated that an SNCR system could obtain a control efficiency of approximately 25 percent, which would correspond to an emission rate of 0.17 lb/MMBtu. EPA's cost and visibility estimates must be updated to reflect these levels.

Response: We partially agree with this comment. In submitted comments, APS provided a conceptual design estimate for SNCR which was based upon 25 percent control efficiency (incremental from LNB) and a resulting emission rate of 0.17 lb/MMBtu. While this control efficiency is less than the 30 percent control efficiency used by our contractor, we consider it to be a reasonable estimate based upon the vendor quotes provided by APS.[152]

We disagree with the use of an LNB emission rate of 0.22 lb/MMBtu, as the Cholla units have not demonstrated a consistent ability to operate at this emission rate under the current coal contract for Lee Ranch/El Segundo coal. Based upon a review of CAMD emission data since the installation of LNB, we acknowledge that the Cholla units have, to varying degrees, operated with LNB at emission rates consistent with APS's assertion of 0.22 lb/MMBtu during this period. However, as noted in our proposal, calendar year 2011 represented the first year at which the Cholla plant operated at the "full" minimum purchase quantity under its new contract for Lee Ranch/El Segundo coal, which is a higher NO_X-emitting coal than what was previously used. Since the beginning of 2011 to September 2012, Cholla Units 3 and 4 have operated at or below an emission rate of 0.22 lb/MMBtu for only five to six months of this 21 month period, and Cholla Unit 2 has not operated at or below this emission rate in any month during this period.[153] Therefore, an LNB emission rate of 0.22 lb/MMBtu is not supported by the actual recent operation of the Cholla units, so it is unlikely to be an appropriate representation of anticipated future emissions.

c. Costs of Compliance

Comment: One commenter (APS) stated that, for EPA's capital costs estimate, no back-up material was provided, even when directly requested by APS. This lack of information makes it impossible for APS to comment on the validity of EPA's cost estimates. The commenter also stated that EPA has not established its contractor or subcontractor responsible for the costs estimates as experienced in the engineering, procurement and construction of utility-scale air quality control systems.

Response: We disagree with the commenter's assertion that we have not provided sufficient information regarding our cost calculations. In the docket for our proposal, we included the raw cost calculation spreadsheets that contain the cost calculation equations, corresponding variable values, selected notes regarding assumptions and variable ranges, as well as selected tables from the IPM Base Case v4.10.[154] In addition, web links were also provided (both in the raw cost calculation spreadsheet and in our proposal) to the location on the publicly available EPA Web site that contains full IPM documentation. We note that both SRP and AEPCO were able to locate this spreadsheet, as both utilities submitted control cost estimates as part of their comments that revised certain variable values and assumptions in our contractor's raw calculation spreadsheet. This information was initially developed by EPA contractors[155] and was reviewed by EPA staff. Following the close of the public comment period on our proposed rulemaking, APS provided additional information concerning its own cost estimates. We have placed this information to the docket and taken it into account as part of this final rulemaking, as explained below.

Comment: One commenter (APS) stated that EPA's cost-effectiveness numbers in the proposed FIP are incorrect. The commenter stated that EPA used a capital recovery factor of 9.4 percent, assuming an interest rate of 7 percent, but APS states that a capital recovery factor of 13.4 percent should be used to account for income and property taxes and the cost of capital authorized by ACC in the last rate case. The commenter also stated that EPA analysis uses emissions factors for SCR that are not appropriate for the type of coal used, the units, or the averaging period. In addition, APS noted the cost values used in the IPM model and EPA's CCM may be outdated, which may also lead to underestimation of the true costs. APS estimates cost-effectiveness ranging from $7,719/ton to $8,894/ton, with incremental costs ranging from

[150] "Cholla CAMD emission data (daily) 2001–03"

[151] Please consult the regulatory language in our final action for the NO_X compliance determination methodology associated with the bubble limit.

[152] Black and Veatch's report cites lower inlet NO_X concentrations to the SNCR system. A lower inlet NO_X emission rate makes it more difficult to reduce NO_X emissions, which makes a lower removal efficiency reasonable.

[153] "Cholla CAMD emission data (monthly) 2010–12."

[154] Document ID: EPA–R09–OAR–2012–0021–0008, File name: G–15_MODELING_FILES_EGU_BART_Costs_Apache_Cholla_Coronado_FINAL2

[155] Specifically, the initial cost estimates were developed by Jim Staudt of Andover Technology Partners. While there is no requirement for EPA to establish that its contractors are "experienced in the engineering, procurement, and construction of utility-scale air quality control systems," Dr. Staudt has extensive expertise and experience in the field of air pollution control at power plants. See: *www.andovertechnology.com/staudt.html.*

$8,759/ton to $10,329/ton compared to EPA's estimates of $3,115/ton to $3,473/ton, with incremental costs ranging from $3,257/ton to $3,813/ton. APS included costs for surcharges, current AFUDC and fixed charge rates, and emissions factors based on the capability of the existing LNB and OFA at the plant, typical SNCR removal rates, and minimum SCR emissions for bituminous coal.

In contrast, one commenter (Earthjustice) stated that SCR at Cholla is more cost-effective than EPA's calculations suggest, in that EPA overestimated the costs by (1) using an unjustifiably high 7 percent interest rate; (2) amortizing costs over a 20-year life of the SCR system, rather than a more realistic life of 30 years or more; and (3) overestimating the costs of the SCR catalyst, reagent, auxiliary power and property taxes and insurance. In addition, the commenter asserted that EPA baseline period understates NO_X emissions reductions compared to the baseline period of 2001–2004. According to the commenter, when the cost-effectiveness of SCR is calculated using more accurate costs, proper baselines and appropriate emission rates, the result is an even more cost-effective SCR investment that reduces NO_X at a cost of $1,901/ton at Unit 2, $1,940/ton at Unit 3 and $2,076/ton at Unit 4.

Response: Although we do not agree that our cost-effectiveness estimates were incorrect, we have performed a supplemental analysis using portions of the updated cost estimates provided by APS in its comments. In this supplemental analysis, we have generally relied upon APS's estimates of capital costs and operating costs. While we do not find that these estimates were sufficiently supported with detailed site-specific information in all instances, we are using them as a conservative assumption (i.e., an assumption that would tend to overestimate rather underestimate the annualized cost of controls). As discussed in a previous response, we consider it appropriate to observe the broader cost methodology used in EPA's CCM, and have adjusted or eliminated certain cost items not allowed by the CCM. A line-by-line comparison of APS's cost estimate and our revisions can be found in the docket for this rulemaking action.[156] A summary of cost estimates based on this supplemental analysis is in Table 10, and includes the following:

• Inclusion of APS's updated cost estimates: We have adopted a 'hybrid' approach in which we have used APS's capital cost and O&M cost estimates, while excluding those cost items not allowed by CCM methodology. As discussed in a previous comment, we have included owner's costs up to the amount provided for "Engineering and Home Office Fees" as described by the CCM. We have excluded surcharge as well as AFUDC, which is inconsistent with CCM methodology.

• Use of a 7 percent interest rate: We have retained the use of a 7 percent interest rate in calculating the capital recovery factor, and disagree with APS's assertion that a 13.4 percent interest rate is appropriate. For cost analyses related to government regulations, an appropriate "social" interest (discount) rate should be used. EPA calculated capital recoveries using 3 percent and 7 percent interest rates in determining cost-effectiveness for the Regulatory Impact Analysis (RIA) for the BART Guidelines.[157] [158] We consider our use of an interest rate of 7 percent to calculate capital recovery to be a conservative approach.

• Use of original baseline period: As discussed elsewhere in our responses, we consider our use of a more recent baseline as consistent with BART Guidelines. However, in order to address commenter's concerns that we did not properly consider LNB and OFA as a potential control option and therefore precluded a BART determination of LNB and OFA, we have used a baseline period of 2001–2003, which corresponds to the period used in APS's original BART analysis. This represents a time period prior to the installation of LNB, during which the control technology in place on the Cholla units was only OFA.

TABLE 10—CHOLLA CONTROL COST ESTIMATES (PER APS COMMENTS, WITH EPA REVISIONS)

Control options	Capital cost ($)	Annualized capital cost ($/yr)	Annual O&M cost ($/yr)	Total annual cost ($/yr)
Cholla 2:				
LNB+OFA	$4,482,254	$423,093	$120,000	$543,093
SNCR w/LNB+OFA	16,617,408	1,568,566	1,254,500	2,823,066
SCR w/LNB+OFA	87,713,386	8,279,523	1,626,683	9,906,206
Cholla 3:				
LNB+OFA	3,848,807	363,300	120,000	483,300
SNCR w/LNB+OFA	19,238,125	1,815,943	1,254,500	3,070,443
SCR w/LNB+OFA	83,461,195	7,878,146	1,570,766	9,448,912
Cholla 4:				
LNB+OFA	5,334,618	503,550	170,000	673,550
SNCR w/LNB+OFA	24,885,052	2,348,973	1,737,393	4,086,366
SCR w/LNB+OFA	119,083,832	11,240,671	2,350,182	13,590,853

A summary of emission rates and emission reductions associated with each control option is in Table 11. As noted previously, these emission estimates are based on a 2001–2003 baseline period, during which the Cholla units operated only with OFA. We note that while APS has provided emission estimates for this baseline period, the values provided, both in the original BART analysis and in submitted comments, appear to represent the highest 24-hour average value for modeling purposes. Since control cost estimates are based on an annual average ($/year), we have calculated annual emission rates for the OFA baseline using the annual average emission data reported to CAMD over this 2001–2003 baseline period. Comparing a baseline value on a 24-

[156] Docket ID No. EPA–R09–OAR–2012–0021.

[157] Regulatory Impact Analysis for the Final Clean Air Visibility Rule or the Guidelines for Best Available Retrofit Technology (BART) Determinations Under the Regional Haze Regulations, EPA–0452/R–05–004 (June 2005).

[158] A 7 percent interest rate is recommended by Office of Management and Budget, Circular A–4, Regulatory Analysis, *http://www.whitehouse.gov/omb/circulars-a004-a-4/*.

hour average basis (as provided by APS) to a control option value on an annual average basis is not an "apples-to-apples" comparison, as some portion of the emission reduction in such a comparison would be attributable to the differences between moving from a 24-hour average to an annual average basis.

TABLE 11—CHOLLA EMISSION ESTIMATES

Control options	Emission factor (lb/MMBtu)	Heat rate (MMBtu/hr)	Annual capacity factor	Emission rate		Emissions removed (tpy)
				(lb/hr)	(tpy)	
Cholla 2:						
OFA (only)	0.326	3,022	0.91	985	3,927	.....
LNB+OFA	0.295	3,022	0.91	892	3,554	373
SNCR w/LNB+OFA	0.207	3,022	0.91	624	2,488	1,440
SCR w/LNB+OFA	0.050	3,022	0.91	151	602	3,325
Cholla 3:						
OFA (only)	0.304	3,480	0.86	1058	3,985	.....
LNB+OFA	0.254	3,480	0.86	885	3,335	650
SNCR w/LNB+OFA	0.178	3,480	0.86	620	2,334	1,651
SCR w/LNB+OFA	0.050	3,480	0.86	174	655	3,330
Cholla 4:						
OFA (only)	0.296	4,399	0.93	1302	5,304	.....
LNB+OFA	0.260	4,399	0.93	1144	4,661	643
SNCR w/LNB+OFA	0.182	4,399	0.93	801	3,263	2,042
SCR w/LNB+OFA	0.050	4,399	0.93	220	896	4,408

Cost-effectiveness values for each control technology are summarized in Table 12, based on the total annual costs and annual emissions removed listed in the previous tables.

TABLE 12—CHOLLA CONTROL OPTION COST-EFFECTIVENESS

Control options	Total annual cost ($/yr)	Emissions removed (tpy)	Cost-effectiveness ($/ton)	
			Average	Increment
Cholla 2:				
OFA (only)	.....	.....	.....	.....
LNB+OFA	543,093	373	1,454	.....
SNCR w/LNB+OFA	2,823,066	1,440	1,961	2,138
SCR w/LNB+OFA	9,906,206	3,325	2,979	3,757
Cholla 3:				
OFA (only)	.....	.....	.....	.....
LNB+OFA	483,300	650	743	.....
SNCR w/LNB+OFA	3,070,443	1,651	1,860	2,586
SCR w/LNB+OFA	9,448,912	3,330	2,838	3,799
Cholla 4:				
OFA (only)	.....	.....	.....	.....
LNB+OFA	673,550	643	1,047	.....
SNCR w/LNB+OFA	4,086,366	2,042	2,001	2,441
SCR w/LNB+OFA	13,590,853	4,408	3,083	4,016

Even based on cost estimates revised to use APS's capital and O&M cost estimates, we still consider the cost-effectiveness values of SCR, on an average ($2,838 to $3,083/ton) and incremental ($3,757 to $4,016/ton) basis, to not be cost-prohibitive. We consider these results supportive of our proposed determination that SCR with LNB and OFA is cost-effective. We note that while the LNB and OFA option is the least expensive (i.e., lowest annual cost) and is the most cost-effective of the control technologies (i.e., has the lowest $/ton value), it is also the least effective control option. It removes substantially fewer emissions than either of the other two control options, the SNCR- and SCR-based systems. As discussed in our proposed action, and in other responses in this document, we have not identified any energy or non-air quality impacts that warrant eliminating SCR from consideration for the Cholla units. Combined with the modeled visibility improvement associated with this control option, these cost estimates continue to support the selection of SCR with LNB and OFA as BART for NO_X at the Cholla units.

d. Visibility Improvement

Comment: One commenter (NPS) agreed with EPA's analysis of the visibility impacts of the alternative NO_X control options for Cholla Units 2, 3 and 4 at the various impacted Class I areas, as presented in EPA's TSD. The commenter also indicated that its estimates of the two $/deciview measures of cost-effectiveness were similar to those of EPA. Specifically, the commenter's analysis yielded values of $19.9 million for the "$/max deciview" metric and $3.7 million for "$/cumulative deciview."

Response: We acknowledge the comment.

Comment: One commenter (APS) hired a contractor to perform modeling with CALPUFF version 5.8 and the

updated version of 6.42 to measure the sensitivity of various emission control scenarios at Cholla Units 2, 3 and 4 including two different background ammonia concentrations. The contractor found that regardless of which model version or background ammonia value was used, the highest predicted visibility improvement of SNCR or SCR, compared to LNB and OFA, is lower than the threshold for human perceptibility of 1.0 deciview. Moreover, retrofitting SNCR or SCR at Cholla will not lead to any perceptible improvement in visibility at any of the 13 Class I areas within 300 km of the Cholla facility.

Response: EPA disagrees with the ammonia concentration and CALPUFF model version used by the commenter for reasons discussed above. Further, we do not agree that the consideration of visibility improvement must directly reflect human perception. The CAA and the RHR require, as part of each BART analysis, consideration of "the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology." [159] The regulations do not require that the improvement anticipated to result from a particular technology at a particular source be perceptible by a single human being in order to be relevant as part of a BART determination. As EPA explained in the preamble to the BART Guidelines:

> Even though the visibility improvement from an individual source may not be perceptible, it should still be considered in setting BART because the contribution to haze may be significant relative to other source contributions in the Class I area. Thus, we disagree that the degree of improvement should be contingent upon perceptibility.[160]

Thus, in our visibility improvement analysis, we have not considered perceptibility as a threshold criterion for considering improvements in visibility. Rather, we have considered visibility improvement in a holistic manner, taking into account all reasonably anticipated improvements in visibility expected to result at all Class I areas within 300 kilometers of each source. Improvements smaller than 0.5 dv may be warranted considering the number of Class I areas involved, and the fact that in the aggregate, small improvements from controls on multiple BART and other sources will contribute to visibility progress.[161]

In addition, EPA is not obligated to focus on incremental costs and benefits to the exclusion of absolute costs and benefits. The BART Guidelines recommend consideration of both average and incremental cost-effectiveness,[162] but do not expressly require or recommend consideration of incremental visibility improvement. Rather, they provide for consideration of net visibility improvement (i.e., "the visibility improvement based on the modeled change in visibility impacts for the pre-control and post-control emission scenarios" as opposed to the change between different control scenarios).[163]

Comment: One commenter (APS) noted that Cholla Units 2 and 3 have separate flues but share a single stack, which EPA failed to recognize in its visibility modeling. The commenter also noted that EPA failed to use the appropriate Good Engineering Practice (GEP) stack height correction required by EPA's own rules for modeling. Because these errors result in visibility impacts in opposite directions, the net effect is less than 5 percent, based on modeling that APS has conducted.

Response: If the commenter is correct that there were two errors that nearly cancel out, then this would appear to have little effect on EPA's decision. The maximum area benefit of SCR was modeled by EPA to be 1.34 dv at Petrified Forest National Park, and 1.06 dv at Grand Canyon National Park; a 5 percent reduction in these would still result in substantial visibility benefits. EPA's modeling was based on stack parameters provided by APS in a letter [164] that did not mention the merged stack, although it was mentioned in APS's BART analysis [165] submitted to ADEQ. Stack parameters for Unit 4 provided in the commenter's modeling do not match either of those documents (exit velocity of 77.1 feet/second versus 52 feet/second in APS's letter). In addition, it is unclear how parameters for the merged stack in the commenter's modeling were derived (except that the area of the merged stack used is equal to the sum of the areas of the individual stacks cited in the APS letter). Nevertheless EPA acknowledges that Units 2 and 3 should have been modeled together as a single stack. EPA conducted additional modeling to assess this affect, assuming the same total stack exit area and volume flow rate as for the individual stacks, and a volume-weighted average of the individual stacks' absolute exit temperatures. EPA found that impacts and improvements decreased by some 11 percent when merged stacks are used. The improvement from SCR at Petrified Forest remains over 1.0 dv, with continued substantial benefit at Grand Canyon. A merged stack for Units 2 and 3 was also assumed in additional modeling EPA performed to address H_2SO_4 emissions for Cholla, as described below.

EPA's *Guideline on Air Quality Models* (40 CFR part 51, Appendix W) at section 6.2.2 requires that facilities be modeled using a stack height consistent with GEP, rather than a higher actual stack height, in order to prohibit "stack height credit" from being used in developing emission limits.[166] By building very tall stacks instead of applying emission controls, facilities could avoid violating the NAAQS locally, but would contribute to higher levels of emissions regionally, and cause higher total pollutant levels downwind. In short, the requirement to use GEP stack height generally results in conservative modeling, thereby removing the incentive to build artificially tall stacks to evade controls. Choosing a stack height or taking credit for a stack height increase is not at issue in a BART determination. The visibility impacts and improvements shown in EPA's BART modeling are closer to the actual values if actual stack heights are used. Insofar as GEP is relevant, using shorter GEP heights would tend to increase both pre- and post-control impacts, and to scale up the estimated visibility improvements. The overall effect would be to strengthen the case for EPA's proposed controls.

Comment: Based on a report submitted with the comments, one commenter (Earthjustice) stated that had EPA's BART analysis included lower emission rates and proper baselines, the visibility benefits of SCR at Cholla Units 2, 3 and 4 would be even greater than the 7.21 dv cumulative visibility benefit discussed in the proposed rule.

Response: As explained in the general discussion regarding selection of baseline periods above, we do not agree that we used an improper baseline. However, we agree that higher baselines and lower post-control emissions would show greater benefits than our modeling showed, and would further support our proposal for SCR.

[159] CAA section 169A(g)(2), 40 CFR 51.308(e)(1)(ii)(A).

[160] 70 FR 39129.

[162] BART Guidelines, 40 CFR Part 51, Appendix Y, Section IV.d.4.b.

[163] *Id.* Section IV.D.5.

[164] "Request for Information Relating to Cholla Power Plant", letter from Sue Kidd, Director, Corporate Environmental Policy and Programs, to Francisco Doñez, EPA, (February 3, 2012).

[165] "BART Analysis for Cholla Unit 2." Prepared for APS by CH2MHill (January 2008).

[166] Guideline on Air Quality Models 6.2.2.a. "The use of stack height credit in excess of Good Engineering Practice (GEP) stack height or credit resulting from any other dispersion technique is prohibited in the development of emission limitations by 40 CFR 51.118 and 40 CFR 51.164."

Comment: One commenter (APS) stated that EPA incorrectly applied H_2SO_4 mitigation factors from an Electric Power Institute (EPRI) report [167] in reaching its conclusion that H_2SO_4 production is not a problem with SCR at Cholla. The commenter stated that this factor is actually 90 percent rather than 99 percent in the report, but that this factor only applies to sub-bituminous coal because of the high calcium content in the ash of these coals. The commenter stated that testing at the Four Corners Power Plant (FCPP), which has similar coal ash calcium content to that at Cholla, indicates that 15 percent removal by the fabric filters would be likely. The commenter stated that the H_2SO_4 emissions created by the SCR will exceed the NSR significance level, will result in costs associated with the H_2SO_4 emissions, and will reduce the improvement in visibility anticipated by the retrofitting with SCR.

Another commenter (ADEQ) also stated that EPA discounts the impact of sulfuric acid mist that will be generated by SCR and overestimates the acid mist removal rate. The commenter indicated that testing at another facility shows H_2SO_4 removal to be closer to 57 percent rather than EPA's assumed 99 percent removal. The commenter noted that if H_2SO_4 emissions increase above the PSD significance threshold, a PSD permit and BACT analysis would be required. EPA's BART analysis fails to consider the costs associated with likely BACT requirements of low oxidation catalyst, fuel additives or sorbent injection with a polishing baghouse.

Response: EPA's decision to discount the increase of H_2SO_4 caused by oxidation from the SCR catalyst was actually based on the 90 percent control figure; we erroneously wrote 99 percent (which applies to ammonia reduction from a wet scrubber). This figure is from the 0.10 percent penetration for baghouses, the only one available for baghouses in the EPRI report. It is not clear that results from the testing at FCPP referenced by the commenter may be applied directly to Cholla given the differences between the facilities. In addition, the full test results were not provided, so we cannot rely on the commenter's figures.

In any case, EPA does not believe that BART is the appropriate context for addressing this issue. Actual measurements of baseline sulfuric acid emissions have not yet been determined at Cholla. Moreover, the calculation of projected sulfuric acid emissions after installation and operation of SCR using the EPRI methodology is dependent on future decisions made by the facility on the type of SCR catalyst and number of layers used, as well as numerous assumptions about loss to downstream components (i.e., air preheaters and baghouses), the true values of which are currently not yet defined or known for Cholla. An increase in sulfuric acid emissions from the installation of SCR may trigger major modification PSD permit requirements at a low threshold of seven tons per year.[168] Preconstruction permitting review may also be triggered from significant emissions increases of $PM_{2.5}$ from SCR installation at Cholla. If one of these pollutants triggers PSD, the permitting authority must provide an Additional Impact Analysis under the PSD program. The PSD program also requires the permitting authority to determine BACT for pollutants that triggered PSD. For these reasons, Region 9 has determined that for Cholla, emission limits and monitoring requirements for sulfuric acid are more appropriately reviewed in the preconstruction permitting process.

Nevertheless, EPA conducted additional CALPUFF modeling to assess the visibility effect of increased sulfuric acid due to the SCR catalyst. One scenario used the existing modeling for Cholla, but added in SCR sulfate calculated by the method in the EPRI document. Since the existing modeling used sulfate calculated using PM speciation spreadsheets provided by the National Park Service, this scenario mixes two calculation methods and may not be reliable. The sulfate in the existing modeling is so large that the additional SCR sulfate from the EPRI method increases total sulfate by only about 5 percent. Visibility benefits only decreased by about three percent at Petrified Forest, and by an even smaller fraction at other areas. To assess the SCR sulfate effect in a more consistent manner, EPA calculated sulfate using the EPRI method throughout the base case for SCNR, and for SCR. All cases used a merged stack for Units 2 and 3 and consistent speciation for all units (formerly the speciation for Unit 2 differed from the others). The sulfate emissions from the EPRI method are much lower than from the NPS spreadsheets, but SCR increases that amount by a factor of six (even with the increase the total is still far lower than used in the original modeling). The visibility impacts for all cases are substantially lower than in the former modeling; the maximum area base case impact is 3.51 dv at Petrified Forest compared to 4.53 dv previously. But for some areas the impacts from controls declined more than the impacts from the base case, leading to the somewhat surprising result that the improvement due to controls actually increased relative to the original modeling. The maximum area benefit of SCR in the new modeling is 1.55 dv compared to 1.34 dv in the original. The cumulative area benefit decreased very slightly to 7.19 dv compared to 7.21 in the original. Based on this improved estimate of sulfate emission based on the EPRI method, the case for SCR appears to be strengthened, since the maximum visibility improvement is larger than originally estimated.

e. Other Comments

Comment: One commenter (NPS) agreed with EPA's conclusions on Cholla that the visibility improvement associated with the most stringent option (SCR with LNB and OFA) is substantial; that SCR with LNB and OFA is cost-effective on an average basis as well as on an incremental basis when compared to the next most stringent option (SNCR with LNB and OFA); and that NO_X BART for Cholla Units 2, 3 and 4 is SCR with LNB and OFA, with an associated emission limit for NO_X on each of the units of 0.050 lb/MMBtu, based on a rolling 30-boiler-operating-day average.

Response: We acknowledge the comment.

Comment: One commenter (APS) estimated that EPA's proposed controls on Cholla Units 2 and 3 will cost $248 million and $103 million, respectively, and increase the costs of electricity from those units by over 25 percent. The commenter stated that given the current market price for natural gas, the proposed BART requirements, expected coal ash regulations, and potential future carbon legislation could jeopardize the long-term economic viability of the entire plant. The commenter also stated that EPA did not consider the impacts of requiring SCR on ratepayers' monthly bills, which would be about 2 percent to accommodate SCR alone. In addition, the commenter is concerned about potential impacts on the transmission grid in Arizona, the local economy due to lost jobs, and a reduced diversity in APS's fuel mix if Cholla was to close.

Response: It is not EPA's intention to endanger the economic viability of Cholla or to place an undue burden on APS's customers. Neither the CAA nor the RHR requires states or EPA to consider the affordability of controls,

[167] *Estimating Total Sulfuric Acid Emissions from Stationary Power Plants,* Version 2010a, 1020636, Technical Update, Electric Power Research Institute, April 2010).

[168] See 40 CFR 52.21(b)(23)(i).

ratepayer impacts or potential job losses as part of a BART analysis. Rather, they require consideration of "the costs of compliance, the energy and non-air quality environmental impacts of compliance, any existing pollution control technology in use at the source, the remaining useful life of the source, and the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology." [169]

APS's comments appear to be based in part on a misunderstanding that an analysis of "non-air quality environmental impacts" must include economic effects. In fact, the plain language of the statute, as well as the RHR, makes clear that this factor is limited to non-air quality environmental impacts.[170] The BART Guidelines note that examples of such impacts would include "solid or hazardous waste generation and discharges of polluted water from a control device." [171]

The BART Guidelines do allow for (but do not require) the consideration of "significant economic disruption or unemployment" as part of "energy impacts." Specifically, the Guidelines provide that:

> * * * the energy impacts analysis may consider * * * whether a given alternative would result in significant economic disruption or unemployment. For example, where two options are equally cost effective and achieve equivalent or similar emissions reductions, one option may be preferred if the other alternative results in significant disruption or unemployment.[172]

The Guidelines also allow for consideration of "affordability" as part of the "costs of compliance" under certain circumstances:

> 1. Even if the control technology is cost effective, there may be cases where the installation of controls would affect the viability of continued plant operations.
>
> 2. There may be unusual circumstances that justify taking into consideration the conditions of the plant and the economic effects of requiring the use of a given control technology. These effects would include effects on product prices, the market share, and profitability of the source. Where there are such unusual circumstances that are judged to affect plant operations, you may take into consideration the conditions of the plant and the economic effects of requiring the use of a control technology. Where these effects are judged to have a severe impact on plant operations you may consider them in the selection process, but you may wish to provide an economic analysis that demonstrates, in sufficient detail for public review, the specific economic effects, parameters, and reasoning.[173]

Thus, only under "unusual circumstances" where a potential control option is expected to have a "severe impact on plant operations" or "result in significant economic disruption or unemployment" can we consider economic effects as part of a BART determination. In this case, APS has provided no evidence to support its assertions that our proposed FIP would result in significant rate increases, jeopardize the plant's operations, or result in any other economic effects. In the absence of such evidence, APS's assertions regarding plant shutdown, rate increases and job losses are speculative, and we cannot consider them as part of our BART determination.

Comment: One commenter (PacifiCorp) stated that because the regional haze actions in Arizona, Wyoming, Colorado and elsewhere will have an impact of $100 million or more on the company and its customers, EPA must conduct the regulatory analyses required by the Unfunded Mandates Reform Act (UMRA) and Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use (Executive Order 13211) before reaching conclusions regarding BART controls or imposing a regional haze FIP.

Response: The commenter is combining separate regulatory actions. The commenter is not correct in aggregating the potential private sector mandate of separate rules to evaluate whether UMRA applies. UMRA defines the term 'Federal private sector mandate' to mean any provision in regulation that would impose an enforceable duty upon the private sector. Under UMRA, the term "regulation" or "rule" means any rule for which the agency publishes a general notice of proposed rulemaking. The rule being finalized today is limited to addressing the obligations of three facilities in Arizona and does not include other regional haze actions occurring in separate rulemakings, such as for Wyoming and Colorado.

Under section 202 of UMRA, before promulgating any final rule for which a general notice of proposed rulemaking was published, EPA must prepare a written statement, including a cost-benefit analysis, if that rule includes any "Federal mandates" that may result in expenditures to State, local, and Tribal governments, in the aggregate, or to the private sector, of $100 million or more (adjusted for inflation) in any 1 year. Under Title II of UMRA, EPA has determined that this rule does not contain a Federal mandate that may result in expenditures that exceed the inflation-adjusted UMRA threshold of $100 million (in 1996 dollars) by State, local, or Tribal governments or the private sector in any one year. Even using the higher cost estimates in our supplemental analysis for the FIP we are finalizing today, we estimate that the total annual costs in the aggregate will not exceed $65 million.[174] Finally, this rule is not subject to Executive Order 13211 (66 FR 28355 (May 22, 2001)), because it is not a significant regulatory action under Executive Order 12866.

Comment: One commenter (APS) disagreed with EPA's conclusion that the use of anhydrous ammonia does not pose significant additional safety concerns compared to aqueous ammonia and urea. The commenter contends that while anhydrous ammonia would be transported by rail, safety concerns are not eliminated because the severity of damage in an accident can be much greater, if less frequent than truck accidents, and constitutes a much higher risk after delivery. Due to the hazards of moving and storing anhydrous ammonia, the Department of Homeland Security and EPA have additional requirements for anhydrous ammonia that result in additional costs to use it. Urea costs more than anhydrous ammonia, but it is safer and less expensive to use and store. Due to these factors the commenter stated that SNCR and SCR costs should include the use of urea rather than anhydrous ammonia.

Response: The BART analyses submitted by APS indicate that the annualized cost of urea at each of the Cholla units would be less than the annualized cost of anhydrous ammonia.[175] In addition, the cost estimates provided by APS in comments are based on the use of urea as a reagent. Accordingly, we have used the cost for urea in our supplemental cost analysis.

Comment: One commenter (APS) noted that Cholla has a long history of installing pollution control equipment,

[169] CAA section 169A(g)(2), 42 U.S.C. 7491(g)(2); 40 CFR 51.308(e)(1)(ii)(A).

[170] *Id.*

[171] BART Guidelines section IV.D.4.h

[172] *Id.* section IV.E.2.

[173] *Id.* section IV.E.3.

[174] Using total annual costs from our supplemental analysis, annual aggregate cost equals $64,378,422. This amount consists of: $9,906,206 for Cholla Unit 2, $9,448,912 for Cholla Unit 3, and $13,590,853 for Cholla Unit 4 (See Table 10 of this NFRM); $12,103,941 for Coronado Unit 1 and $235,982 for Coronado Unit 2 (See Tables 15 and 13 of this NFRM); and $9,546,264 for each of Apache Units 2 and 3 (See Table 5 of this NFRM).

[175] *See* BART Analysis for Cholla Unit 2, Appendix A, Economic Analysis, Input Calculations; BART Analysis for Cholla Unit 3, Appendix A, Economic Analysis, Input Calculations; BART Analysis for Cholla Unit 4, Appendix A, Economic Analysis, Input Calculations.

has participated in a voluntary emissions reduction project, and has spent over $473 million to reduce emissions. While Unit 1 at Cholla is not BART-eligible, it is equipped with a wet-tray absorber to control SO_2, a fabric filter to control particulates, and LNB with OFA to control NO_X emissions. Unit 2 is BART-eligible and has a mechanical dust collector for particulate control, a wet flooded-disk venturi scrubber and absorbers to control SO_2, additional particulate controls, and LNB with OFA to control NO_X emissions. Units 3 and 4 have wet open-spray FGD absorber to control SO_2, fabric filters to control particulates, and LNB with OFA to control NO_X emissions. Unit 2 is scheduled to upgrade its SO_2 and particulate controls to be identical to Units 3 and 4 by January 1, 2016.

Response: We appreciate that APS has installed various controls on the Cholla units over the last several years and we have taken these existing controls into account as part of our BART analysis for NO_X.[176] However, we note that, even with all of these new controls, emissions from Cholla still cause visibility impairment at nine Class I areas and contribute to impairment at an additional two areas.[177]

Comment: One commenter (APS) requested that EPA allow the flexibility of averaging NO_X emissions across all the BART-eligible units at the plant. The commenter stated that allowing for this flexibility would make no difference from a visibility improvement perspective.

Response: We agree with the commenter, and have finalized a single NO_X emission limit across Cholla Units 2, 3 and 4.

3. Comments on Coronado Units 1 and 2

a. Selection of Baseline Period

Comment: Two commenters (ADEQ and SRP) stated that EPA's selected baseline emissions period inappropriately eliminated consideration of LNB with OFA as a viable BART control strategy. SRP asserted that EPA's decision to include LNB with OFA in its baseline NO_X emissions estimate cannot, consistent with the BART rules, foreclose consideration of those controls as BART for Coronado, and that EPA's failure to consider these controls in its BART assessment makes the proposed rule invalid. The commenter added that emission reductions already achieved at the facility using LNB with OFA should not be ignored in EPA's analysis simply because EPA delayed review of ADEQ's SIP until 2012. The commenter concluded that EPA should give deference to the baseline emissions period selected by the State in its SIP analysis and fully consider LNB with OFA as an appropriate basis for BART emission limitations for Coronado.

Another commenter (NPS) preferred the use of a baseline period before the installation of LNB with OFA instead of the post-installation period (May 16, 2009 to December 31, 2010) used by EPA. For Unit 2, the commenter stated that the federally enforceable limit of 0.080 lb/MMBtu is a realistic depiction of future emissions even though the required SCR system has not yet been installed.

Response: As explained in the general discussion regarding selection of baseline periods above, we disagree that our use of updated baseline periods for BART determinations is inappropriate or inconsistent with the CAA or the RHR. Moreover, updating the baseline did not eliminate LNB with OFA from consideration as BART for Coronado Unit 1, since existing controls can constitute BART, if additional controls are not warranted based on the five-factor analysis. For example, EPA recently approved a determination by Colorado that existing LNB at Comanche Units 1 and 2 constituted BART where "the State determined that the added expense of achieving lower limits through different controls was not reasonable based on the high cost-effectiveness [$9,900/ton] coupled with the low visibility improvement (under 0.2 dv) afforded."[178] In the case of Coronado, by contrast, the cost-effectiveness of post combustion controls is reasonable and the expected visibility improvements are substantial, as explained below. Nonetheless, in order to address the commenter's concerns that we did not properly consider LNB with OFA as a potential control option, and therefore precluded a BART determination of LNB with OFA, we have used a baseline period of 2001–2003, which corresponds to the period used in SRP's original BART analysis. Our supplemental cost analysis for Coronado is summarized in Table 15.[179]

b. Control Efficiencies

Comment: One commenter (SRP) stated that the SNCR NO_X emission rate evaluated by EPA is incorrect. The commenter cited an SNCR conceptual design estimate prepared by S&L (attached to the submission) asserting that, based on an initial review of SNCR implementation at Coronado, the expected NO_X reductions would be 25 percent and notes that additional studies would be needed to guarantee this performance. According to the commenter, this estimate also was verified by an independent vendor, FuelTech, whose assessment was also attached to the submission.

The commenter (SRP) assumed that EPA evaluated an emission limit that is based on a higher reduction efficiency (i.e., 30 percent) applied to a starting NO_X emission limit of 0.30 lb/MMBtu. According to the commenter, given Coronado's current NO_X emissions limit of 0.320 lb/MMBtu following the installation of LNB with OFA on each of the units and an SNCR control efficiency of 25 percent, the appropriate NO_X emission rate to use in the BART analysis would be 0.24 lb/MMBtu, rather than EPA's assumed value of 0.21 lb/MMBtu. The commenter contended that this NO_X emission rate (i.e., 0.24 lb/MMBtu) represents a level that can likely be achieved on a consistent basis based on input from SRP's vendors who have specific SNCR implementation experience.

Response: We partially agree with this comment. Coronado Unit 1 currently operates with a federally-enforceable NO_X emission limit of 0.320 lb/MMBtu.[180] A review of recent emission data in CAMD indicates NO_X emission levels below this limit. As noted in our response to SRP's comments regarding SCR, we agree that when using an annual average design emission rate to establish a rolling 30-day limit that will apply during periods of startup, shutdown, and malfunction events, it is appropriate to include some type of measure that provides a compliance margin.

In submitted comments, SRP provided a conceptual design estimate for SNCR which was based upon 25 percent control efficiency (incremental from LNB) and a resulting emission rate of 0.24 lb/MMBtu. While this control efficiency is less than the 30 percent

[176] 77 FR 42854, July 20, 2012 (noting that "[t]he baseline emissions used by EPA reflect current fuels and control technologies in place at the facilities, as well as regulatory requirements the facilities will be required to meet independent of EPA's BART determination.").

[177] See 77 FR 42861, July 20, 2012, Table 20 (showing baseline impacts from Cholla of over 1 dv at nine Class I areas, and impacts of over 0.5 dv at eleven areas).

[178] 77 FR 18052, 18066 (March 15, 2012) (Proposed Rule); pre-publication version of Final Rule, signed September 10, 2012, available at: *http://www.epa.gov/region8/air/FinalActionOnColoradoRegionalHazePlanSep2012.pdf.*

[179] A spreadsheet titled "Supplemental Cost Analysis 2012–11–15.xls" is in the docket.

[180] See Coronado Title V Permit, Attachment B, section II.E.1.a.ii.

control efficiency used by our contractor, we consider it to be a reasonable estimate based upon the vendor quotes provided by SRP.[181] When using a control efficiency of 25 percent and our baseline period of LNB performance for Coronado Unit 1, we estimate an annual average SNCR emission rate of 0.22 lb/MMBtu.

For the purposes of our cost calculations and visibility modeling, however, we have retained the use of our original SNCR emission rate (0.21 lb/MMBtu). A less stringent SNCR emission rate, by itself, would primarily make the next most stringent control option, SCR, appear to remove a greater amount of emissions. This in turn would make the SCR control option appear more incrementally cost-effective by removing a greater amount of emissions, relative to SNCR, for the same cost. As discussed in our proposal and in response to comments, we already consider SCR to be cost-effective. It is not determinative to our decision to find that SCR is "even more" incrementally cost-effective.

In the context of establishing a BART emission limit consistent with the use of SNCR technology, however, we would use the annual average SNCR emission rate of 0.22 lb/MMBtu as our basis, rather than our original estimate based on 30 percent SNCR control efficiency. As noted in a separate response, when using an annual average design emission rate to establish a rolling 30-day limit that would apply during periods of startup, shutdown, and malfunction, we consider it appropriate to provide some type of measure that provides a compliance margin for such events. A 0.24 lb/MMBtu emission limit, as requested by SRP, established on a rolling 30-day average represents about a 10 percent increase from the 0.22 lb/MMBtu annual average emission rate. We would consider this magnitude of upward revision appropriate to accommodate startup, shutdown, and malfunction events as well as the unit cycling nature of Coronado Unit 1. As a result, we would consider the BART emission limit corresponding to the SNCR with LNB and OFA option to be 0.24 lb/MMBtu.

Comment: One commenter (SRP) stated that EPA improperly ignored the Coronado consent decree in its selection of the proposed BART controls for NO_X. The commenter noted that ADEQ determined that NO_X BART for Coronado Units 1 and 2 is LNB with OFA and a corresponding emission limit of 0.320 lb/MMBtu, making Units 1 and 2 currently subject to a 0.320 lb/MMBtu NO_X limit. The commenter added that Unit 2 will be subject to a 0.080 lb/MMBtu NO_X emission limit as soon as the SCR for that unit is installed and operational (i.e., by June 1, 2014), pursuant to the consent decree, a limit that is significantly more stringent than what the state determined to be BART for Coronado.

The commenter (SRP) asserted that the consent decree controls are better than BART. The commenter pointed out that once SCR is installed on Unit 2, the facility will be subject to a plant-wide emission limit of 7,300 tons of NO_X per year under the consent decree which, according to the commenter, translates to an effective emission rate of 0.20 lb/MMBtu for Coronado as a whole, and is more stringent than the state's NO_X BART determination and EPA's presumptive NO_X limits.

The commenter (SRP) also contended that EPA's BART rules support the conclusion that the existing and currently planned controls are better than NO_X BART because those controls and emission rates were agreed to by SRP and EPA to resolve allegations of violations of certain requirements of the PSD program for both units. According to the commenter, those limits are intended to reflect compliance with the PSD program's BACT requirements. The commenter noted that BACT, by definition, reflects the maximum degree of control for new facilities or existing facilities undergoing a major modification while BART is to apply to unmodified existing sources. So BACT would be expected to be more stringent, and certainly not less stringent, than BART. The commenter quoted a recent EPA statement about the Four Corners Power Plant indicating that BART need not be equivalent to BACT (citing 77 FR 51620, 51636, August 24, 2012).

The commenter (SRP) asserted that the BART rules reflect this understanding, providing that PSD settlement agreements generally satisfy BART requirements (citing 70 FR 39164). According to the commenter, EPA recently recognized this principle in its final regional haze rule for North Dakota in which EPA concluded that it was appropriate to rely on North Dakota's BACT determination for the two units at the Milton R. Young Station (0.36 lb/MMBtu and 0.35 lb/MMBtu) to satisfy BART because emissions control technology had not changed appreciably since that BACT determination (citing 77 FR 20897, April 6, 2012). The commenter stated that a similar situation is present in the case of Coronado, and the recent PSD consent decree should, pursuant to the BART Guidelines, be deemed to satisfy BART.

Response: We do not agree that we improperly ignored the existing consent decree in our proposed BART determination for NO_X at Coronado, since we specifically took the consent decree into account throughout our NO_X BART analysis.[182] We also do not agree that the Coronado consent decree represents BACT or BART for NO_X. While the consent decree concerned alleged violations of the PSD provisions of the CAA, it does not indicate that its provisions represent either BACT or BART. Rather, it specifically provides that:

> Compliance with the terms of this Consent Decree does not guarantee compliance with all applicable federal, state, or local laws or regulations. The emission rates and removal efficiencies set forth herein do not relieve SRP from any obligation to comply with other state and federal requirements under the Clean Air Act * * *[183]

While the BART Guidelines provide that NSR/PSD settlement agreements may represent BART in some instances, they do not establish a presumption that such settlements represent BART, nor do they indicate that a BART analysis is unnecessary where such a settlement exists.[184] In Coronado's case, we do not agree that the consent decree represents BART for NO_X for either unit or for the facility as a whole. Nonetheless, we are taking the consent decree into account in our BART determination for NO_X at Coronado, as described below.

Comment: In arguing against the achievability of EPA's proposed limit, two commenters (AUG and SRP) cited a report prepared by RMB Consulting & Research, Inc. (RMB) for the San Juan Generating Station in New Mexico, which reportedly states that the 0.05 lb/MMBtu limit imposed on that facility does not represent a consistently achievable level of emissions for the units at the facility. In addition, SRP contracted with RMB and Sargent and Lundy (S&L) to review the ability of the Coronado units to achieve the 0.050 lb/MMBtu emission limit proposed by EPA

[181] Although the report cites lower NO_X concentrations, due to the lower inlet NO_X emission rate, removal efficiency is also reduced making it more difficult to reduce NO_X emissions.

[182] See 77 FR 42849–42850, July 20, 2012, (summarizing terms of consent decree), 42861–42862 (describing consideration of consent decree requirements in baseline for Coronado analyses), 42863 (noting potential effect of consent decree activities on cost analysis), 42864 (proposing emission limit of 0.080 lb/MMBtu and compliance deadline of June 1, 2014 at Coronado Unit 2, consistent with the emission limit in the consent decree).

[183] Consent Decree in *United States* v. *Salt River Project*, CV 08–1479–PHX–JAT (entered December 19, 2008).

[184] BART Guidelines, 40 CFR Part 51, Appendix Y, section IV.C.

using SCR control technology. Their reports were submitted as attachments to the commenter's submission. According to the commenter, both consultants concluded that a NO_X BART limit of 0.050 lb/MMBtu is not achievable at Coronado on a 30-day rolling average that includes periods of startup, shutdown, and malfunction. The commenter made the following arguments against the achievability of a limit of 0.050 lb/MMBtu relying first on RMB's analysis and then on S&L's analysis.

RMB's analysis stated that EPA did not adequately consider the impact of startup and shutdown emissions or the ability to measure such emissions in its BART determination. RMB examined operating data from 2001 to 2011 in order to identify the number of startup events (both "cold" and "warm" starts) and shutdown events associated with each unit. RMB's analysis shows that the average number of startup/shutdown events for Coronado Units 1 and 2 is one per month (each), and that the maximum number of startup/shutdown events is five per month (Coronado Unit 1) and six per month (Coronado Unit 2). RMB then developed a computer model to estimate the 30-day rolling average the Coronado units could achieve based upon the emissions profile of these startup/shutdown events, the maximum number of startup/shutdown events, and an assumption of a NO_X emission rate of 0.04 lb/MMBtu over the life of the catalyst. RMB's analysis indicates that the maximum 30-day average the units could achieve is well above 0.050 lb/MMBtu.

S&L's analysis focused on the ability of Coronado Unit 2, which has been designed to achieve a 0.08 lb/MMBtu emission rate, to achieve a lower 0.05 lb/MMBtu emission rate. S&L's analysis considered multiple design changes and examined their potential impact on reducing the design emission rate, as well as the costs and design/construction time associated with these options. S&L concluded that, at a minimum, SRP would be required to install a low load temperature control system designed to increase flue gas temperatures at the SCR inlet during periods of low load cycling to achieve any additional reduction in average NO_X emissions. S&L's analysis concluded that even with a low-load temperature control system, Unit 2 could not consistently achieve the proposed limit when periods of low-load cycling, startup and shutdown are taken into account, and could only achieve within the range of 0.053 to 0.072 lb/MMBtu.

Finally, both AUG and SRP noted that the BART Guidelines authorize application of BART emission limits on a plant-wide basis, rather than a unit-by-unit basis, and that use of plant-wide limits would not affect the expected visibility benefits of controls. Therefore, they requested that EPA allow for plant-wide averaging at Coronado.

Response: We partially agree with this comment. As noted by the commenters, the BART Guidelines recommend that states "consider allowing sources to 'average' emissions across any set of BART-eligible emission units within a fenceline * * *"[185] Given that such a "bubbling" approach would not diminish the visibility benefits of controls, we have decided to finalize a single plant-wide limit across the two Coronado units.

In analyzing what emission limit would represent BART for NO_X on a plant-wide basis, we have taken a number of factors into consideration. In our proposal, we used an annual average design value for SCR of 0.050 lb/MMBtu at Coronado Unit 1 and proposed an emission limit for this same value on a rolling 30-day average. At Coronado Unit 2, we proposed an emission limit of 0.080 lb/MMBtu, but solicited comment on whether a more stringent limit would be feasible and cost-effective for Unit 2. SRP submitted comments stating that an emission rate of 0.05 lb/MMBtu was not achievable by either unit, due to the startup/shutdown operating profile of the Coronado units. As noted in other responses, BART limits apply at all times including periods of startup, shutdown, and malfunction. As a result, we agree with commenters that when establishing a rolling 30-day BART emission limit that is based upon an annual average design value, it is appropriate to provide a compliance margin for periods of startup and shutdown. Therefore, we have taken into consideration the startup/shutdown operating profile of the Coronado units.

In submitted comments, SRP included reports prepared by S&L and RMB Consulting summarizing an analysis performed to determine the rolling 30-day emission rates the units could achieve when accounting for startup and shutdown events, as well as the load cycling operating profile of the plant.[186] The analyses in the two reports were based on slightly different assumptions. RMB's analysis, which examined both Coronado Units 1 and 2, included the following assumptions:

- Five to six startups (1 cold/remainder warm) per month (which is the maximum observed based on 2001 to 2011 historical performance);
- Startup emissions based on the maximum value observed during that startup period;
- Non-startup periods of operation based on historical load operation, which consists of a mixture of low load and high-load cycling operation;
- Inclusion of a low load temperature control system; and
- Maintaining the catalyst guarantee of 0.04 lb/MMBtu during full load, steady-state operations over the life of the catalyst.

The analysis performed by S&L examined only Coronado Unit 2, and was one element of S&L's broader analysis examining the ability of Coronado Unit 2 to meet a limit more stringent than the 0.080 lb/MMBtu limit in the consent decree. The analysis performed by S&L was based on the following assumptions:

- One to three startup events per month;
- Non-startup periods of operation based entirely on low load cycling scenario (40–100 percent gross load cycling);
- Inclusion of a low load temperature control system;[187] and
- Maintaining the catalyst guarantee of 0.04 lb/MMBtu during full load, steady-state operations over the life of the catalyst.

The results of both of these analyses indicates that the Coronado units could achieve a rolling 30-day emission rate in the range of 0.053 to 0.072 lb/MMBtu based on all the assumptions listed above. We acknowledge that different assumptions, such as using fewer startups per month, or using a load operating profile during non-startup periods that corresponded to a greater fraction of high-load cycling operations, could produce a lower range of emission values. However, we find that the assumptions used in both analyses are reasonable based on the historic performance data supplied by SRP and its consultants. Therefore, we have concluded that a 0.050 lb/MMBtu emission rate is not achievable on a rolling 30-day average at either of the Coronado units.[188] Nonetheless, we note

[185] BART Guidelines, 40 CFR Part 51, Appendix Y, section V.

[186] In addition to the final reports, SRP provided certain supporting spreadsheets upon request. We have placed these spreadsheets in the docket.

[187] S&L's analysis also included emission modeling of Coronado Unit 2 without the low load temperature control system, which, as discussed in further detail below, is not part of the current SCR design.

[188] Nonetheless, we note that the emission modeling results (particularly those produced by

that the results of these analyses (particularly those produced by the RMB report) indicate that Coronado Unit 1 could meet a 0.050 lb/MMBtu limit on an annual average basis. As a result, we conclude that 0.050 lb/MMBtu is appropriate as an annual average design value, but not as 30-day rolling average emission limit at the Coronado units.

With respect to Coronado Unit 2, we have also taken into account the fact that Unit 2 is already subject to a consent decree limit of 0.080 lb/MMBtu with a compliance deadline of June 1, 2014. We consider the SCR system that SRP has designed to meet this limit to constitute "pollution control equipment in use at the source." Therefore, consistent with the BART Guidelines, we have considered various ways in which the performance of the current SCR design for Unit 2 could be improved.[189] In its analysis examining whether the SCR system for Unit 2 could achieve an emission rate more stringent than the 0.080 lb/MMBtu limit in the consent decree for which the SCR was designed, S&L examined a number of different potential measures. One of these measures was the installation of a low load temperature control system, which the current SCR design for Unit 2 does not include.

As described in the S&L report, periods of low load operation generally consist of operation between loads of 138 MW to 270 MW (operation above 270 MW can be considered "high" load). Broadly speaking, the temperature in the SCR system will fall below 599 degrees F during these periods of low load operation, which is the minimum temperature required for effective NO_X control. A low load temperature control system increases the temperature at the SCR inlet in order to maintain 599 degrees F, allowing operation of the SCR system during periods of low load.[190] Without this control system, the Coronado Unit 2 SCR system will not operate during periods of low load. Under EPA's visibility regulations, "BART means an emission limitation based on the degree of reduction achievable through the application of the best system of continuous emission reduction * * *"[191] While SCR represents the most stringent technology for NO_X control, an SCR system that is designed not to function during a period of operation that represents a substantial fraction of the unit's overall operating profile cannot be considered continuous. In examining the installation of a low load temperature control system as an upgrade option to Coronado Unit 2, we note that the S&L report estimated the costs for the low load temperature control system as shown in Table 13.

TABLE 13—S&L'S COST ESTIMATES FOR LOW LOAD TEMPERATURE CONTROL SYSTEM

Measure	Capital cost [1] ($)	Annualized capital cost [2] ($/yr)	Annual O&M costs ($/yr)	Total annual costs ($/yr)
Low load temperature control system	$2,500,000	$235,982	.....	$235,982

[1] Represents the mid-range value of S&L's estimate of capital costs.
[2] Capital costs annualized using a 7 percent interest rate over a 20 year lifetime.

Although it is not clear what annual average emission rate can be achieved by Coronado Unit 2 with installation of a low load temperature control system, the upper range of rolling 30-day emission rates modeled for Coronado Unit 2 is 0.072 lb/MMBtu. We consider this a conservative estimate (i.e., a high estimate in this case, as the annual average number will certainly be lower than the 30-day value), and have used this emission rate with the cost information contained in the S&L report, to calculate the cost-effectiveness value shown in Table 14. Installation of a low load temperature controller results in a cost-effectiveness of $1,900/ton, which is in a range that we consider cost-effective.

In addition, SRP stated that it considered the incremental visibility benefit of an emission limit more stringent than 0.080 lb/MMBtu to be insignificant. In relation to installation of a low load temperature controller, we disagree. Specifically, SRP bases this comment on the visibility improvement associated with a 0.080 lb/MMBtu limit and a lower value such as 0.07 or 0.05. Visibility modeling, however, is based on the highest emission rate observed on a 24-hour average, not on a 30-day or annual average basis. Since Coronado Unit 2 is not equipped with a low load temperature controller and therefore cannot operate the SCR during periods of low load operation, emissions from Coronado Unit 2 during these periods correspond to operation of LNB with OFA. A review of Coronado Unit 2's operating history since June 2011, which is approximately when LNB was installed, indicates several instances in which it operates at low load for periods that can exceed a 24-hour calendar day. Based on the Acid Rain Program data provided by SRP and included in CAMD, the longest such period of continuous low load operation extended from May 20 to May 22, 2012.[192] As a result, although equipped with an SCR system, the maximum 24-hour average emission rate for Coronado is more accurately represented by an emission rate corresponding to LNB and OFA, and not SCR.

We consider this distinction crucial. In our base case modeling runs, the maximum 24-hour average emission rate modeled for Coronado Unit 2 was represented by a NO_X emission rate of 0.08 lb/MMBtu, corresponding to the emission limit for SCR in the consent decree. However, the highest 24-hour average emission rate is more accurately represented by a 24-hour period of low load operation, where the SCR system would not be operating. Based on Acid Rain Program data reported to CAMD, this corresponds to a NO_X emission rate of 0.23 lb/MMBtu and 13,684 lb/day.[193] By allowing the SCR system to run during all loading periods, the installation of a low load temperature control system would result in a

the RMB report) indicate that Coronado Unit 1 could meet a 0.050 lb/MMBtu limit on an annual average basis. As a result, we conclude that the use of a 0.050 lb/MMBtu as annual average design value in our proposal was appropriate.

[189] BART Guidelines, 40 CFR Part 51, Appendix Y, section IV.D.3.

[190] We note that this is not an unusual control system, and is commonly included in typical SCR systems. If SCR were to be installed on Coronado 1, for example, the information SRP has provided indicates that such a system would include a low load temperature control system.

[191] 40 CFR 51.301.

[192] We have identified these dates in both sets of data, per "SRP 2 NO_X analysis (EPA edits).xls" and "Coronado 2 2011–12Q3 NO_X Emission Data (daily).xls".

[193] This represents the emission rate on April 1, 2012, which is the highest emitting day that consisted of 24 consecutive hours of low-load operation, as identified in "SRP 2 NO_X analysis (EPA edits).xls" and "Coronado 2 2011–12Q3 NO_X Emission Data (daily).xls".

decrease in the maximum 24-hour average emission rate from 0.21 lb/MMBtu to 0.080 lb/MMBtu. The visibility improvement associated with this emission decrease at the single most affected Class I area is 0.52 (Gila Wilderness). Cumulatively, across all of the affected Class I areas, this results in visibility improvement of 2.64 deciviews. We consider this degree of visibility improvement substantial, especially when taking into consideration the cost-effectiveness of installing a low load temperature control system.

TABLE 14—CORONADO UNIT 2: COST-EFFECTIVENESS

	Emission factor (lb/MMBtu)	Emission rate [1]		Removed (tpy)	Annual cost ($/yr)	Cost-effectiveness ($/ton)
		(lb/hr)	(tpy)			
SCR+LNB+OFA (no low load temp ctrl sys)	0.080	319	1,242	.....	.....	.....
SCR+LNB+OFA (with low load temp ctrl sys)	0.072	287	1,118	124	235,982	1,900

[1] Emissions calculated based on 3,984 MMBtu/hr and 0.89 capacity factor, as used in the TSD for our proposal.

In recognition of the work already performed by SRP to meet the consent decree emission limit of 0.080 lb/MMBtu for Unit 2, and to avoid interfering with SRP's ability to meet that requirement by the deadline of June 1, 2014, we have decided not to require a BART emission limit for Coronado 2 more stringent than 0.080 lb/MMBtu. Instead, we are finalizing a plant-wide NO_X emission limit for Coronado of 0.065 lb/MMBtu on a rolling 30-day average, which will provide a sufficient compliance margin for startup and shutdown events. We are also structuring the compliance determination method so that, when one of the two units is not operating, its emissions from the preceding thirty boiler-operating-days will continue to be included in the two-unit average. We expect that SRP can meet this limit by installing a low load temperature control system on Unit 2 and an SCR system including a low load temperature control system on Unit 1. We are setting a compliance deadline for achieving this limit of five years from publication of this final rule, which will ensure that SRP has adequate time to design and install these controls without interfering with the consent decree deadline of June 1, 2014 for operation of SCR on Unit 2. Finally, we are including in the regulatory text of the FIP a requirement that pollution control equipment be designed and capable of operating properly to minimize emissions during all expected operating conditions, consistent with the regulatory definition of BART as "an emission limitation based on the degree of reduction achievable through the application of the best system of continuous emission reduction for each pollutant which is emitted by an existing stationary facility." [194]

Comment: While supporting EPA's determination that SCR is BART for Coronado Unit 1, one commenter (Earthjustice) stated that lower NO_X emission limits are cost-effective and achievable. For Unit 1, the commenter made the following two points based on a report (the "Sahu report") submitted with the comments. First, SCR can achieve even greater NO_X reductions at less cost than EPA's calculations. EPA failed to analyze whether an emission limit lower than 0.05 lb/MMBtu is achievable and cost-effective with SCR at Unit 1 as required under the BART Guidelines. Second, the NO_X emissions exiting Coronado Unit 1's boiler could be reduced significantly from the current rate of approximately 0.3 lb/MMBtu to a rate of 0.15 to 0.20 lb/MMBtu, which would result in a lower achievable emission rate. Neither ADEQ nor EPA analyzed the various methods of reducing these NO_X emissions.

The commenter (Earthjustice) noted that SRP submitted comments to EPA shortly before EPA issued the proposed rule arguing that SCR with a 0.05 lb/MMBtu NO_X emission limit is unachievable at Unit 1 (and Unit 2).[195] According to the commenter, SRP argued that EPA's proposal is not achievable by pointing to BART proposals in other states that required SCR with an emission limit less stringent than 0.05 lb/MMBtu. The commenter countered that these BART determinations for other sources in other states do not show that EPA's BART proposal is unachievable at Coronado Unit 1, as BART determinations are source-specific. The commenter added that SRP's comments provide no source-specific data explaining why SCR at Unit 1 could not achieve a 0.05 lb/MMBtu NO_X emission limit. The commenter asserted that, in contrast, the Sahu report explains why an even lower 0.04 lb/MMBtu emission limit is achievable at Unit 1. Accordingly, the commenter believes that EPA should not weaken its BART proposal as SRP requested.

Response: We disagree with the commenter's assertion that our BART analysis should have examined the potential for lower "boiler-out" NO_X emission rates.[196] The commenter cites several examples of other coal-fired boilers using PRB coal achieving boiler-out NO_X emission rates in the range of 0.096 to 0.154 lb/MMBtu, and points to these examples as evidence that the Apache and Coronado units could attain lower emission rates through the use of combustion controls. We note that the best performing units on this list are primarily tangential- or wall-fired units, and that none of the units appear to be Riley turbo-fired boilers. Particularly in the case of the Apache and Coronado units, which are turbo-fired boilers, we consider this distinction crucial when determining the appropriate units with which to compare emission performance. The Riley-turbo boiler is a unique wall-fired boiler design that is characterized by a venturi-shaped lower section (often described as a "pinch" in the boiler wall) with burners located on the underside of the pinched wall, tilted slightly downwards.[197] It is a relatively uncommon design, with only two dozen such units currently in operation.[198]

[194] 40 CFR 51.301. *See also*, CAA section 302(k), 42 U.S.C. 7602 (defining "emission limitation" as "a requirement established by the State or the Administrator which limits the quantity, rate, or concentration of emissions of air pollutants on a continuous basis, including any requirement relating to the operation or maintenance of a source to assure continuous emission reduction * * *").

[195] Citing Docket Item C–16 (SRP Letter to DJordan 06–26–2012).

[196] As described by the commenter, the "boiler-out" NO_X emission rate refers to the emission rate after including the effects of combustion controls such as low NO_X burners, over-fire air, neural networks, adaptive controls, etc.

[197] See "Design and Operation of Coal-fired TURBO furnaces for NO_X control". Riley Stoker Corporation, November 1978.

[198] Acid Rain Program data indicates 22 turbo units were in operation in 2011.

The turbo boiler was developed in the 1960s and, unlike many other wall-fired boilers, was generally able to meet the NO_X emission limits contained in the 1971 New Source Performance Standards for fossil fuel fired steam generators.[199] While Babcock Power, which acquired Riley Stoker, has developed new burner upgrades to meet more stringent NO_X emission standards, the combustion control designs available for turbo-fired boilers have not been through the same number of design iterations, and are therefore not as effective as those for other boiler types.[200] We therefore do not consider it appropriate to compare the "boiler-out" emission rates of the Riley turbo design with those achieved by tangential and more traditional wall-fired units.

More specifically, combustion controls on Coronado 1 (LNB) were installed in 2009, and the commenter has not indicated any design improvements or upgrades that would achieve improved performance. We note that the baseline period for our analysis represented the use of combustion controls (in the form of LNB with OFA) and that our emission estimate of LNB is based on past actual emission data, as reported to CAMD, over the baseline period. As part of the supplemental cost analysis we performed, we used a baseline period that predated installation of LNB, and consisted of emission rates corresponding to OFA only.[201] Comparing annual average emission rates during the periods prior to and following LNB installation, we note that Coronado Unit 1 has achieved approximately 25 percent reduction from installing LNB at an emission rate of approximately 0.30 lb/MMBtu. We consider these values reasonable, as it is supported by actual emission data and represents a control efficiency similar to the 30 percent control efficiency assumed by our contractor.

In addition, we disagree with the commenter's assertion that 0.04 lb/MMBtu is an appropriate SCR emission limit to consider for Coronado Unit 1. As discussed in the previous response to SRP's comments, we have examined the analysis performed by SRP and determined that a 0.050 lb/MMBtu emission rate is not achievable by Coronado Unit 1 on a rolling 30-day average. Although we note that SRP's analysis is based on a 0.04 lb/MMBtu emission rate at full load, steady state conditions, and that SRP's analysis indicates Coronado Unit 1 could achieve 0.050 lb/MMBtu on an annual average basis, we do not consider this emission rate achievable as a rolling 30-day limit based on the number of startup and shutdown events associated with its operating profile.

Comment: While supporting EPA's determination that SCR is BART for Coronado Unit 2, one commenter (Earthjustice) stated that lower NO_X emission limits are cost-effective and achievable. For Unit 2, the commenter made four major points. First, the NSR consent decree does not exempt Coronado Unit 2 from a NO_X BART determination based on a valid five-factor BART analysis. Second, contrary to the argument that the 0.08 lb/MMBtu limit on Coronado Unit 2 under the consent decree was developed to address BACT obligations, that emission limit is not BACT, which requires a top-down analysis that selects the "maximum degree of reduction." There is no BACT analysis in the consent decree and no explanation of how the 0.08 lb/MMBtu emission limit was selected. In addition, while BACT requires case-by-case analysis, the consent decree limit was not specific to Unit 2; it simply required installation of SCR on one of the two units. Third, the negotiated limit contained in the NSR consent decree cannot replace the required five-factor BART analysis for Coronado Unit 2 because BART is more stringent than the consent decree's emission limit. The Sahu report shows that an emissions limit lower than 0.08 lb/MMBtu is cost-effective and achievable at Unit 2. Fourth, the NO_X emissions exiting Coronado Unit 2's boiler could be reduced significantly from the current rate of approximately 0.33 lb/MMBtu to a rate of 0.15 to 0.20 lb/MMBtu, which would result in a lower achievable emission rate. Neither ADEQ nor EPA analyzed the various methods of reducing these NO_X emissions. SCR with a 0.04 lb/MMBtu emission limit at Coronado Unit 2 is achievable with various control methods and is even more cost-effective than EPA's calculations suggest. Because of this, the commenter requested that EPA revise its BART determination to reflect this lower level.

The commenter (Earthjustice) stated that SRP has claimed that a NO_X emission limit of 0.05 lb/MMBtu is unachievable based on its progress in constructing the SCR unit required by the NSR consent decree, but does not explain how construction progress to date would prevent it from calibrating the SCR to achieve a 0.05 lb/MMBtu emission limit (or a 0.04 lb/MMBtu limit). The commenter noted that EPA requested information concerning whether the amount and management of catalyst could be altered to meet a 0.05 lb/MMBtu NO_X limit at Unit 2, but according to the commenter SRP did not provide any such information. As a result, the commenter urged EPA to revise its BART determination to require SCR with an emission limit lower than 0.08 lb/MMBtu.

Response: We disagree with the commenter's assertion that it is appropriate to consider lower "boiler-out" NO_X emissions for Coronado Unit 2, for the same reasons we noted in the previous response for Coronado Unit 1 on this issue. We also disagree with the commenter's assertion that 0.04 lb/MMBtu is an appropriate SCR emission rate to consider for Coronado Unit 2, also for the same reasons we noted in the previous response for Coronado Unit 1 on this issue.

We agree with the commenter's assertions that the consent decree is not a replacement for a five-factor BART analysis. We also agree that while the consent decree resolved NSR/PSD obligations such as BACT, a "top-down" BACT analysis was not performed as part of the consent decree negotiations. Based on our review of SRP's August 24, 2012 letter and submitted comments, we do not consider the SCR system for Coronado Unit 2, as currently designed, to constitute BART. As noted in the analysis contained in our response to SRP's comments, we consider the installation of a low-load temperature controller to be both cost-effective and to result in substantial visibility improvement. We are not, however, finalizing a more stringent emission limit for Coronado Unit 2. Instead, we are finalizing a requirement that pollution control equipment be designed and capable of operating properly to minimize emissions during all expected operating conditions, consistent with the regulatory definition of BART as "an emission limitation based on the degree of reduction achievable through the application of the best system of continuous emission reduction for each pollutant which is emitted by an existing stationary facility." [202]

[199] "An Overview of Riley Stoker's Burner Development Efforts for NO_X Control", Riley Stoker Corporation, April 7, 1983.

[200] "Low NO_X Combustion System Solutions for Wall Fired,T-Fired, and Turbo Fired Boilers." Babcock Power, August 28–31, 2006.

[201] Supplemental Cost Analysis 2012–11–15.xls.

[202] 40 CFR 51.301. *See also*, CAA section 302(k), 42 U.S.C. 7602 (defining "emission limitation" as "a requirement established by the State or the Administrator which limits the quantity, rate, or concentration of emissions of air pollutants on a continuous basis, including any requirement relating to the operation or maintenance of a source to assure continuous emission reduction * * *").

c. Costs of Compliance

Comment: One commenter (NPS) agreed with EPA that SRP did not provide ADEQ with control cost calculations at a level of detail that allowed for a comprehensive review. The commenter conducted analysis of the cost and cost-effectiveness of adding SCR to reduce emissions of NO_X at Coronado Unit 1 using the cost methodologies of the CCM and relying on the IPM to reflect the most recent SCR cost levels, and submitted the detailed calculations as Appendix E to its comments. The commenter's analysis yielded a cost-effectiveness value of $2,540/ton. The commenter noted that EPA's analysis yielded a cost-effectiveness value of $2,405/ton, which EPA considers cost-effective. Another commenter (Earthjustice) also asserted that SCR at Coronado 1 is cost-effective. When calculated based on an SCR emission rate of 0.04 lb/MMBtu, and when accurate cost figures and proper baselines are used, the commenter asserts that SCR would reduce NO_X emissions at a cost of just $2,024/ton of NO_X removed.

NPS commented that it was not able to conduct a cost analysis for Coronado Unit 2, on which SRP is installing SCR to meet an emission limit of 0.080 lb/MMBtu under a consent decree with EPA. However, the commenter used the CCM to evaluate the differences between an SCR on this unit at 0.050 lb/MMBtu versus 0.080 lb/MMBtu. According to the commenter, an SCR meeting the more stringent limit would have essentially the same footprint as the less effective unit, but would require an additional layer of catalyst and would be seven feet taller. The commenter presented basic design parameters for SCR units achieving the two levels of control.

Response: We agree with NPS's assertion that SRP's cost figures, as provided in their original BART analysis and in the subsequent response to ADEQ's information request, were not sufficiently documented. While we also agree with the commenters' assertion that SCR with LNB and OFA is cost-effective, we decline to modify our estimates of cost- effectiveness to reflect the cost items noted in these comments, as it is not in any way determinative to our decision to find that SCR is "even more" cost-effective, or that the incremental cost-effectiveness value between SCR and SNCR is "even more" incrementally cost-effective.

Comment: One commenter (SRP) argued that EPA's cost of compliance analysis for Coronado is flawed and must be replaced with site-specific costs. The commenter asserted that EPA improperly ignored site-specific cost estimates for Coronado BART control options by substituting its own estimates, and ignored the fact that Arizona has "the lead role in designing and implementing [its] regional haze program" and "broad authority over BART determinations" (citing *Corn Growers,* 291 F.3d at 3, 8). The commenter stated that ADEQ fully complied with the BART Guidelines and was justified in any deviation from the specific terms of the CCM because ADEQ engaged in a reasoned, site-specific cost analysis. The commenter added that ADEQ has discretion to conduct and document its cost assessment at a level that it deems appropriate, and that the documentation that supports ADEQ's BART determination is reasonable by any objective standard.

The commenter (SRP) asserted that EPA improperly ignored site-specific cost estimates for Coronado BART control options, instead using the IPM to calculate the capital costs and annual operating costs associated with the various NO_X control options that EPA considered. Moreover, the commenter added that no cost estimate derived from a model designed to produce generalized information about utilities throughout the nation could satisfy the CAA requirement that BART be determined based on a site-specific analysis. SRP provided adjusted inputs for use in IPM for unit size, gross heat rate, NO_X removal factor, NO_X removal efficiency, ammonia cost, operating labor rate, bare module costs, urea costs and property taxes and insurance. SRP asserted that when these values are used in the model, the IPM outputs validate the site-specific costs provided by SRP (based on detailed SCR and SNCR cost comparisons provided in the comments), although the adjusted IPM results still under-predict the costs based on site-specific considerations.

The commenter (SRP) stated that its site-specific costs for SCR are based on the actual cost projections associated with the current SCR installation at Unit 2. The commenter stated that SRP has already made substantial progress on the Unit 2 SCR installation with more than 40 percent of the project already complete, with the engineering design effort more than 90 percent complete, and the overall procurement efforts more than 75 percent complete. As such, the commenter believes that the site-specific costs are appropriate for use in any evaluation of BART controls.

In addition, the commenter (SRP) indicated that its cost estimates for Unit 1 are conservative since they are based on actual costs experienced for Unit 2 for which SCR has been designed to achieve an emission limit of 0.080 lb/MMBtu, rather than the 0.050 lb/MMBtu assumed by EPA for Unit 1. According to the commenter, there could be additional costs for Unit 1 of as much as $117 million for additional catalyst and an increased ammonia emission rate, a dry sorbent injection control system to address increased sulfuric acid mist and condensable PM emissions, and a fabric filter baghouse and induced draft fans to address increased filterable PM emissions. The commenter stated that even without these additional costs, the site-specific cost estimate for an SCR system on Unit 1 is almost twice the value used by EPA in its BART determination, and for the SCR system on Unit 2, the actual cost incurred by SRP is likewise almost twice the value used by EPA in its BART determination. The commenter concluded that this documentation demonstrates the importance of using available site-specific cost estimates when conducting a BART determination for Coronado.

Response: We disagree with the commenter's assertion that the cost calculations SRP provided to ADEQ as part of the original BART analysis, or in the subsequent response to ADEQ's information request, were supported by sufficient documentation. For example, the annual O&M costs associated with an SCR system will involve such costs as reagent usage, catalyst replacement costs, and labor costs, among others. SRP provided no breakdown of annual O&M costs beyond the total annual O&M value. Similarly, SRP's capital cost estimates consist of only a total value, accompanied by a capital recovery factor to determine the corresponding annualized cost. This level of detail does not allow us, and could not have allowed ADEQ, to evaluate the reasonableness of SRP's cost estimates for Coronado. As noted in a previous response, we have identified several issues with the cost calculations performed for the Apache and Cholla units that are inconsistent with the methodology established by EPA's CCM. SRP's cost estimates do not provide sufficient detail for us to evaluate if they are consistent with CCM methodology.

Although we do not agree that our cost-effectiveness estimates were incorrect, we have performed a supplemental analysis for Coronado 1 using portions of the updated cost estimates provided by SRP in its comments. Our use of these cost estimates in this supplemental analysis should not be construed to represent an acceptance of SRP's revision to our IPM

assumptions. Rather, this supplemental analysis represents a conservative estimate of costs (i.e., an assumption that would tend to overestimate rather than underestimate the annualized cost of controls). A summary of cost estimates based on this supplemental analysis is displayed in Table 15.

• SRP's revised SNCR cost estimates: SRP also submitted a conceptual capital cost estimate for an SNCR system as part of its comments. This estimate has excluded cost items not allowed by the CCM, such as AFUDC, escalation, and owner's costs, and have been included in the supplemental analysis.

• Original baseline period: As discussed elsewhere in our responses, we consider our use of a more recent baseline as consistent with BART Guidelines. However, in order to address commenter's concerns that we did not properly consider LNB and OFA as a potential control option and therefore precluded a BART determination of LNB and OFA, we have used a baseline period of 2001–2003, which corresponds to the period used in SRP's original BART analysis. This represents a time period prior to the installation of LNB, during which the control technology in place on Coronado 1 was OFA-only.

TABLE 15—CORONADO UNIT 1: CONTROL COST ESTIMATES

[Per SRP with EPA revisions]

Coronado 1 control technology	Capital cost ($)	Annualized capital cost ($/yr)	Annual O&M cost ($/yr)	Total annual cost ($/yr)
LNB+OFA	$6,500,000	$613,554	$0	$613,554
SNCR w/LNB+OFA	14,164,000	1,336,981	5,829,800	7,166,781
SCR w/LNB+OFA	80,633,219	7,611,205	4,492,736	12,103,941

Regarding SRP's concern that its own costs for Coronado Unit 1 are conservative (i.e., underestimated in this context) because they are based on a Coronado Unit 2 design that achieves 0.080 lb/MMBtu instead of 0.050 lb/MMBtu, we partially agree. For Coronado Unit 2, SRP identified certain additional costs that would be associated with design changes necessary to meet an emission rate more stringent than the consent decree limit of 0.080 lb/MMBtu. The two most important changes would be increased levels of ammonia injection and additional SCR catalyst (in the form of an additional fourth catalyst layer at the time of initial catalyst fill). The SCR catalyst is responsible for a certain amount of SO_2 to SO_3 conversion, which can then form sulfuric acid (H_2SO_4). SRP notes that the additional fourth catalyst layer can be expected to result in a collateral increase in sulfuric acid (H_2SO_4) emissions. A dry sorbent injection (DSI) system may be needed to address this increase in sulfuric acid, which itself has the potential to increase filterable particulate emissions. Addressing this increase in filterable particulate emissions may in turn require installation of a fabric filter baghouse. Of the $117 million in capital costs identified by SRP, the majority of these costs ($113 million) are associated with construction of the DSI and fabric filter.

While we agree that designing Coronado Unit 1 to meet an annual average emission limit of 0.050 lb/MMBtu will involve greater costs than a system designed to meet 0.080 lb/MMBtu, we disagree that the costs for Coronado Unit 1 are of the magnitude of those described above for Coronado Unit 2. Based on SRP's comments, we note that the SCR reactor box for Unit 2 has been designed for a "3+1" configuration (i.e., an initial three catalyst layers, with space for a fourth layer to be added later in the system's lifetime to maintain the same level of effectiveness) and has perhaps already been fabricated. As a result, accommodating additional catalyst cannot be achieved by increasing the volume of the initial three layers, but must be achieved by including the fourth catalyst layer (or some portion of it) during the initial fill. Since each catalyst layer is designed for a certain amount of SO_2 to SO_3 conversion, inclusion of an additional layer unavoidably results in an increase in the overall conversion rate. However, since an SCR system for Coronado Unit 1 has not been designed, we consider it feasible for SRP to specify a design at the outset that accommodates additional volume in the initial catalyst layers, thereby achieving a more stringent emission rate without the higher SO_2 to SO_3 conversion rate associated with a fourth catalyst layer. Moreover, even if SRP were required to install a DSI system or DSI and a fabric filter, EPA does not agree that these costs should be considered part of the cost of compliance for the purposes of a BART determination. EPA cannot anticipate what control technology might be required in the future for sulfuric acid mist under PSD or minor NSR. The BART Guidelines do not require the inclusion of potential future costs that might be associated with permit requirements as part of the cost estimates for a BART determination.

Therefore, while we acknowledge that there are costs associated with additional catalyst and increased ammonia injection, they represent a small fraction ($4 million) of the $117 million total identified by SRP. We have used certain elements from SRP's estimates in preparing our supplemental cost analysis for Unit 1, but we have not adjusted SRP's estimates to reflect these factors since the cost estimates provided by SRP do not include a level of detail that would allow us to properly make such adjustments.

A summary of emission rates and emission reductions associated with each control option is in Table 16. As noted previously, these emission estimates are based on a 2001–2003 baseline period, during which the Coronado units operated only with OFA. We have calculated annual emission rates for the OFA baseline using the annual average emission data (lb/MMBtu) reported to CAMD over this 2001–2003 baseline period.

TABLE 16—CORONADO 1: ANNUAL EMISSION ESTIMATES

Coronado 1 control technology	Emission factor (lb/MMBtu) [1]	Heat rate (MMBtu/hr)	Annual capacity factor	Emission rate		Emissions removed (tpy)
				(lb/hr)	(tpy)	
OFA (only)	0.407	4,316	0.84	1,756	6,462	
LNB+OFA	0.303	4,316	0.84	1,308	4,811	1,651
SNCR w/LNB+OFA	0.212	4,316	0.84	915	3,368	3,095
SCR w/LNB+OFA	0.050	4,316	0.84	216	794	5,669

[1] Annual average basis.

Cost-effectiveness values for each control technology are summarized in Table 17, and are based on the total annual costs and annual emissions removed listed in the previous tables.

TABLE 17—CORONADO 1: CONTROL OPTION COST-EFFECTIVENESS

Coronado 1 control technology	Total annual cost ($/yr)	Emissions removed (tpy)	Cost-effectiveness ($/ton)	
			Avg.	Incr.
OFA (only)				
LNB+OFA	$613,554	1,651	$372	
SNCR w/LNB+OFA	7,166,781	3,095	2,316	4,540
SCR w/LNB+OFA	12,103,941	5,669	2,135	1,918

Based on SRP's capital and O&M cost estimates, we still consider the cost-effectiveness values of SCR, on an average ($2,135/ton) and incremental ($1,918/ton) basis, to not be cost-prohibitive. We consider these results supportive of our proposed determination that SCR with LNB and OFA is cost-effective. We note that while the LNB and OFA option is the least expensive (i.e., lowest annual cost) and is the most cost-effective of the control technologies (i.e., has the lowest $/ton value), it is also the least effective control option (i.e., removes smallest quantity of NO_X). It removes substantially fewer emissions than either of the other two control options, the SNCR- and SCR-based systems. As discussed in our proposed action, and in other responses in this document, we have not identified any energy or non-air quality impacts that warrant eliminating SCR from consideration for Coronado Unit 1. Combined with the modeled visibility improvement associated with the SCR control option, SRP's cost estimates continue to support the selection of SCR with LNB and OFA as BART for Coronado 1.

Comment: One commenter (SRP) stated that the proposed rule and the TSD say almost nothing about how IPM was used to calculate costs, instead directing the public to an EPA contractor report for more information. The commenter asserted that no contractor report in the docket for the rulemaking supplies additional detail on precisely how IPM was used. The commenter added that this failing renders EPA's proposed rule inconsistent with the CAA's public notice requirements.

Response: We disagree with the commenter's assertion that we have not provided sufficient information regarding our cost calculations. In the e-docket for our proposal, we included the raw cost calculation spreadsheets from our contractor that contain the IPM equations, corresponding variable values, selected notes regarding assumptions and variable ranges, as well as selected tables from the IPM Base Case v4.10.[203] In addition, Web links were provided (both in the raw cost calculation spreadsheet and in our proposal) to the location on the publicly available EPA Web site that contains full IPM documentation.

Comment: One commenter (SRP) stated that EPA failed to follow the BART Guidelines by not conducting an incremental cost analysis for Coronado. According to the commenter, the proposed rule and TSD both provide a single entry for incremental costs for each of the Coronado units that reflect the incremental cost of the most stringent NO_X BART control option compared to the baseline. The commenter asserted that this is not a complete incremental analysis because it ignores incremental comparisons between identified control options. SRP contended that in the absence of a proper NO_X BART assessment, the proposed rule lacks an adequate foundation. The commenter stated that the high incremental costs of post-combustion NO_X control technologies when compared to combustion control technologies reinforces the conclusion that post-combustion control technologies cannot be the basis for BART for the units at Coronado.

Response: We disagree with the commenter's assertion that we did not perform a sufficient incremental cost analysis for the Coronado units. In our control cost summaries (Table 22 in the proposed rule and Table 32 in the TSD), the column labeled "incremental cost-effectiveness" represents the $/ton of the control option when compared to the preceding control option. The column labeled "average cost-effectiveness", represents the $/ton of the control option when compared to the baseline control. In the case of Coronado Unit 1, we considered two control options beyond the baseline: SNCR with LNB and OFA, and SCR with LNB and OFA. The "single entry for incremental costs", as described in the comment, represents the incremental cost between the SNCR- and SCR-based options. An incremental cost value was not calculated between LNB with OFA (which is the option preceding the SNCR-based option) and SNCR because LNB with OFA represented the baseline control in our analysis. The cost-effectiveness of moving from LNB with OFA to SNCR with LNB and OFA is therefore

[203] Document ID: EPA–R09–OAR–2012–0021–0008, File name: G–15_MODELING_FILES_EGU_BART_Costs_Apache_Cholla_Coronado_FINAL2.

adequately captured in the "average cost-effectiveness" column. We do note that, in our supplemental cost analysis, we have used OFA as the baseline control, and have therefore calculated an incremental cost-effectiveness value for moving from LNB with OFA to SNCR with LNB and OFA. These results are described in a previous comment and, as noted in that comment, we disagree with the commenter's assertion that the incremental cost of post-combustion controls is cost-prohibitive.

d. Visibility Improvement

Comment: One commenter (SRP) asserted that EPA is without basis for establishing in the proposed rule a 0.5 deciview comparison threshold as a touchstone for analyzing impacts from Coronado BART controls, citing the BART Guidelines and associated preamble. According to the commenter, even if EPA could impose a 0.5 deciview comparison threshold, it is only by substituting its own preferred modeling methodology (which the commenters argued is something EPA cannot lawfully do) that EPA can project that requiring SCR at Unit 1 would barely yield a projected improvement of more than 0.5 deciview at one area. The commenter also noted that 0.5 deciview is below the level of human perceptibility.

Response: As explained above, we have not used 0.5 dv as a threshold, but as one point of comparison such as a "benchmark" or "yardstick" to gauge the magnitude of impacts under various control scenarios.

e. Other Comments

Comment: The commenter (NPS) agreed with EPA's determination that NO_X BART for Coronado Units 1 and 2 is SCR with LNB and OFA. The commenter noted that EPA proposed on Unit 1 an emission limit for NO_X of 0.050 lb/MMBtu, based on a rolling 30-boiler-operating-day average, and on Unit 2 an emission limit of 0.080 lb/MMBtu, which is consistent with the emission limit in the consent decree. The commenter stated that EPA acknowledged that the emission limit for Unit 2 established in the consent decree was not the result of a BART five-factor analysis, and that the consent decree does not indicate that SCR at 0.080 lb/MMBtu represents BART. The commenter commended EPA for soliciting additional information on the feasibility of achieving a more stringent limit.

Response: We acknowledge the comment.

Comment: In response to EPA's proposed BART determination in the proposed FIP, one commenter (SRP) performed and submitted an assessment of the critical components of a BART analysis for Coronado, including control costs and the visibility improvements associated with the control options. The commenter indicated that this analysis shows that even without considering other energy and non-air quality environmental impacts associated with the implementation of SNCR or SCR, it is clear that the visibility benefits realized from implementation of post-combustion controls are not justified by the cost. The commenter also submitted the results of this analysis using CALPUFF version 6.42 in place of version 5.8. The commenter stated that this analysis provides even stronger evidence that selection of post-combustion controls as BART for Coronado is inappropriate.

Response: We disagree with this comment. As noted in a separate response, we have performed a supplemental cost analysis that relies upon many elements of the cost analysis provided by the commenter. Even with the higher cost estimates provided by the commenter, we consider the costs of post-combustion controls such as SNCR and SCR to be cost-effective on a $/ton basis. In addition, as noted in a separate response, we disagree with several assumptions used in the commenter's visibility modeling, such as the use of an unapproved CALPUFF model version and treatment of ammonia background concentrations. We therefore disagree that the visibility benefits modeled by the commenter are representative of the benefits that will accrue with the use of post-combustion controls. The modeling results performed in support of our proposal indicate substantial visibility benefits, especially with the SCR control option. As a result, we do not consider it appropriate to eliminate either of the post-combustion controls from consideration as BART. Although SCR is the most stringent control option, its associated visibility benefits and cost-effectiveness justify this technology as BART.

E. Comments on Enforceability Requirements in EPA's BART FIP

Comment: One commenter (SRP) made the following points concerning the proposed enforceability requirements:

- EPA must modify the monitoring requirements to be consistent with existing requirements. If EPA proceeds to impose additional controls at Coronado beyond those specified in the consent decree and already included in the Coronado permit, it must align these requirements to eliminate unnecessary and unreasonable compliance burdens.
- The commenter supports and appreciates the use of the monitoring system certification and quality assurance (QA) procedures in 40 CFR Part 75. However, EPA's proposed definition of "valid" data is broader than 40 CFR Part 75, and EPA also should make clear that the "bias" adjustment procedures in 40 CFR Part 75 do not apply to data used to calculate the 30-day rolling averages.
- The commenter objects to the proposed additional relative accuracy requirements. Imposing additional relative accuracy test audit (RATA) specifications will not increase the accuracy of any monitoring system, but would increase the difficulty and cost of testing. It also could result in additional missing data if tests must be repeated to meet the specifications. To proceed with combined RATA specifications, EPA also would need to either propose (and solicit comment on) alternative low-emitter combined specifications that have been demonstrated to be consistently achievable, or exempt units meeting any of the applicable 40 CFR Part 75 low-emitter thresholds from those specifications.
- The commenter stated that the proposed data availability requirements are unnecessary and too stringent. Source owners and operators already have sufficient incentive to obtain valid data in order to avoid the increasingly conservative (and ultimately punitive) missing data substitution procedures that apply under 40 CFR Part 75. Regarding stringency, if a unit has a significant missing data event during a calendar quarter in which it also has a significant period of unit downtime (e.g., as a result of an outage), the percent of operating hours during the quarter with valid data could easily be less than 90 percent. It is in part for this reason that 40 CFR Part 75 measures data availability over each 8,760-operating-hour period. EPA should either eliminate the unnecessary requirement or provide data to justify its proposed requirement that take into account the differences described above.
- EPA must modify the quarterly reporting requirements to be consistent with existing requirements.
- EPA must modify the notification requirements in the proposed rule because they are overly broad and overly prescriptive. First, EPA should clarify the proposed provision by requiring notice only of new controls that will be required to meet the FIP or regional haze SIP. Second, because installation of controls is a complex process, and the point at which that

process is "complete" may not be immediately clear, EPA must revise the requirement to use a more objective term and allow sufficient time for owners and operators to comply. Third, because the proposed requirement duplicates reporting already required for a new add-on NO_X emission control under 40 CFR Part 75, EPA should rely on (and if necessary refer to) the notice required under Part 75.

Response: We partially agree with this comment and are adjusting the enforceability requirements of the final FIP accordingly. EPA agrees that the Part 75 bias adjustment should not be applied to the compliance data for the BART rules in this action and is making changes to the final rule to address this comment. However, EPA does not agree that only the incentives under the Acid Rain Part 75 rules are sufficient to assure adequate valid data for this rule. Part 75 relies on progressively punitive data substitution procedures to promote good valid data availability for its program. Our rule does not substitute data, so the incentives of the Part 75 rules do not exist. Therefore, EPA is requiring that each unit subject to this rule obtain 90 percent valid data, as determined under Part 75, for each calendar year.

It should be noted that the commenter did not submit any data specific to its EGUs indicating the difficulty of meeting the proposed valid data availability requirements. Also, the other two utility companies affected by this rule did not make any objection to the proposed data requirements. However, EPA, as a result of this comment, has reconsidered the additional quality assurance and valid data requirements from the proposal. As indicated by the commenter, measurement and QA requirements for NO_X lb/hour are not currently required by Part 75. In addition, EPA recognizes that the calculation of heat input requires the combination of the flow and diluent (O_2 or CO_2) CEMS along with measurements of temperature and estimation of moisture. In addition in the final rule, EPA is providing for a multi-unit determination of compliance. This would compound the valid data concerns of the commenter. EPA requires monitoring data used for compliance determinations to be of known quality as demonstrated through Quality Assurance/Quality Control (QA/QC) procedures.[204] In place of the requirement to validate through RATA testing of the NO_X lb/hour measurement and heat input, EPA will require that all of the CEMS required by Part 75 and used for the compliance demonstrations for this action obtain 90 percent valid data (per Part 75 specifications) for each unit over each calendar year. In addition, the rule will require the affected units to conduct RATA evaluations and calculate the quarterly valid data hours for NO_X lb/hour and heat input. EPA will not finalize the minimum data requirements in the proposal, but will require these data to be calculated (all data for determining the relative accuracy in these units are available when Part 75 RATAs are performed) and reported to both EPA and ADEQ to determine if these data are capable of meeting more rigorous QA/QC requirements in the future. We also note that the final rule will add QA/QC and minimum valid data requirements for the inlet SO_2 CEMS that are needed to calculate the SO_2 removal efficiencies for the Cholla EGUs. Finally, EPA agrees that semiannual reporting will be sufficient for this rule, and the final rule will reflect this.

Comment: One commenter (AEPCO) requested that EPA clarify that AEPCO has longer than 180 days to comply with the non-SCR limits. The commenter is particularly concerned about the time needed for the ESP and scrubber upgrades and believes a five-year period for all BART implementation would be appropriate. ADEQ also commented that the facility will need more than 180 days to complete the upgrades needed to meet the SO_2 BART limits, and stated that a five-year compliance time frame from the time the BART limit is finalized, as specified in RHR Appendix Y, is most appropriate.

Response: EPA agrees that AEPCO would need more than the 180 days in the proposed rule. However, we do not agree that five years is necessary to perform the necessary upgrades. The final rule will require AEPCO's two units to meet the SO_2 and PM_{10} limits within four years of the effective date of this rule. This time frame will allow AEPCO to perform the upgrades to the two units during regularly scheduled maintenance outages.

Comment: Several commenters (ADEQ, AEPCO, APS, EarthJustice, NPS, SRP) provided feedback on test methods. AEPCO supported maintaining the use of EPA Method 201A to comply with the proposed BART PM_{10} limits. In contrast, ADEQ and APS only supported the use of Methods 201A and 202 if SCR controls are not used. These commenters stated that SCR causes an increase in sulfuric acid aerosol mist, which results in an increase in condensable particulate matter. APS suggested Methods 1–4 and Method 5 or 5e are appropriate where SCR is used. ADEQ suggested Method 5 or 5e where SCR is used, and states that any collateral increase in acid mist should be addressed through a permitting process. SRP stated that wet scrubbers also render Methods 201 and 201A inapplicable, and requested that EPA specify the use of Method 5, 5B, 5I or an approved alternative.

One commenter (NPS) pointed out that use of SCR at these units is expected to result in increased condensable particulate matter in the form of sulfuric acid mist (H_2SO_4), which would have the effect of making the emission limit more stringent than intended by ADEQ, and likely not be achievable in practice. To address EPA's request for comment on whether to allow compliance with the PM_{10} limit to be demonstrated using test methods that do not capture condensable particulate matter, namely EPA Methods 1 through 4 and Method 5 or Method 5e, the commenter conducted and submitted an analysis of H_2SO_4 emissions. According to the commenter, H_2SO_4 emissions will not be significant, contributing less than 10 percent to the PM_{10} limit. The commenter suggested that the 0.030 lb/MMBtu limit proposed by ADEQ for the Apache and Coronado units be adjusted to 0.033 lb/MMBtu to reflect the increase in total PM_{10} attributable to SCR, and that PM_{10} emissions would be measured by conducting EPA Method 201A/202 tests consistent with the ADEQ's SIP.

In contrast to the previous commenters, one commenter (Earthjustice) stated that EPA should approve the test methods in the ADEQ RH SIP (i.e., EPA Methods 201 and 202) and ensure that the BART limit includes both filterable and condensable PM fractions. The commenter asserted that if EPA allows or requires a test method other than Method 201 and 202, the PM_{10} BART emission limit would effectively be less stringent because it would only apply to filterable PM, and not total PM. The commenter indicated that requiring different test methods would in effect be proposing an even less-stringent PM_{10} BART limit, which would require EPA to undertake an independent BART analysis that demonstrates that the less-stringent emission limit is BART. Consequently, according to the commenter, if EPA requires or allows a different test method, it must lower the emission limit to reflect only the filterable PM_{10} fraction. The commenter added that in this case, EPA should ensure that compliance with the filterable PM_{10} limit is demonstrated with use of CEMS

[204] See, e.g., 40 CFR 60.13(a) and 40 CFR Appendix F.

for filterable PM, which is currently available.

Response: ADEQ selected test methods 201 and 202 for determining compliance with this limit. EPA noted in the proposal that the proposed addition of SCR for NO_X control would likely increase the quantity of PM collected as condensable PM by method 202 due to an increase in H_2SO_4 from the oxidation of SO_2 to SO_3. EPA requested comment on changing the test method from methods 201 and 202 to EPA Method 5 which measures only the filterable PM. Method 5 measures all sizes of filterable PM which results in a higher filterable PM value than Methods 201 or Method 201A, which only measure filterable PM_{10}.

In its comments concerning the proposal for Coronado, SRP noted that Method 201A cannot be used in a wet exhaust gas stream. We agree with this comment. In promulgating amendments to Method 201A and Method 202 in 2010, EPA explained that:

> Method 201A cannot be used to measure emissions from stacks that have entrained moisture droplets (e.g., from a wet scrubber stack) since these stacks may have water droplets that are larger than the cut size of the PM_{10} sizing device. The presence of moisture would prevent an accurate measurement of total PM_{10} since any PM_{10} dissolved in larger water droplets would not be collected by the sizing device and would consequently be excluded in determining total PM_{10} mass. To measure PM_{10} in stacks where water droplets are known to exist, EPA's Technical Information Document 09 (Methods 201 and 201A in Presence of Water Droplets) recommends use of Method 5 of appendix A–3 to 40 CFR part 60 (or a comparable method) and consideration of the total particulate catch as PM_{10} emissions.[205]

It is also true that the rarely used Method 201 cannot be used in a wet exhaust stream (also known as a "wet stack").[206]

At this time, the three facilities subject to this BART rule have a mix of wet and dry stacks. EPA anticipates that the SO_2 BART limits set by ADEQ will result in 100 percent of the exhaust gas undergoing SO_2 scrubbing. Neither ADEQ nor EPA is requiring reheat of the exhaust gas stream. Therefore, it is likely that all of the coal-fired units covered by this action will have wet stacks. So it is doubtful that any filterable PM_{10} method would work as the compliance method.[207] Therefore, EPA is finalizing a decision to allow either Method 5 or Methods 201A and 202 for demonstrating compliance with the BART PM_{10} limits set by ADEQ.

As noted above, the addition of the SCR to these EGUs for NO_X control will likely increase the condensable PM that will be measured by Method 202. By offering the option of Method 5 or Methods 201A and 202, the facilities can determine which methods are compatible with their units' stack conditions and will best demonstrate the proper operation of their PM controls. Any significant increase in H_2SO_4 and the appropriate control of this visibility impairing pollutant will be addressed through the PSD permitting process with a BACT determination for H_2SO_4 control. The significance level that triggers permitting for H_2SO_4 is an increase of seven tons per year of this pollutant.[208] Coronado has already received a PSD permit for H_2SO_4 that is likely to result from the increase in H_2SO_4 resulting from the SCR required under the consent decree.

EPA's AP–42 indicates that approximately one third of the filterable PM emissions from EGUs are larger than PM_{10}. This means that the change from Method 201 (or 201A) to Method 5 as the compliance method will result in this increased measurement of PM. This is offset by the elimination of the condensable measurement of Method 202 and as noted above, the utilities will have the option of using either testing approach.

Comment: One commenter (APS) requests that EPA change the compliance date for the PM_{10} limit at Cholla Unit 2 to January 1, 2016, rather than January 1, 2015. The commenter explained that EPA misunderstood the language of the ADEQ SIP, which refers to APS's commitment to install a fabric filter by 2015, to mean installment and operation by the first of the year, whereas this commitment actually meant by the end of 2015, or December 31, 2015. The commenter further requested that this date be extended to April 16, 2016, if the ADEQ approves APS's request for a one-year extension to comply with the Mercury and Air Toxics Standards (MATS) before EPA finalizes this BART determination.

The commenter also requested that EPA change the compliance date with the 0.15 lb/MMBtu SO_2 emissions standard from 180 days after promulgation to January 1, 2016, or April 16, 2016, to allow sufficient time to do the necessary upgrades for Unit 2. This unit will require scrubber upgrades that need to be done concurrent with the fabric filter installation to accommodate the increase in pressure drop that a new fabric filter will impose. ADEQ also stated a compliance date of April 1, 2016, would be more appropriate than January 1, 2015, for both the PM_{10} and SO_2 limits at Cholla Unit 2.

Response: EPA agrees with this comment and has changed the compliance date in the final rule to April 1, 2016.[209] In addition, as explained above, in order to ensure that the wet FGD (i.e. scrubbers) on all three units at Cholla are properly operated and maintained, consistent with 40 CFR 51.308(e)(1)(v), we are finalizing a removal efficiency requirement for SO_2 of 95 percent on a 30-day rolling basis for Cholla Units 2, 3 and 4. Compliance with the efficiency requirement will be determined by SO_2 continuous emission monitoring systems (CEMS) operated at the inlets and outlets of the scrubbers. Units 3 and 4 already have SO_2 and CO_2 CEMS installed after the scrubbers, and Unit 2 has SO_2 and CO_2 CEMS installed before the scrubbers.[210] Therefore, SO_2 and diluent CEMS will need to be installed at the inlets to the scrubbers on Units 3 and 4. We estimate that the total annualized cost for this installation (including ongoing operation and maintenance costs) will be approximately $51,000 per unit.[211] We also note that this efficiency requirement will probably result in a slight increase in operation and maintenance costs in the form of additional limestone and scrubber waste disposal expenses. Even considered collectively, these additional costs are *de minimis* in comparison to the annualized cost of SCR (i.e., $9,906,206 to $13,590,853 per unit at Cholla, according to our supplemental cost analysis) or the total cost of installing a new wet FGD system, which APS has estimated to be $67.0 to $70.9 million.[212] In order to allow sufficient

[205] 75 FR 80118, 80121.

[206] See EPA's Technical Information Document 09, "Methods 201 and 201A in Presence of Water Droplets" (September 9, 1991).

[207] See, e.g. 75 FR 80126 ("Monitoring the emission of PM_{10} or $PM_{2.5}$ from a wet gas stream is a challenging problem that has not been addressed successfully despite considerable effort. A consensus method to provide this information has not emerged.")

[208] See 40 CFR 52.21(b)(23)(i).

[209] Although APS requested a deadline of April 16, 2016, this request was contingent upon ADEQ's approval of APS's August 7, 2012 request for a one-year extension to comply with the MATS. ADEQ's comments indicate that April 1, 2016 is the appropriate deadline for this requirement, so we have modified the final compliance deadline to April 1, 2016.

[210] See Cholla Title V Permit (2012), Table C–3: Continuous Emission Monitors.

[211] We used EPA's CEMS Cost Model (available at *http://www.epa.gov/ttn/emc/cem.html*) to estimate the total annualized cost of adding inlet CEMS for SO_2 and CO_2. See "CEMS Cost Calculation."

[212] APS Comments, Table 3–8. No annualized cost was provided.

time for installation of the CEMS, the compliance deadline for this removal efficiency requirement at these units will be one year after publication of this final rule for Units 3 and 4. The removal efficiency compliance deadline for Unit 2 will coincide with the compliance date for the lb/MMBtu SO_2 emission limit for this unit (i.e., April 1, 2016).

Comment: Two commenters requested that EPA implement SCR installation in three rather than five years. Earthjustice claimed that the proposed five-year compliance deadline is unreasonable and inconsistent with the CAA and RHR requirements, noting that compliance before the "outside date" is required whenever earlier compliance is possible. This commenter contended that average SCR installations have required 37 to 43 months to implement, and EPA has provided no site-specific factors for these plants to require a longer-than-average installation time. The commenter notes that ADEQ has an "accelerated permit processing" program, so that any PSD permits needed to address sulfuric acid mist increases should not require an extension of the compliance deadline to five years. The commenter also requested that EPA obtain and post to the docket the outage schedule for these plants, which may provide additional justification for a compliance deadline shorter than five years. In contrast, SRP commented that, if EPA finalizes a requirement for SCR at Unit 1 "a five-year compliance period is certainly warranted." SRP noted that it estimated it would require 48 months to install SCR at Coronado Unit 2, and that installing SCR on Unit 1 would be even more complicated due to the reduced amount of space following the installation on Unit 2.

Response: We are finalizing a compliance deadline of five years from final publication of this notice for all SCR-based emission limits. As explained in our proposal, five years is a reasonable time frame for SCR design and installation, particularly where retrofits of multiple units at a single facility are required. Granting the full five years for SCR design and installation will allow the facilities to tie in the SCR systems during routinely scheduled maintenance outages, which are typically scheduled for every three years. With respect to Coronado in particular, the five-year compliance schedule will allow SRP sufficient time to design and install the SCR system on Unit 1 and to design and install a low-load temperature controller on Unit 2, which likely must be done in the period after the SCR for Unit 2 is placed into operation (June 1, 2014).

Comment: One commenter (Earthjustice) stated that EPA should set BART limits for $PM_{2.5}$ and PM_{10}, rather than just PM_{10}. The commenter indicated that the BART Guidelines specify that BART should be evaluated and defined for both $PM_{2.5}$ and PM_{10} (citing 40 CFR part 51, Appendix Y, section II.A.3).

Response: The BART Guidelines do not require states to set BART limits for $PM_{2.5}$ in addition to limits for PM_{10}. The portions of the BART Guidelines cited by commenters (i.e. sections II.A.3 and III.A.2) pertain to the identification of sources that are BART-eligible and sources that are subject-to-BART, not the actual five-factor analysis or determination of BART for a given source, which is described in section IV of the Guidelines. With respect to the five-factor analysis, the Guidelines provide that, "[m]odeling should be conducted for SO_2, NO_X and direct PM emissions ($PM_{2.5}$ and/or PM_{10})." [213] The Guidelines thus provide states with the flexibility to consider *either* $PM_{2.5}$ or PM_{10} emissions or both, as part of their five-factor analysis. Likewise, the Guidelines do not require that the emission limits reflecting BART should include separate limits for $PM_{2.5}$ and PM_{10}.[214] Thus, we are not required by the RHR to set separate BART limits for $PM_{2.5}$.

F. Comments on Legal Issues

Comment: A number of commenters asserted that EPA has acted in a manner contrary to the CAA, under which states are to play the lead role in designing and implementing the regional haze program. These commenters typically indicated that EPA is required to defer to the states' judgment regarding BART where the state has considered the five statutory BART factors, and has no authority to override a state's BART determination simply because it disagrees with the state's conclusions. The commenters often stated that the states are empowered by the CAA to determine how best to weigh each of the statutory BART factors and that EPA's only legal role in SIP review is to determine whether the state's plan is consistent with the CAA. The commenters generally stated the belief that ADEQ's BART determinations fully complied with the CAA, the Regional Haze Rule and the BART Guidelines. The commenters frequently cited *American Corn Growers Ass'n.* v. *EPA,* 291 F.3d (D.C. Cir. 2002); *EME Homer City Generation, L.P.* v. *EPA,* No. 11-1302, slip op. at 42 (D.C. Cir. Aug. 21, 2012) ("CSAPR decision"); *Luminant Generation Co.* v. *EPA,* 675 F.3d 917, 921 (5th Cir. 2012); and *State of Texas, et al.,* v *EPA.* 690 F.3d 670 (5th Cir. 2012).

Several commenters stated that EPA made no finding that Arizona failed to satisfy its statutory obligation to consider and weigh the BART factors, and asserted that EPA conceded that the state had done so in its FIP proposal (citing 77 FR 42851). Some commenters (AEPCO, SRP) stated that EPA proposed to disapprove the SIP, in part, because it is not consistent with BART decisions that other states have made (citing 77 FR 42836), and contended that this finding is irrelevant to the approvability of ADEQ's SIP. One commenter (SRP) added that ADEQ's BART determinations are entirely legal and reasonable and, to the extent that other states' BART determinations may be relevant, consistent not only with the action of other states, but with action that EPA has approved or proposed to approve for those states (i.e., combustion controls as BART for NO_X).

Two commenters added that EPA purported to defer to ADEQ's BART determinations by indicating that it would prefer to act on a SIP revised to address the deficiencies perceived by EPA (citing 77 FR 42839), but the commenters asserted that it is not deference to invite the State to submit a SIP that conforms to EPA's policy choices. The commenters contended that in any case, with the court ordered deadline of November 15, 2012, for EPA to finalize the proposed FIP, it would be impossible for Arizona to prepare and adopt a revised SIP in time.

Response: We do not agree that our partial disapproval of the Arizona Regional Haze SIP is contrary to the CAA. As noted by several commenters, States have the lead role in determining BART for individual sources through SIPs. However, EPA also has a crucial role in reviewing SIPs for compliance with the requirements of the CAA and its implementing regulations. Pursuant to CAA section 110, States must submit SIPs to EPA for review and EPA must review SIPs for consistency with the Act's requirements and disapprove any SIP revision that "would interfere with any applicable requirement" of the Act.[215] The CAA also empowers EPA to call for SIP revisions "[w]henever [EPA] finds that the applicable implementation plan for any area is substantially inadequate to * * * comply with any requirement of this

[213] BART Guidelines, 40 CFR Part 51, Appendix Y, section IV.D.5.

[214] *Id.* Section V.

[215] CAA section 110(a)(1), (k)(3) and (*l*), 42 U.S.C. 7410(a)(1), (k)(3) and (*l*).

chapter," and impose sanctions when EPA determines they are "reasonable and appropriate for the purpose of ensuring that the requirements [of the Act] * * * are met."[216] Furthermore, the Act mandates that EPA promulgate a FIP when EPA finds that a State has failed to submit a required SIP to the Agency, failed to submit a complete SIP, or where EPA disapproves a SIP.[217] Thus, the CAA provides EPA with a critical oversight role in ensuring that SIPs meet the requirements of the CAA.

Nothing in the CAA indicates that EPA's role is less important in the context of the Regional Haze program than under other CAA programs. On the contrary, CAA section 110(a)(2)(J) explicitly requires that SIPs "meet the applicable requirements" of Part C of Title I of the CAA including the requirements for visibility protection set forth in sections 169A and 169B.[218] Pursuant to section 169A(b), EPA is required to promulgate visibility protection regulations that apply to "each applicable implementation plan" (i.e., each SIP or FIP)[219] for each State containing one or more Class I areas and each State "emissions from which may reasonably be anticipated to cause or contribute to any impairment of visibility in any [Class I area]."[220] The CAA specifies that these regulations (including the RHR) must require each such SIP or FIP to "contain such emission limits, schedules of compliance and other measures as may be necessary to make reasonable progress toward meeting the national goal," including implementation of BART, as determined by the State (or by EPA in the case of a FIP).[221] Moreover, the CAA requires that BART for each "fossil-fuel fired generating power plant having a total generating capacity in excess of 750 megawatts" must be determined pursuant to the guidelines promulgated by EPA (i.e., the BART Guidelines).[222] Thus, the statute provides EPA a key oversight role in reviewing SIPs for compliance with the RHR and BART requirements.

The cases cited by commenters do not support an argument that EPA's role as a reviewer is any less critical in the regional haze context than it is in reviewing other SIP components. In *American Corn Growers* v. *EPA*, the petitioners challenged the original RHR because, among other things, the RHR treated one of the five statutory factors differently than the others by requiring States to consider the degree of visibility improvement from imposing BART on a group of sources rather than on a source-specific basis.[223] The court concluded that such a requirement could force States to apply BART controls at sources without evidence that the individual sources contributed to visibility impairment at a Class I area, which encroached on States' primary authority under the regional haze provisions to determine which individual sources are subject to BART and what BART controls are appropriate for each source.[224] Therefore, the court vacated the visibility improvement part of the original RHR as contrary to the statute.[225] Contrary to some commenters' suggestions, however, the *American Corn Growers* decision did not address EPA's authority to reject a State's BART determinations for failure to conform to the CAA, the RHR or the BART Guidelines.

Commenters also cite *Luminant Generation* v. *EPA*, 675 F.3d 917, 921 (5th Cir. 2012) and *Texas* v. *EPA*, 690 F.3d 670 (5th Cir. 2012). Neither of these cases involves BART or the CAA's regional haze provisions at all. Rather, they involved EPA's disapprovals of SIP revisions involving Texas's minor new source review (NSR) program. As noted by the *Luminant* court, "because 'the Act includes no specifics regarding the structure or functioning of minor NSR programs' and because the implementing regulations are 'very general [,] * * * SIP-approved minor NSR programs can vary quite widely from State to State.'"[226] By contrast, Regional Haze SIPs and BART determinations are subject to detailed requirements set forth in CAA sections 169A, the RHR and the BART Guidelines. While in *Luminant* and *Texas*, the Fifth Circuit found that EPA had failed to tie its disapproval to any requirement of the CAA or EPA's implementing regulations,[227] in this case our disapproval is based on the SIP's failure to comply with CAA sections 110(a)(2) and 169A(b)(2)(A), as implemented through the RHR and the BART Guidelines.

As noted above, CAA section 110(a)(2)(J) requires all SIPs to "meet the applicable requirements" of Part C of Title I of the CAA, including the requirement that each source found subject-to-BART, "procure, install, and operate, as expeditiously as practicable (and maintain thereafter) the best available retrofit technology * * *"[228] Section 169A(g)(2) further provides that:

> In determining best available retrofit technology the State (or the Administrator in determining emission limitations which reflect such technology) shall take into consideration the costs of compliance, the energy and nonair quality environmental impacts of compliance, any existing pollution control technology in use at the source, the remaining useful life of the source, and the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology.[229]

Similarly, the RHR provides that:

> The determination of BART must be based on an analysis of the best system of continuous emission control technology available and associated emission reductions achievable for each BART-eligible source that is subject to BART within the State. In this analysis, the State must take into consideration the technology available, the costs of compliance, the energy and nonair quality environmental impacts of compliance, any pollution control equipment in use at the source, the remaining useful life of the source, and the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology.[230]

ADEQ's BART determinations for NO_X at Apache Units 2 and 3, Cholla Units 2, 3 and 4 and Coronado Units 1 and 2 fall short of these requirements in several respects.

First, ADEQ did not analyze the "best system of continuous emission control

[216] *See id.* 42 U.S.C. 7410(k)(5), (m).

[217] *See id.* section 7410(c)(1).

[218] CAA sections 110(a)(2)(J), 169A and 169B 42 U.S.C. 7410(a)(2)(J), 7491 and 7492.

[219] Under the CAA, "applicable implementation plan" is defined as "the portion (or portions) of the implementation plan, or most recent revision thereof, which has been approved under [CAA section 110], or promulgated under [CAA section 110](c) * * * and which implements the relevant requirements of [the CAA]." CAA section 302(q), 42 U.S.C. 7602(q). In other words, an "applicable implementation plan" is an EPA-approved SIP or Tribal Implementation Plan, or an EPA-promulgated FIP.

[220] 42 U.S.C. 7491(b)(2). In promulgating the RHR, EPA determined that "all States contain sources whose emissions are reasonably anticipated to contribute to regional haze in a Class I area and, therefore, must submit regional haze SIPs." 64 FR 35720; see also 40 CFR 51.300(b)(3).

[221] 42 U.S.C. 7491(b)(2).

[222] *Id.* In this case, Cholla and Coronado each have a total generating capacity in excess of 750 megawatts, while Apache has a total plant-wide generating capacity of 560 megawatts. Thus, the BART Guidelines are mandatory for BART determinations at Cholla and Coronado and serve as non-binding guidance with respect to Apache.

[223] 291 F.3d at 5–9.

[224] *Id.* at 7–8.

[225] EPA revised the RHR to address the court's decision in *American Corn Growers* at the same time as we promulgated the BART Guidelines. 70 FR 39104 (July 6, 2005). The revised RHR and the Guidelines were upheld by the D.C. Circuit in *Utility Air Regulatory Group* v. *EPA*, 471 F.3d 1333 (D.C. Cir. 2006).

[226] 675 F.3d at 922 (citing 74 FR 51418, 51421 (Oct. 6, 2009).

[227] 675 F.3d at 924, 929; 690 F.3d at 679, 682, 686.

[228] CAA section 169A(b)(2)(A)., 42 U.S.C. 7491(b)(2)(A).

[229] 42 U.S.C. 7491(g)(2).

[230] 40 CFR 51.308(e)(1)(ii)(A).

technology available and associated emission reductions achievable." Rather it accepted the source's own assertions about what emissions reductions were achievable with various control technologies. For example, in response to comments from the FLMs arguing that SCR could achieve lower rates on 30-day-rolling average, ADEQ stated that:

> ADEQ's BART evaluations were based on site-specific information provided by the applicants. It is the Department's understanding that such information was based partially on feedback received from vendors and plant personnel who are intimately familiar with the specific equipment that is being considered. In that regard, the Department based its BART computations on the emission rates proposed by the applicant for the different control technology options.[231]

While it is certainly reasonable to consider site-specific information provided by the sources as part of a BART analysis, it is not reasonable to assume, with no independent analysis, that the sources have appropriately identified the emissions reductions achievable with the best available controls. ADEQ provided no evidence that the sources' estimates were based on legitimate site-specific considerations or that ADEQ undertook any verification of these estimates. Therefore, ADEQ has not demonstrated that its BART determinations were "based on an analysis of the best system of continuous emission control technology available and associated emission reductions achievable."

Second, ADEQ has not demonstrated that it actually took into consideration the BART factors in making its determinations. In particular, while ADEQ provided information regarding each of the factors, it gave no explanation or rationale for how it reached a determination based on that information.

Finally, ADEQ did not appropriately consider the "degree of improvement in visibility which may reasonably be anticipated" from installation of BART because it did not consider visibility benefits at all of the affected Class I areas, nor did it consider the total visibility benefit expected to result from the entire BART-eligible source. Overlooking significant visibility benefits at additional areas and from multiple BART-eligible units considerably understates the overall benefit of controls to improve visibility and is contrary to the very purpose of BART, i.e., "eliminating or reducing" visibility impairment at all Class I areas.[232] Thus ADEQ's BART determinations for NO_X at Apache Units 2 and 3, Cholla Units 2, 3 and 4 and Coronado Units 1 and 2 do not meet the requirements of CAA section 169A(g)(2) or 40 CFR 51.308(e)(1)(ii)(A).

In addition, 40 CFR 51.308(e)(1)(ii)(B) provides that:

> The determination of BART for fossil-fuel fired power plants having a total generating capacity greater than 750 megawatts must be made pursuant to the guidelines in appendix Y of this part (Guidelines for BART Determinations under the Regional Haze Rule).

Cholla and Coronado each have a generating capacity greater than 750 megawatts. Therefore, the BART determinations for these BART sources must be made pursuant to the BART Guidelines. However, ADEQ's BART determinations for these sources did not fully comply with the BART Guidelines. In particular, as explained more fully above, contrary to the Guidelines' direction that "cost estimates should be based on the *OAQPS Control Cost Manual,* where possible," the control cost calculations supplied by the utilities and relied upon by ADEQ included line item costs not allowed by the Control Cost Manual, such as owner's costs, surcharge, and AFUDC. Thus, ADEQ's consideration of the "cost of compliance" for these units was not consistent with the Guidelines. Furthermore, as explained above, ADEQ's consideration of visibility benefits was inconsistent with the Guidelines because the State did not consider benefits at multiple Class I areas and multiple BART-eligible units at each source. In addition, ADEQ failed to provide "a justification for adopting the technology [the State selected] as the 'best' level of control, including an explanation of the CAA factors that led [the State] to choose that option over other control levels."[233] Therefore, ADEQ's BART determinations for NO_X at Cholla and Coronado do not comply with 40 CFR 51.308(e)(1)(ii)(B).

Finally, for all pollutants at all units covered by today's action, ADEQ's Regional Haze SIP does not meet the requirements of 40 CFR 51.308(e)(1)(iii) and (iv) because it lacks the following elements:

- A requirement that each source subject to BART be required to install and operate BART as expeditiously as practicable, but in no event later than 5 years after approval of the implementation plan revision.
- A requirement that each source subject to BART maintain the control equipment required by this subpart and establish procedures to ensure such equipment is properly operated and maintained.

These two requirements are mandatory elements of the RHR and are necessary to ensure that BART is procured, installed and operated, as expeditiously as practicable and maintained thereafter, as required under CAA section 169A(b)(2)(A). Moreover, CAA section 110(a)(2) requires that emissions limits such as BART be "enforceable" and section 302(k) requires emissions limits to be met on a continuous basis. Arizona's Regional Haze SIP lacks requirements for monitoring, recordkeeping and reporting sufficient to ensure that the BART limits are enforceable and are met on a continuous basis.

Therefore, Arizona's BART determinations for Apache, Cholla and Coronado do not meet several requirements of the CAA, the RHR and the BART Guidelines. Accordingly, we are compelled to partially disapprove Arizona's Regional Haze SIP.

Finally, several commenters cited *EME Homer City Generation* v. *EPA,* No. 11–1302 (D.C. Cir. Aug. 21, 2012). In *EME Homer City Generation,* the D.C. Circuit vacated EPA's "Transport Rule" (also known as the "Cross-State Air Pollution Rule" or "CSAPR"), which was promulgated by EPA to address interstate transport of SO_2 and NO_X under CAA section 110(a)(2)(D). The court found that the Transport Rule exceeded EPA's authority under section 110(a)(2)(D) because the rule had the potential to require upwind States to reduce emissions by more than their own significant contributions to downwind nonattainment and because EPA had not given states an opportunity to submit SIPs after it quantified their obligations for emissions reductions to address transport. Commenters here point to the D.C. Circuit's statements concerning state and federal roles under the CAA and argue that EPA has exceeded its statutorily mandated role in proposing to disapprove portions of Arizona's Regional Haze SIP and promulgate a FIP.

While we agree that the general principles concerning state and federal roles under Title I of the CAA apply to our action here, we do not agree that our action here is inconsistent with those principles. In this action, we are fulfilling our statutory duty to review Arizona's Regional Haze SIP, including its BART determinations, for compliance with the applicable requirements of the CAA and the RHR, and to disapprove any portions of the

[231] Arizona Regional Haze SIP, Appendix E, "Responsiveness Summary" at 13.

[232] CAA section 169A(b)(2)(A).

[233] BART Guidelines, 40 CFR Part 51, Appendix Y, section IV.E.2.

plan that do not meet those requirements. Based on our review of the SIP, we proposed to determine that certain elements of Arizona's Regional Haze SIP did meet the requirements of the CAA and the RHR, and we proposed to approve those elements. However, for the reasons explained in detail in our proposal and elsewhere in this document, we have concluded that Arizona's BART determinations for NO_X at several units did not comply with the requirements of the CAA and the RHR. Based on these findings, we are required to disapprove these portions of Arizona's Regional Haze SIP.

In some instances, we expressed our findings of non-compliance with the relevant requirements in terms of "disagreement" with the state's analysis. These statements were not intended to suggest that our proposed partial disapproval was simply based on policy disagreements with the state. Rather we used the term "disagree" as a short hand for our findings that specific elements of Arizona's analyses did not meet the requirements of the CAA and the RHR. For example, we noted that, "[w]e disagree with several aspects of the NO_X BART analysis for Apache Units 2 and 3."[234] We then went on to list the specific deficiencies in the state's analysis, and concluded that "we are proposing to disapprove ADEQ's BART determination for NO_X at Apache Units 2 and 3, since it does not comply with 40 CFR 51.308(e)(1)(ii)(A)."[235] We made similar findings with respect to ADEQ's BART determination for NO_X at Cholla Units 2, 3 and 4 and Coronado Units 1 and 2.[236] We have also described in detail, both in our proposal and in this document, the other aspects of the state's BART determinations that do not comply with the CAA and the RHR.

Finally, some commenters appear to have misunderstood our statement that ADEQ's "NO_X BART determinations for the coal-fired units are neither consistent with the requirements of the Act nor with BART decisions that other states have made." As noted by several commenters, the CAA and the RHR provide states with considerable discretion in deciding how to weigh the statutory factors as a part of a BART analysis. However, this discretion must be reasonably exercised in compliance with the applicable requirements. Consistency with other EPA-approved BART determinations is one marker of reasonableness, as well as compliance with the requirements of the RHR. Such consistency is particularly relevant for BART determinations at fossil-fuel fired power plants having a capacity in excess of 750 megawatts, which must be made pursuant to the BART Guidelines.[237] To the extent a BART determination for such a power plant is plainly inconsistent with EPA-approved determinations for similar sources, it is more likely to be inconsistent with the RHR and the BART Guidelines and therefore to warrant greater scrutiny for compliance with the applicable requirements.

Comment: Several commenters (ACCCE, ADEQ, APS, SRP) asserted that it is contrary to the CAA for EPA to propose action on only the portions of ADEQ's SIP that address the three power plants that are the subject of the proposed FIP. One commenter (APS) stated that EPA may not ignore all other sources of visibility-impairing pollutants in the state (nor may it ignore the other categories of visibility-impairing pollutants by focusing only on nitrates, sulfates and PM) and establish BART limitations for the three affected power plants outside the context of the long-term strategy and larger reasonable progress requirements of the regional haze program. Commenters ACCCE, ADEQ and SRP contended that CAA section 110(k)(3) requires EPA either to approve a SIP submittal "as a whole" or to approve that SIP submittal in part and disapprove it in part in a single rulemaking that addresses in its entirety "the plan revision." The commenters indicated that this requirement of the CAA is sensible because it is the plan *as a whole*, with all its elements working together, that must ensure that the CAA's regional haze-related goals are being reached; any other approach to SIP review and approval would fail to take into account the full array of regulatory choices that Arizona has made to address regional haze.

Response: We do not agree that we are required to act on Arizona's Regional Haze SIP as a whole. As noted by some commenters, our action on Arizona's Regional Haze SIP is governed by *inter alia*, CAA section 110(k)(3), which provides that in the case of any submittal on which the Administrator is required to act under section 110(k)(2), the Administrator shall approve such submittal as a whole if it meets all of the applicable requirements of this chapter. If a portion of the plan revision meets all the applicable requirements of this chapter, the Administrator may approve the plan revision in part and disapprove the plan revision in part. The plan revision shall not be treated as meeting the requirements of this chapter until the Administrator approves the entire plan revision as complying with the applicable requirements of this chapter.[238]

Some commenters have read this provision as requiring that EPA act on Arizona's Regional Haze SIP as a whole. We disagree that this language addresses the question of whether EPA may consider different elements of a State's plan in separate notice and comment rulemakings. However, even assuming that this provision of the Clean Air Act did limit EPA's ability to act sequentially on portions of a SIP submission, the requirement to act on a submittal "as a whole" applies only if the submittal meets all of the applicable requirements of the CAA. As explained in our proposal and elsewhere in this document, we have determined that the Arizona Regional Haze SIP does not meet all of the applicable requirements of the CAA. Specifically, we have determined that the submittal as a whole does not meet the requirements of CAA section 169A(b)(2)(A), as implemented through the RHR and the BART Guidelines. Under these circumstances, we are clearly not obligated to act on the plan as a whole, but are given discretion to act on distinct portions of the plan.[239]

While we agree that, as a matter of policy, it is generally preferable to act on plan submissions as a whole, we are currently subject to a court-ordered deadline of November 15, 2012 to act on the BART determinations for Apache Generating Station, Cholla Power Plant and Coronado Generating Station.[240] Although these BART determinations are part of the overall Regional Haze plan for Arizona, they are also severable from that plan, since BART determinations are made on a source-by-source basis and are not dependent upon other elements of the plan.[241]

[234] 77 FR 42846.

[235] *Id.*

[236] 77 FR 42849, 42851.

[237] CAA section 169A(b) and 40 CFR 51.308(e)(1)(ii)(B).

[238] 42 U.S.C. 7410(k)(3).

[239] See *Hall* v. *EPA*, 273 F.3d 1146, 1159 (9th Cir. 2001) (section 110(k)(3) "permits the EPA to issue 'partial approvals,' that is, to approve the States' SIP revisions in piecemeal fashion").

[240] EPA agreed to this deadline after concluding that litigation would most likely result in a shorter schedule than that to which Plaintiffs had agreed in negotiation. *See Sierra Club* v. *Johnson*, 444 F.Supp.2d 46, 58 (D.D.C. 2006) ("this case devolves to a single issue: whether defendant has met the 'heavy burden' of demonstrating that it would be impossible to comply with plaintiff's proposed * * *").

[241] See 40 CFR 51.308(e)(1)(ii)(A)("[t]he determination of BART must be based on an analysis of the best system of continuous emission control technology available and associated emission reductions achievable for each BART-

Continued

Therefore, we are taking action on these BART determinations first and we will act on the remainder of the Arizona Regional plan in accordance with the court-ordered deadlines for that action.

Comment: One commenter (ADEQ) asserts that EPA does not have the authority to adopt a FIP because none of the three triggering events for a FIP under CAA section 110(c)(1) has occurred. Specifically, the commenter states that:

> * * * for EPA to have authority to promulgate a regional haze FIP in Arizona, one of three events must have occurred: (1) a finding of failure to submit a regional haze SIP, (2) a finding of failure to satisfy the minimum criteria for a complete regional haze SIP under section 110(k)(1)(A) or (3) disapproval of a regional haze SIP submitted by Arizona. None of these three events has occurred.

With respect to EPA's January 2009 finding of failure to submit, the commenter argues that:

> Section 110(c)(1) * * * does not allow EPA to treat the omission of elements from a SIP submission as a failure to submit a SIP. Section 110(c)(1) is quite specific. If EPA believes SIP omissions render a SIP incomplete, the agency may make a finding under section 110(k)(1)(A) within the time period required by section 110(k)(1)(B) and start the FIP clock under the second clause of section 110(c)(1)(A). If EPA cannot make such a finding or, as in this case, fails to do so, the agency may disapprove the SIP, and start the FIP clock under section 110(c)(1)(B). By treating the alleged omission of elements from a SIP as the failure to make a required submission under the first clause of section 110(c)(1)(A), EPA is circumventing these procedures.

The commenter adds that if EPA did have the authority to promulgate a regional haze FIP, it would only have the authority to address those elements of the SIP that EPA identified as having not been submitted, and EPA has never found that Arizona failed to submit a SIP establishing BART.

Response: We do not agree that we lack authority to issue a FIP addressing BART requirements for the three sources covered by today's action. The commenter's arguments in this regard appear to be based on a misunderstanding of the requirements of the CAA and the RHR in relation to Arizona's Regional Haze submittals.

EPA promulgated the original RHR in 1999.[242] As relevant here, section 308 of the RHR requires states to submit SIPs that establish reasonable progress goals and long-term strategies for achieving those goals and provide for implementation of BART.[243] In addition to the general requirements of section 308, EPA also adopted specific provisions that gave a handful of states, including Arizona, the option of submitting a regional haze SIP based on the recommendations of the Grand Canyon Visibility Transport Commission (GCVTC). Under the RHR, a SIP approved by EPA as meeting all of the requirements of section 309 would be "deemed to comply with the requirements for reasonable progress with respect to the 16 Class I areas [on the Colorado Plateau] for the period from approval of the plan through 2018."[244]

Arizona made two submittals under section 309 in 2003 and 2004, but never submitted a complete 309 SIP.[245] Rather, on December 24, 2008, ADEQ sent a letter to EPA re-submitting its prior 309 SIP submissions and acknowledging that the submittal did not include provisions to address the requirements of 309(d)(4) or 309(g).[246] These were not minor omissions: 309(d)(4) required the submission of "better than BART" milestones and a trading program for SO_2, as well as BART requirements for stationary source PM and NO_X emissions, and 309(g) required implementation of any additional measures necessary to demonstrate reasonable progress for the additional Class I areas, in compliance with the provisions of § 51.308(d)(1) through (4).[247] Thus, as of 2008, ADEQ's Regional Haze SIP, by its own admission, did not include provisions addressing BART (or for an alternative to BART) for NO_X, PM or SO_2. On January 15, 2009 EPA found that 37 states, including Arizona, had failed to make all or part of the required SIP submissions to address regional haze.[248] We explained that:

> This finding starts the two year clock for the promulgation by EPA of a FIP. EPA is not required to promulgate a FIP if the state makes the required SIP submittal and EPA takes final action to approve the submittal within two years of EPA's finding.[249]

Under the CAA, any party seeking judicial review of EPA's finding of failure to submit ("2009 Finding") was required to file a petition for review with the appropriate United States Circuit Court of Appeals within 60 days of publication of the Finding in the **Federal Register**.[250] No party filed such a petition.

At the time of the 2009 Finding, EPA anticipated that ADEQ would submit a SIP revision covering 309(d)(4) and 309(g), which would enable EPA to fully approve ADEQ's 309 SIP as meeting all of the requirements of the Regional Haze Rule, thus ending the FIP clock. However, ADEQ did not submit a 309 SIP revision to address these two elements, but instead decided to develop a 308 SIP, which it submitted to EPA in February 2011.

In January 2011, EPA received a notice of intent to sue covering dozens of states, including Arizona, stating that we had not met the statutory deadline for promulgating Regional Haze FIPs and/or approving Regional Haze SIPs. This notice was followed by a lawsuit filed by several advocacy groups (Plaintiffs) in August 2011.[251] In order to resolve this lawsuit and avoid litigation, EPA entered into a Consent Decree with the Plaintiffs, which sets deadlines for action for all of the states covered by the lawsuit, including Arizona. This decree was entered and later amended by the Federal District Court for the District of Columbia over the opposition of Arizona.[252]

In opposing the entry of the consent decree, Arizona argued that the 2009 Finding did not give EPA authority to promulgate a Regional Haze FIP for Arizona. The court rejected this argument, explaining that:

> Arizona contends that the Finding did not constitute a disapproval of the SIPs that had previously been submitted because it only notes that Arizona did not submit two of Section 309's required elements. Ariz. Opp. [Dkt. # 24] at 6. The Court does not read the 2009 Finding so narrowly. In the Court's view, the 2009 Finding reaches a conclusion that Arizona 'has failed to make a required submission or finds that the plan or plan revision submitted by the State does not satisfy the minimum criteria.' 42 U.S.C. 7410(c)(1). Under the CAA, this triggers the EPA's statutory obligation to promulgate a FIP.[253]

Under the terms of the Consent Decree, as amended, EPA is currently subject to two sets of deadlines for taking action on Arizona's Regional Haze SIP. Specifically, the CD requires that:

> By the "Proposed Promulgation Deadlines" set forth in Table A below EPA shall sign a notice(s) of proposed rulemaking in which it

eligible source that is subject to BART within the State."

[245] We have included a more detailed history of Arizona's submissions under 309 in the docket for this action (Docket No. EPA–R09–OAR–2012–0021).

[246] Letter from Stephen A. Owens, ADEQ, to Wayne Nastri, EPA (Dec. 14, 2008).

[247] 40 CFR 51.309(d)(4)(i) and (vii), (g)(2).

[248] 74 FR 2392.

[249] *Id.* at 2393

[250] CAA section 307(b). 42 U.S.C. 7607(b).

[251] National Parks Conservation Association v. Jackson (D.D.C. Case 1:11–cv–01548).

[252] National Parks Conservation Association v. Jackson (D.D.C. Case 1:11–cv–01548), Memorandum Order and Opinion (May 25, 2012) and Minute Order (July 2, 2012).

[253] See *NPCA* v. *EPA*, (D.D.C. Case 1:11–cv–01548). Dkt # 35, at 3, n. 1.

proposes approval of a SIP, promulgation of a FIP, partial approval of a SIP and promulgation of a partial FIP, or approval of a SIP or promulgation of a FIP in the alternative, for each State therein, that collectively meet the regional haze implementation plan requirements that were due by December 17, 2007 under EPA's regional haze regulations.

By the "Final Promulgation Deadlines" set forth in Table A below, EPA shall sign a notice(s) of final rulemaking promulgating a FIP for each State therein to meet the regional haze implementation plan requirements that were due by December 17, 2007 under EPA's regional haze regulations, except where, by such deadline EPA has for a State therein signed a notice of final rulemaking unconditionally approving a SIP, or promulgating a partial FIP and unconditional approval of a portion of a SIP, that collectively meet the regional haze implementation plan requirements that were due by December 17, 2007 under EPA's regional haze regulations.

Table A, as revised, sets a proposal deadline for BART determinations for Apache Generating Station, Cholla Power Plant and Coronado Generating Station of July 2, 2012 and the final action deadline for these three BART determinations of November 15, 2012. The deadline for EPA to propose action on the remainder of the Arizona Regional Haze SIP is December 8, 2012, and the deadline for final action is July 15, 2013.[254]

Thus, pursuant to CAA section 110(c)(1) and the court's orders entering and amending the Consent Decree, we are not only authorized, but are required to issue a FIP for any portion of the Arizona SIP that we cannot approve. For the reasons stated in our proposal and elsewhere in this document, we have determined that we cannot approve the state's BART determinations for NO_X at Apache, Cholla and Coronado, nor can we approve the compliance-related requirements that were omitted from the Arizona Regional Haze SIP. Therefore, we are obligated to promulgate a FIP to address these requirements.

Comment: Several commenters (AUG, EEI, PacifiCorp, SRP) stated that EPA cannot propose or finalize a NO_X BART FIP for these Arizona plants until it has taken final action (following notice-and-comment rulemaking) on ADEQ's Regional Haze SIP. According to the commenters, EPA's authority to propose and then take final action to promulgate a FIP comes into existence only when a state has not submitted a SIP or when EPA has made a final determination that a submitted SIP is not approvable (citing *Train* v. *NRDC,* 421 U.S. 60, 79 (1975)). The commenters believe this principle is confirmed by CAA sections 307(d)(1)(B), (3) and (6) because EPA cannot present the relevant factual, legal, and policy information and rationale necessary to justify a proposed or final FIP rule until it has properly taken final action on any relevant SIP before it.

One commenter (EEI) also states that EPA's assertion that it was compelled to propose a FIP at the same time that it disapproved a portion of the Arizona SIP, due to a two-year FIP clock that started with EPA's 2009 Finding of Failure to Submit, is inconsistent with the CSAPR decision. The commenter stated that EPA did not provide sufficient notice of the problems with the SIP to enable Arizona to remedy them, which is precisely the same problem identified by the CSAPR court. The commenter adds that EPA must provide the state a realistic opportunity to avoid being pulled into a FIP. Given that EPA has consent decree obligations to finalize BART requirements for the EGUs addressed by the proposed SIP by November 15, 2012, and EPA did not propose disapproval of the SIP until July 20, 2012, a reasonable opportunity to develop and receive approval of a revised SIP was not offered to the state.

Response: We do not agree that we are required to take final action on Arizona's Regional Haze SIP before promulgating a FIP. Commenters' arguments to this effect appear to conflate the procedural requirements for EPA's issuance of a FIP with procedural requirements for action on a SIP. In fact, these are two actions are governed by different provisions of the CAA.

As explained in the previous response, EPA's 2009 finding that Arizona failed to submit a complete Regional Haze SIP triggered a "FIP clock" under CAA section 110(c).[255] This FIP clock could only have been stopped if Arizona had submitted, and EPA had fully approved a Regional Haze SIP, before January 15, 2011. Neither of these two things occurred. Therefore, EPA remains subject to this "FIP duty." Our action today fulfills part of that duty.

As several commenters noted, Arizona submitted a Regional Haze SIP on February 28, 2011, and the SIP was deemed complete by operation of law on August 28, 2011, pursuant to CAA section 110(k)(1)(B).[256] This, in turn, triggered a deadline of August 28, 2012, for us to take final action on the SIP, pursuant to CAA section 110(k)(1)(B).[257] We acknowledge that this deadline has now passed and we intend to act as quickly as possible to fulfill our duty to act on those portions of the SIP not addressed in today's action. However, the fact that we have not acted on the entirety of the SIP submittal does not remove or otherwise alter our legal obligation to promulgate a FIP under CAA section 110(c). Our FIP duty does not terminate until we have actually approved the submitted SIP. As explained in our NPRM, TSD and elsewhere in this document, we cannot approve the State's BART determinations for NO_X at Apache, Cholla and Coronado, nor can we approve the compliance-related requirements that were omitted from the Arizona Regional Haze SIP. Therefore, we are obligated to promulgate a FIP to address these requirements, and we are doing so in today's action.

Furthermore, while we agree that the procedural requirements for promulgation of a FIP under 110(c) are set forth in CAA section 307(d),[258] we do not agree that our action violates that provision in any way. Consistent with the requirements of that section, our proposal included a summary of the factual data on which our proposed FIP was based, as well as the methodology used in obtaining the data and in analyzing the data and the major legal interpretations and policy considerations underlying the proposed FIP.[259] In addition, we provided a detailed evaluation of Arizona's BART analyses for the relevant units, which formed the basis for our proposed action on those portions of the Arizona Regional Haze SIP.[260] This final rulemaking includes similar information with respect to the SIP and the FIP, as well as "an explanation of the reasons for any major changes in the promulgated rule from the proposed rule" and "a response to each of the

[254] On November 13, 2012, the D.C. District Court granted a motion by EPA to modify the Consent Decree to extend the deadlines for promulgation of a FIP for any remaining elements of the SIP that are disapproved. Under the revised deadlines, EPA will propose any necessary FIP elements by March 8, 2013, and finalize such elements by October 15, 2013.

[255] 42 U.S.C. 7410(c). See also *Train*, 421 U.S. at 64, 79 (explaining that the 1970 CAA Amendments "sharply increased federal authority and responsibility in the continuing effort to combat air pollution," including giving EPA authority to devise a FIP if the State's plan fails to satisfy the standards of section 7410(a)(2)).

[256] 42 U.S.C. 7410(k)(1)(B).

[257] 42 U.S.C. 7410(k)(2).

[258] See CAA section 307(d)(1)(B), 42 U.S.C. 7607(d)(1)(B), ("This subsection applies to * * * the promulgation or revision of an implementation plan by the Administrator under [CAA section 110](c)")

[259] See CAA section 307(d)(3), 42 U.S.C. 7607(d)(3).

[260] The SIP portion of our action is subject to the procedural requirements of section 553(b) of Administrative Procedure Act (APA), 5 U.S.C. 553(b), rather than the requirements of CAA subsection 307(d), 42 U.S.C. 7607(d).

significant comments, criticisms, and new data submitted in written or oral presentations during the comment period." [261] Therefore, our action complies with the applicable procedural requirements of the CAA.

Finally, we do not agree with commenters' assertions that the D.C. Circuit's decision in *EME Homer City Generation* precludes us from promulgating a partial FIP concurrently with our partial disapproval of Arizona's Regional Haze SIP. In *EME Homer City Generation,* the court found that EPA had acted improperly in issuing the Transport Rule because we simultaneously defined states' "good neighbor obligations" under CAA section 110(a)(2)(D)(i)(I) and issued FIPs to address those obligations.[262] The court explained that:

> * * * the triggers for a FIP are EPA's finding that the SIP fails to contain a "required submission" or EPA's disapproving a SIP because of a "deficiency." But logically, a SIP cannot be deemed to lack a required submission or be deemed deficient for failing to implement the good neighbor obligation until after EPA has defined the State's good neighbor obligation. Once it defines the obligation, then States may be forced to revise SIPs under Section 110(k)(5) or to submit new SIPs under Section 110(a)(1). Only if that revised or new SIP is properly deemed to lack a required submission or is properly deemed deficient may EPA resort to a FIP for the State's good neighbor obligation.[263]

In essence, the D.C. Circuit found that EPA's findings of failure to submit and disapprovals of state transport SIPs did not trigger FIP obligations under CAA section 110(c) because these actions occurred "*before* [EPA] told the States what emissions reductions their SIPs were supposed to achieve under the good neighbor provision." [264]

In this case, by contrast, EPA defined states' obligations under the RHR and the BART Guidelines well in advance of its findings of failure to submit and subsequent SIP disapprovals. EPA promulgated the original RHR on July 1, 1999.[265] Following the D.C. Circuit's decision in *American Corn Growers,* EPA revised the RHR and issued the final BART Guidelines on July 6, 2005.[266] The revised RHR and the Guidelines were upheld by the DC Circuit in *Utility Air Regulatory Group* v. *EPA,* 471 F.3d 1333 (D.C. Cir. 2006).[267] As explained in our proposal and elsewhere in this document, the BART Guidelines provide detailed instructions to states on how to determine which sources are subject to BART and how to analyze the five statutory factors in order to set emissions limits representing BART for each subject-to-BART source.[268] In 2006, responding to specific questions from various States and Regional Planning Organizations (RPOs), EPA issued further guidance to help States implement the RHR and BART Guidelines.[269]

As noted in prior responses, EPA issued a finding of failure to submit for Regional Haze SIPs on January 15, 2009, thus triggering a FIP clock under CAA section 110(c).[270] By this time, states had already had more than three years since issuance of the final BART Guidelines (and more than two years since the final revisions to the RHR and the issuance of further guidance on the RHR and BART) to develop their Regional Haze SIPs. By the time the FIP clock actually ran out in January 2011, EPA had received Regional Haze SIPs from nearly every state. EPA has since proposed to approve, in part or in whole, the vast majority of these SIPs.[271] We have also has taken final action to approve, in part or in whole, many of these SIPs.[272] This stands in contrast to the situation in *EME Homer City Generation,* where, the court noted that, "every Transport Rule State that submitted a good neighbor SIP for the 2006 24-hour $PM_{2.5}$ NAAQS was disapproved." [273] Thus, it is clear that states had ample opportunity to submit approvable Regional Haze SIPs before EPA was obligated to promulgate Regional Haze FIPs under CAA section 110(c).

With respect to Arizona's Regional Haze SIP in particular, we note that Arizona first made public its proposed 308 SIP during a comment period beginning on October 28, 2010.[274] At that time, EPA, the National Park Service (NPS) (in consultation with the Fish and Wildlife Service) and the U.S. Forest Service all submitted comments expressing concern about the proposed SIP's compliance with the CAA, the RHR and the BART Guidelines.[275] Among other things, EPA noted that the SIP, "does not provide a sufficient level of information and analysis to support its conclusions." [276] NPS provided extensive comments on the proposed SIP, including detailed evaluations of ADEQ's BART analyses for each of the three sources at issue in today's action.[277] In each instance, NPS concluded that ADEQ had not conducted a valid BART analysis for NO_X.[278] The Forest Service concurred with the initial comments provided by NPS on Arizona's BART exclusion process and "strongly disagree[d] with the adequacy of the Arizona reasonable progress analysis." [279] Therefore, ADEQ had the benefit not only of the generally applicable requirements of the RHR, the

[261] CAA section 307(d)(6)(A) & (B), 42 U.S.C. 7607(d)(6)(A) & (B).

[262] *EME Homer City Generation,* slip op. at 7.

[263] *Id.* at 46.

[264] *Id.* at 47 (emphasis in original).

[265] 64 FR 35714.

[266] 70 FR 39104. This finding covered 37 states, the District of Columbia and the Virgin Islands.

[267] In response to another D.C. Circuit decision, *Center for Energy and Economic Development* v. *EPA,* 398 F.3d 653 (D.C. Cir. 2005), EPA revised the RHR's provisions governing alternatives to source-specific BART determinations on October 13, 2006. These revisions did not alter the requirements for source-specific BART determinations that apply to Arizona's BART determinations at issue here.

[268] 40 CFR Part 51, Appendix Y. While the Guidelines are only mandatory for fossil fuel-fired electric generating plants with a total generating capacity in excess of 750 megawatts, States are encouraged to follow the BART Guidelines in making BART determinations for other types of sources. *Id.* section I.H. The Guidelines also set specific presumptive limits for SO_2 and NO_X for these large power plants, but allow states to apply more or less stringent limits based upon source-specific five-factor analyses. 70 FR 39131–39132.

[269] Memo from Joseph W. Paise Regarding Regional Haze Regulations and Guidelines for BART (July 19, 2006); Additional Regional Haze Questions (Guidance) (Sept. 27 2006). In addition, EPA issued final "Guidance for Setting Reasonable Progress Goals Under the Regional Haze Program" on June 1, 2007, but this Guidance is not directly relevant for individual BART determinations.

[270] 74 FR 2392.

[271] See, e.g., 76 FR 36450 (Nevada); 77 FR 24794 (New York); 76 FR 13944 (California); 77 FR 11798 (Rhode Island); 76 FR 27973 (Delaware); 77 FR 12770 (Nebraska); 77 FR 18052 (Colorado); 76 FR 16168 (Oklahoma); 77 FR 11914 (Vermont); 77 FR 11928 (Wisconsin); 76 FR 52604 (Kansas); 76 FR 64186 (Arkansas); 77 FR 11839 (Maryland); 76 FR 58570 (North Dakota); 77 FR 3966 (Illinois); 76 FR 76646 (South Dakota). EPA proposed limited approval and limited disapproval of the Regional Haze SIPs of states covered by the Clean Air Interstate Rule (CAIR), due to the remand of CAIR by the D.C. Circuit. See, e.g. 77 FR 3691 (Jan. 25, 2012) (proposing limited approval and limited disapproval of Virginia's Regional Haze SIP).

[272] See, e.g., 76 FR 34608 (California); 76 FR 42557 (Delaware); 76 FR 80754 (Kansas); 77 FR 19 (New Jersey); 77 FR 5191 (District of Columbia); 77 FR 14604 (Arkansas); 77 FR 17334 (Nevada); 77 FR 24845 (South Dakota); 77 FR 40150 (Nebraska); 77 FR 51915 (New York).

[273] Slip op. at 57.

[274] Arizona Regional Haze SIP, Appendix E, Public Process. Approximately 60 days prior to the public comment period, ADEQ sent a draft of the SIP to the National Park Service and U.S. Forest Service.

[275] *Id.*

[276] *Id.* Letter from Colleen McKaughan, EPA, to Eric Massey, ADEQ (Dec. 2, 2010).

[277] *Id.* NPS Initial Comments Arizona Draft Section 308 Regional Haze SIP (Nov. 29, 2010); NPS General BART Comments on ADEQ BART Analyses (Nov. 29, 2010); NPS Comments AEPCO—Apache Generating Station BART Analysis and Determination (Nov. 29, 2010); NPS Comments APS Cholla Generating Station BART Analysis and Determination (Nov. 29, 2010); NPS Comments SRP's Coronado Generating Station BART Analysis and Determination (Nov. 29, 2010); NPS Comments on ADEQ BART Exemptions, (Dec. 1, 2010).

[278] *Id.*

[279] U.S. Forest Service Specific Comments: Arizona Regional Haze SIP (Nov. 29, 2010).

BART Guidelines and EPA Guidance, but also specific guidance from EPA and the FLMs pointing out shortcomings in its Regional Haze SIP. Following receipt of these comments, Arizona had the opportunity to revise its SIP to address the deficiencies identified by the commenters, but in most instances it chose not to do so.[280]

Finally, while we agree that, in the absence of an expired statutory duty and a court-ordered deadline to issue a FIP, it would be preferable for us to give Arizona additional time to revise its Regional Haze SIP prior to promulgation of a FIP, we simply do not have this option under these circumstances. As explained in our response to the previous comment, we are obligated to issue a FIP to address any gaps left by partial disapprovals of Arizona's Regional Haze SIP. Nonetheless, we encourage ADEQ to submit a revised SIP to replace the FIP and will work with ADEQ to develop such a revised plan to meet the requirements of the CAA and the RHR.

Comment: One commenter (Earthjustice) stated that the CAA's Regional Haze program establishes a national regulatory floor and requires states to develop RH SIPs at least as stringent as this floor (citing 40 CFR 51.308). According to the commenter, ADEQ's SIP is legally and technically inadequate because it does not require adequate BART emission limits, does not achieve "reasonable progress" are required by the RHR and would fail to achieve natural visibility goals by 2064. The commenter believes that the Arizona RH SIP fails to establish a program that is at least as stringent as the national floor and that therefore EPA has a legal obligation to disapprove the SIP and to issue a FIP in its place under CAA section 110(c)(1).[281]

Response: We agree that the CAA, the RHR and the BART Guidelines set out specific requirements that Regional Haze SIPs must meet in order to be approved by EPA. Our action today addresses these requirements as they apply to ADEQ's BART determinations for Apache, Cholla and Coronado, but does not address the requirements as they apply to the remainder of Arizona's Regional Haze SIP (e.g., the reasonable progress goals set by the state). EPA will propose action on these aspects of the SIP shortly and take final action after receiving comments. As explained in the preceding responses, because of our prior finding of failure to submit, we are required to issue a FIP for any portion of the SIP that we cannot approve. Thus, we are promulgating a FIP for those aspects of ADEQ's BART determinations for Apache, Cholla and Coronado that we are not approving at this time.

G. Other Comments

1. Comment on Public Health and Ecosystem Impacts

Comment: A number of commenters provided comments on the potential health effects of our proposal. A number of other commenters stated that the Regional Haze program's sole focus is the improvement of visibility in Class I areas, and is not a health-based or emissions reduction program. In relation to the Regional Haze program, any EPA emphasis on health and emissions reduction is inappropriate. One commenter (SRP) stated that EPA's assertion of health benefits is unsubstantiated by the proposed rule. A few commenters noted that the air quality in Arizona varies from city to city, and stated that EPA should focus on the areas with the poorest air quality first, such as Phoenix.

In contrast, one commenter (Earthjustice) stated that the same pollutants that reduce visibility also cause significant public health impacts. The commenter noted that NO_X is a precursor to ground level ozone, which is associated with respiratory diseases, asthma attacks and decreased lung function, and that NO_X reacts with other substances to form particulates that can cause and worsen respiratory diseases, aggravate heart disease, and lead to premature death. The commenter indicated that SO_2 increases asthma symptoms, leads to increased hospital visits, and can form particulates that aggravate respiratory and heart diseases and cause premature death, and that PM can penetrate deep into the lungs and cause health problems such as aggravated asthma, chronic bronchitis, and heart attacks. Based on a report prepared by the Clean Air Task Force, the commenter asserted that Cholla, Coronado and Apache collectively cause approximately 41 deaths, 63 heart attacks and 747 asthma attacks annually.[282] Several other commenters provided similar comments concerning health effects.

Response: We acknowledge the commenters' concerns regarding the adverse health impacts of haze-causing emissions. We agree that the same $PM_{2.5}$ emissions that cause visibility impairment can cause respiratory problems, decreased lung function, aggravated asthma, bronchitis, and premature death. We also agree that the same NO_X emissions that cause visibility impairment also contribute to the formation of ground-level ozone, which has been linked with respiratory problems, aggravated asthma, and even permanent lung damage. Finally, we also agree that SO_2 emissions that cause visibility impairment also contribute to increased asthma symptoms, lead to increased hospital visits, and can form particulates that aggravate respiratory and heart diseases and cause premature death. Thus, to the extent that this FIP will lead to reductions in these pollutants, there will be co-benefits for public health. However, for purposes of this action, we are not authorized to consider these benefits and we have not done so.

In our NPRM, while discussing Executive Order 13045 (Protection of Children from Environmental Health Risks and Safety Risks), we stated that, to the extent the proposed rule will limit emissions of NO_X, SO_2 and PM_{10}, the rule will have a beneficial effect on children's health by reducing air pollution. In this action, while discussing Executive Order 13045 (Protection of Children from Environmental Health Risks and Safety Risks), we conclude that this action does not have a disproportionate effect on children, but again note that to the extent this final action will limit emissions of NO_X, SO_2 and PM_{10}, the rule will have a beneficial effect on children's health by reducing air pollution that causes or exacerbates childhood asthma and other respiratory issues. However, we do not believe it is necessary or appropriate to quantify the extent of this beneficial effect because we are not relying upon health effects in the promulgation of this rule.

Comment: One commenter (Earthjustice) stated that the RHR rule

[280] For example, in response to detailed comments from NPS regarding the efficiency and cost of SCR, ADEQ stated that:

ADEQ has determined that the cost computations presented by the facilities in support of their BART applications are reasonable. Many of the computations are based on vendor data and site-specific conditions. The Department does not agree that the computations over-estimate the costs of retrofit technologies and under-estimate the associated emission decreases and visibility improvement.

[281] The commenter cited *Alaska Dep't of Envtl. Conservation* v. *EPA*, 540 U.S. 461, 470, 484 (2004); *Mont. Sulphur & Chem. Co.* v. *EPA*, 666 F.3d 1174, 1181 (9th Cir. 2012) to support the contention that Congress structured the CAA to provide expansive EPA oversight to ensure SIPs comply with the CAA. The commenter cited 42 U.S.C. 7410(c), (k); *EME Homer City Generation, L.P.* v. *EPA*, No. 11–1302, ____F.3d____, 2012 WL 3570721, at *17 (DC Cir. Aug. 21, 2012) to support the principle that EPA must issue a FIP when it determines that a SIP does not comply with the CAA.

[282] The commenter cited Clean Air Task Force, Death and Disease From Power Plants, *http://www.catf.us/fossil/problems/power_plants/existing/map.php?state=Arizona.*

provides important environmental benefits to plants and animals, soil health and entire ecosystems. The commenter noted that NO_X and SO_2 are the primary causes of acid rain, which acidifies lakes and streams, can damage certain types of trees and soils and accelerates the decay of building materials and paints, including irreplaceable buildings and statues that are part of our nation's cultural heritage. The commenter added that nitrogen deposition, caused by wet and dry deposition of nitrates derived from NO_X emissions, causes well-known adverse impacts on ecological systems. The commenter also noted that NO_X is a precursor to ozone, which impacts plants and ecosystems by interfering with plants' ability to produce food and increasing their susceptibility to disease and insects, and also contributes to wildfires and bark beetle outbreaks in the West by depressing plant water levels and growth.

Response: We appreciate the commenter's concerns regarding the negative ecosystem impacts of emissions from the units at issue. We agree that both NO_X and SO_2 cause acid rain and can have negative impacts on ecosystems, damaging plants, trees, and other vegetation (including crop yields), which could have a negative effect on species diversity in our ecosystems. However, for purposes of this Regional Haze action, we are not authorized to consider these ecosystem impacts. Therefore, while we note the potential for co-benefits to ecosystem health resulting from our action today, we have not taken these potential benefits into account in this action.

2. Comments on Economic Impacts

Comment: Many commenters, including state officials, private citizens and representatives of local governments, schools, and business groups, expressed concern over potential economic effects resulting from EPA's proposed BART determinations, asserting that EPA's action would result in rate increases and possibly closures of one or more power plants. Some commenters cautioned EPA that rate increases would impact at-risk populations, such as seniors on fixed incomes. The commenters emphasized that the three plants have a large financial impact on the communities where they are located (i.e., they provide jobs and tax revenue) and expressed their concern over the three plants' economic viability if the plants are forced to install SCR to reduce NO_X emissions. Several representatives of local school districts discussed the harm that large increases in electric power rates would do to their programs in this time of declining state support, and one representative of a local, nonprofit hospital similarly voiced the difficulty his facility would have in absorbing large rate increases. One commenter discussed the multiplier effect by which loss of income from any job losses or the reduction in disposable income due to increased power bills would ripple through the local economies and affect local businesses and employment. A few commenters discussed the impact on Arizona's water rates, and advised EPA to consider how these rate increases would affect Arizona's economy. A few commenters asserted that the proposed rule is intended to eliminate coal as a cheap and reliable energy source.

By contrast, one commenter (Earthjustice) stated that the RHR provides substantial economic benefits, which far outweigh the costs of pollution control technologies such as SCR. The commenter noted that EPA has valued the RHR's health benefits at $8.4 to $9.8 billion annually. The commenter further asserted that requiring power plants to invest in pollution controls creates short-term construction jobs as well as permanent operations and management positions. In addition, the commenter indicated that the national parks and wilderness areas protected by the RHR serve as engines for sustainable local capital, with national park visitors contributing approximately $30 billion to local economies and supporting 300,000 jobs nationwide. Regarding Arizona specifically, the commenter stated that over 4.3 million people visited the Grand Canyon in 2010, and this supported over 6,800 jobs and resulted in over $428 million in visitor spending, while tourism at Petrified Forest National Park, Saguaro National Park and Chiricahua National Monument in 2010 supported over 1,100 jobs and resulted in over $74 million in visitor spending. The commenter contended that studies show that national park visitors highly value clean air, readily perceive haze and are willing to cut short visits to national parks based on their perception of air quality.[283]

Response: As explained in our prior responses regarding economic issues, the BART Guidelines permit consideration of economic impacts only under "unusual circumstances" where a potential control option is expected to have a "severe impact on plant operations" or "result in significant economic disruption or unemployment." None of the commenters have provided any evidence that our action today would result in the closure of any of the affected units. We discuss many of the potential economic impacts raised as concerns here in the context of our analysis of affordability of controls to AEPCO, above. Finally, we acknowledge that today's action may have positive economic impacts, as described by Earthjustice. However, we have not taken potential economic benefits into account in our action.

3. Comments From Tribal Representatives and Members

Comment: One commenter (Navajo Nation) stated that comments on our proposed actions were provided pursuant to its government-to-government relationship with EPA. The commenter stated that this EPA rulemaking has adverse implications for a pending BART FIP for Navajo Generating Station, which is on Navajo Nation land and burns Navajo coal. The commenter also stated that this rule could impact BART decisions for Four Corners Power Plant, and San Juan Generating Station.

The commenter states that EPA has an obligation to consult with Navajo Nation on a government-to-government basis for EPA actions and decisions that may affect the Navajo Nation's interests, and reminds EPA that it must defer to tribal government policy decisions, just as it would a state, when promulgating a FIP on tribal lands.

The commenter further states that EPA has failed to analyze the cumulative effects of this rulemaking and the planned and proposed EPA actions on Navajo Generating Station, Four Corners Power Plant, and San Juan Generating Station, including both visibility improvement and potential regional economic impacts. The commenter noted that the fossil fuel economy is vitally important to the Four Corners region and the Navajo Nation, with many jobs and coal royalties at stake from loss of the area's coal fired power plants and their associated mines. The commenter states that EPA must consider these impacts, as well as the impacts of utility rate increases, in this BART decision for NO_X.

The commenter observed that it is possible to go forward without imposing a FIP in Arizona, as evidenced by the renewed consideration being given to the New Mexico regional haze SIP under the current stay on the proposed FIP for that state. The commenter stated

[283] The commenter cited and submitted as Exhibit 11 Abt Assocs. Inc., Out of Sight: The Science and Economics of Visibility Impairment, at ES–7 (2000), available at *http://www.abtassociates.com/reports/ES-clear.pdf.*

that the Navajo Nation, where two power plants that are undergoing EPA BART determinations are located, shares the concerns of Arizona and New Mexico regarding the economic impacts of requiring SCR. The commenter noted that the BART decision is not based only on the most effective control measures, but is to be based on an analysis of five factors which include non-air quality impacts such as economic impacts.

The commenter also asserted that real data should underpin EPA's decisions, rather than modeling alone. The commenter also contended that a public health baseline is needed in order to chart any public health improvements that result from such emission controls.

Response: EPA appreciates the comments provided by the Navajo Nation on our proposed action pursuant to its government-to-government relationship with EPA. As part of separate rulemakings, EPA has engaged in consultation with Navajo Nation regarding the Four Corners Power Plant [284] and San Juan Generating Station. EPA is currently engaged in active consultation with the Navajo Nation and other affected tribes on the Navajo Generating Station.

Today's rule approves Arizona's SIP (in part) and implements a FIP (in part) for Apache Units 2 and 3; Cholla Units 2, 3 and 4; and Coronado Units 1 and 2. This action has no retroactive effect on final BART determinations for other facilities. We disagree that this action has a nexus to the BART determination for Navajo Generating Station, because BART analyses, whether performed by the states or EPA, are conducted on a source-by-source basis, applying all five statutory factors to a facility on an individual basis. While there are certain commonalities among the sources mentioned by the commenter (e.g., all are coal-fired power plants), there are also significant differences that necessarily affect the case-by-case BART analysis. For example, the unit size, unit age, boiler type, existing controls, type of coal burned and proximity to Class I areas vary significantly among these sources. All of these differences have a bearing on at least one of the BART factors and thus on the ultimate BART determination. Given these various distinguishing factors, we do not agree that this rule will affect our BART determination for Navajo Generating Station.

We also do not agree that we are required to consider the cumulative effects of today's rulemaking together with rulemaking actions on other BART determinations as part of our action today. As noted above, under the CAA, the RHR and the BART Guidelines, BART determinations are made on a source-by-basis, taking into account the five statutory factors. The cumulative improvements from the various SIPs, FIPs, and BART determinations are addressed in analyses under the RHR requirements for Reasonable Progress, Long Term Strategies and future updates to the SIP, which are separate from BART analyses. These cumulative improvements will be influenced by changes in hundreds or thousands of emission sources, so are more appropriately addressed through use of a grid model, such as CAMx or CMAQ, rather than the CALPUFF model recommended in the BART Guidelines, which is geared to a far lower number of sources, and lacks the detailed chemistry of the grid models.

With regard to the economic concerns raised by the commenter, we are required by the CAA and the federal regulations implementing the CAA's BART provisions to evaluate (1) cost of compliance, (2) the energy and non-air quality environmental impacts of compliance, (3) any existing pollution control technology in use at the source, (4) remaining useful life of source, and (5) degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology. As explained in our prior responses regarding economic issues, the BART Guidelines permit consideration of economic impacts only under "unusual circumstances" where a potential control option is expected to have a "severe impact on plant operations" or "result in significant economic disruption or unemployment." None of the commenters have provided any evidence that our action today would result in the closure of any of the affected units or result in significant economic disruption. We also note that none of the sources affected by today's rulemaking currently purchase coal from a mine that operates on the Navajo Nation.

We take our duty to estimate the cost of controls very seriously, and make every attempt to make a thoughtful and well informed determination. However, we do not consider a potential increase in electricity rates to be the most appropriate type of analysis for considering the costs of compliance in a BART determination. Projections of electricity rate impacts are inherently fraught with uncertainty due to the numerous variables involved and the complexity of the regulatory regime governing the power sector. Nevertheless, as discussed elsewhere in this document, as part of our consideration of the affordability of controls on AEPCO, a small entity, we have analyzed the potential rate increases associated with our proposal for Apache Units 2 and 3. Given the uncertainty inherent in such an analysis, we have used conservative assumptions in an effort to guard against understating the potential rate impacts.

Regarding the comment that EPA should not rely on modeling alone, it is extremely difficult in observational analyses to sufficiently control for all factors, including emissions from other sources, to be able to isolate the impacts of closure of a facility. A model such as CALPUFF essentially holds constant a number of factors in order to isolate the impacts of a single source. As discussed elsewhere in this document, EPA affirms that the regulatory version of CALPUFF is the correct model to use for these BART determinations.

Assessing human exposure and quantifying health benefits are outside the scope of the requirements of the Regional Haze Rule. EPA sets National Ambient Air Quality Standards (NAAQS) to establish levels of air quality that are protective of public health, including the health of sensitive populations, for a number of pollutants including particulate matter. These "sensitive" populations include asthmatics, children, and the elderly. At this time the Navajo Nation is not identified as out of attainment with any of the NAAQS. However, EPA recognizes that there are significant concerns about risk and exposure to air pollutants on the Navajo Nation and EPA will continue discussions with the Navajo Nation and will involve other federal agencies, as appropriate, to help address these concerns.

Comment: Various other representatives and members of the Hopi and Navajo Tribes provided oral testimony and/or submitted written comments at one or more of the public hearings. Most tribal community members supported the proposed FIP and stated their belief that it will improve air quality and human health in Arizona. Several commenters recounted their personal experiences with the deterioration of visibility in the rural areas in which they live, declining water supplies due to water use in mining operations, and illnesses that they believe are attributable to air pollution from the power plants and mines in the area (e.g., asthma and bronchitis). A number of commenters pointed out that there are numerous old power plants in and around the Navajo

[284] See document titled: "Timeline of all tribal consultations on BART.docx" in the docket for this final rulemaking.

Nation, which they believe are causing air pollution that contributes to haze and an increase in the incidence of lung and heart disease and cancer in humans, as well as harming native plants and animals. Some of these commenters advocated for a conversion to renewable energy sources, which they believe will provide jobs, improve health, and reduce emissions that contribute to climate change. One commenter specifically suggested that EPA promote alternatives like natural gas and algae ponds as a source of energy.

One commenter indicated that reduced haze would improve tourism, resulting in increased jobs and tax receipts. Another tribal commenter stated that before acting, EPA should evaluate the impact on employment and on the Hopi's revenue from coal if the FIP causes power plants to close.

One tribal commenter alleged that the National Academy of Sciences did a study a number of years ago that concluded that some areas of the country could be designated as "national sacrifice areas" that would be used for national priorities, irrespective of resulting permanent environmental damages. According to the commenter, many Indian reservations are located in such areas, such as all of the Navajo and Hopi reservations. The commenter asserted that the study concluded that the well-being of the people in such areas can be forfeited so that the rest of the country can enjoy cheap energy.

Response: EPA acknowledges the comments. Neither Section 169A of the CAA nor the BART Guidelines requires that BART analyses include or quantify benefits to health or tourism or impact on employment. EPA does not intend for this action to cause any power plants to close. Although a quantitative analysis of the health and tourism benefits is beyond the scope of what is required under BART EPA agrees with commenters that emission reductions achieved to improve visibility will also improve air quality. Improved air quality, in turn, affects public health and may enhance tourism in the area. EPA notes that even if we had quantified the benefits to health and tourism, such an analysis would not likely have altered the outcome of our BART determination.

Renewable energy technology is not a retrofit option for the sources subject to BART and is therefore outside the scope of our BART determination. As noted in the BART Guidelines, "[w]e do not consider BART as a requirement to redesign the source when considering available control alternatives. For example, where the source subject to BART is a coal-fired electric generator, we do not require the BART analysis to consider building a natural gas-fired electric turbine although the turbine may be inherently less polluting on a per unit basis."[285] Therefore, we did not consider such alternatives as part of our BART analyses. Nonetheless, we acknowledge that many kinds of renewable energy do not produce haze-causing pollutants, and transitioning to those sources of energy could lead to visibility improvements.

The CAA applies equally to all parts of the United States. In making a determination in this case, we have applied the applicable provisions of the CAA and the RHR. We have also considered other applicable requirements, including Executive Order 12898,[286] which establishes federal executive policy on environmental justice. This Executive Order directs federal agencies, to the greatest extent practicable and permitted by law, to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations in the United States.

EPA has determined that our final rule will not have disproportionately high and adverse human health or environmental effects on minority or low-income populations because it increases the level of environmental protection for all affected populations without having any disproportionately high and adverse human health or environmental effects on any population, including any minority or low-income population. This rule requires emissions reductions of NOx from three facilities in Arizona. The partial approval of the SIP approves state law as meeting Federal requirements.

Comment: One commenter suggested that EPA investigate the technology of cooling steam exhaust through a magnetic refrigerator to remove NO_2 as a liquid, since it would condense at the relatively high temperature of 294 K or 70 degrees F (boiling point).

Response: The BART Guidelines provide that:

> Technologies which have not yet been applied to (or permitted for) full scale operations need not be considered as available; we do not expect the source owner to purchase or construct a process or control device that has not already been demonstrated in practice.[287]

The Guidelines further provide that:

> In order to provide certainty in the process, all technologies should be considered if available before the close of the State's public comment period. You need not consider technologies that become available after this date.

The commenter has not provided evidence that this technology has been demonstrated in practice or that it was available before the close of the State's public comment period. Therefore, we have not considered it as a potential control option. An additional consideration is that typically 90 percent of the NO_X from combustion is emitted in the form of NO, rather than NO_2. Since the boiling point of NO is 121 K or −242 degrees F, much lower than for NO_2, and the stack exit temperature is the range of 300–400 K or 120–280 degrees F, a large degree of cooling would be necessary to condense the NO, and so the energy costs could be substantial.

4. Requests for Extension of Comment Period and Additional Hearings

Comment: A number of commenters remarked on EPA's timeline for soliciting public comments, and stated that they believe that the time allowed was insufficient. One commenter requested more public hearings, and another commenter requested a 90-day extension of the deadline for comments (starting from July 18, 2012), so that the public has ample time to review, analyze, comment, and react to the rule and in particular EPA's Technical Support Document. The commenter added that an extension would allow the ADEQ the opportunity to further collaborate with EPA in revising the state's SIP submittal (for the purpose of nullifying the proposed FIP), and thereby adhering to the intent of the CAA.

Response: As explained above, our proposed rule, which was signed on July 2, 2012 and published in the **Federal Register** on July 20, 2012,[288] provided for a public hearing in Phoenix, Arizona, on July 31, 2012, and a public comment deadline of August 31, 2012. In response to requests from various parties for a longer comment period and additional hearings, we extended the public comment period to a total of sixty days from publication in the **Federal Register**.[289] We also scheduled two more public hearings in

[285] BART Guidelines, 40 CFR Part 51, Appendix Y, section IV.D.1.

[286] 59 FR 7629, February 16, 1994.

[287] BART Guidelines, 40 CFR Part 51, Appendix Y, section IV.D.1.

[288] 77 FR 42834.

[289] See 77 FR 45326 (July 31, 2012).

Southern Arizona (Benson) and in Northern Arizona (Holbrook) on August 14 and 15, 2012, respectively.

Comment: One comment letter signed by 728 residents, business owners, citizens and other interested parties urged EPA to extend the comment period on our proposal and provide additional hearings near the Cholla Power Plant.

Response: As noted the preceding response, we extended the comment period on our propose rule and we held additional public hearings, including one in Holbrook, Arizona, near the Cholla Power Plant.

V. Summary of Final Action

EPA is taking final action to approve in part and disapprove in part a portion of Arizona's SIP for Regional Haze and to promulgate a FIP for the disapproved elements of the SIP. This final action addresses only the State's BART determinations for the specified units at the three power plants. We will propose action on the remainder of Arizona's Regional Haze SIP in a separate notice. EPA takes very seriously a decision to disapprove portions of a state plan. In this instance, we find that the State's NO_X BART determinations for the coal-fired units are not consistent with the requirements of the Act and the RHR. In addition, the SIP lacks the necessary compliance deadlines and requirements for equipment maintenance and operation, including monitoring, recordkeeping and reporting requirements for all pollutants at all of the BART units. As a result, we find that this final disapproval is the only path that is consistent with the Act at this time.

EPA estimates this action will improve visibility at 18 Class I areas by reducing NO_X emissions from three power plants by about 22,700 tons per year. The total costs associated with these reductions, according to the supplemental cost analysis we performed based on cost estimates provided by the facility owners, are summarized in Table 18.

TABLE 18—SUMMARY OF SUPPLEMENTAL COST ANALYSIS

	Capital cost ($)	Annualized capital cost ($/yr)	Annual O&M ($/yr)	Total annualized cost ($/yr)	Cost-effectiveness
Apache Unit 2	$82,481,439	$7,785,664	$1,760,600	$9,546,264	$3,450
Apache Unit 3	82,481,439	7,785,664	1,760,600	9,546,264	2,973
Cholla Unit 2	87,713,386	8,279,523	1,626,683	9,906,206	2,979
Cholla Unit 3	83,461,195	7,878,146	1,570,766	9,448,912	2,838
Cholla Unit 4	119,083,832	11,240,671	2,350,182	13,590,853	3,083
Coronado Unit 1	80,633,219	7,611,205	4,492,736	12,103,941	2,135
Coronado Unit 2	2,500,000	235,982		235,982	1,900

VI. Statutory and Executive Order Reviews

A. Executive Order 12866: Regulatory Planning and Review

This action finalizes approval of a source-specific portion of the Arizona SIP and a Regional Haze FIP for units at three facilities in Arizona. This action is not a rule of general applicability, and not a "significant regulatory action" under the terms of Executive Order 12866 (58 FR 51735, October 4, 1993). This type of action is exempt from review under Executive Order (EO) 12866 (58 FR 51735, October 4, 1993) and is therefore not subject to review under Executive Order 13563 (76 FR 3821, January 21, 2011).

B. Paperwork Reduction Act

This action does not impose an information collection burden under the provisions of the Paperwork Reduction Act, 44 U.S.C. 3501 et seq. Burden is defined at 5 CFR 1320.3(b). Because this action will finalize approval of a source-specific portion of the Arizona SIP and a Regional Haze FIP for units at only three facilities in Arizona, the Paperwork Reduction Act does not apply. See 5 CFR 1320.3(c). An agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid Office of Management and Budget (OMB) control number. The OMB control numbers for our regulations in 40 CFR are listed in 40 CFR part 9.

C. Regulatory Flexibility Act

The Regulatory Flexibility Act (RFA) generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small organizations, and small governmental jurisdictions. For purposes of assessing the impacts of today's rule on small entities, small entity is defined as: (1) A small business as defined by the Small Business Administration's (SBA) regulations at 13 CFR 121.201; (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field. This action finalizes approval of a source-specific portion of the Arizona SIP and a Regional Haze FIP for units at three electric generating facilities in Arizona. Firms primarily engaged in the generation, transmission, and/or distribution of electric energy for sale are small if, including affiliates, the total electric output for the preceding fiscal year did not exceed 4 million megawatt hours. Only one of the three facilities affected by this action is a small entity: AEPCO sold under 3 million megawatt hours in 2011.

Although a regulatory flexibility analysis as specified by the RFA is not required when a rule has impact on only one small entity, EPA estimated the potential impact to AEPCO of our proposal to require SCR in AEPCO's Units 1 and 2. EPA also requested information from AEPCO on the economics of operating Apache Generating Station and what impact the installation of SCR may have on the economics of operating Apache Generating Station. A summary of the comments regarding the impact of this action on AEPCO, and EPA's response to those concerns, is provided in section I.V. of this preamble. After considering the economic impacts of this action on small entities, I certify that this action will not have a significant economic impact on a substantial number of small

entities. The FIP for the three Arizona facilities being issued today does not impose new requirements on a substantial number of small entities because one significantly impacted small entity is not a "substantial" number. Finalizing approval of a source-specific portion of the Arizona Regional Haze SIP merely approves state law as meeting Federal requirements and imposes no additional requirements beyond those imposed by state law. See *Mid-Tex Electric Cooperative, Inc.* v. *FERC*, 773 F.2d 327 (D.C. Cir. 1985).

D. Unfunded Mandates Reform Act (UMRA)

Unfunded Mandates Reform Act of 1995 (UMRA), Public Law 104–4, establishes requirements for Federal agencies to assess the effects of their regulatory actions on State, local, and Tribal governments and the private sector. Under section 202 of UMRA, EPA generally must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with "Federal mandates" that may result in expenditures to State, local, and Tribal governments, in the aggregate, or to the private sector, of $100 million or more (adjusted for inflation) in any one year. Before promulgating an EPA rule for which a written statement is needed, section 205 of UMRA generally requires EPA to identify and consider a reasonable number of regulatory alternatives and to adopt the least costly, most cost-effective, or least burdensome alternative that achieves the objectives of the rule. The provisions of section 205 of UMRA do not apply when they are inconsistent with applicable law. Moreover, section 205 of UMRA allows EPA to adopt an alternative other than the least costly, most cost-effective, or least burdensome alternative if the Administrator publishes with the final rule an explanation why that alternative was not adopted. Before EPA establishes any regulatory requirements that may significantly or uniquely affect small governments, including Tribal governments, it must have developed under section 203 of UMRA a small government agency plan. The plan must provide for notifying potentially affected small governments, enabling officials of affected small governments to have meaningful and timely input in the development of EPA regulatory proposals with significant Federal intergovernmental mandates, and informing, educating, and advising small governments on compliance with the regulatory requirements.

Under Title II of UMRA, EPA has determined that this rule does not contain a Federal mandate that may result in expenditures that exceed the inflation-adjusted UMRA threshold of $100 million (in 1996 dollars) by State, local, or Tribal governments or the private sector in any 1 year. In addition, this rule does not contain a significant Federal intergovernmental mandate as described by section 203 of UMRA nor does it contain any regulatory requirements that might significantly or uniquely affect small governments.

E. Executive Order 13132: Federalism

This action does not have federalism implications. It will not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132, because it addresses the State not fully meeting its obligation to protect visibility established in the CAA and this final action will reduce the emissions of NO_X from three facilities in Arizona. Thus, Executive Order 13132 does not apply to this action. Although section 6 of Executive Order 13132 does not apply to this action, a summary of the concerns raised by State and local officials, and EPA's response to those concerns is provided in section I.V. of this preamble.

F. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments

Subject to the Executive Order 13175 (65 FR 67249, November 9, 2000) EPA may not issue a regulation that has tribal implications, that imposes substantial direct compliance costs, and that is not required by statute, unless the Federal government provides the funds necessary to pay the direct compliance costs incurred by tribal governments, or EPA consults with tribal officials early in the process of developing the proposed regulation and develops a tribal summary impact statement. We believe this rule does not have tribal implications, as specified in Executive Order 13175, and will not have substantial direct effects on tribal governments. Thus, Executive Order 13175 does not apply to this rule. However, in our proposal we requested comment on our proposed rule from tribal officials. The Navajo Nation Environmental Protection Agency provided comments on our proposed rule, both orally at a public hearing and by letter, which EPA considered in developing this final rule. EPA's summary of these comments and our response to Navajo Nation is provided in section I.V. of this preamble.

G. Executive Order 13045: Protection of Children From Environmental Health Risks and Safety Risks

Executive Order 13045: Protection of Children from Environmental Health Risks and Safety Risks (62 FR 19885, April 23, 1997), applies to any rule that: (1) Is determined to be economically significant as defined under Executive Order 12866; and (2) concerns an environmental health or safety risk that we have reason to believe may have a disproportionate effect on children. EPA interprets EO 13045 as applying only to those regulatory actions that concern health or safety risks, such that the analysis required under section 5–501 of the EO has the potential to influence the regulation. This action is not subject to EO 13045 because it implements specific standards established by Congress in statutes. Also, because this action only applies to three sources and is not a rule of general applicability, it is not economically significant as defined under Executive Order 12866, and the rule also does not have a disproportionate effect on children. However, to the extent this action will limit emissions of NO_X, SO_2, and PM_{10}, the rule will have a beneficial effect on children's health by reducing air pollution that causes or exacerbates childhood asthma and other respiratory issues.

H. Executive Order 13211: Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use

This action is not subject to Executive Order 13211 (66 FR 28355 (May 22, 2001)), because it is not a significant regulatory action under Executive Order 12866.

I. National Technology Transfer and Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (NTTAA), Public Law 104–113, 12 (10) (15 U.S.C. 272 note) directs EPA to use voluntary consensus standards (VCS) in its regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. VCS are technical standards (e.g., materials specifications, test methods, sampling procedures and business practices) that are developed or adopted by the VCS bodies. The NTTAA directs EPA to provide Congress, through annual reports to OMB, with explanations when the Agency decides not to use available and applicable VCS. The

rulemaking involves technical standards. Therefore, the Agency conducted a search to identify potentially applicable voluntary consensus standards. However, we identified no such standards, and none were brought to our attention in comments. Therefore, EPA has decided to use 40 CFR Part 60 Appendix A Method 5, 40 CFR Part 51 Appendix M Methods 201A/202, 40 CFR Part 60 Appendix A Method 19, and 40 CFR Part 75.

J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations

Executive Order 12898 (59 FR 7629, February 16, 1994), establishes federal executive policy on environmental justice. Its main provision directs federal agencies, to the greatest extent practicable and permitted by law, to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations in the United States. EPA has determined that this final rule will not have disproportionately high and adverse human health or environmental effects on minority or low-income populations because it increases the level of environmental protection for all affected populations without having any disproportionately high and adverse human health or environmental effects on any population, including any minority or low-income population. This rule requires emissions reductions of NO_X from three facilities in Arizona. The partial approval of the SIP merely approves state law as meeting Federal requirements and imposes no additional requirements beyond those imposed by state law.

K. Congressional Review Act

The Congressional Review Act, 5 U.S.C. 801 *et seq.*, as added by the Small Business Regulatory Enforcement Fairness Act of 1996, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and to the Comptroller General of the United States. Section 804 exempts from section 801 the following types of rules (1) rules of particular applicability; (2) rules relating to agency management or personnel; and (3) rules of agency organization, procedure, or practice that do not substantially affect the rights or obligations of non-agency parties. 5 U.S.C. 804(3). EPA is not required to submit a rule report regarding today's action under section 801 because this is a rule of particular applicability and only applies to three facilities.

L. Petitions for Judicial Review

Under section 307(b)(1) of the Clean Air Act, petitions for judicial review of this action must be filed in the United States Court of Appeals for the appropriate circuit by February 4, 2013. Filing a petition for reconsideration by the Administrator of this final rule does not affect the finality of this rule for the purposes of judicial review nor does it extend the time within which a petition for judicial review may be filed, and shall not postpone the effectiveness of such rule or action. This action may not be challenged later in proceedings to enforce its requirements. (See CAA section 307(b)(2).)

List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Incorporation by reference, Intergovernmental relations, Nitrogen oxides, Sulfur dioxide, Particulate matter, Reporting and recordkeeping requirements, Visibility, Volatile organic compounds.

Dated: November 15, 2012.

Lisa P. Jackson,

Administrator.

Part 52, chapter I, title 40 of the Code of Federal Regulations is amended as follows:

PART 52—APPROVAL AND PROMULGATION OF IMPLEMENTATION PLANS

■ 1. The authority citation for Part 52 continues to read as follows:

Authority: 42 U.S.C. 7401 *et seq.*

Subpart D—Arizona

■ 2. Section 52.120 is amended by adding paragraph (c)(154) to read as follows:

§ 52.120 Identification of plan.

* * * * *

(c) * * *

(154) The following plan was submitted February 28, 2011, by the Governor's designee.

(i) [Reserved]

(ii) Additional materials.

(A) Arizona Department of Environmental Quality.

(*1*) Arizona State Implementation Plan, Regional Haze Under Section 308 of the Federal Regional Haze Rule: Appendix D, Arizona BART—Supplemental Information:

(*i*) Table 1.1—NO_X BART, entry for AEPCO [Apache], ST1 [Unit 1] only.

(*ii*) Table 1.2—PM_{10} BART, entries for AEPCO [Apache], APS Cholla Power Plant and SRP Coronado Generating Station.

(*iii*) Table 1.3—SO_2 BART, entries for AEPCO, APS Cholla Power Plant and SRP Coronado Generating Station.

■ 3. Section 52.145 is amended by adding paragraphs (e) and (f) to read as follows:

§ 52.145 Visibility protection.

* * * * *

(e) *Approval.* On February 28, 2011, the Arizona Department of Environmental Quality submitted the "Arizona State Implementation Plan, Regional Haze Under Section 308 of the Federal Regional Haze Rule" ("Arizona Regional Haze SIP").

(1) With the exception of the NO_X BART determinations for Units ST2 and ST3 at AEPCO Apache Generating Station; Units 2, 3, and 4 at APS Cholla Power Plant; and Units 1 and 2 at SRP Coronado Generating Station, and the BART compliance provisions for all BART emissions limits at the eight units at the three power plants, the BART determinations for AEPCO Apache Generating Station, APS Cholla Power Plant, and SRP Coronado Generating Station in the Arizona Regional Haze SIP meet the applicable requirements of Clean Air Act sections 169A and 169B and the Regional Haze Rule in 40 CFR 51.301 through 51.308.

(f) *Source-specific federal implementation plan for regional haze at Apache Generating Station, Cholla Power Plant, and Coronado Generating Station* — (1) *Applicability.* This paragraph (f) applies to each owner/operator of the following coal-fired electricity generating units (EGUs) in the state of Arizona: Apache Generating Station, Units 2 and 3; Cholla Power Plant, Units 2, 3, and 4; and Coronado Generating Station, Units 1 and 2. This paragraph (f) also applies to each owner/operator of the following natural gas-fired EGUs in the state of Arizona: Apache Generating Station Unit 1. The provisions of this paragraph (f) are severable, and if any provision of this paragraph (f), or the application of any provision of this paragraph (f) to any owner/operator or circumstance, is held invalid, the application of such provision to other owner/operators and other circumstances, and the remainder of this paragraph (f), shall not be affected thereby.

(2) *Definitions.* Terms not defined below shall have the meaning given to them in the Clean Air Act or EPA's

regulations implementing the Clean Air Act. For purposes of this paragraph (f):

ADEQ means the Arizona Department of Environmental Quality.

Boiler-operating day means a 24-hour period between 12 midnight and the following midnight during which any fuel is combusted at any time in the unit.

Coal-fired unit means any of the EGUs identified in paragraph (f)(1) of this section, except for Apache Generating Station, Unit 1.

Continuous emission monitoring system or CEMS means the equipment required by 40 CFR Part 75 and this paragraph (f).

Emissions limitation or emissions limit means any of the Federal Emission Limitations required by this paragraph (f) or any of the applicable PM_{10} and SO_2 emissions limits for Apache Generating Station, Cholla Power Plant, and Coronado Generating Station submitted to EPA as part of the Arizona Regional Haze SIP in a letter dated February 28, 2011, and approved into the Arizona State Implementation Plan on December 5, 2012.

Flue Gas Desulfurization System or FGD means a pollution control device that employs flue gas desulfurization technology, including an absorber utilizing lime, fly ash, or limestone slurry, for the reduction of sulfur dioxide emissions.

Group of coal-fired units mean Units 1 and 2 for Coronado Generating Station; Units 2 and 3 for Apache Generating Station; and Units 2, 3, and 4 for Cholla Power Plant.

lb means pound(s).

NO_X means nitrogen oxides expressed as nitrogen dioxide (NO_2).

Owner(s)/operator(s) means any person(s) who own(s) or who operate(s), control(s), or supervise(s) one or more of the units identified in paragraph (f)(1) of this section.

MMBtu means million British thermal unit(s).

Operating hour means any hour that fossil fuel is fired in the unit.

PM_{10} means filterable total particulate matter less than 10 microns and the condensable material in the impingers as measured by Methods 201A and 202.

Regional Administrator means the Regional Administrator of EPA Region IX or his/her authorized representative.

SO_2 means sulfur dioxide.

SO_4 removal efficiency means the quantity of SO_2 removed as calculated by the procedure in paragraph (f)(5)(iii)(B) of this section.

Unit means any of the EGUs identified in paragraph (f)(1) of this section.

Valid data means data recorded when the CEMS is not out-of-control as defined by Part 75.

(3) *Federal emission limitations.*—(i) *NO_X* emission limitations. The owner/operator of each coal-fired unit subject to this paragraph (f) shall not emit or cause to be emitted NO_X in excess of the following limitations, in pounds per million British thermal units (lb/MMBtu) from any group of coal-fired units. Each emission limit shall be based on a rolling 30-boiler-operating-day average, unless otherwise indicated in specific paragraphs.

Group of coal-fired units	Federal emission limitation
Apache Generating Station Units 2 and 3	0.070
Cholla Power Plant Units 2, 3, and 4	0.055
Coronado Generating Station Units 1and 2	0.065

(ii) *SO_2 removal efficiency requirement.* The owners/operators of Cholla Power Plant Units 2, 3, and 4 shall achieve and maintain a 30-day rolling average SO_2 removal efficiency of 95 percent at each unit.

(4) *Compliance dates.* (i) The owners/operators of each unit subject to this paragraph (f) shall comply with the NO_X emissions limitations and other NO_X-related requirements of this paragraph (f) no later than December 5, 2017.

(ii) The owners/operators of each unit subject to this paragraph (f) shall comply with the applicable PM_{10} and SO_2 emissions limits submitted to EPA as part of the Arizona Regional Haze SIP in a letter dated February 28, 2011, and approved into the Arizona State Implementation Plan on December 5, 2012, as well as the related compliance, recordkeeping and reporting of this paragraph (f) no later than the following dates:

Unit	Compliance date	
	PM_{10}	SO_2
Apache Generating Station, Unit 1	June 3, 2013	June 3, 2013.
Apache Generating Station, Unit 2	December 5, 2016	December 5, 2016.
Apache Generating Station, Unit 3	December 5, 2016	December 5, 2016.
Cholla Power Plant, Unit 2	April 1, 2016	April 1, 2016.
Cholla Power Plant, Unit 3	June 3, 2013	June 3, 2013.
Cholla Power Plant, Unit 4	June 3, 2013	June 3, 2013.
Coronado Generating Station, Unit 1	June 3, 2013	June 3, 2013.
Coronado Generating Station, Unit 2	June 3, 2013	June 3, 2013.

(iii) The owners/operators of Cholla Power Plant Units 2, 3 and 4 shall comply with the SO_2 removal efficiency requirement in paragraph (f)(5)(iii)(B) of this section all related compliance, recordkeeping and reporting requirements no later than the following dates:

Cholla Power Plant, Unit 2.	April 1, 2016.
Cholla Power Plant, Unit 3.	December 5, 2013.
Cholla Power Plant, Unit 4.	December 5, 2013.

(5) *Compliance determinations for NO_X and SO_4*—(i) *Continuous emission monitoring system.*

(A) At all times after the compliance date specified in paragraph (f)(4) of this section, the owner/operator of each coal-fired unit shall maintain, calibrate, and operate a CEMS, in full compliance with the requirements found at 40 CFR Part 75, to accurately measure SO_2, NO_X, diluent, and stack gas volumetric flow rate from each unit. In addition, the owner/operator of Cholla Units 2, 3, and 4 shall calibrate, maintain, and operate a CEMS, in full compliance with the requirements found at 40 CFR Part 75, to accurately measure SO_2 emissions and diluent at the inlet of the sulfur dioxide control device. Apache Unit 1 NO_X and diluent CEMs shall be operated to meet the requirements of Part 75. All valid CEMS hourly data shall be used to determine compliance with the emission limitations for NO_X and SO_2 in paragraph (f)(3) of this section for each unit. When the CEMS is out-of-control as defined by Part 75, that CEMs data shall be treated as missing data and not used to calculate the emission average. Each required

CEMS must obtain valid data for at least 90 percent of the unit operating hours, on an annual basis.

(B) The owner/operator of each unit shall comply with the quality assurance procedures for CEMS found in 40 CFR Part 75. In addition to these Part 75 requirements, relative accuracy test audits shall be calculated for both the NO_X and SO_2 pounds per hour measurement and the heat input measurement. The CEMs monitoring data shall not be bias adjusted. The inlet SO_2 and diluent monitors required by this rule shall also meet the Quality Assurance/Quality Control (QA/QC) requirements of Part 75. The testing and evaluation of the inlet monitors and the calculations of relative accuracy for lb/hr of NO_X, SO_2 and heat input shall be performed each time the Part 75 CEMS undergo relative accuracy testing. In addition, relative accuracy test audits shall be performed in the units of lb/MMBtu for the inlet and outlet SO_2 monitors at Cholla Units 2, 3, and 4. Heat input for Apache Unit 1 shall be measured in accordance with Part 75 fuel gas measurement procedures found in 40 CFR Part 75, Appendix D.

(ii) *Compliance determinations for NO_X.* (A) The 30-day rolling average NO_X emission rate for each group of coal-fired units shall be calculated for each calendar day, even if a unit is not in operation on that calendar day, in accordance with the following procedure: step one, for each unit, sum the hourly pounds of NO_X emitted during the current boiler-operating day (or most recent boiler-operating day if the unit is not in operation), and the preceding twenty-nine (29) boiler-operating days, to calculate the total pounds of NO_X emitted over the most recent thirty (30) boiler-operating day period for each coal-fired unit; step two, for each unit, sum the hourly heat input, in MMBtu, during the current boiler-operating day (or most recent boiler-operating day if the unit is not in operation), and the preceding twenty-nine (29) boiler-operating days, to calculate the total heat input, in MMBtu, over the most recent thirty (30) boiler-operating day period for each coal-fired unit; step 3, sum together the total pounds of NO_X emitted from the group of coal-fired units over each unit's most recent thirty (30) boiler-operating day period (the most recent 30 boiler-operating day periods for different units may be different); step four, sum together the total heat input from the group of coal-fired units over each unit's most recent thirty (30) boiler-operating day period; and step five, divide the total pounds of NO_X emitted from step three by the total heat input from step four for each group of coal-fired units, to calculate the 30-day rolling average NO_X emission rate for each group of coal-fired units, in pounds of NO_X per MMBtu, for each calendar day. Each 30-day rolling average NO_X emission rate shall include all emissions and all heat input that occur during all periods within any boiler-operating day, including emissions from startup, shutdown, and malfunction.

(B) The 30-day rolling average NO_X emission rate for Apache Unit 1 shall be calculated in accordance with the following procedure: step one, sum the total pounds of NO_X emitted from the unit during the current boiler-operating day and the previous twenty-nine (29) boiler-operating days; step two, sum the total heat input to the unit in MMBtu during the current boiler-operating day and the previous twenty-nine (29) boiler-operating days; and step three, divide the total number of pounds of NO_X emitted during the thirty (30) boiler-operating days by the total heat input during the thirty (30) boiler-operating days. A new 30-day rolling average NO_X emission rate shall be calculated for each new boiler-operating day. Each 30-day rolling average NO_X emission rate shall include all emissions and all heat input that occur during all periods within any boiler-operating day, including emissions from startup, shutdown, and malfunction.

(C) If a valid NO_X pounds per hour or heat input is not available for any hour for a unit, that heat input and NO_X pounds per hour shall not be used in the calculation of the 30-day rolling average.

(iii) *Compliance determinations for SO_2.* (A) The 30-day rolling average SO_2 emission rate for each coal-fired unit shall be calculated in accordance with the following procedure: Step one, sum the total pounds of SO_2 emitted from the unit during the current boiler-operating day and the previous twenty-nine (29) boiler-operating days; step two, sum the total heat input to the unit in MMBtu during the current boiler-operating day and the previous twenty-nine (29) boiler-operating day; and step three, divide the total number of pounds of SO_2 emitted during the thirty (30) boiler-operating days by the total heat input during the thirty (30) boiler-operating days. A new 30-day rolling average SO_2 emission rate shall be calculated for each new boiler-operating day. Each 30-day rolling average SO_2 emission rate shall include all emissions and all heat input that occur during all periods within any boiler-operating day, including emissions from startup, shutdown, and malfunction.

(B) The 30-day rolling average SO_2 removal efficiency for Cholla Units 2, 3, and 4 shall be calculated as follows: Step one, sum the total pounds of SO_2 emitted as measured at the outlet of the FGD system for the unit during the current boiler-operating day and the previous twenty-nine (29) boiler-operating days as measured at the outlet of the FGD system for that unit; step two, sum the total pounds of SO_2 delivered to the inlet of the FGD system for the unit during the current boiler-operating day and the previous twenty-nine (29) boiler-operating days as measured at the inlet to the FGD system for that unit (for each hour, the total pounds of SO_2 delivered to the inlet of the FGD system for a unit shall be calculated by measuring the ratio of the lb/MMBtu SO_2 inlet to the lb/MMBtu SO_2 outlet and multiplying the outlet pounds of SO_2 by that ratio); step three, subtract the outlet SO_2 emissions calculated in step one from the inlet SO_2 emissions calculated in step two; step four, divide the remainder calculated in step three by the inlet SO_2 emissions calculated in step two; and step five, multiply the quotient calculated in step four by 100 to express as a percentage removal efficiency. A new 30-day rolling average SO_2 removal efficiency shall be calculated for each new boiler-operating day, and shall include all emissions that occur during all periods within each boiler-operating day, including emissions from startup, shutdown, and malfunction.

(C) If a valid SO_2 pounds per hour at the outlet of the FGD system or heat input is not available for any hour for a unit, that heat input and SO_2 pounds per hour shall not be used in the calculation of the 30-day rolling average.

(D) If both a valid inlet and outlet SO_2 lb/MMBtu and an outlet value of lb/hr of SO_2 are not available for any hour, that hour shall not be included in the efficiency calculation.

(6) *Compliance determinations for particulate matter.* Compliance with the particulate matter emission limitation for each coal-fired unit shall be determined from annual performance stack tests. Within sixty (60) days of the compliance deadline specified in paragraph (f)(4) of this section, and on at least an annual basis thereafter, the owner/operator of each unit shall conduct a stack test on each unit to measure PM_{10} using EPA Method 5, in 40 CFR part 60, Appendix A, or Method 201A/202 in 40 CFR Part 51, Appendix M. A test protocol shall be submitted to EPA and ADEQ a minimum of 30 days prior to the scheduled testing. The protocol shall identify which method(s)

will be used to demonstrate compliance. Each test shall consist of three runs, with each run at least 120 minutes in duration and each run collecting a minimum sample of 60 dry standard cubic feet. Results shall be reported in lb/MMBtu using the calculation in 40 CFR Part 60 Appendix A Method 19. In addition to annual stack tests, the owner/operator shall monitor particulate emissions for compliance with the emission limitations in accordance with the applicable Compliance Assurance Monitoring (CAM) plan developed and approved in accordance with 40 CFR Part 64. The averaging time for any other demonstration of the PM_{10} compliance or exceedance shall be based on a 6-hour average.

(7) *Recordkeeping.* The owner or operator of each unit shall maintain the following records for at least five (5) years:

(i) All CEMS data, including the date, place, and time of sampling or measurement; parameters sampled or measured; and results.

(ii) Daily 30-day rolling emission rates for NO_X and SO_2 and SO_2 removal efficiency, when applicable, for each unit, calculated in accordance with paragraph (f)(5) of this section.

(iii) Records of quality assurance and quality control activities for emissions measuring systems including, but not limited to, any records required by 40 CFR Part 75.

(iv) Records of the relative accuracy test for hourly NO_X and SO_2 lb/hr measurement and hourly heat input measurement.

(v) Records of all major maintenance activities conducted on emission units, air pollution control equipment, and CEMS.

(vi) Any other records required by 40 CFR Part 75.

(8) *Reporting.* All reports and notifications under this paragraph (f) shall be submitted to the Director of Enforcement Division, U.S. EPA Region IX, at 75 Hawthorne Street, San Francisco, CA 94105.

(i) The owner/operator shall notify EPA within two weeks after completion of installation of combustion controls or Selective Catalytic Reactors on any of the units subject to this section.

(ii) Within 30 days after the applicable compliance date(s) in paragraph (f)(4) of this section and within 30 days of every second calendar quarter thereafter (i.e., semi-annually), the owner/operator of each unit shall submit a report that lists the daily 30-day rolling emission rates for NO_X and SO_2 for each unit and, for Cholla Units 2, 3, and 4, the SO_2 removal efficiency, calculated in accordance with paragraph (f)(5) of this section. Included in this report shall be the results of any relative accuracy test audit performed during the two preceding calendar quarters.

(9) *Enforcement.* Notwithstanding any other provision in this implementation plan, any credible evidence or information relevant as to whether the unit would have been in compliance with applicable requirements if the appropriate performance or compliance test had been performed, can be used to establish whether or not the owner or operator has violated or is in violation of any standard or applicable emission limit in the plan.

(10) *Equipment operations.* At all times, including periods of startup, shutdown, and malfunction, the owner or operator shall, to the extent practicable, maintain and operate the unit including associated air pollution control equipment in a manner consistent with good air pollution control practices for minimizing emissions. Pollution control equipment shall be designed and capable of operating properly to minimize emissions during all expected operating conditions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Regional Administrator which may include, but is not limited to, monitoring results, review of operating and maintenance procedures, and inspection of the unit.

(11) *Affirmative defense for malfunctions.* The following regulations are incorporated by reference and made part of this federal implementation plan:

(i) R–18–2–101, paragraph 65;

(ii) R18–2–310, sections (A), (B), (D) and (E) only; and

(iii) R18–2–310.01.

[FR Doc. 2012–28565 Filed 12–4–12; 8:45 am]

BILLING CODE 6560–50–P

Message

From: Maeng, Yujin [Yujin.Maeng@americanbar.org]
Sent: 9/27/2018 7:27:33 PM
To: sbroome@huntonak.com; dpettit@nrdc.org; Woods, Clint [woods.clint@epa.gov]
CC: jsantini@parsonsbehle.com
Subject: 26th Fall Conference: Paper Deadline Reminder
Attachments: 26fallregform_speaker.pdf; ppt_template_and_guidelines.ppt; SEER_26thFallConf_brochure_web.pdf

Dear Conference Speakers and Moderators:

Abstracts/Papers
This serves as a reminder that final abstracts/papers are due by **Friday, September 28, 2018**. If you haven't done so already, please email your course materials to your panelists, your Planning Committee Liaison, and myself.

The Section recognizes authors of the "Best Papers" prepared for each major CLE conference. Authors must submit papers on time and papers are evaluated by the conference planning committee on originality, quality, analysis, usefulness, relevance, and format. Each author whose paper is selected is presented with a certificate of recognition at the CLE conference and receives a complimentary Section publication as a token of appreciation for his/her outstanding submission. To be considered for this distinguished achievement your paper must be received by the above deadline.

PowerPoint Presentations
Please use the attached PowerPoint template for your presentations. Please email me a copy of your presentation prior to the Conference.

Live Polling Feature: Conference App
Our conference app allows you to manage the schedule, view speaker biographies, and message other users of the app. Speakers can also utilize the app to conduct a live poll during their presentation. For more information, please contact our Marketing & Technology Specialist, Zoya Ali, at (312) 988-5797 or zoya.ali@americanbar.org.

Help Market the Conference
Personal outreach from our speakers is instrumental in building a successful event. We encourage you to consider promoting your role to help make this conference a great success. If appropriate, please share the Fall Conference brochure (attached) with your clients or colleagues who may be interested. Please encourage your network to visit www.ambar.org/environfall to register.

Friends of Speaker Discount
The Section has developed a special discount code for friends of speakers and moderators who wish to attend the conference. You colleagues can receive $100 off their registration by entering the discount code **SPEAKER18** at the time of checkout or on their mail-in registration form. Feel free to share this code within your network.

Registration
The advance registration deadline is next week on Wednesday, October 3, 2018. If you are planning to attend the entire conference, we have developed a special rate of $450. The registration form is attached. Speakers are invited to attend the conference free of charge on the day of their panel presentation only and will be registered internally by ABA staff after Wednesday, October 3, 2018.

Housing
Currently, our hotel block at the Marriott Marquis is closed. We are working on securing a hotel block at a nearby property. We will be sending out more information soon.

Thank you.

Sincerely,

Yujin Maeng
Program Assistant
Section of Environment, Energy, and Resources

American Bar Association | 321 North Clark Street **|** Chicago, IL 60654
T: 312.988.5642
Yujin.Maeng@americanbar.org | www.americanbar.org/seer

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Speakers and moderators are invited to attend the meeting free of charge on the day of their panel presentation **only**. If you are planning to attend the entire Fall Conference, we have developed the following special registration rate.

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** one dinner ticket already included in registration fee*

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☐ **$25 (suggested) or $_____ ABA FJE Contribution**
Voluntary contribution to support the Section of Environment, Energy, and Resources Project Support Fund. Contributions to the FJE are tax deductible to the full extent allowed by law.

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Calculated with great care, the Section estimates that the average attendee's participation will generate approximately one metric ton of carbon emissions. Help offset your carbon footprint by adding the cost of a one-ton carbon credit and help pay for tree plantings and service projects that will reduce greenhouse gases. Contributions to the FJE are tax deductible to the full extent allowed by law.

☐ **Dietary Restrictions?** Please specify: _____

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Membership in the ABA and the Section of Environment, Energy, and Resources is one of the most valuable investments you can make for your career. Harnessing the power of over 400,000 members, the ABA is the primary voice of the U.S. legal profession to governments and to the public. The Section of Environment, Energy, and Resources is the premier forum for lawyers working in areas related to environment, natural resources, and energy. Your membership offers access to courses led by national experts, the chance to maintain your connection to national and global legal trends, and even the chance to save money through discounts on consumer products and services, plus member-only pricing at our online store of ABA books and CLE.

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(PowerPoint presentations may be submitted only as a complement to original written materials.)

Use the following guidelines for preparing your PowerPoint slides:

- Please use this template to create your PowerPoint presentation.
- For headlines, use 32 font size or larger.
- For text, use 18 font size or larger.
- Use color combinations that are dark and legible.
- Use simple fonts (e.g. Arial) that are easy to read.
- Avoid detailed graphics.
- Identify units on both axes.
- Use maximum weight for lines where possible.
- Keep logos and identification banners to a minimum. They are unnecessary and complicate your slides.
- If you plan on using photos, music, videos, or text from the internet, please make sure you have obtained the appropriate permission for reproduction from the owner of the copyright-protected work
- Rule of thumb: If you cannot read text on your computer screen from a distance of ten feet, we will NOT be able read it from the back of the room.
- Please email a copy of your presentation prior to the conference to Allison Read at Allison.Read@americanbar.org
- Collect and coordinate PowerPoint presentations with your moderator, so that they are all uploaded to one laptop prior to the beginning of the session.
- The ABA does not provide laptop computers. Please coordinate with your panel to determine who will have a laptop available for use during the session.
- Apple/MAC computers are not permissible during the Conference.

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Section of Environment, Energy, and Resources
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Marriott Marquis San Diego Marina
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Environmental, Energy, and Resources Law
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San Diego

October 17–20, 2018

Marriott Marquis San Diego Marina

Who We Are

The ABA Section of Environment, Energy, and Resources is the premier forum for environmental, energy, and resources lawyers: a meeting place where practitioners can find the most current and sophisticated analyses of the complicated issues facing their practice.

Fall Conference Experience

Join your colleagues for two days of cutting-edge CLE programming. Session topics include:

- Tech giants' environmental, energy, and natural resource footprints;
- Non-federal efforts to address climate change;
- The current terrain of public land law;
- Counseling clients before, during, and after natural disasters;
- The long road to Superfund reform;
- Defining the future of offshore energy; and
- Changing regulatory landscapes under the Clean Air Act and Clean Water Act.

Sunny San Diego

Come experience 70 miles of beautiful beaches, swaying palm trees, and a year-round nearly perfect climate. San Diego is a dynamic metropolis, home to world-renowned family attractions, sophisticated arts and dining, exciting nightlife, trendy neighborhoods, unique shopping, and endless outdoor recreational opportunities.

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Visit ambar.org/environfall for the most updated schedule and speaker updates.

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Wednesday, October 17, 2018

12:00 p.m. — 4:00 p.m.	Public Service Project
6:00 p.m. — 6:30 p.m.	VIP New Attendee Reception
6:30 p.m. — 8:00 p.m.	Welcome Reception

Thursday, October 18, 2018

7:00 a.m. — 8:00 a.m.	Continental Breakfast
8:00 a.m. — 8:30 a.m.	Welcome and Opening Remarks
8:30 a.m. — 10:00 a.m.	Opening General Session
10:00 a.m. — 10:30 a.m.	Networking Break
10:30 a.m. — 12:00 p.m.	Concurrent Breakout Sessions
12:00 p.m. — 1:30 p.m.	Committee Interest Area Luncheon
1:30 p.m. — 2:00 p.m.	Expert Insight Panels
2:00 p.m. — 2:15 p.m.	Refresh
2:15 p.m. — 3:45 p.m.	Concurrent Breakout Sessions
3:45 p.m. — 4:15 p.m.	Networking Break
4:15 p.m. — 5: 45 p.m.	Concurrent Breakout Sessions
6:30 p.m. — 10:00 p.m.	Cocktail Reception and Dinner
9:30 p.m. — 12:00 a.m.	After-Hours Social Mixer

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Friday, October 19, 2018

6:45 a.m. — 7:45 a.m.	#SEERRunClub
7:00 a.m. — 8:00 a.m.	Continental Breakfast
8:00 a.m. — 8:30 a.m.	Welcome and Opening Remarks
8:30 a.m. — 10:00 a.m.	General Session
10:00 a.m. — 10:30 a.m.	Networking Break
10:30 a.m. — 12:00 p.m.	Concurrent Breakout Sessions
12:00 p.m. — 1:30 p.m.	Luncheon
2:00 p.m. — 2:15 p.m.	Refresh
1:30 p.m. — 2:00 p.m.	Expert Insight Panels
2:15 p.m. — 3:45 p.m.	Concurrent Breakout Sessions
3:45 p.m. — 4:15 p.m.	Networking Break
4:15 p.m. — 5: 45 p.m.	Ethics Session
6:30 p.m. — 9:30 p.m.	Taste of SEER (Dine Arounds)

Saturday, October 20, 2018 | Leadership Day

8:00 a.m. — 9:00 a.m.	Continental Breakfast
9:00 a.m. — 10:30 a.m.	Committee Chairs Meeting
10:30 a.m. — 11:30 a.m.	Vice Chair Working Groups
11:45 a.m. — 5:15 p.m.	Council Meeting

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Wednesday, October 17, 2018

12:00 p.m. – 4:00 p.m.

PUBLIC SERVICE PROJECT

Support the San Diego community by joining fellow conference attendees on our public service project. No prior experience is necessary to participate in this fun networking opportunity. To volunteer for the public service project, please sign up when registering.

6:00 p.m. – 8:00 p.m.

WELCOME RECEPTION

Kick off the conference with food, drinks, and friends old and new. Meeting registration will be open so you can also pick up your name badge and conference materials.

Thursday, October 18, 2018

8:30 a.m. – 10:00 a.m.

THE GREAT ENFORCEMENT DEBATE

Headlines blare that environmental enforcement levels are on a downward trajectory. Yet, some assert that enforcement is not the most effective means of assuring compliance and that resources are best devoted elsewhere. For its part, EPA emphasizes a cooperative federalism agenda as a means of strengthening, not weakening, enforcement and compliance. Environmental practitioners must understand all aspects of the issue to best advise their clients, particularly regulated entities. Join this lively discussion exploring the great enforcement debate, including the current state of civil and criminal environmental enforcement, enforcement trends and initiatives, the efficacy of enforcement versus other approaches to compliance assurance, gap-filling by advocacy groups through citizen suits and by state and local governments, state of the art enforcement tools, and self-disclosure and other voluntary programs.

MODERATOR:

Peter Hsiao, Morrison & Foerster LLP, Los Angeles, CA

SPEAKERS:

Sylvia Quast, Regional Counsel, Region 9, U.S. Environmental Protection Agency, San Francisco, CA

Sambhav Sankar, Executive Director, Environmental Council of the States, Washington, DC

Justin Savage, Sidley Austin LLP, Washington, DC

10:30 a.m. - 12:00 p.m.

CONCURRENT BREAKOUT SESSIONS

WATER INFRASTRUCTURE AND RESOURCE ALLOCATION: LESSONS FROM CALIFORNIA

Throughout the United States, water scarcity and management have become critical issues—— nowhere more so than in California. California's unique position as the leading supplier of agricultural products for the rest of the country and its continued population growth place tremendous demands on water in the West, requiring the construction and management of unprecedented water infrastructure projects. This panel, featuring perspectives from a range of key stakeholders, will examine the lessons that all states can learn from the policies governing, and disputes regarding, California water rights, water quality, and water resource infrastructure and management.

MODERATOR:

Chris Frahm, Brownstein Hyatt Farber Schreck, LLP, San Diego, CA

SPEAKERS:

Tom Birmingham, General Manager, Westlands Water District, Fresno, CA

Mark Hattam, General Counsel, San Diego County Water Authority, San Diego, CA

Eileen Sobeck, Executive Director, State Water Resources Control Board, Sacramento, CA

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Thursday cont'd

CHARGING UP TO DIRECT OUR ENERGY FUTURE: AN EXAMINATION OF STATE AND FEDERAL ROLES

Just as emerging energy technologies begin to realize their full potential, recent disasters have exposed the vulnerability of an interconnected grid. Recognizing this challenge—and in the face of questions about the fate of federal efforts to promote reliability, resiliency, energy efficiency, and alternative energy—state and local governments are stepping in to fill perceived gaps. States are enacting new energy efficiency standards, setting renewable fuels requirements, and working to meet international climate goals. Join us for an interactive examination of state and federal energy policy, the branch of government that ultimately determines the energy mix, and legal issues such as the Commerce Clause and cooperative federalism that intersect with the foundation of the rates, reliability, and resiliency of our nation's grid.

MODERATOR:
Malcom Woolf, Senior Vice President, Policy and Government Affairs, Advanced Energy Economy, Washington, DC

SPEAKERS:
Kyle H. Landis-Marinello, Vermont Public Utility Commission, Montpelier, VT
Kathleen Staks, Executive Director, Colorado Energy Office, Denver, CO
Daniel Simmons, Principal Deputy Assistant Secretary, Office of Energy Efficiency and Renewable Energy, U.S. Department of Energy, Washington, DC

FROM PARIS TO PITTSBURGH AND BEYOND: NON-FEDERAL EFFORTS TO ADDRESS CLIMATE CHANGE

In the wake of President Trump's announced intention to withdraw from the Paris Agreement, sub-national, regional, and international actors have announced their own legal commitments to combat climate change. Meanwhile, cities and individuals are pursuing legal remedies under novel legal theories for alleged harms caused by major emitters and government failure to reduce greenhouse gas emissions. This panel will explore the status of international climate negotiations and efforts to implement the Paris Agreement; the flurry of new and modified state, local, and regional laws and initiatives to combat climate change; environmental justice impacts; and corporate efforts to integrate climate considerations into their business operations. Panelists will also provide updates on climate litigation, California's extension of its cap-and-trade program, incorporation of adaptation considerations into state and local planning decisions, and efforts to expand and link regional carbon trading programs with other states and Canada.

MODERATOR:
Kevin Poloncarz, Paul Hastings LLP, San Francisco, CA

*SPEAKERS:
Vicki Arroyo, Executive Director, Georgetown Climate Center; Assistant Dean for Centers and Institutes; Professor from Practice, Georgetown University Law Center, Washington, DC
Michael Wara, Senior Research Scholar, Stanford Woods Institute for the Environment; Director of the Climate and Energy Policy Program, Stanford, CA

1:30 p.m. – 2:00 p.m.

EXPERT INSIGHT PANELS

Strengthen your substantive knowledge of some of the most pressing issues confronting environmental, energy, and natural resources lawyers today. Expert Insight Panels will take you on a deep dive into technical issues from the nation's top environmental consultants and service providers.

SIFTING THROUGH THE SEDIMENT: SOLVING CHALLENGES AT EPA MEGASITES

ALTERECHO

Addressing allocation and remediation challenges at multi-party EPA mega-sediment sites—especially those that involve numerous contaminant sources—can be vexing for all involved. Evolving EPA and state regulatory agency approaches can make it even tougher. AlterEcho offers a primer on how to take a broad approach to help clients cut through the complexity to find cost-effective solutions that beat the clock and satisfy the regulators, but don't break the bank.

SPEAKERS:
David Batson, Allocation and Mediation Expert, AlterEcho, Washington, DC
Patricia Derocher, President, AlterEcho, Chantilly, VA

GREEN SKIES AWAIT: HOW TO NAVIGATE THE UNCHARTED WATERS OF ESG DISCLOSURE

BLOOMBERG ENVIRONMENT

In response to increased public awareness of and regulatory focus on environmental, social, and governance (ESG) issues, it is increasingly important for the legal community and other stakeholders to understand the relevance, risks, and opportunities related to ESG disclosure. The ongoing shift from voluntary to regulatory disclosure has broad implications for financial (and non-financial) reporting and risk modeling, supply chain due diligence, and peer analysis. The increased scrutiny of ESG performance also means that ESG factors and metrics should be considered as part of environmental due diligence for corporate and commercial transactions. This session will focus on the growing demand for disclosure, how the financial industry is determining materiality and best practices, as well as stakeholder trends driving engagement around this information. It also will explore the issue of data transparency and review the existing standards and reporting frameworks available to practitioners.

MODERATOR:
Dylan Bruce, Managing Editor, Bloomberg Environment, Arlington, VA

SPEAKER:
Lee O'Dwyer, Global ESG Advocate, Bloomberg LP, San Francisco, CA

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THE BUZZ ON ENVIRONMENTAL CONCERNS RELATED TO THE CANNABIS INDUSTRY

GEOSYNTEC CONSULTANTS, INC.

With the approval of the Adult Use of Marijuana Act in 2016 and subsequent legalization on January 1, 2018, cannabis cultivators in California are subject to environmental permit requirements. This presentation will describe environmental compliance challenges in light of the current legalization status of cannabis. Of particular interest is the State Water Resources Control Board's new Cannabis Cultivation Program, approved in December 2017. This program addresses potential water quality and quantity issues related to cannabis cultivation and requires all cultivators to apply for coverage under the Cannabis Cultivation General Order. Additional interest areas include the requirement of CDFW 1602 permits for facilities not connected to municipal water supplies; compliance with the Stormwater Industrial General Permit; and air permitting related to carbon filtration and odor control. Cannabis is decriminalized in certain states and approved for recreational use, but remains classified by the federal government as a Schedule 1 drug. Companies need to be aware of situations where federal regulations trump state programs.

SPEAKER:

Sam Williams, Senior Principal Hydrogeologist, Geosyntec Consultants, Inc., San Diego, CA

2:15 p.m. – 3:45 p.m.

CONCURRENT BREAKOUT SESSIONS

TRAVERSING THE TERRAIN OF PUBLIC LAND LAW

The proper role of the federal government on public land is not only a question of law, but a matter of perspective, from walking the hallowed halls of the U.S. Department of the Interior in Washington, D.C., to fracking a well on a dusty plateau or hiking a majestic, mountainous trail. This panel will examine current, dramatic shifts in public land law and policy, with a special focus on the conflict between development and conservation under the "multiple use" mandate, how discretionary authority can advance a deregulatory agenda, the legal dynamics of major shifts in land management planning, and other hot topics. Leading public land law practitioners will highlight national monuments, the repeal of various energy regulations and the reversals of conservation policies, and the newfound legal limitations on the exercise of agency authority. Bring your water bottle and a backpack—we will be covering a lot of terrain!

MODERATOR:

David Hayes, Executive Director, State Energy & Environmental Impact Center, Washington, DC

*SPEAKERS:

Janice Schneider, Global Vice Chair, Environment, Land and Resources Department, Latham & Watkins LLP, Washington, DC
Sandra Snodgrass, Holland & Hart LLP, Denver, CO

THE LONG ROAD TO SUPERFUND REFORM

The current administration is pushing forward with a multipronged effort to reform EPA's Superfund program, through its Superfund Task Force, top-down leadership, and various policy changes. But in nearly 40 years, the program has proven resistant to significant change, despite efforts by the regulated community, congressional initiatives, and litigation by the environmental bar. This session will provide attendees insight into EPA's reform activities, including the status of action on the strategic goals announced by the Superfund Task Force. It will also cover other newsworthy Superfund legal developments, including the administration's infrastructure proposal.

MODERATOR:

Michael Kavanaugh, Senior Principal Environmental Engineer, Geosyntec Consultants, Oakland, CA

SPEAKERS:

Steven Cook, Deputy Assistant Administrator, Office of Land and Emergency Management, U.S. Environmental Protection Agency, Washington, DC
Todd Davis, Chief Executive Officer, Hemisphere, Bedford, OH
Jessica Merrigan, Lathrop Gage LLP, Kansas City, MO

SEEKING CERT(AINTY): RECENT SUPREME COURT DECISIONS ON ENVIRONMENTAL, ENERGY, AND RESOURCES LAW

The U.S. Supreme Court is determining the ultimate fates of key environmental, energy, and resources initiatives of the Obama and Trump administrations. The Court is also weighing in on the constitutionality of state and tribal initiatives to fill the gaps in environmental, energy, and resources regulation created by changing priorities at the federal level. Even decisions on seemingly unrelated matters can have massive impacts on the authority of sovereign entities, non-profit groups, and individuals to protect the environment. A panel of leading Supreme Court scholars and practitioners will provide an in-depth review of recent decisions and upcoming cases, highlighting how actions by the nation's highest court might impact your practice. In addition to analyzing cases that have already reached the Court, the panel members will offer their thoughts on cert-worthy cases waiting in the wings.

MODERATOR:

Mary Ann Grena Manley, Deputy Editorial Director, Bloomberg Environment, Arlington, VA

SPEAKERS:

Richard Faulk, Davis Wright Tremaine LLP, Washington, DC
Alice Kaswan, Professor and Dean's Circle Scholar, University of San Francisco School of Law, San Francisco, CA
James May, Distinguished Professor of Law, Widener University Delaware Law School, Wilmington, DE

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Thursday cont'd

4:15 p.m. – 5: 45 p.m.

CONCURRENT BREAKOUT SESSIONS

REVERSING COURSE: ADMINISTRATIVE LAW IN A TIME OF CHANGE

President Trump was elected on a platform that called for rolling back many Obama-era environmental, energy, and resources policies and regulations. As EPA, the U.S. Department of the Interior, and other federal agencies have attempted to make good on that promise, they have faced a torrent of litigation, which in turn has triggered important developments in administrative law. This panel will present a pragmatic, nuts-and-bolts discussion about how an agency can eliminate or alter a final regulation that was itself based on a massive administrative record—and what your clients can do to support, or oppose, such a regulatory change. Examples will be drawn not only from our energy, environment, and resources practices, but also from other hot areas of law, such as immigration.

MODERATOR:
Andy Mergen, Deputy Section Chief, Appellate Section, Environment and Natural Resources Division, U.S. Department of Justice, Washington, DC

SPEAKERS:
Amanda Leiter, Professor of Law, Washington College of Law, American University, Washington, DC
Matthew Leopold, General Counsel, U.S. Environmental Protection Agency, Washington, DC (invited)
Brenda Mallory, Executive Director and Senior Counsel, Conservation Litigation Project, Washington, DC

WHEN IT'S "KIND OF A BIG DEAL": ASSESSING AND RESPONDING TO ISSUES THAT THREATEN A DEAL OR PROJECT

While some environmental, health, and safety (EHS) risks frequently arise in brownfields redevelopments, M&A transactions, and in related compliance matters, there are lurking, less predictable "big deal" issues that can arise and throw a major wrench into your deal or project. Attendees participating in this interactive workshop will learn how to approach complex transactional issues that cannot be easily negotiated in a purchase agreement or resolved with an indemnity, insurance policy, escrow, or purchase price reduction; a slight modification to development plans/schedule; or notice to regulators. Attendees will engage in a cooperative competition, confronting real-world scenarios assessing EHS, climate change, disclosures, and compliance matters.

MODERATOR:
Alexandra Farmer, Kirkland & Ellis LLP, Washington, DC

*SPEAKERS:
Deidre Sanders, Ph.D., Director of Government and Community Affairs, East Bay Community Energy, Oakland, CA
Deborah Harris, Section Chief, Environmental Crimes Section, Environment and Natural Resources Division, U.S. Department of Justice, Washington, DC

FUNDAMENTAL RIGHTS OR FUNDAMENTALLY WRONG: CONSTITUTIONAL AND PUBLIC TRUST ARGUMENTS FOR ENVIRONMENTAL PROTECTION

Local governments, citizens groups, and environmental organizations are finding novel ways to use constitutional arguments to advance their environmental protection goals, including environmental justice. National and state constitutional guarantees of clean air, pure water, and environmental preservation are being used to challenge state agency permitting and other actions and a new wave of constitutional issues are being raised in environment, energy, and resources litigation and regulatory actions. Panelists will explain the types of constitutional arguments that are being raised and how courts and regulatory agencies are handling these issues, as well as discuss implications for your practice and what the future in environmental advocacy/protection might hold.

*SPEAKERS:
Alexandra C. Chiaruttini, Chief Counsel, Pennsylvania Department of Environmental Protection, Harrisburg, PA
Carroll Muffett, President, Center for International Environmental Law, Washington, DC

7:00 p.m. – 9:30 p.m.

COCKTAIL RECEPTION AND DINNER

Join us for a fun-filled evening under the stars and adjacent to the beautiful San Diego Marina. The Section Dinner is always one of the outstanding networking events of the conference and the reception and dinner are included in your registration fee; additional guest tickets can be purchased.

9:30 p.m. – 12:00 a.m.

AFTER-HOURS SOCIAL MIXER

The party is not over yet! Join our informal, after-hours mixer event to kick-back and hobnob with your fellow attendees. All are welcome!

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Friday, October 19, 2018

6:45 a.m. – 7:45 a.m.

#SEERRUNCLUB – SPONSORED BY EIMER STAHL LLP

Join your colleagues and make new friends on a casual fun run/walk. As a bonus, you will receive a commemorative tee shirt to remember the occasion. All are welcome for this fun networking event. Start your day off right with a run or walk outdoors near the bay. Be sure to sign up when you register.

8:30 a.m. – 10:00 a.m.

THE FOOTPRINTS THAT TECH GIANTS ARE LEAVING ON THE ENVIRONMENTAL, ENERGY, AND NATURAL RESOURCE LANDSCAPE

Technology company environmental footprints and operations are expanding and they are seeing increased energy use and environmental risks. As this industry dominates the global marketplace, it has become more sensitive to environmental issues and in-house environmental, health, and safety groups are becoming commonplace. Leading environmental in-house counsel from this important sector will walk you through the full suite of issues, such as energy, water, power supply, supply chain, the circular economy, hazardous waste, automated vehicles, drones, data centers, property acquisitions, and clean transportation. Understanding these concerns will help you better counsel your clients.

MODERATOR:
Roger Martella, General Counsel, General Electric, Boston, MA

*SPEAKERS:
Paul Hemmersbaugh, Chief Counsel and Public Policy Director, General Motors, Washington, DC
Steven Sarno, Corporate Counsel, Environmental Compliance, Amazon, Seattle, WA (invited)

10:30 a.m. – 12:00 p.m.

CONCURRENT BREAKOUT SESSIONS

STAYING AFLOAT IN THE DELUGE OF CLEAN WATER ACT DEVELOPMENTS

This year began with significant court decisions and unprecedented agency actions covering the most important and controversial regulatory programs under the Clean Water Act. While new theories on liability, like the "groundwater conduit" theory, flow through the federal courts, a torrent of other issues related to the development and implementation of multi-state Total Maximum Daily Loads and the application of the EPA's water transfers rule are coming to a head nationwide. All of this is occurring along with the administration's deregulatory efforts, which include rescinding and potentially redefining "waters of the United States." Join this group of leading Clean Water Act authorities as they share their insights on the current state of the legal landscape, changes on the horizon, and solutions for clients during this era of increasing change.

MODERATOR:
Kristy Niehaus Bulleit, Hunton Andrews Kurth LLP, Washington, DC

SPEAKERS:
Steve Fleischli, Senior Attorney & Senior Director for Water Initiatives, Natural Resources Defense Council, Santa Monica, CA
David Ross, Assistant Administrator, Office of Water, U.S. Environmental Protection Agency, Washington, DC
Brooks Smith, Troutman Sanders LLP, Richmond, VA

FASTER, CHEAPER, BETTER: THE MODERN APPROACH TO ENVIRONMENTAL REVIEWS AND PERMITTING

As politicians call for modernizing our nation's crumbling infrastructure, the common refrain is that delays and litigation resulting from the environmental review and permitting process impede projects to improve our transportation network, energy grid, and water and sewer systems. The challenge is to accelerate the environmental review and permitting process, without compromising our valuable natural resources or individual community initiatives. Provisions of the Fixing America's Surface Transportation (FAST) Act require federal agencies to improve the process under the National Environmental Policy Act (NEPA) and other statutes. President Trump has issued a broad infrastructure plan, including legislative proposals that build on his executive orders directing agencies to expedite environmental reviews and to deliver projects with "One Federal Decision." This panel will discuss NEPA implementation through the lens of the FAST Act, mitigation, public-private partnerships, tribal perspectives, and litigation. Join a lively exchange as these thought-leaders and practitioners discuss how we may strike a balance between protection and progress.

MODERATOR:
William Malley, Perkins Coie LLP, Washington, DC

*SPEAKERS:
Michael Drummond, Deputy Associate Director for The National Environmental Policy Act, White House Council on Environmental Quality, Washington, DC
Pilar Thomas, Lewis Roca Rothgerber Christie LLP, Tucson, AZ

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Friday cont'd

EXPECT THE UNEXPECTED: COUNSELING CLIENTS BEFORE, DURING, AND AFTER NATURAL DISASTERS

Last year marked the most expensive year on record for disasters in the United States. Hurricanes Harvey, Irma, and Maria combined with devastating Western wildfires and other natural catastrophes resulted in wide-spread power outages, flooding, devastated infrastructure, and displaced communities. This panel will examine the role of lawyers in disaster prevention, emergency response, and long-term recovery. You will learn about current and emerging issues in disaster preparedness and recovery and how you can best advise your clients before, during, and after a disaster event. Topics to be addressed include challenges facing Superfund and waste cleanup efforts, grid resilience, facility and operations planning, federal and state government obligations and assistance, and employer obligations.

MODERATOR:
Lois Schiffer, Former General Counsel, National Oceanic and Atmospheric Administration, Washington, DC

*SPEAKERS:
Tracy Hester, Professor, University of Houston Law Center, Houston, TX
Robert R.M. Verchick, Gauthier-St. Martin Eminent Scholar and Chair in Environmental Law, Loyola University New Orleans College of Law Senior Fellow, Disaster Resilience Leadership Academy, Tulane University, New Orleans, LA

2:15 p.m. – 3:45 p.m.

CONCURRENT BREAKOUT SESSIONS

ECOSYSTEM MARKETS: WHAT THEY ARE AND HOW TO MAKE THEM WORK FOR YOUR CLIENTS

Environmental law began with command and control; now market mechanisms are being added to more easily or efficiently achieve desired goals. Economic demand and supply makes markets, but laws and regulations can direct economic demand and supply. Panelists will explain the laws and regulations that drive those economic levers across the Clean Water Act, the Endangered Species Act, CERCLA and natural resource damages, and more. These markets are rapidly developing in the United States, European Union, and around the world. Panelists will describe common legal issues that arise when utilizing these markets, the most common types of market mechanisms, and how to make these markets effective so that your clients achieve both compliance and environmental benefits.

MODERATOR:
Tom Lindley, Perkins Coie LLP, Washington, DC

SPEAKERS:
Julie Mentzer, Director of Environmental Operations, Wildlands PNW, Portland, OR
Erika K. Powers, Chair, Environmental Department, Barnes & Thornburg LLP, Chicago, IL

DEFINING THE FUTURE OF OFFSHORE ENERGY

The current administration has announced plans to open large sections of the United States Outer Continental Shelf to offshore oil drilling for the first time in decades. California, Florida, and other states have already expressed strong opposition to any new exploration and production activities off their coasts, raising important questions about the states' ability to influence drilling activity on federal lands. At the same time, many states are looking offshore for sources of renewable energy. This panel will explore the vast potential of the Outer Continental Shelf as part of our energy future. Attendees will learn about the federal and state regimes that control offshore energy development and how competing energy uses on the Outer Continental Shelf can be managed.

MODERATOR:
Paul Heberling, Consultant, WSP Inc., Washington, DC

*SPEAKERS:
Joan Barminski, Pacific Region Director, Bureau of Ocean Energy Management, Camarillo, CA
Randall Luthi, President, National Ocean Industries Association, Washington, DC

DEREGULATION IN FOCUS: THE CLEAN AIR ACT AND STATES

The administration's executive orders, regulation changes, and other deregulatory efforts are reshaping the Clean Air Act landscape. We have seen an effort to repeal and replace the Clean Power Plan as well as a reexamination of many major regulations associated with the act. Moreover, EPA has set out to recalibrate the state and federal relationship with greater deference to state administrators implementing the Clean Air Act. The intensity of this deregulation discussion is no more apparent than in California, where the state environmental agency leads with some of the most protective environmental laws in the nation, including its authority through a special waiver to set California-specific motor vehicles emission standards. Join us for a discussion of the changing (or in some cases, unchanged) regulatory landscape under the act and learn how states have responded to recent and potential changes.

MODERATOR:
Shannon Broome, Hunton Andrews Kurth LLP, San Francisco, CA

*SPEAKERS:
David Pettit, Senior Attorney, Natural Resources Defense Council, Santa Monica, CA
Clint Woods, Deputy Assistant Administrator, Office of Air and Radiation, U.S. Environmental Protection Agency, Washington, DC

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4:15 p.m. - 5: 45 p.m.

ETHICS: THAT'S ALL THE NEWS FOR TODAY—— STAY ETHICAL, SAN DIEGO

Using factual scenarios ripped from the headlines, a distinguished panel will dissect ethical and professional responsibility issues related to real life practice missteps that have gotten lawyers in trouble in recent years. Among the issues that will be discussed are conflicts of interest, confidentiality, use of social media, responsibility for non-lawyers, and the use of inadvertently sent emails. The panel will take attendees through the applicable ABA Model Rules that are implicated in these examples including Rules 1.6, 1.7, 5.3, and 7.1 and provide practical guidance for avoiding any ethical pitfalls.

*SPEAKERS:
Dayna Underhill, Holland & Knight LLP, Portland, OR
Irma Russell, Professor, University of Missouri School of Law, Kansas City, MO

**additional speakers to be confirmed, speakers subject to change*

Saturday, October 20, 2018

LEADERSHIP DAY

Whether you hold a Section leadership position or not, everyone is welcome to attend Leadership Day events. Attending any of the meetings is the best way to learn about the Section, its committees, and opportunities for involvement.

8:00 a.m. – 9:00 a.m.

CONTINENTAL BREAKFAST

9:00 a.m. – 10:30 a.m.

COMMITTEE CHAIRS MEETING

Committee chairs will join Section leadership and Council liaisons to discuss strategies for the year. This is an excellent opportunity to meet chairs of other Section committees and plan cooperative initiatives.

10:30 a.m. – 11:30 a.m.

VICE CHAIR WORKING GROUPS

Committee vice chairs will meet with their peers in the same committee leadership role: committee newsletters, marketing and communications, membership, programs, social media, and The Year in Review. Leadership responsibilities will be outlined and there will be time for questions and group discussion.

11:45 a.m. – 5:15 p.m.

COUNCIL MEETING

Everyone is welcome to attend.

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CONFERENCE HOTEL HIGHLIGHTS

- Spacious accommodations offer either scenic city or waterfront views
- Take a dip in one of two freeform swimming pools
- Indulge in an onsite spa treatment or keep your workout routine in the fitness center
- Enjoy award-winning cuisine at Marina Kitchen Restaurant & Bar or sample inventive Asian-fusion at Roy's

A block of rooms has been reserved at the Marriott Marquis San Diego Marina at the discounted rate of $299 plus tax for single/double rooms. A limited number of government rate rooms are also available for $140 plus tax (or the current government rate). A valid government ID will be required upon check in.

The deadline for room reservations at the discounted rate is **Tuesday, September 25, 2018** at 5:00 p.m. (CST). To book our contracted rate, call reservations at (800) 228-9290 or the hotel directly at **(619) 234-1500** or reserve online at **https://bit.ly/2LbYAhl**. Be sure to mention the ABA Section of Environment, Energy, and Resources 2018 Fall Conference.

ROOM SHARE PROGRAM

Are you are interested in sharing a room at the Marriott Marquis? Head to the travel and lodging page at **ambar.org/environfall** to learn more and fill out our room share questionnaire.

26th Fall Conference

San Diego

October 17–20, 2018

Marriott Marquis San Diego Marina

REGISTRATION RATES	Early Bird	After 9/7/18
Section Member	$745	$795
ABA Member	$820	$870
General Attendee	$895	$945
Section Member Gov't, Public Interest, Academic	$625	$675
Gov't, Public Interest, Academic	$675	$725
Young Lawyer *	$675	$725
Speaker and Moderator	$450	$450
Law Student	$50	$50

The registration fee includes tuition and online course materials developed especially for this conference. In addition, your fee covers Wednesday's public service project, and reception, Thursday's continental breakfast, breaks, lunch, reception and dinner; and Friday's continental breakfast, breaks, and lunch. The registration fee also covers breakfast and lunch during Saturday's Leadership Day.

** Qualifying young lawyers are under 36 years old or admitted to practice for five years or less.*

MORE WAYS TO SAVE

Group Discount

Organizations registering three or more attendees are eligible for a group discount of 20% off each attendee's registration. Please email environ@americanbar.org for more information.

California Bar Discount

We are offering members of the State Bar of California and the California Lawyers Association $50 off their registration rate. To redeem, enter the coupon code **SEERCA18** when registering.

Day Rates

Day rates are available for $450 each day.

This rate does not include Thursday's dinner.

HOW TO REGISTER

We encourage you to register online at www.ambar.org/environfall. If you want to register by mail visit www.ambar.org/environfall to download a registration form. Please mail the form with your check (payable to the American Bar Association) or credit card information to: American Bar Association, Attn: Service Center—Meeting/Event Registrations Department, 321 N. Clark St., Fl. 19, Chicago, IL 60654 or to our secure fax number: (312) 988-5850. All attendees must be preregistered for this conference to participate.

ATTENTION ABA MEMBERS!

If you are an ABA member but not a member of the Section of Environment, Energy, and Resources, your conference registration fee now includes Section membership, a $75 value! You will be automatically enrolled in the Section. ABA membership is a prerequisite of Section membership. If you are not already an ABA member, please call (800) 285-2221. Free membership only applies to individuals who have not been a member of the Section during the past two years.

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ACHIEVING CARBON NEUTRALITY

Calculated with great care, the Section estimates that the average 26th Fall Conference attendee's participation will generate approximately one metric ton of carbon emissions. Help offset your carbon footprint by adding the cost of a one-ton carbon credit from a verified offset project that will reduce greenhouse gases. Contributions to The Fund for Justice and Education (FJE) are tax deductible to the full extent allowed by law. Purchase your carbon offset when you register.

CONFERENCE SPEAKER SUPPORT

The Section strives to provide programming representing a unique depth of perspectives on all issues. We consistently work to include speakers on panels that represent tribal interests, NGO's, and academics. To assist these speakers with the expense of attending conferences the Section offers a limited number of travel reimbursements. To assure that the Section can continue to offer travel assistance to such speakers please consider donating to our Program Support Fund. Donations are tax deductible to the full extent allowed by law. Make your donation of $25 (or more) when you register.

EARLY BIRD DEADLINE

The deadline to receive the early bird registration rate for the 26th Fall Conference is **Friday, September 7, 2018**. The final cutoff date for advance registration is **Wednesday, October 3, 2018**. After this date, registrations must include an additional $25 for processing.

CANCELLATION POLICY

Registrants who are unable to attend the conference will receive a refund less a $50 administrative fee if written notice of cancellation is received by **Wednesday, October 3, 2018.** No refunds will be granted after this date. Cancellations may be e-mailed to environ@americanbar.org or faxed to (312) 988-5572, attn.: Associate Director. Registration fees are not transferable to other Section or ABA programs. Substitutions for the program are acceptable. The ABA reserves the right to cancel any program and assumes no responsibility for personal expense.

TUITION ASSISTANCE

A limited number of registration fee waivers are available for government employees, public interest lawyers employed with nonprofit organizations, and academics. For programs with tuition costs over $500, qualifying lawyers will receive at least a 50% reduction in the course fee(s). This does not include any reduction in meals, lodging, or travel costs associated with the course. To apply, complete the online application by visiting www.ambar.org/environfall and clicking **Registration by Wednesday, September 5, 2018**.

LAW STUDENT SCHOLARSHIP OPPORTUNITY

A limited number of scholarships are available to law students interested in attending the entire conference and helping ensure our conference runs smoothly. To be considered, you must be a member of the ABA Section of Environment, Energy, and Resources. Your application and resume must be submitted by **Friday, September 14, 2018** to be considered. **This scholarship does not include lodging or transportation.**

Visit **www.ambar.org/environfall** for additional meeting information. Questions? Contact **environ@americanbar.org**.

CONFERENCE COURSE MATERIALS

Course materials and related background information will be provided to attendees online prior to the conference. You may wish to bring a device to view the materials on-site; complimentary Wi-Fi access will be available.

CLE CREDIT

The ABA directly applies for and ordinarily receives CLE credit for ABA programs in AK, AL, AR, AZ, CA, CO, CT, DE, GA, GU, HI, IA, IL, IN, KS, KY, LA, ME, MN, MS, MO, MP, MT, NH, NJ, NM, NV, NY, NC, ND, OH, OK, OR, PA, SC, TN, TX, UT, VT, VA, VI, WA, WI, and WV. These states sometimes do not approve a program for credit before the program occurs. This transitional program is approved for both newly admitted and experienced attorneys in NY. Attorneys may be eligible to receive CLE credit through reciprocity or attorney self-submission in other states. For more information about CLE accreditation in your state, contact Allison Read at allison.read@americanbar.org or (312) 988-5641.

DRESS

Section conferences are business casual. Suggested dress includes slacks, skirts, polo-type shirts or blouses, sweaters, and comfortable shoes. The hotel will be cool, so please pack a jacket or sweater.

DIETARY RESTRICTIONS

If you have any dietary restrictions, please indicate so during registration or by email environ@americanbar.org by **Wednesday, October 3, 2018**, so that your needs are noted.

AMERICANS WITH DISABILITIES ACT

If any special arrangements are required for a person with a disability to attend this conference, please call Allison Read at (312) 988-5641 by **Wednesday, October 3, 2018**.

Questions? Contact environ@americanbar.org with all program related questions.

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Section of Environment, Energy, and Resources
321 N. Clark St.
Chicago, IL 60654

26th Fall Conference

San Diego

October 17-20, 2018

Marriott Marquis San Diego Marina

EARLY BIRD REGISTRATION DEADLINE
Friday, September 7, 2018

HOUSING DEADLINE
Tuesday, September 25, 2018

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Message

From: Bolen, Brittany [bolen.brittany@epa.gov]
Sent: 2/1/2019 5:27:26 PM
To: William L. Wehrum [wwehrum@hunton.com]; Woods, Clint [woods.clint@epa.gov]
Subject: Fwd: MATS is scheduled to publish in the FR on Feb 7

Sent from my iPhone

Begin forwarded message:

> **From:** "Nickerson, William" <Nickerson.William@epa.gov>
> **Date:** February 1, 2019 at 12:09:19 PM EST
> **To:** "Bolen, Brittany" <bolen.brittany@epa.gov>
> **Cc:** "Lovell, Will (William)" <lovell.william@epa.gov>
> **Subject: MATS is scheduled to publish in the FR on Feb 7**
>
> No news yet on WOTUS

Message

From: Broome, Shannon S. [SBroome@hunton.com]
Sent: 9/27/2018 3:52:22 PM
To: Woods, Clint [woods.clint@epa.gov]
Subject: Review this one edits_-_2018-09-23_DRAFT_ABA_Fall_Conference_-_CLE_Materials_-_Deregulat.._.DOCX
Attachments: edits_-_2018-09-23_DRAFT_ABA_Fall_Conference_-_CLE_Materials_-_Deregulat.._.DOCX

Clint – please use the attached version because it includes Jon Brightbill's edits. David Pettit didn't have any edits.

American Bar Association
Section on Environment, Energy, and Resources
Fall Conference 2018
San Diego, California

Panel Paper: Deregulation in Focus: The Clean Air Act and States[1]

October 19, 2018

Elections have consequences. That's true regardless of the party that is currently sitting in the White House or which party holds a majority in the Senate or House of Representatives. Since the 2016 election, as with all national elections where a shift in the party of the president occurs, steps are taken by the new administration to evaluate the policies and regulations of the prior administration and to make adjustments that the new president deems appropriate. This panel focuses on steps that the current administration undertook in this regard with respect to the Clean Air Act (CAA), with additional focus on how the states have reacted. The purpose of this paper, which was jointly prepared by all panelists, is to provide background on some of the regulations that have been addressed by the Trump Administration to facilitate a productive discussion.

A number of CAA regulatory programs have been implicated in the efforts of the Trump Administration to evaluate President Obama's regulatory programs and determine if changes are appropriate. While President Trump ran on a platform that promoted jobs and business, his campaign speeches also supported clean air and clean water.[2] Since President Trump took office, EPA has worked to review the actions of the prior administration, with particular focus on

Commented [A1]: This footnote's focus on the relatively small category of section 112 residual risk rules is a little unclear. It also seems a bit in the weeds for an intro discussion. From SSB – I was trying to be balanced in that we often get people saying the administration is slow walking regulations when in fact it inheretied a huge backlog. I broadened and softened consistent with your comments – could you review?

[1] The following panelists contributed to this paper: Jonathan D. Brightbill, Shannon S. Broome, David Pettit, Clint Woods. The characterization of any particular position is not to be attributed to a particular author or the author's employer. Nothing in this paper necessarily reflects the views of the Department of Justice, any federal agency.

[2] The allocation of resources at the EPA is not entirely within any administration's control—statutes impose mandatory duties that require the agency to issue certain regulations according to specified schedules. In the case of the CAA Amendments of 1990, Congress specified many deadlines, and since that time, EPA has tried to meet those deadlines, but issuing such regulations often requires extensive and complex analyses (e.g., residual risk analyses for sources of hazardous air pollutants). As a result of the backlog, some of those regulations are now subject to court-ordered deadlines, which can affect EPA's allocation of its resources.

actions taken shortly before the presidential transition.As a result, EPA has issued proposals to revise, and in some cases rescind, regulations for some programs. Under the CAA, we focus below on: the background of the Clean Power Plan (CPP), which has been proposed to be replaced by the Affordable Clean Energy (ACE) regulation; the January 2017 Amendments to the CAA Section 112 Risk Management Program (RMP) regulations, which have been proposed to be substantially revised—and largely rescinded; the EPA greenhouse gas (GHG) standards with respect to state authority under the CAA to regulate vehicle GHGs for motor vehicles and light trucks; and the National Ambient Air Quality Standards (NAAQS) program, where EPA is evaluating the ozone NAAQS which was already in litigation when the presidential transition occurred and remains in effect while decisions are made regarding its status.

EXECUTIVE INITIATIVES ON REGULATION

Soon after taking office in the beginning of 2017, President Trump issued a number of Executive Orders and Presidential Memoranda aimed at regulatory reform, cooperative federalism, aiding domestic manufacturing and energy production, and supporting infrastructure development. These executive actions are briefly described as follows:

1. **Presidential Memorandum, "Streamlining Permitting and Reducing Regulatory Burdens for Domestic Manufacturing" (Jan. 24, 2017)**. This memorandum directs the executive branch to reduce burdens on manufacturing by streamlining permitting. It directs the Department of Commerce to conduct outreach and request public comment on the impact of federal regulations on domestic manufacturing, and to develop a permit streamlining action plan within 60 days after the close of the comment period and to submit it to the President identifying priority actions and recommended deadlines.
2. **Executive Order 13771, "Reducing Regulation and Controlling Regulatory Costs" (Jan. 30, 2017)**. This order requires agencies to identify two regulations for repeal upon

each new significant regulatory proposal and to ensure that the total incremental cost of new regulation to be finalized in fiscal year 2017 is zero. In furtherance of this requirement, the order provides that any new incremental costs associated with new significant regulations shall be offset by the elimination of existing costs associated with at least two prior regulations.

3. **Executive Order 13777, "Enforcing the Regulatory Reform Agenda" (Feb. 24, 2017).** This order creates a structure for identifying opportunities for regulatory reform in federal agencies. It requires agencies to appoint a Regulatory Reform Officer to implement regulatory reform initiatives, requires agencies to form a Regulatory Reform Task Force to evaluate existing regulations and, where appropriate, to make recommendations to the agency head regarding their repeal, replacement, or modification.

4. **Executive Order 13781, "Comprehensive Plan for Reorganizing the Executive Branch" (Mar. 13, 2017)**. This order sets forth a plan to improve the efficiency, effectiveness, and accountability of federal agencies, including, as appropriate, to eliminate or reorganize unnecessary or redundant federal agencies. It directs agencies to submit a proposed plan to OMB to reorganize each covered federal agency, if appropriate, in order to improve the efficiency, effectiveness, and accountability of that agency. It also directs OMB to conduct outreach and request public comment on any proposed plan and to submit the proposed plan to the President.

5. **Executive Order 13783, "Promoting Energy Independence and Economic Growth" (Mar. 28, 2017)**. This order directs the EPA Administrator to review the CPP, as well as related rules and Agency actions. It orders federal agencies to immediately review all agency actions that potentially burden the safe, efficient development of domestic energy

resources. It orders the review of the estimates of the Social Cost of Carbon (SCC), Nitrous Oxide, and Methane for the purpose of Regulatory Impact Analyses. It also disbands the Interagency Working Group on the Social Cost of GHG and ordered the withdrawal of certain technical documents related to SCC. Finally, it rescinds certain prior energy and climate-related Presidential executive orders, memos, and regulatory actions and orders a review of regulations related to U.S. oil and gas development.

6. **Executive Order 13807, "Establishing Discipline and Accountability in the Environmental Review and Permitting Process for Infrastructure Projects" (Aug. 15, 2017).** This order directs that there be "One Federal Decision" for "major infrastructure projects," whereby a single federal agency serves as the lead point of contact for all National Environments Policy Act (NEPA) for issuing a single Record of Decision (ROD) on behalf of all involved agencies. It also requires that authorization decisions for the construction of a major infrastructure project be completed within 90 days of the issuance of a ROD by the lead Federal agency in most circumstances, and "not more than an average of approximately 2 years" after issuance of the Notice of Intent (NOI) to prepare a NEPA Environmental Impact Statement (EIS) or "other benchmark deemed appropriate by the Director of OMB."

7. **Executive Order 13795, "Implementing An America-First Offshore Energy Strategy" (Apr. 28, 2017)**. This order requires the Department of Commerce to review all designations and expansions of National Marine Sanctuaries and Marine National Monuments within the 10-year period prior to the date of the order. It requires the Department of the Interior and Commerce to review numerous rules and guidance pertaining to off-shore energy development for potential revisions or withdrawal.

8. **Presidential Memorandum, "Promoting Domestic Manufacturing and Job Creation - Policies and Procedures Relating to Implementation of Air Quality Standards" (Apr. 12, 2018).** This memorandum directs the EPA Administrator to take specific actions to ensure efficient and cost-effective implementation of the NAAQS program, including with regard to permitting decisions for new and expanded facilities, and with respect to the Regional Haze Program. These actions are intended to ensure that "EPA carries out its core missions of protecting the environment and improving air quality in accord with statutory requirements, while reducing unnecessary impediments to new manufacturing and business expansion essential for a growing economy."

CURRENT STATUS OF SELECTED EPA REGULATORY REFORM EFFORTS

EPA's regulatory reform actions following the above executive directives are summarized as follows:

1. Clean Power Plan

On August 31, 2018, EPA published a proposed rule known as the Affordable Clean Energy or "ACE" rule, which is the Trump Administration's replacement for the Obama Administration's CPP regulations. *See EPA, Emission Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units; Revisions to Emission Guideline Implementing Regulations: Revisions to New Source Review Program; Proposed rule*, 83 Fed. Reg. 44746 (Aug. 31, 2018).

The proposed ACE rule includes revised emission guidelines for the development, submittal, and implementation of state plans to reduce greenhouse gas (GHG) emissions from certain Electric Generating Units (EGUs). The notice states that the Agency is proposing to determine that heat rate improvement measures are the "best system of emission reduction" (BSER) for existing coal-fired EGUs. The notice alsoproposes new regulations for the

implementation of emission guidelines that apply to this source category and any future emission guidelines issued, and proposes revisions to the New Source Review (NSR) permitting program to support the implementation of efficiency projects at EGUs without triggering NSR . EPA is taking comments on the proposed ACE rule through October 30, 2018.

2. Ozone NAAQS

EPA has stated that it is working to review and reform the NAAQS program consistent with the Administration's commitment to regulatory reform, cooperative federalism, and domestic manufacturing (as articulated under the April 2018 Executive Memorandum summarized above and in a "Back-to-Basics" memorandum issued by EPA in response in May 2018). These efforts include a focus on getting "back-to-basics" for NAAQS setting, designations, and implementation.

Such efforts have been implicated in the Agency's review and reconsideration of EPA's October 2015 rule that reduced the ozone NAAQS from 75 parts per billion (ppb) to 70 ppb. Although D.C. Circuit litigation over this decision was held in abeyance for a period of time after the new administration took office, it has recently been reactivated and oral argument has been set for December 18. Importantly, the 2015 ozone standard was not stayed. Thus, under the requirements of the CAA, EPA has been implementing the standard, including by identifying non-attainment areas.

Recently, EPA announced that it has decided against reconsidering the 2015 ozone NAAQS, opting instead to evaluate concerns identified in its expedited review of the 2015 standard under the EPA Back-to-Basics memorandum. Under that memorandum, EPA staff was directed to begin the next ozone NAAQS review so that EPA will be ready to finalize any

necessary revisions to the standard by the CAA-required five-year deadline in October 2020.[8] Illustrating the complexity of EPA's task, issues that are expected to be raised in the next review include issues that were at play in the issuance of the 2015 ozone standard, including, whether the 70-ppb standard should be tightened to 65 or 60 ppb, transparency in relying on studies where the underlying data is not publicly available, proximity of the standard to high background ozone levels, EPA's focus on individual responses in studies designed to evaluate group means, increased uncertainty regarding health effects at lower exposure levels and whether failure to account for that in standard-setting makes revision inappropriate, and whether the secondary standard should be set at a different level than the primary standard; and more.

Commented [A2]: Is this footnote necessary? Seems more detailed than the balance of the paper.
I was trying to show the complexity of what EPA is facing. Does it work in the text? Open to deleting. I tried to be balanced – putting on some of the issues for both sides.

3. Risk Management Program.

On May 30, 2018, EPA issued a proposed rule, *Accidental Release Prevention Requirements: Risk Management Programs Under the Clean Air Act; Proposed Rule*, 83 Fed. Reg. 24,850 (May 30, 2018) (2018 Proposed RMP Rule) that would rescind or substantially modify provisions added to the RMP regulations via a final rule issued in January 2017 at the end of the Obama administration (2017 RMP Amendments)relating to safer technology and alternatives analyses, third-party audits, incident investigations, information availability, and several other areas. EPA also proposes modifications to provisions of the 2017 RMP Amendments relating to local emergency coordination and emergency exercises and the compliance dates for these provisions.

---

[8] ~~Commenters on the 2015 ozone standard have raised a number of issues including: whether the 70-ppb standard should be tightened to 65 or 60 ppb; lack of transparency in relying on studies where the underlying data is not publicly available; the proximity of the standard to high background ozone levels; EPA's focus on individual responses in studies designed to evaluate group means; increased uncertainty regarding health effects at lower exposure levels and whether failure to account for that in standard-setting makes revision inappropriate; whether the secondary standard should be set at a different level than the primary standard; and more.~~

EPA's efforts at reviewing and potentially rescinding or modifying the 2017 RMP Amendments have been complicated by the recent decision by the D.C. Circuit in *Air Alliance Houston v. EPA* (D.C. Cir. Case No. 17-1155) vacating a final rule issued by the Agency in June 2017 to delay the effective date of the 2017 RMP Amendments (the Delay Rule), which had not yet taken effect when the Trump administration took office. The Delay Rule was intended to allow the Agency "to conduct a reconsideration proceeding and to consider other issues that may benefit from additional comment." 83 Fed. Reg. 24,855. The D.C. Circuit issued the mandate in this case on September 21, the Delay Rule has been vacated and some provisions of the 2017 RMP Amendments are again effective even though EPA has not yet fully considered comments on the 2018 Proposed RMP Rule or issued a replacement rule. Given the complexity of the 2017 RMP Amendments and the pending substantial modifications of the regulation, there is much uncertainty in this program.

4. GHG Emissions Standards for Passenger Vehicles and Light Trucks.

On August 24, 2018, EPA and the National Highway Traffic Safety Administration (NHTSA) issued a joint proposal to amend certain existing Corporate Average Fuel Economy (CAFE) and tailpipe carbon dioxide (CO_2) emissions standards for passenger cars and light duty trucks and establish new standards for model years (MY) 2021 through 2026. NHTSA/EPA, *The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks; Notice of Proposed Rulemaking*, 83 Fed. Reg. 42,986 (Aug. 24, 2018) ("SAFE Vehicles Proposed Rule"). The proposal, if finalized, would make less stringent CAFE and CO_2 emissions standards for MY 2022-2025 that were preliminarily issued by NHTSA and EPA, respectively, in a 2012 joint rule. In conjunction with these changes, EPA proposes to revoke a 2013 waiver of preemption under CAA Section 209, which allowed California to implement its Advanced Clean Car (ACC) regulations setting GHG emissions standards for MY

2017-2025. EPA also proposes to finalize its related findings that if state standards are preempted under the Energy Policy and Conservation Act (EPCA), EPA cannot issue a waiver of preemption under Section 209(b). EPA further proposes thatbecause GHGs are not subject to air quality standards under the statute, regardless of whether California could obtain a waiver, other states cannot opt into the California program. NHTSA proposes to finalize a finding that California's ACC program—in particular, its GHG and Zero-Emissions Vehicle (ZEV) requirements—is preempted under EPCA.

The joint proposal follows over a decade of debate and regulatory actions over the relationship between EPA and NHTSA with respect to emissions and fuel economy standard-setting under their respective statutory authorities. Also at issue is the proper role of California – which was granted the ability to obtain a waiver from the generally applicable preemption of state standards in CAA Section 209 provided statutory criteria are met.

STATE RESPONSES TO DATE

The response from the states to the above initiatives has been varied, in part, depending on the views of a particular state on the substantive content of the reform initiative, but also on other factors that may be particular to a given state. As a general rule, under the CAA, states have a number of options in terms of their responses to federal regulatory reform initiatives. Many states support such initiatives and have formed coalitions to voice their support in rulemakings, via amicus participation in litigation, or otherwise. Similarly, states that oppose such initiatives often either initiate or intervene to defend them in litigation brought by interest groups or other states. States also may use their regulatory powers to counteract any perceived relaxing of environmental and safety protections at the federal level. An interesting example of this latter approach is California's current proposal to rescind a provision in its motor vehicle emissions regulations that it previously promulgated in a compromise over the debate over

federal GHG emissions standards, which provides that automakers' compliance with federal GHG emissions standards would be 'deemed to comply' with California's emissions standards. California's proposal, if finalized, would revise this 'deemed-to-comply' provision by limiting its scope to compliance with the GHG emissions standards enacted by EPA under the previous administration. This action, taken in response to the EPA/NHTSA joint proposal in the SAFE Vehicles Proposed Rule, illustrates the interesting interplay between state and federal regulatory reform efforts.

CONCLUSION

Whether the current regulatory reform efforts will stand the test of time, or survive judicial challenge, will be dictated by future events. What is clear now is that the states with their own regulatory and litigation responses will have something to say about it.

Message

From: Broome, Shannon S. [SBroome@hunton.com]
Sent: 9/27/2018 3:32:32 PM
To: Woods, Clint [woods.clint@epa.gov]
Subject: RE: Draft Paper and Next Call -- ABA Fall Conference - CLE Materials - Deregulation in Focus - The CAA and the States_70899299_1.DOCX

I will send you a revised version to review.

Best Regards,

HUNTON ANDREWS KURTH

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From: Woods, Clint [mailto:woods.clint@epa.gov]
Sent: Thursday, September 27, 2018 10:54 AM
To: Broome, Shannon S.
Subject: RE: Draft Paper and Next Call -- ABA Fall Conference - CLE Materials - Deregulation in Focus - The CAA and the States_70899299_1.DOCX

Shannon,

Please excuse my delay – I've been on the road but hope to get back to you with any potential changes by COB today. Thanks!

Clint Woods
Deputy Assistant Administrator
Office of Air and Radiation, U.S. EPA
202.564.6562

From: Broome, Shannon S. [mailto:SBroome@hunton.com]
Sent: Tuesday, September 25, 2018 4:30 PM
To: dpettit@nrdc.org; Brightbill, Jonathan (ENRD) <Jonathan.Brightbill@usdoj.gov>; Woods, Clint <woods.clint@epa.gov>
Cc: Ellis, Clare <CEllis@hunton.com>

Subject: RE: Draft Paper and Next Call -- ABA Fall Conference - CLE Materials - Deregulation in Focus - The CAA and the States_70899299_1.DOCX

Thanks for reviewing and for doing the doodle poll.

Clint and Jon – let us know if you are okay with the paper at your convenience.

Best Regards,

HUNTON ANDREWS KURTH

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Partner/Office Managing Partner San Francisco
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From: Pettit, David [mailto:dpettit@nrdc.org]
Sent: Tuesday, September 25, 2018 4:01 PM
To: Broome, Shannon S.; Brightbill, Jonathan (ENRD); Woods, Clint
Cc: Ellis, Clare; Pettit, David
Subject: RE: Draft Paper and Next Call -- ABA Fall Conference - CLE Materials - Deregulation in Focus - The CAA and the States_70899299_1.DOCX

Looks good to me, thanks. Re topic 4 re the GHG and CAFE standards, I spoke at the Fresno NHTSA/EPA hearing yesterday, which I will probably mention, and the CA state response from Mary Nichols and Xavier Becerra was very blunt.

I am driving down from LA on Thursday aft and so can meet up Thursday night to prepare.

David

David Pettit
Senior Attorney
Natural Resources Defense Council
(310) 434-2300
www.nrdc.org
Follow me on Twitter @TeamAir

From: Broome, Shannon S. <SBroome@hunton.com>
Sent: Sunday, September 23, 2018 9:10 PM
To: Pettit, David <dpettit@nrdc.org>; Brightbill, Jonathan (ENRD) <Jonathan.Brightbill@usdoj.gov>;

Woods, Clint <woods.clint@epa.gov>
Cc: Ellis, Clare <CEllis@hunton.com>
Subject: Draft Paper and Next Call -- ABA Fall Conference - CLE Materials - Deregulation in Focus - The CAA and the States_70899299_1.DOCX

All –

Thank you again for agreeing to present on the "Deregulation in Focus" panel at the SEER Fall Conference in San Diego. As promised, we put together some background materials on a few regulations that could be good fodder for discussion of state roles. The attached is intended to provide "table setting" information about some rules we could discuss. It is not intended to discuss the appropriate role of states – that is for the panel discussion. We tried to be neutral – a Dragnet "just the facts" approach on these regulations. Our final paper is due on Friday.

Please keep in mind that the purpose of this paper is to ensure that the various states where ABA members are licensed grant CLE credit. We are not trying to win "best paper" (unless one of you really wants to do that). So please recognize the spirit with which the attached was prepared before criticizing. It's okay to criticize and make edits; we were gearing level of effort to the goal and were not trying to carry anyone's bags. I am copying Clare Ellis who was kind enough to help with the paper (thank you Clare!).

Next Steps for Our Panel:

1. Finalize the paper and submit it: Please review the attached and provide any comments/edits by Wednesday COB. Please read the footnote that I put on the first page saying we all contributed but that the paper doesn't represent our organizations' positions so we can't have it cited back to us in case we inadvertently said something that hurts someone's position.

2. Circulate assignments for the panel and format with moderator questions for review by this group: I intend to circulate the outline of the panel that we have discussed with time allocations by October 10.

3. Hold a conference call to review and finalize the outline/questions: I propose that we have a conference call to go over the approach to the panel with the draft moderator questions the week of October 15. I am hoping that can work for everyone. Please fill out the doodle poll a this link re your availability that week: https://doodle.com/poll/dzqtcmawk4hamnst

4. Briefly meet the day before our panel (Thursday) to do any last-minute logistics and have a quick drink or coffee so that we are familiar and comfortable. This is obviously optional but I find that the panels go better if we have at least had one in-person interaction before stepping up on the stage. Please let me know if you could break away on Thursday between 4 and 5 to meet in San Diego and do this.

Best Regards,

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Appointment

From: Broome, Shannon S. [SBroome@hunton.com]
Sent: 10/4/2018 4:22:28 PM
To: Brightbill, Jonathan (ENRD) [Jonathan.Brightbill@usdoj.gov]; dpettit@nrdc.org; Woods, Clint [woods.clint@epa.gov]

Subject: Final Prep ABA Panel
Location: Ex. 6 Personal Privacy (PP) code Ex. 6 Personal Privacy (PP)

Start: 10/11/2018 3:00:00 PM
End: 10/11/2018 4:00:00 PM
Show Time As: Tentative

Recurrence: (none)

Appointment

From: Broome, Shannon S. [SBroome@hunton.com]
Sent: 10/19/2018 1:13:07 AM
To: Woods, Clint [woods.clint@epa.gov]; Brightbill, Jonathan (ENRD) [Jonathan.Brightbill@usdoj.gov]; Jacob A. Santini [JSantini@parsonsbehle.com]; dpettit@nrdc.org

Subject: Breakfast in prep for ABA panel
Location: Marina Kitchen in hotel

Start: 10/19/2018 2:30:00 PM
End: 10/19/2018 3:30:00 PM
Show Time As: Tentative

Recurrence: (none)

Message

From: Ted Steichen [SteichenT@api.org]
Sent: 8/30/2018 1:21:44 PM
To: Woods, Clint [woods.clint@epa.gov]
CC: Howard Feldman [Feldman@api.org]
Subject: CFI - NAAQS Ozone
Attachments: CFI Ozone.pdf; Exhibit A.pdf; Exhibit B.pdf; Exhibit C Embedded File.pdf; Exhibit C.pdf

Hi Clint,

For your information, please see a copy of API comments filed to the docket on the Call for Information – NAAQS Ozone.

Section II provides suggestions on meeting the October 2020 schedule.

If you or others at EPA would like to discuss our public input, please let me now.

Thank you,

Ted Steichen
202 682 8568
stecihent@api.org

From: Ted Steichen
Sent: Wednesday, August 29, 2018 4:40 PM
To: Sasser, Erika (Sasser.Erika@epa.gov) <Sasser.Erika@epa.gov>
Subject: CFI - NAAQS Ozone

Ted Steichen
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August 27, 2018

Via www.regulations.gov

Environmental Protection Agency
1200 Pennsylvania Ave., NW.
Washington, D.C. 20460

Re: **Review of the National Ambient Air Quality Standards for Ozone—Call for Scientific and Policy-Relevant Information; June 26, 2018; 83 Fed. Reg. 29,785; Docket ID: EPA–HQ–ORD–2018–0274**

The American Petroleum Institute (API) offers the following comments on the Environmental Protection Agency's (EPA) Call for Scientific and Policy-Relevant Information: Review of the National Ambient Air Quality Standards (NAAQS) for Ozone.

API is the only national trade association representing all facets of the oil and natural gas industry, which supports 10.3 million U.S. jobs and nearly 8 percent of the U.S. economy. API's more than 620 members include large integrated companies, as well as exploration and production, refining, marketing, pipeline, and marine businesses, and service and supply firms. They provide most of the nation's energy and are backed by a growing grassroots movement of more than 40 million Americans. Regulations and the required emission control requirements to attain the NAAQS can have an impact on all aspects of API member operations.

The members of API are dedicated to continuous efforts to improve the compatibility of their operations with the environment while economically developing energy resources and supplying high quality products and services to consumers. Our members recognize their responsibility to work with the public, the government, and others to develop and to use natural resources in an environmentally sound manner while protecting the health and safety of our employees and the public.

This call for information is the initial step in the NAAQS ozone review, which the Agency has stated will be complete by October 2020.[1] Of course, API supports compliance with the Clean Air Act (CAA) and its schedule requirements and this challenging schedule is in the forefront of this 5-year NAAQS ozone review. Getting this review planned out is urgent and is arguably the first step the Agency should undertake. With this priority in mind, the API comments first address how the Back-to-Basics memorandum could be incorporated into this review.

[1] May 9, 2018 E. Scot Pruitt to Assistant Administrators Back-to-Basics Process for reviewing National Ambient Air Quality Standards, page 2. https://www.epa.gov/sites/production/files/2018-05/documents/image2018-05-09-173219.pdf (accessed August 24, 2018).

An equal opportunity employer

API finds that an emphasis on a robust and comprehensive Integrated Review Plan (IRP) is perhaps the best path forward to meet the Agency's challenging deadline. A focused "one draft process" with clear roles and responsibilities will be key. Please find suggestions on how the Agency can meet the timeframe in the attached comments. The challenge of this schedule cannot overemphasize. The number of issues underway, not least of which is the NAAQS $PM_{2.5}$ review process, risk delaying this central objective to meet NAAQS statutory deadlines.

In this call for information EPA requests materials regarding significant new ozone research and policy-relevant issues for consideration in this review. The API comments contain input on both the research and policy-relevant issues and discuss the importance of properly characterizing background ozone as a policy relevant issue during the NAAQS ozone review.

API appreciates the opportunity to provide these comments and looks forward to remaining an engaged and supportive stakeholder as the Agency moves forward with the NAAQS ozone review. If you have any questions about these comments, please contact me at (202) 682-8568 or steichent@api.org.

Sincerely,

/s/

Ted Steichen

ED_002719_00038048-00002

Comments on the

U. S. Environmental Protection Agency's

Review of the National Ambient Air Quality Standards for Ozone

Call for Scientific and Policy-Relevant Information

Docket ID: EPA–HQ–ORD–2018–0274

June 26, 2018

83 Fed. Reg. 29,785

Submitted by the

American Petroleum Institute

August 27, 2018

ED_002719_00038048-00003

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ED_002719_00038048-00005

I. Introduction

A. Scope of the Call for Information on Ozone NAAQS

EPA called for the submittal of information regarding significant new ozone research and policy-relevant issues for consideration in this review of the primary (health-based) and secondary (welfare-based) ozone standards.

B. Organization of these Comments

This call for information is the initial step in the NAAQS ozone review, which the Agency has stated will be complete by October 2020.[2] Of course, API supports compliance with the Clean Air Act and its schedule requirements and this challenging schedule is in the forefront of this NAAQS ozone review. Getting this review planned out is urgent and is arguably the first step the Agency should undertake. With this priority in mind, the API comments first address how the Back-to-Basic memorandum could be incorporated into this review.

API finds that an emphasis on a robust and comprehensive Integrated Review Plan (IRP) is perhaps the best path forward to meet the Agency's challenging deadline. A focused "one draft process" with clear roles and responsibilities will be key. Please find in Section II suggestions on how the Agency could meet the timeframe established in the Back-to-Basics memorandum.

In this call for information EPA requests materials regarding significant new ozone research and policy-relevant issues for consideration in this review.[3] The API research input is organized in Sections III and IV, and associated Exhibits A and B.

Section III provides an example list of studies that could form a "pivotal list" of studies that the ISA could cover. This list contains examples of recent information, some of which API anticipates EPA's Office of Research and Development (ORD) would likely select as pivotal. Please note the studies listed are not an endorsement of these studies but are listed for illustration. Exhibit A of the comments provide more detail and suggestions for how these studies could be summarized in the ISA.

Section IV and Exhibit B deal with ozone research that API suggests the Agency consider as the "pivotal list" is developed.

API comments discuss the importance of properly characterizing background ozone as a policy-relevant issue during the NAAQS ozone review in Section V and Exhibit C. Comments on adverse impacts on the NAAQS setting process will follow in response to that separate call for information.

---

[2] E. Scot Pruitt memorandum to: EPA Assistant Administrators, May 9, 2018, page 2. https://www.epa.gov/sites/production/files/2018-05/documents/image2018-05-09-173219.pdf (accessed August 24, 2018).

[3] 83 Fed. Reg. 29,785 (June 26, 2018).

ED_002719_00038048-00006

II. Toward a Final Ozone Rule by October 2020

In thinking about how the challenging deadline can be met API reviewed materials created by the Administration relevant to the NAAQS review process.

A. Recent Memoranda on the NAAQS Review Process

The NAAQS ozone review began with this July 2018 call for information. This upcoming review has been the subject of memoranda from the President and the EPA Administrator.

1. Presidential Memorandum of April 12, 2018 Promoting Domestic Manufacturing and Job Creation—Policies and Procedures Relating to Implementation of Air Quality Standards[4]

A key excerpt from this memo referenced future NAAQS reviews:

> *"Sec. 7. Future NAAQS Reviews. The Administrator shall evaluate whether EPA is complying fully with the requirements of section 109(d)(2)(C) of the CAA (42 U.S.C. 7409(d)(2)(C)) relating to the scope and characterization of advice provided by its Clean Air Act Scientific Advisory Committee, including requirements that the Committee advise the Administrator regarding background concentrations and adverse public health or other effects that may result from implementation of revised air quality standards. In addition, the Administrator shall examine the current NAAQS review process and develop criteria to ensure transparency in the evaluation, assessment, and characterization of scientific evidence in such reviews. The Administrator shall also develop clear guidance for differentiating the role of science and policy considerations in establishing NAAQS."*[5]

2. Administrators Back-to-Basics Process for reviewing National Ambient Air Quality Standards[6]

In this document there is substantial detail on how the Agency should refocus and reimagine the review process. In this memorandum, the Administrator set out the following five principles for EPA to observe in future NAAQS reviews:

- Meet statutory deadlines;
- Address all CAA provisions for NAAQS reviews;
- Streamline and standardize the process for development and review of key policy-relevant information;
- Differentiate science and policy judgments in the NAAQS review process; and
- Issue timely implementation regulations and guidance.

---

[4] 83 Fed. Reg. 16,761 (April 12, 2018).
[5] 83 Fed. Reg. 16,764 (April 16, 2018).
[6] E. Scot Pruitt memorandum to: EPA Assistant Administrators, May 9, 2018.

ED_002719_00038048-00007

The memorandum discusses each of the five principles and builds on early improvements to the NAAQS review process, memoranda issued December 7, 2006,[7] and May 21, 2009.[8]

Meet Statutory Deadlines is the first principle in the memorandum. The Administrator states "[f]or the next review of the ozone NAAQS, EPA shall seek efficiencies through replacing the kick-off workshop with a more robust request for information, and shall consider combining its integrated science, risk and exposure, and policy assessment into a single review.

As EPA implements this memo API encourages the Agency to look to the first document, the Integrated Review Plan (IRP) to provide the outline for this efficient review. In Part G. of this Section, API provides more detail on how the IRP and the Clean Air Scientific Advisory Committee (CASAC) review of the IRP will allow the Agency to adhere to this first principle.

Address All CAA Provisions for NAAQS Reviews is the second principle, and these provisions are specified in Section 109(d)(2) of the Act on the roles and responsibilities of CASAC. Some of these responsibilities have not been completed in past reviews and the reasons given were that EPA did not provide within the science documents material for review on all the topics mentioned in Section 109(d)(2) and that CASAC panel did not include members to address all these areas[9]. In the recent request for nominations the need for members across all the relevant disciplines was highlighted. API anxiously awaits the list of nominated panelists and intends to comment on whether or not the needed expertise will be provided on the panel. The task remains for EPA to determine how they will address all the topics that require review and if that is best incorporated in the ISA. EPA should address this issue in the IRP as to the plan to develop the needed materials for a CASAC review in the IRP.

Of note, these NAAQS topic specific panels have been constituted by the EPA Science Advisory Board (SAB) Staff Office, as compared to the statutory CASAC membership that is determined by the Administrator. Since the previous process has not provided for panels to address all the provisions, for at least this ozone panel API recommends the Administrator takes an active role to ensure this principle is fully addressed.

Streamline and standardize the process for development and review of key policy-relevant information is the third principle. The IRP should include details on how the Agency intends to meet this requirement.

Differentiate science and policy judgments in the NAAQS review process is the fourth principle. These expectations need to be enumerated and provide to the ozone NAAQS review panel as soon as it is formed. In attending many review meetings in the past API staff sensed that the CASAC panel members did not always have a common understanding of this distinction. Written expectations to the CASAC review panel would greatly improve the chances the ozone review will adhere to this principle.

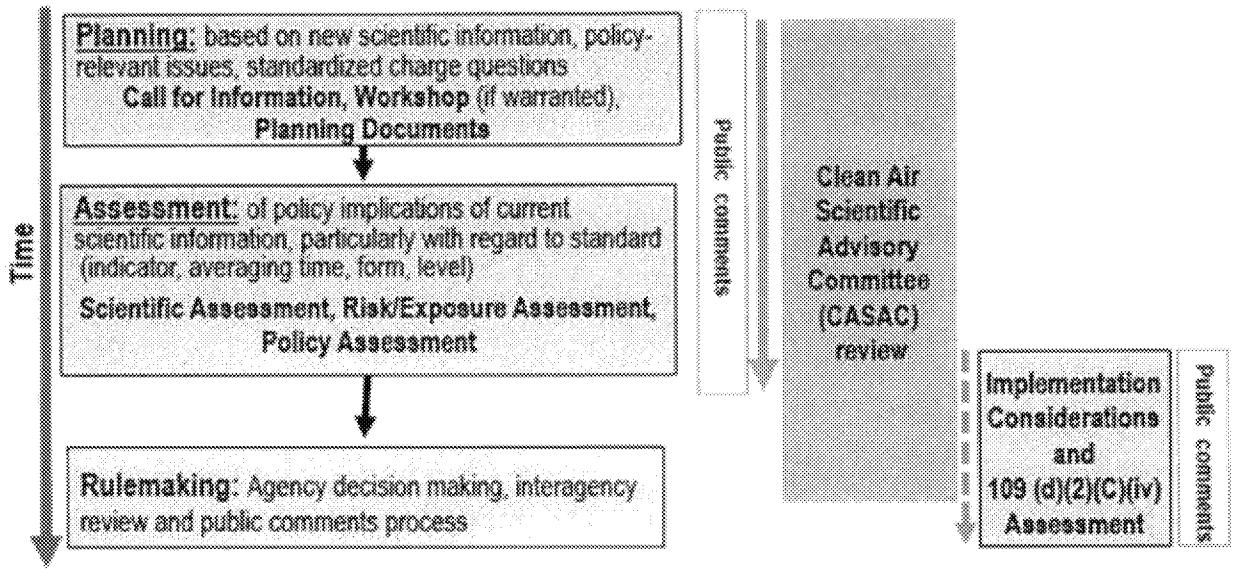
---

[7] Marcus Peacock: memorandum to George Gray, and Bill Wehrum, December 7, 2006. https://www3.epa.gov/ttn/naaqs/pdfs/memo_process_for_reviewing_naaqs.pdf (accessed August 24, 2018).
[8] Lisa Jackson: memorandum to Elizabeth Craig and Lek Kadeli, May 21, 2009. https://www3.epa.gov/ttn/naaqs/pdfs/NAAQSReviewProcessMemo52109.pdf (accessed August 24, 2018).
[9] Dr. H. Christopher Frey: letter to The Honorable Gina McCarthy, June 26, 2014. https://yosemite.epa.gov/sab/sabproduct.nsf/5EFA320CCAD326E885257D030071531C/$File/EPA-CASAC-14-004+unsigned.pdf (accessed August 24, 2018).

Issue timely implementation regulations and guidance is the fifth principle. This principle is important, but the challenging schedule to complete this NAAQS ozone review by October 2020 elevates the prior four principles over this one.

Within the Back-to-Basics memorandum a schematic of the steps associated with a streamlined and efficient NAAQS review is illustrated as Figure 1:[10]

Figure 1. Schematic of the steps associated with a streamlined and efficient NAAQS review.

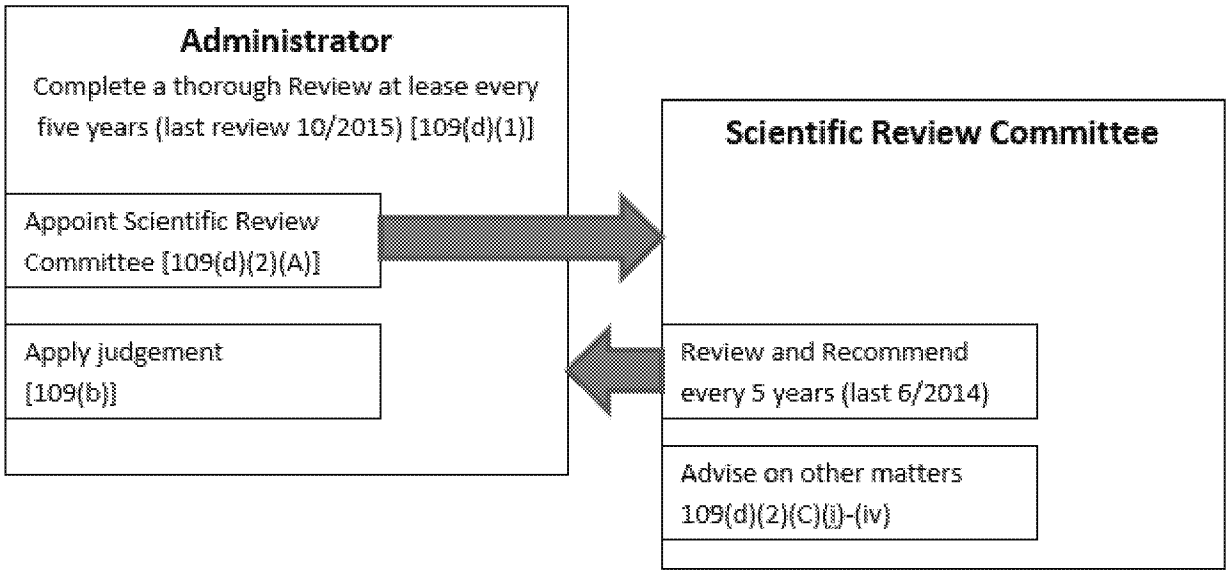


[10] E. Scot Pruitt memorandum to: EPA Assistant Administrators, May 9, 2018, page 10.

To pare this down to the minimum statutory requirements, the following illustration is provided:

Review of National Ambient Air Quality Standards

Statutory Requirements



The Administrator (EPA) prepares documents that the Scientific Review Committee, known as CASAC, review and provide recommendations. For ozone, prior to the 2015 review a Criteria Document was developed and reviewed by CASAC.[11] For the 2015 ozone review an Integrated Review Plan, Risk and Exposure Assessment Scope and Methods Plans (otherwise referred to as the Risk and Exposure Assessment Planning Documents), an Integrated Science Assessment, Risk and Exposure Assessments and a Policy Assessment were completed.

The schematic from the Back-to-Basics references all the documents that were part of the 2015 review. API recommends EPA consider whether all of these documents are necessary to produce and review. The need to do no more than necessary is critical within the timeline the Administrator has established. Please see Part B of this Section for further discussion on what API views as an aggressive timeline and provides a suggested alternative schematic in Part F of this Section.

On page 9 of the memorandum the Administrator states:

> *"EPA should strive to ensure that initial drafts of all documents are sufficiently robust and complete to serve as adequate vehicles for review from both the CASAC and the public, and CASAC should strive to focus on significant comments for these drafts to avoid multiple draft reviews whenever possible. EPA focus on providing CASAC with assessments and chapters succinctly reflect the most salient information, and CASAC focus on providing clear scientific, not editorial, advice, will prevent the inefficiency of what one former CASAC Chair called a "ping-pong" review process with review of multiple drafts. The Agency should seek additional*

[11] U.S. EPA. Air Quality Criteria for Ozone and Related Photochemical Oxidants (Second External Review Draft). U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-05/004aB-cB, 2005. https://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=137307 (accessed August 24, 2018).

efficiencies in each step in the review process ..., redesigning those steps as needed, and utilizing, in the most efficient manner possible, only those steps that add value in a particular review."

API strongly supports this expectation and suggests that it is best accomplished by a robust IRP that already outlines which new science may be most pivotal to review to accomplish the review. The CASAC and the public, at that point in the process, can provide feedback to the Agency to inform the development of a focused ISA. Please see Part G of this Section for further suggestions on the development of more robust IRP.

B. Aggressive Timeline

Within this call for information EPA provides a deadline to complete this review by October 2020.[12] The task before the EPA is challenging and the need to establish clear expectations and timelines for the Agency staff and CASAC is critical.

To highlight the challenge, in the last Integrated Review Plan the Call for Information (this request) was documented as being made September 2008 with a target final rule in February 2014 in the draft of the IRP,[13] and June 2014 in the final document.[14] The rule was actually finalized in October 2015[15]. The final IRP plan projected was almost 6 years, and it ended up being 7 years. The time between this Call for Information in July 2018 and the date the Administrator intends the review to be complete, October 2020, is little more than two years. Clearly to meet this new timeline will require a sweeping change in the NAAQS review process.

To add to the workload, EPA will likely need to gather additional materials that directly apply to the advice the scientific review committee (CASAC) has not traditionally provided, most especially that required in Section 109(d)(2)(C)(iv).

In considering how to implement a sweeping change, API starts with the statutory requirements and looks how to incorporate all the elements from the latest NAAQS ozone review into the minimum number of documents that require review. For example, assume the documents to be prepared are:

- Integrated Review Plan
- Integrated Science Assessment
- Materials for Section 109(d)(2)(C)(iv) (from existing materials)
- Advanced Notice of Proposed Rulemaking
- Proposed Rule
- Final Rule

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[12] E. Scot Pruitt memorandum to: EPA Assistant Administrators, May 9, 2018, page 2.
[13] U.S. EPA. Integrated Review Plan for the Ozone National Ambient Air Quality Standards Review - External Review Draft. U.S. Environmental Protection Agency, Washington, DC, EPA/452/D-09-001, 2009, page 14. https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P1005B09.txt (accessed August 24, 2018)
[14] U.S. EPA. Integrated Review Plan for the Ozone National Ambient Air Quality Standards. U.S. Environmental Protection Agency, Washington, DC, EPA/452/R-11-006, 2011, page 2-2. https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100AUZO.txt (accessed August 24, 2018)
[15] 80 Fed. Reg. 65,292 (October 26, 2015).

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For illustration, please see the following possible timeline to meet the challenging schedule:

Potential NAAQS Ozone Review Milestones

Milestone	Date	Notes
Call for Information	July 2018	30-day comment period
Draft IRP	March 2019	60-day comment period
CASAC Review of IRP	April 2019	
Final IRP (becomes an element of the ISA)	July 2019	
Draft ISA & Materials for 109(d)(2)(C)(iv)	September 2019	30-day comment period
CASAC Review of ISA & Materials for 109(d)(2)(C)(iv)	October 2019	
Final ISA	December 2019	
ANPRM	February 2020	30-day comment period
Proposed Rule	May 2020	60-day comment period
Final Rule	October 2020	

The timeline allows for the development of the much more robust IRP including significant detail on the science to be reviewed and any already identified potential new risks and exposures that might need to be evaluated. Close coordination between the Office of Research and Development and the Office of Air Quality Policy and Standards within the Office of Air and Radiation would likely be the necessary to complete this draft robust IRP.

For the 2015 ozone review CASAC did not hold a meeting to discuss the draft IRP, it was discussed on a consultation conference call; CASAC provided no consensus report for the Administrator.[16] This illustrates that, in the current process, the planning phase (IRP) is not elevated to the same level as the assessment phase.

The key suggestion to EPA is to elevate the planning phase to receive the informed recommendations from the CASAC following a full review of a more robust draft IRP. The review of the ISA could then be focused on how well the IRP was followed. In Part G of this Section is a further discussion on the IRP while Part H provides discussion of the other review steps.

C. Full Requirements of the Review (CAA requirements)

Section 109(d)(2) of the Act requires appointment of an independent scientific review committee that is to periodically review the existing air quality criteria and NAAQS and to recommend any new standards and revisions of existing criteria and standards as may be appropriate. Since the early 1980s, the requirement for an independent scientific review committee has been fulfilled by the Clean Air Scientific Advisory Committee (CASAC).

Section 109(d)(2)(C) of the Act additionally requires the independent scientific review committee to advise the EPA Administrator of areas in which additional knowledge is required to appraise the adequacy and basis of existing, new, or revised NAAQS; describe the research efforts necessary to provide the required information; advise the EPA Administrator on the relative contribution to air

[16] Dr. Jonathan M. Samet: letter to The Honorable Lisa P. Jackson, December 3, 2009 https://yosemite.epa.gov/sab/sabproduct.nsf/8A8B1D042C07DE5185257681007B7D85/$File/EPA-CASAC-10-004-unsigned.pdf (accessed August 24, 2018).

pollution concentrations of natural as well as anthropogenic activity; and, advise the EPA Administrator of any adverse public health, welfare, social, economic, or energy effects which may result from various strategies for attainment and maintenance of such NAAQS. To ensure this final statutory requirement is fully met, EPA further published in the Federal Register a call for information that would facilitate the committee's consideration of these issues.

Within this call for information Federal Register Notice the CASAC requirements include:

> *"advise the EPA Administrator on the relative contribution to air pollution concentrations of natural as well as anthropogenic activity; and, advise the EPA Administrator of any adverse public health, welfare, social, economic, or energy effects which may result from various strategies for attainment and maintenance of such NAAQS."*

The CASAC panel will need to include experts to address these issues and EPA will need to provide materials for CASAC review to ultimately address the noted requirements. Furthermore, API suggests that EPA prepare materials to highlight to CASAC exactly what is expected to provide this policy relevant information that can inform rule development of any new ozone NAAQS. API also suggests the Administrator identify an office within EPA to be responsible for assembling or preparing the needed documents for CASAC review on these issues.

D. Relationship with Call for Information on Adverse Impacts

The Administrator is already calling for information to evaluate the element of these CASAC review requirements dealing with adverse impacts.[17] API will comment on that call for information but strongly suggests the Agency work this issue now, before those comments are provided, to give the CASAC panel clear expectations on this task.

E. Request for Nominations for CASAC Ozone Panel

In a July 27, 2018 Notice[18] the SAB Staff Office requested public nominations for scientific experts to form a CASAC ad hoc panel to provide advice through the chartered CASAC on the scientific and technical aspects of air quality criteria and the NAAQS for ozone.

The SAB Staff Office sought nominations of nationally and internationally recognized scientists with demonstrated expertise and research in the field of air pollution related to ozone as they select the panel. Experts solicited include:

- Air quality,
- atmospheric science and chemistry,
- causal inference,
- dosimetry,
- toxicology,
- controlled clinical exposure,
- epidemiology,
- biostatistics,

[17] 83 Fed. Reg. 29,784 (June 26, 2018).
[18] 83 Fed Reg 35,635 (July 27, 2018).

- human exposure modeling,
- risk assessment/modeling, uncertainty analysis,
- ecology and effects on welfare and the environment, and
- environmental economics.

The approved policy[19] delegates the decision on this panel to the SAB Staff Office.

The recent request for nominations for the CASAC ozone panel[20] included the need to address the full range of the statutory CASAC duties, including an analysis of background and adverse effects. However, it did not fully highlight the needed experts to handle the full requirements of the review. In other efforts the Agency has begun to address the formation of CASAC,[21] and API recommends the Administrator continue to prioritize making further improvements in canvasing for and selecting the CASAC and the specific NAAQS review panels.

The Administrator could improve the NAAQS ozone review by guiding and supporting CASAC directly, at least as the NAAQS review process is streamlined. The repeated inability for the process to be completed within 5-years, that the full scope of the statutory advice has not been provided in recent reviews, that enhanced coordination will be necessary between ORD and OAQPS within OAR to accomplish a review redesign, and the documented substantial benefits to public health attributed to the NAAQS all argue for the Administrator's direct attention. While the SAB Staff Office has the expertise and supports numerous science panels, CASAC is pivotal to the NAAQS review process. The efficiencies of maintaining this role within the existing SAB framework could be weighed against the attention that is needed by the Administrator to ensure the advice required by the CAA is developed.

At a minimum the Administrator should update the CASAC panel formation approval policy to provide guidance to SAB Staff Office regarding CASAC. API would also suggest the Administrator ensure the CASAC panel members are provided with clear requirements and expectations of their service.

F. Overview of Possible Streamlined Process

The example schematic API provides in these comments is simplified to assist in clarifying the recommendations. These recommendations assume the same level of public interaction with the Agency and the CASAC that has historically been the case. API appreciates EPA's track record on soliciting public comment throughout the NAAQS review process. EPA's schematic provided in the recent Back-to-Basics memorandum demonstrates again its commitment to public engagement.

As with the potential scheduled provided in Part B. of this Section, API starts with the statutory requirements and examines how to incorporate all the elements from the latest NAAQS ozone review into

[19] U.S. EPA. Overview of the Panel Formation Process at the Environmental Protection Agency Science Advisory Board. U.S. Environmental Protection Agency, Washington, DC, EPA–SAB–EC– 02–010, 2002. https://yosemite.epa.gov/sab/sabproduct.nsf/WebFiles/OverviewPanelForm/$File/ec02010.pdf (accessed August 24, 2018).
[20] 83 Fed Reg 35,635 (July 27, 2018).
[21] E. Scott Pruitt: letter to EPA Assistant Administrators, October 31, 2017. https://www.epa.gov/sites/production/files/2017-10/documents/final_draft_fac_memo-10.30.2017.pdf (accessed August 24, 2018).

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the minimum number of documents that require review. For purposes of this example the documents will be prepared:

- Integrated Review Plan
- Integrated Science Assessment
- Materials for Section 109(d)(2)(C)(iv) (these are anticipated to be existing materials)
- Advanced Notice of Proposed Rulemaking
- Proposed Rule
- Final Rule

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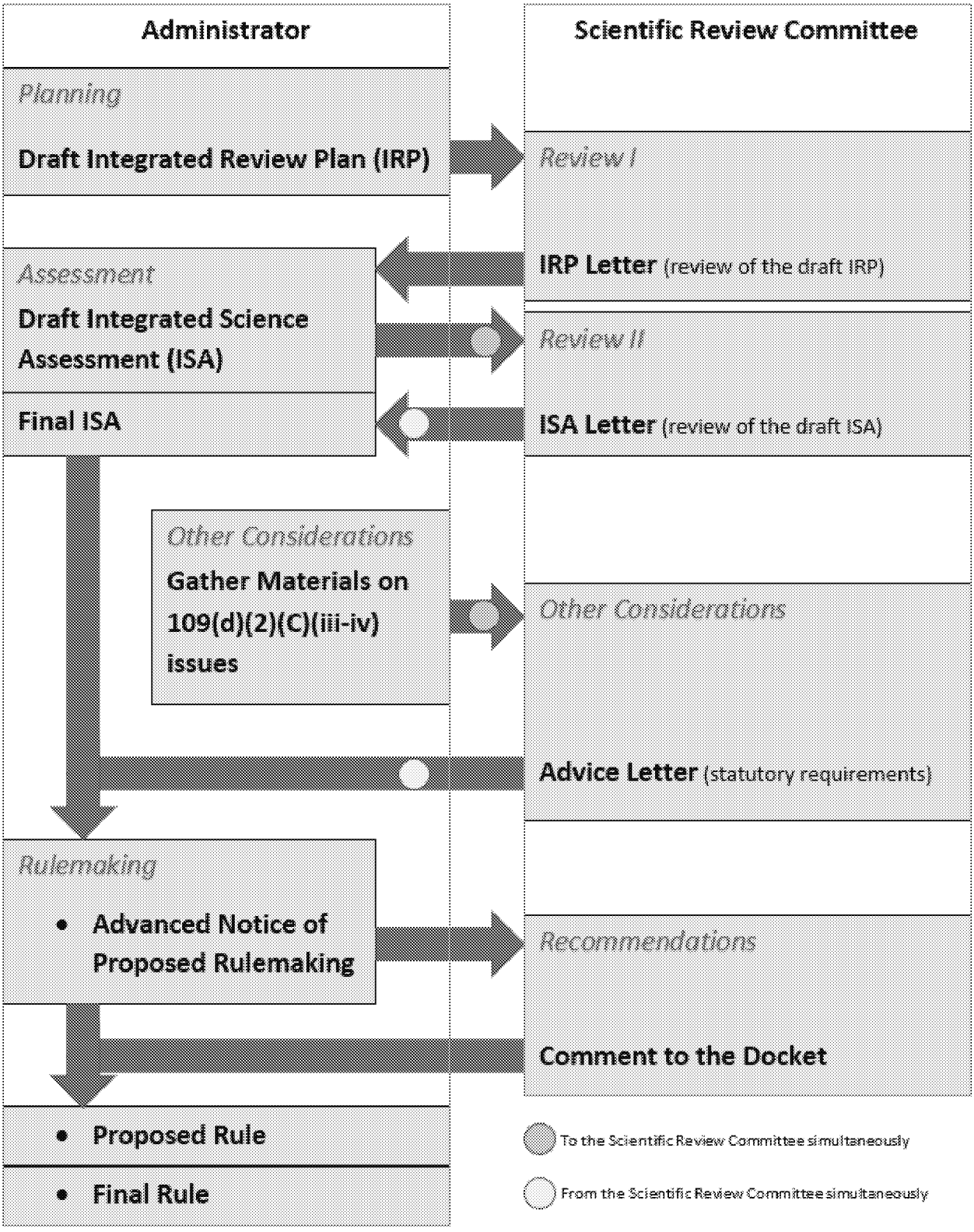
Example Review of National Ambient Air Quality Standards



The example would require two reviews by the Science Review Committee, known as CASAC. The first would be on the more robust draft IRP, the second would be for the draft ISA as well as the areas CASAC has not traditionally focused, the 109(d)(2)(C)(iv) issues discussed in Part C. of this Section.

Following those reviews the Administrator (EPA) would incorporate the recommendations from CASAC and the public and publish an Advance Notice of Proposed Rulemaking (ANPRM). Any needed materials that relate to a risk and exposure assessment that are not already incorporated in the final ISA could be included within the ANPRM or provided separately to the Docket and referenced in the ANPRM. CASAC, as a key stakeholder, would be asked to comment on the ANPRM to provide any additional advice to the Administrator prior to the proposed rule.

G. Integrated Review Plan

1. Key Review Document

As previously stated the challenging schedule requires a substantial reevaluation of the work needed on each identified step in the review process. API suggests EPA focus heavily on developing an IRP that is detailed and provides not only the process to complete the review but also identifies by name the pivotal studies the Agency will review, and how the interpretation of those studies might require further analysis of risk and exposure.

For several cycles the ozone NAAQS review process has extensively evaluated new studies to inform the level and form of the standards, though reviews have been refinements built on the existing record. In more recent years EPA staff have developed data systems that track recent research[22] so it is reasonable to assume the EPA staff experts are generally familiar with the state of the science.

To meet the challenging timeline, yet clearly meet the requirements of the CAA, API recommends EPA assemble a list of "pivotal" studies that will be investigated and discussed in the ISA. This list can and should be thoroughly reviewed by CASAC. Many of these experts, which by definition are "nationally and internationally recognized scientists with demonstrated expertise and research in the field of air pollution related to ozone",[23] can review the EPA list and identify more "pivotal" studies that should replace one on the EPA draft list. This determination of the scope of the review seems to be the highest and best use of the time committed by the CASAC ozone panel.

With the list of studies provided in the final IRP, the scope of the ISA is set and then the review can be primarily on whether the Agency had fulfilled the review as planned in the IRP.

In a similar fashion, the IRP could include the known key elements of what are now separate planning documents. Perhaps the experts at EPA can review the final REA from the last review and, in consultation with those developing the "pivotal" studies table provide at least some detail on how to address the possible need and scope of any risk or exposure assessments within the draft IRP. Again, the CASAC panelists, with their extensive knowledge are likely able to review and provide key guidance on the likely planning elements of such potential assessments by reviewing such a chapter within the draft

[22] https://hero.epa.gov/hero

[23] 83 Fed Reg 35,635 (July 27, 2018).

IRP. Inclusion of planning material about these potential assessments in the IRP will allow even more refinement of a potential plan for potential risk and exposure assessments within the draft ISA.

In both cases this robust IRP could rely on "expert elicitation" by both EPA staff and CASAC. This is a departure from prior reviews that can be made given the body of knowledge already evaluated regarding ozone and the rapid improvement in information handling capabilities. The measure of the efficacy of this approach is: does it fulfill the requirements of the statutory CASAC review. Based on the historic inability to complete the review within 5-years and the failure to address all the elements specified within the CAA, this is an example of the fresh thinking EPA should consider.

Traditionally the IRP has contained information from the prior review, summary information on new available materials and some detail on how that information will be evaluated. Each IRP has been tailored to the pollutant, but it remained very much about process and not content. In fairness, the traditional IRP content clearly does meet the definition of a review plan, but the suggestions above would make the review plan much more specific to the pollutant and the research to be reviewed in the current cycle.

More specificity earlier in the process would allow the best use of the expertise of CASAC in finalizing the IRP, as well as provide a clear framework for CASAC to ultimately judge if EPA completed what they indicated within the plan. In this approach the ISA review can be focused on evaluating the quality of the EPA effort in implementing the "plan" without needing to address the "mission creep" that API staff have observed in prior reviews where multiple ISA drafts were prepared and reviewed by CASAC. To highlight where the work has typically been focused, in the 2015 ozone review the IRP was 77 pages,[24] while the ISA was 1,251 pages.[25] In the 2008 ozone review the IRP was 22 pages,[26] while the final ISA was in three volumes with a total page count of 2,118.[27]

2. The IRP Sets the Scope of the Review

The NAAQS review process must be timely and meet the statutory requirements. An improved process should start with a detailed plan with a clear scope. Since any review is not starting from scratch and those developing the materials are already familiar with the current state of science, EPA should strongly consider focusing on developing a detailed scope of the entire NAAQS ozone review and move away from a sequential process of document development, reviews, rework of those documents and then further reviews.

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[24] U.S. EPA. Integrated Review Plan for the Ozone National Ambient Air Quality Standards. U.S. Environmental Protection Agency, Washington, DC, EPA/452/R-11-006, 2011. https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100AUZO.txt (accessed August 24, 2018)

[25] U.S. EPA. Integrated Science Assessment (ISA) of Ozone and Related Photochemical Oxidants (Final Report, Feb 2013). U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-10/076F, 2013. https://cfpub.epa.gov/ncea/isa/recordisplay.cfm?deid=247492 (accessed August 24, 2018).

[26] U.S. EPA. Plan for Review of the National Ambient Air Quality Standards for Ozone. U.S. Environmental Protection Agency, Washington, DC. https://www3.epa.gov/ttn/naaqs/standards/ozone/data/o3_review_plan_march05.pdf. (accessed August 24, 2018).

[27] U.S. EPA. Air Quality Criteria for Ozone and Related Photochemical Oxidants (Final Report, 2006). U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-05/004aF-cF, 2006. https://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=149923. (Accessed August 24, 2018).

One of the key roles of the CASAC is to describe the research efforts necessary to provide the required information. This is often done in the final letter to the Administrator on the PA.[28] Ultimately, as this NAAQS ozone review proceeds, if unexpected information comes to light it should be flagged by CASAC to investigate for the next review cycle.

3. CASAC Identified Shortcomings in Recent Integrated Review Plans

To illustrate that the current draft IRP is not necessarily sufficient within the current review process, API notes the CASAC review of EPA's Draft Integrated Review Plan for the Secondary National Ambient Air Quality Standard for Oxides of Nitrogen and Oxides of Sulfur. The then Chair of CASAC highlighted, among other items:

- Lack of Specificity in the Plan: The CASAC is concerned that providing just preliminary ideas in the draft IRP does not constitute a plan that could be put into action.[29]

- Uncertainty: A more in-depth consideration of uncertainty is needed[30]

The IRP has not always been fully reviewed by CASAC. For example, in the last review for ozone the Draft Review was a "consultation" and no consensus report was provided[31]

Using substantial EPA resources to create a more robust and specific IRP could provide the best opportunity to meet the Administrator's schedule. A more robust and specific IRP could also allow for a more substantive CASAC review of this key document. Details about how EPA will address uncertainties and highlighting the degree of transparency in the science reviewed will ultimately give the Administrator key information to evaluate any potential change in the NAAQS.

4. Charge Questions

The IRP should include charge questions that are specific to this review, perhaps directed at individual key studies and setting the expectation that the ISA identify the specific evidence within those study results that argues for a change in a NAAQS. Further charge questions can build on the identified evidence to address if the degree of uncertainty of that substantiation is more or less robust than the prior evidence used to set the existing NAAQS. All charge questions would be subject to both public and CASAC input as part of the draft IRP review defining the task in front of EPA as it develops the ISA.

5. Request for Comment by Public and CASAC

The roles and responsibilities of the Chartered CASAC and the CASAC ozone panel should be established before the first meeting. All stakeholders should be encouraged to comment on the IRP. A clear IRP can then be implemented in the ISA and the rulemaking phase.

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[28] Dr. H. Christopher Frey: letter to The Honorable Gina McCarthy, EPA-CASAC-14-004, June 26, 2014.
[29] Dr. Ana V. Diez Roux: letter to The Honorable Gina McCarthy, EPA-CASAC-16-001, April 1, 2016.
[30] Ibid, page 2
[31] Dr. John M. Samet: letter to The Honorable Lisa P. Jackson, EPA-CASAC-10-004, December 3, 2009.

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6. Finalizing the IRP

EPA should incorporate, as they are able, the comments of the Public and CASAC when finalizing the IRP. An IRP specific to the pivotal science will facilitate the completion of an ISA that documents any new key evidence including a discussion of uncertainty and transparency. The finalized IRP could be incorporated in the final ISA as an appendix.

H. Other Review Steps

1. Integrated Science Assessment

Were the IRP developed as suggested, the ISA would have a clear format and would answer the specific charge questions raised by the pivotal studies indicated in the IRP to be addressed in the review. The CASAC review of the ISA would be clear. Did EPA adequately review the pivotal research identified in the IRP and complete the risk and exposure review as laid out in the IRP?

If CASAC does identify a needed improvement in the ISA, EPA could then address that in the final ISA. CASAC would also work on answering the full scope of their statutory requirements, which would be included in an advice letter to the Administrator. This letter could end the formal role of the CASAC panel, however CASAC could be encouraged to comment on the ANPRM

2. Risk and Exposure Assessment

A separate document detailing the risk and exposure assessment is not a statutory requirement. In earlier reviews the Criteria Document did not contain risk and exposure information. That information was subsequently prepared as technical documents for use by the Administrator.[32]

Incorporating risk and exposure assessments within the review process could be addressed by including these issues in both the more robust IRP and the ISA. Any available early (preliminary) results of any needed risk and exposure assessment could be included in the draft ISA. If additional risk and exposure assessments are identified, then the results could be included within the final ISA if complete at that time. If such assessments are conducted, another option would be to include the results in their entirety or by reference and place them into the Docket at the time the ANPRM is issued. CASAC could be encouraged to comment on the ANPRM.

3. Policy Assessment as an Advanced Notice of Proposed Rulemaking

The Policy Assessment (PA) could be issued as an Advanced Notice of Proposed Rulemaking (ANPRM) as outlined in the 2006 Memorandum from the Deputy Administrator Marcus Peacock.[33] The ANPRM should have a relatively short comment period and not be held up by the practice of waiting for a CASAC meeting to be held to review the PA. At the time of the ANPRM the CASAC ozone panel could review the ANPRM and update their recommendations to the Administrator via the Docket.

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[32] One of the documents: A Probabilistic Assessment of Health Risks Associated with Short-Term Exposure to Tropospheric Ozone; R,G,Whitfield, W.F. Biller, M.J. Jusko, and J.M. Keisler, ANL/DOS-3, June 1996. https://www3.epa.gov/ttn/naaqs/standards/ozone/data/riskrep.pdf (accessed August 24, 2018).

[33] Marcus Peacock: memorandum to George Gray, and Bill Wehrum, December 7, 2006. https://www3.epa.gov/ttn/naaqs/pdfs/memo_process_for_reviewing_naaqs.pdf (accessed August 24, 2018).

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4. Proposed and Final Rulemaking

The release of the ANPRM could provide the opportunity to then release a proposed rule with a preferred option moving forward. After public comment, the final rule could move on to that preferred or perhaps an alternate option as laid out in the proposed rule.

III. Identify Pivotal Studies and List in the IRP

EPA should identify a limited number of truly pivotal studies that will be further evaluated in the Integrated Review Plan (IRP). The much shorter review period will require a streamlined process and EPA should fully utilize the technical expertise of EPA staff and CASAC members to establish the scope of the Integrated Science Assessment (ISA) within the IRP.

Here is an example of studies that might be included in such a focused list:

1. Long-term (chronic) effects

- **Ambient PM2.5, O_3, and NO_2 Exposures and Associations with Mortality over 16 Years of Follow-Up in the Canadian Census Health and Environment Cohort (CanCHEC);** Crouse DL, Peters PA, Hystad P, Brook JR, van Donkelaar A, Martin RV, Villeneuve PJ, Jerrett M, Goldberg MS, Pope CA 3rd, Brauer M, Brook RD, Robichaud A, Menard R, Burnett RT. *Environ Health Perspect.* 2015 Nov;123(11):1180-6.

- **Long-Term Ozone Exposure and Mortality in a Large Prospective Study;** Turner MC, Jerrett M, Pope CA 3rd, Krewski D, Gapstur SM, Diver WR, Beckerman BS, Marshall JD, Su J, Crouse DL, Burnett RT. *Am J Respir Crit Care Med.* 2016 May15;193(10):1134-42.

- **Associations between long-term PM2.5 and ozone exposure and mortality in the Canadian Census Health and Environment Cohort (CANCHEC), by spatial synoptic classification zone;** Cakmak S, Hebbern C, Pinault L, Lavigne E, Vanos J, Crouse DL, Tjepkema M. *Environ Int.* 2018 Feb;111:200-211.

- **Has reducing fine particulate matter and ozone caused reduced mortality rates in the United States?** Cox LA Jr, Popken DA. *Ann Epidemiol.* 2015 Mar;25(3):162-73.

- **Mortality associations with long-term exposure to outdoor air pollution in a national English cohort;** Carey IM, Atkinson RW, Kent AJ, van Staa T, Cook DG, Anderson HR. *Am J Respir Crit Care Med.* 2013 Jun 1;187(11):1226-33.

- **Long-term exposure to ambient ozone and mortality: a quantitative systematic review and meta-analysis of evidence from cohort studies;** Atkinson RW, Butland BK, Dimitroulopoulou C, Heal MR, Stedman JR, Carslaw N, Jarvis D, Heaviside C, Vardoulakis S, Walton H, Anderson HR. *BMJ Open.* 2016 Feb23;6(2):e00949.

- **Ambient ozone and incident diabetes: A prospective analysis in a large cohort of African American women;** Jerrett M, Brook R, White LF, Burnett RT, Yu J, Su J, Seto E, Marshall J, Palmer JR, Rosenberg L, Coogan PF. *Environ Int.* 2017 May;102:42-47.

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2. Short-term (acute) effects

- **Association of Short-term Exposure to Air Pollution with Mortality in Older Adults;** Di Q, Dai L, Wang Y, Zanobetti A, Choirat C, Schwartz JD, Dominici F. *JAMA*. 2017 Dec 26;318(24):2446-2456

- **Characterization of the concentration-response curve for ambient ozone and acute respiratory morbidity in 5 US cities;** Barry V, Klein M, Winquist A, Chang HH, Mulholland JA, Talbott EO, Rager JR, Tolbert PE, Sarnat SE. *J Expo Sci Environ Epidemiol*. 2018 Jun 19

- **Acute effects of ambient ozone on mortality in Europe and North America: results from the APHENA study;** Peng RD, Samoli E, Pham L, Dominici F, Touloumi G, Ramsay T, Burnett RT, Krewski D, Le Tertre A, Cohen A, Atkinson RW, Anderson HR, Katsouyanni K, Samet JM. *Air Qual Atmos Health*. 2013 Jun 1;6(2):445-453

- **Air quality and acute deaths in California, 2000-2012;** Young SS, Smith RL, Lopiano KK. Air quality and acute deaths in California,2000-2012. *Regul Toxicol Pharmacol*. 2017 Aug;88:173-184

3. Respiratory Function

- **Effects of Policy-Driven Air Quality Improvements on Children's Respiratory Health;** Gilliland F, Avol E, McConnell R, Berhane K, Gauderman WJ, Lurmann FW, et al. 2017. The Effects of Policy-Driven Air Quality Improvements on Children's Respiratory Health. Research Report 190. Boston, MA:Health Effects Institute.

4. Toxicological literature

- **The perpetuation of the misconception that rats receive a 3-5 times lower lung tissue dose than humans at the same ozone concentration;** McCant D, Lange S, Haney J, Honeycutt M. *Inhal Toxicol*. 2017 Apr;29(5):187-196. doi: 10.1080/08958378.2017.1323982.

In Exhibit A to these comments is further information briefly discussing the study, conclusions and other relevant information. Also included for each of these studies is a quick strengths / limitations reference. As an example, below is the table for the first item on this list, **Ambient PM2.5, O_3, and NO_2 Exposures and Associations with Mortality over 16 Years of Follow-Up in the Canadian Census Health and Environment Cohort (CanCHEC):**

Strengths	Limitations
Large (2.5M) national 20% sample from long form Census	Lack of smoking data
Cause-specific mortality, not just all-cause	Associative, not causal modeling; standard limitations
2- and 3-p models with PM2.5 & NO2 with stable results	Hard to statistically separate pollutants' effects

IV. Additional Studies to Consider in Developing a Pivotal List

As EPA develops the list of pivotal studies to present to CASAC in the draft IRP, API offers further material in Exhibit B. In this exhibit API has included original research, methods & recommended practices, reviews, critiques, weight of evidence and commentary that can inform on the policy relevant issues associated with reviewing the ozone NAAQS.

V. Policy Relevance of Background Ozone

EPA has both the ability and legal obligation to consider the impacts of background levels of ozone on the achievability of the NAAQS. Although the U.S. Supreme Court's decision in *Whitman v. Am. Trucking Ass'ns*, 531 U.S. 457 (2001) is often cited for the proposition that EPA cannot consider the costs of implementation, EPA still can and must consider other contextual factors. Notably, in order to determine the levels of ozone that are "sufficient, but not more than necessary" to protect the public health and welfare, EPA must conduct an assessment of the extent to which the risks from exposure to the pollutant are unacceptable, which requires EPA to take into account contextual considerations. *Id.* at 473. The contextual risk assessment factors were described by Justice Breyer in *Whitman* as including "the public's ordinary tolerance of the particular health risk," "comparative health consequences," and the "acceptability of small risks to health." *Id.* At 494-95 (Breyer, J., concurring in part and concurring in the judgment). These contextual factors can all be influenced by the overall adverse economic, social, and energy impacts that could result from a revised NAAQS. For example, the public's "tolerance" and "acceptability" or a particular level of risk can be affected by the standard's adverse impacts on the public that could occur through reductions in economic growth and job loss.

Furthermore, the text of the Clean Air Act shows that Congress intended the NAAQS to be achievable by regulation of U.S. sources through State Implementation Plans (SIPs). The requirements in Section 107(a) that SIPs specify the manner in which the NAAQS "will be achieved and maintained" and the requirements in Section 110(a)(2)(C) call for an enforcement and regulation program "as necessary to assure that [NAAQS] are achieved." Furthermore, Sections 172(a)(2),181, 186, 188 and 192 specify deadlines for achieving attainment. Additionally, Section 109(b) itself links the setting of "requisite" NAAQS to their "attainment and maintenance." These attainment requirements help demonstrate that Congress did not intend NAAQS to address pollution that is beyond the control of the States or EPA. It follows that, in revising NAAQS, EPA must consider whether the standards can be achieved through the regulations provided for by the Clean Air Act – which means taking background ozone into account – and cannot set a standard that is unachievable on a nationwide basis through these regulations.

A. EPA's Identification of the Issue

As EPA states in this call for information, the EPA Administrator is to be advised on the relative contribution to air pollution concentrations of natural as well as anthropogenic activity as part of his deliberations in setting a NAAQS.

In the ISA and the PA for the 2015 NAAQS review a summary of studies regarding background ozone and its contribution to total ambient ozone levels were provided.

B. Summarize the Key Background Studies in the IRP

EPA should start the update of background studies to include in the IRP by reviewing a key paper by Jaffe et al., 2018, *Scientific assessment of background ozone over the U.S.: Implications for air quality management*[34]. This paper considered over a 100 background ozone studies as part of an assessment of the spatial and temporal distribution, trends, and sources of background ozone over the continental U.S.

[34] Jaffe, DA, et al. 2018. Scientific assessment of background ozone over the U.S.: Implications for air quality management. Elem Sci Anth, 6:56. https://www.elementascience.org/article/10.1525/elementa.309/

Many of the referenced studies were published subsequent to the 2015 NAAQS review and should be considered as part of the current review.

The Jaffe et al. (2018) assessment found that spring and summer seasonal mean U.S. background ozone (i.e., ozone from other than U.S. anthropogenic sources) was greatest at high elevation locations in the western U.S., with monthly mean maximum daily 8-hour average (MDA8) mole fractions approaching 50 parts per billion (ppb) and annual 4th highest MDA8s exceeding 60 ppb at some locations.

C. Further Input into the Background Study Summary for the IRP

Within these comments are a list of recent studies (Exhibit C) that included information about the contribution of internationally transported ozone to U.S. background ozone. Most of these studies are included as references in the Jaffe paper; the attached list summarizes the studies' key findings.

Background ozone levels can and should be considered in setting of the NAAQS. In the previous ozone PA, EPA acknowledged that "The Administrator, when evaluating the range of possible standards that are supported by the scientific evidence, could consider proximity to background O_3 concentrations as one factor in selecting the appropriate standard."[35]

Studies listed in the previous 2015 NAAQS review, as well as those considered in the Jaffe et al. (2018) assessment show that in certain locations a significant fraction of observed ozone is due to background sources, which includes ozone derived from natural sources and international transport of ozone and its precursors. Previous studies have shown that peak background ozone exceeds 60 ppb, contributes to NAAQS exceedances, and comprises a significant fraction of seasonal mean and integrated ozone across the US. Background events are not infrequent and peak background concentrations are near the current ozone NAAQS.

EPA has historically sought to account for uncontrollable sources of ozone via implementation rules. However, in some cases the available tools and guidance to address background ozone issues may not be fully developed or functional, and states' resources to utilize the tools may be limited. While EPA should continue to improve upon implementation tools to address event-driven background ozone, it should also utilize its authority under the CAA to consider background ozone levels in setting the NAAQS.

[35] Policy Assessment for the Review of the Ozone National Ambient Air Quality Standard, Final Report , August 2014, Pg 1-27

Exhibit A

EXAMPLE OF ASSESSMENT OF KEY/PIVOTAL HEALTH EFFECTS RESEARCH AS SUGGESTED TO BE LISTED IN THE INTEGRATED REVIEW PLAN

OBSERVATIONAL EPIDEMIOLOGY

Long-term (chronic) effects

Ambient PM2.5, O_3, and NO_2 Exposures and Associations with Mortality over 16 Years of Follow-Up in the Canadian Census Health and Environment Cohort (CanCHEC)

Crouse DL, Peters PA, Hystad P, Brook JR, van Donkelaar A, Martin RV, Villeneuve PJ, Jerrett M, Goldberg MS, Pope CA 3rd, Brauer M, Brook RD, Robichaud A, Menard R, Burnett RT. *Environ Health Perspect*. 2015 Nov;123(11):1180-6.

BACKGROUND: Few studies examining the associations between long-term exposure to ambient air pollution and mortality have considered multiple pollutants when assessing changes in exposure due to residential mobility during follow-up.

OBJECTIVE: We investigated associations between cause-specific mortality and ambient concentrations of fine particulate matter (≤ 2.5 µm; PM2.5), ozone (O3), and nitrogen dioxide (NO2) in a national cohort of about 2.5 million Canadians.

METHODS: We assigned estimates of annual concentrations of these pollutants to the residential postal codes of subjects for each year during 16 years of follow-up. Historical tax data allowed us to track subjects' residential postal code annually. We estimated hazard ratios (HRs) for each pollutant separately and adjusted for the other pollutants. We also estimated the product of the three HRs as a measure of the cumulative association with mortality for several causes of death for an increment of the mean minus the 5th percentile of each pollutant: 5.0 µg/m3 for PM2.5, 9.5 ppb for O3, and 8.1 ppb for NO2.

RESULTS: **PM2.5, O3, and NO2 were associated with nonaccidental and cause-specific mortality in single-pollutant models.** Exposure to PM2.5 alone was not sufficient to fully characterize the toxicity of the atmospheric mix or to fully explain the risk of mortality associated with exposure to ambient pollution. Assuming additive associations, the estimated HR for nonaccidental mortality corresponding to a change in exposure from the mean to the 5th percentile for all three pollutants together was 1.075 (95% CI: 1.067, 1.084). Accounting for residential mobility had only a limited impact on the association between mortality and PM2.5 and O3, but increased associations with NO2.

CONCLUSIONS: In this large, national-level cohort, we found positive associations between several common causes of death and exposure to PM2.5, O3, and NO2.

Strengths	Limitations
Large (2.5M) national 20% sample from long form Census	Lack of smoking data
Cause-specific mortality, not just all-cause	Associative, not causal modeling; standard limitations
2- and 3-p models with PM2.5 & NO2 with stable results	Hard to statistically separate pollutants' effects

Average ambient concentration: 40 ppb
No information on funding, but likely Canadian government funded.
Transparency: By US policies, the cause of death information would be protected, although available by application if administrative data extraction and processing methods/codes are shared with other approved researchers.

ED_002719_00038049-00001

Long-Term Ozone Exposure and Mortality in a Large Prospective Study

Turner MC, Jerrett M, Pope CA 3rd, Krewski D, Gapstur SM, Diver WR, Beckerman BS, Marshall JD, Su J, Crouse DL, Burnett RT. *Am J Respir Crit Care Med*. 2016 May15;193(10):1134-42.

RATIONALE: Tropospheric ozone (O3) is potentially associated with cardiovascular disease risk and premature death. Results from long-term epidemiological studies on O3 are scarce and inconclusive.

OBJECTIVES: In this study, we examined associations between chronic ambient O3 exposure and all-cause and cause-specific mortality in a large cohort of U.S. adults.

METHODS: Cancer Prevention Study II participants were enrolled in 1982. A total of 669,046 participants were analyzed, among whom 237,201 deaths occurred through 2004. We obtained estimates of O3 concentrations at the participant's residence from a hierarchical Bayesian space-time model. Estimates of fine particulate matter (particulate matter with an aerodynamic diameter of up to 2.5 µm [PM2.5]) and NO2 concentrations were obtained from land use regression. Cox proportional hazards regression models were used to examine mortality associations adjusted for individual- and ecological-level covariates.

MEASUREMENTS AND MAIN RESULTS: In single-pollutant models, we observed significant positive associations between O3, PM2.5, and NO2 concentrations and all-cause and cause-specific mortality. **In two-pollutant models adjusted for PM2.5, significant positive associations remained between O3 and all-cause (hazard ratio [HR] per 10 ppb, 1.02; 95% confidence interval [CI], 1.01-1.04), circulatory (HR, 1.03; 95% CI, 1.01-1.05), and respiratory mortality (HR, 1.12; 95% CI, 1.08-1.16) that were unchanged with further adjustment for NO2.** We also observed positive mortality associations with both PM2.5 (both near source and regional) and NO2 in multipollutant models.

CONCLUSIONS: Findings derived from this large-scale prospective study suggest that **long-term ambient O3 contributes to risk of respiratory and circulatory mortality**. Substantial health and environmental benefits may be achieved by implementing further measures aimed at controlling O3 concentrations.

Strengths	Limitations
Large national sample (670K) from ACS Cohort	Convenience sample of volunteers and social network
Cause-specific mortality, not just all-cause	Associative, not causal modeling; standard limitations
2- and 3-p models with PM2.5 & NO2 with stable results	Each pollutant measured at different times
Sophisticated exposure modeling	Residential location from 1982-83 → exposure misclassification
Ecological covariates included in analysis	Individual-level confounder data not updated since 1982-83
	Unexplained regional heterogeneity of effect

Average ambient concentration: 38 ppb
Funders: Government of Canada, US CDC, NIH, ACS
Transparency: None

Assuming that lung cancer is an unlikely a priori target for the ozone NAAQS, and given the null findings from the Cakmak et al (2018) study listed further below, the following study might be 'discounted'.

ED_002719_00038049-00002

Ozone exposure and cardiovascular-related mortality in the Canadian Census Health and Environment Cohort (CANCHEC) by spatial synoptic classification zone

Cakmak S, Hebbern C, Vanos J, Crouse DL, Burnett R. *Environ Pollut*. 2016 Jul;214:589-599.

Our objective is to analyse the association between long term ozone exposure and cardiovascular related mortality while accounting for climate, location, and socioeconomic factors. We assigned subjects with 16 years of follow-up in the Canadian Census Health and Environment Cohort (CanCHEC) to one of seven regions based on spatial synoptic classification (SSC) weather types and examined the interaction of exposure to both fine particulate matter (PM2.5) and ground level ozone and cause of death using survival analysis, while adjusting for socioeconomic characteristics and individual confounders. Correlations between ozone and PM2.5 varied across SSC zones from -0.02 to 0.7. Comparing zones using the most populated SSC zone as a reference, a 10 ppb increase in ozone exposure was associated with increases in hazard ratios (HRs) that ranged from 1.007 (95% CI 0.99, 1.015) to 1.03 (95% CI 1.02, 1.041) for cardiovascular disease, 1.013 (95% CI 0.996, 1.03) to 1.058 (95% CI 1.034, 1.082) for cerebrovascular disease, and 1.02 (95% CI 1.006, 1.034) for ischemic heart disease. HRs remained significant after adjustment for PM2.5**. Long term exposure to ozone is related to an increased risk of mortality from cardiovascular and cerebrovascular diseases; the risk varies by location across Canada and is not attenuated by adjustment for PM2.5.** This research shows that the SSC can be used to define geographic regions and it **demonstrates the importance of accounting for that spatial variability when studying the long term health effects of air pollution**.

Strengths	Limitations
Large (3.6M) national 20% sample from long form Census)	Lack of smoking data
Cause-specific mortality, not just all-cause	Associative, not causal modeling; standard limitations
2- pollutant models with PM, stable results	Spatial ecological confounders not available
Assessed spatial variability via climate zone	

Average ambient concentrations ranged from 14 – 41 over the 7 climate zones
Funder: Health Canada Clean Air Regulatory Agenda
Transparency: By US policies, the cause of death information would be protected, although available by application if administrative data extraction and processing methods/codes are shared with other approved researchers.

Note: The following study is largely a repeat of the study above. Follow-up was extended from 2006 in the above study to 2011. Exposures were estimated and assigned somewhat differently, and the impact of that is uncertain. Covariates/confounders were obtained from different sources: the long-form Census in the former and the Canadian Community Health Survey (a US NHANES analog) in the latter. The study below, however, did assess lung cancer mortality and did not find an association with ozone.

ED_002719_00038049-00003

Associations between long-term PM2.5 and ozone exposure and mortality in the Canadian Census Health and Environment Cohort (CANCHEC), by spatial synoptic classification zone

Cakmak S, Hebbern C, Pinault L, Lavigne E, Vanos J, Crouse DL, Tjepkema M. *Environ Int*. 2018 Feb;111:200-211

Studies suggest that long-term chronic exposure to fine particulate matter air pollution can increase lung cancer mortality. We analyzed the association between long term PM2.5 and ozone exposure and mortality due to lung cancer, ischemic heart disease, and chronic obstructive pulmonary disease, accounting for geographic location, socioeconomic status, and residential mobility. Subjects in the 1991 Canadian Census Health and Environment Cohort (CanCHEC) were followed for 20 years, and assigned to regions across Canada based on spatial synoptic classification weather types. Hazard ratios (HR) for mortality, were related to PM2.5 and ozone using Cox proportional hazards survival models, adjusting for socioeconomic characteristics and individual confounders. An increase of 10µg/m3 in long term PM2.5 exposure resulted in an HR for lung cancer mortality of 1.26 (95% CI 1.04, 1.53); the inclusion in the model of SSC zone as a stratum increased the risk estimate to HR 1.29 (95% CI 1.06, 1.57). After adjusting for ozone, HRs increased to 1.49 (95% CI 1.23, 1.88), and HR 1.54 (95% CI 1.27, 1.87), with and without zone as a model stratum. HRs for ischemic heart disease fell from 1.25 (95% CI 1.21, 1.29) for exposure to PM2.5, to 1.13 (95% CI 1.08, 1.19) when PM2.5 was adjusted for ozone. For COPD, the 95% confidence limits included 1.0 when climate zone was included in the model. HRs for all causes of death showed spatial differences when compared to zone 3, the most populated climate zone. Exposure to PM2.5 was related to an increased risk of mortality from lung cancer, and **both ozone and PM2.5 exposure were related to risk of mortality from ischemic heart disease, and the risk varied spatially by climate zone.**

Strengths	Limitations
Large (3.6M) national 20% sample from long form Census	Lack of smoking data
Cause-specific mortality, not just all-cause	Associative, not causal modeling; standard limitations
2- pollutant models with PM, stable results	Spatial ecological confounders not available
Assessed spatial variability via climate zone	

Average ambient concentrations ranged from 15 – 43 over the 7 climate zones; overall 39 ppb
Funder: Health Canada Clean Air Regulatory Agenda
Transparency: By US policies, the cause of death information would be protected, although available by application if administrative data extraction and processing methods/codes are shared with other approved researchers.

Has reducing fine particulate matter and ozone caused reduced mortality rates in the United States?

Cox LA Jr, Popken DA. *Ann Epidemiol*. 2015 Mar;25(3):162-73.

PURPOSE: Between 2000 and 2010, air pollutant levels in counties throughout the United States changed significantly, with fine particulate matter (PM2.5) declining over 30% in some counties and ozone (O3) exhibiting large variations from year to year. This history provides an opportunity to compare county-level changes in average annual ambient pollutant levels to corresponding changes in all-cause (AC) and cardiovascular disease (CVD) mortality rates over the course of a decade. Past studies have demonstrated associations and subsequently either interpreted associations causally or relied on subjective judgments to infer causation. This article applies more quantitative methods to assess causality.

METHODS: This article examines data from these "natural experiments" of changing pollutant levels for 483 counties in the 15 most populated US states using quantitative methods for causal hypothesis testing, such as conditional independence and Granger causality tests. We assessed whether changes in historical pollution levels helped to predict and explain changes in CVD and AC mortality rates.

RESULTS: A causal relation between pollutant concentrations and AC or CVD mortality rates cannot be inferred from these historical data, although a statistical association between them is well supported. **There were no significant positive associations between changes in PM2.5 or O3 levels and corresponding changes in disease mortality rates between 2000 and 2010, nor for shorter time intervals of 1 to 3 years.**

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CONCLUSIONS: **These findings suggest that predicted substantial human longevity benefits resulting from reducing PM2.5 and O3 may not occur or may be smaller than previously estimated.** Our results highlight the potential for heterogeneity in air pollution health effects across regions, and the high potential value of accountability research comparing model-based predictions of health benefits from reducing air pollutants to historical records of what actually occurred.

Strengths	Limitations
Causal modeling within a natural experiment	Unconventional modeling poorly understood
Large number of counties	Ecological in design (i.e., not individual)

Average ambient concentration not given.
Funder: API
Study meets transparency provisions

Mortality associations with long-term exposure to outdoor air pollution in a national English cohort

Carey IM, Atkinson RW, Kent AJ, van Staa T, Cook DG, Anderson HR. *Am J Respir Crit Care Med.* 2013 Jun 1;187(11):1226-33.

RATIONALE: Cohort evidence linking long-term exposure to outdoor particulate air pollution and mortality has come largely from the United States. There is relatively little evidence from nationally representative cohorts in other countries.

OBJECTIVES: To investigate the relationship between long-term exposure to a range of pollutants and causes of death in a national English cohort.

METHODS: A total of 835,607 patients aged 40-89 years registered with 205 general practices were followed from 2003-2007. Annual average concentrations in 2002 for particulate matter with a median aerodynamic diameter less than 10 (PM(10)) and less than 2.5 µm (PM(2.5)), nitrogen dioxide (NO(2)), ozone, and sulfur dioxide (SO(2)) at 1 km(2) resolution, estimated from emission-based models, were linked to residential postcode. Deaths (n = 83,103) were ascertained from linkage to death certificates, and hazard ratios (HRs) for all- and cause-specific mortality for pollutants were estimated for interquartile pollutant changes from Cox models adjusting for age, sex, smoking, body mass index, and area-level socioeconomic status markers.

MEASUREMENTS AND MAIN RESULTS: **Residential concentrations of all pollutants *except ozone* were positively associated with all-cause mortality** (HR, 1.02, 1.03, and 1.04 for PM(2.5), NO(2), and SO(2), respectively). Associations for PM(2.5), NO(2), and SO(2) were larger for respiratory deaths (HR, 1.09 each) and lung cancer (HR, 1.02, 1.06, and 1.05) but nearer unity for cardiovascular deaths (1.00, 1.00, and 1.04).

CONCLUSIONS: These results strengthen the evidence linking long-term ambient air pollution exposure to increased all-cause mortality. However, the stronger associations with respiratory mortality are not consistent with most US studies in which associations with cardiovascular causes of death tend to predominate.

Strengths	Limitations
Large cohort (830K) from 205 English medical practices	Linear (Cox PH) modeling; no nonlinearity assessment
Electronic medical records	Exposure model validation had inconsistent results
Cluster (by practice) analysis conducted	. . . but 10% not recorded (no history before 20073)
Enhanced exposure concentration modeling	Single-pollutant analysis
	SES (Deprivation Index) measured ecologically

Average ambient concentration: 52 ppb
Funder: United Kingdom Department of Health
Transparency: By US policies, the mortality information would be protected, although available by application if administrative data extraction and processing methods/codes are shared with other approved researchers.

ED_002719_00038049-00005

Long-term exposure to ambient ozone and mortality: a quantitative systematic review and meta-analysis of evidence from cohort studies

Atkinson RW, Butland BK, Dimitroulopoulou C, Heal MR, Stedman JR, Carslaw N, Jarvis D, Heaviside C, Vardoulakis S, Walton H, Anderson HR. *BMJ Open*. 2016 Feb23;6(2):e009493

OBJECTIVES: While there is good evidence for associations between short-term exposure to ozone and a range of adverse health outcomes, the evidence from narrative reviews for long-term exposure is suggestive of associations with respiratory mortality only. We conducted a systematic, quantitative evaluation of the evidence from cohort studies, reporting associations between long-term exposure to ozone and mortality.

METHODS: Cohort studies published in peer-reviewed journals indexed in EMBASE and MEDLINE to September 2015 and PubMed to October 2015 and cited in reviews/key publications were identified via search strings using terms relating to study design, pollutant and health outcome. Study details and estimate information were extracted and used to calculate standardised effect estimates expressed as HRs per 10 ppb increment in long-term ozone concentrations.

RESULTS: 14 publications from 8 cohorts presented results for ozone and all-cause and cause-specific mortality. **We found no evidence of associations between long-term annual O3 concentrations and the risk of death from all causes, cardiovascular or respiratory diseases, or lung cancer**. 4 cohorts assessed ozone concentrations measured during the warm season. Summary HRs for cardiovascular and respiratory causes of death derived from 3 cohorts were 1.01 (95% CI 1.00 to 1.02) and 1.03 (95% CI 1.01 to 1.05) per 10 ppb, respectively.

CONCLUSIONS: Our quantitative review revealed a paucity of independent studies regarding the associations between long-term exposure to ozone and mortality. The potential impact of climate change and increasing anthropogenic emissions of ozone precursors on ozone levels worldwide suggests further studies of the long-term effects of exposure to high ozone levels are warranted.

Strengths	Limitations
Sufficient number of original studies	Literature included only through 2015
Analyzed all-year and warm season separately	

No funding agency grant
Fully transparent

ED_002719_00038049-00006

The following study could be included under the EPA's susceptible subpopulation section for the following reasons:

1. *Toxicological support already exists (according to the author)*
2. *This is the first study to epidemiologically assess the link between type 2 diabetes and ozone in humans*
3. *Study population is African-American women, one of the many susceptible/sensitive sub-groups*
4. *Type 2 diabetes is a significant public health problem, particularly for this segment of the population*

Ambient ozone and incident diabetes: A prospective analysis in a large cohort of African American women

Jerrett M, Brook R, White LF, Burnett RT, Yu J, Su J, Seto E, Marshall J, Palmer JR, Rosenberg L, Coogan PF.
Environ Int. 2017 May;102:42-47.

BACKGROUND: Ozone is a ubiquitous air pollutant with increasing concentrations in many populous regions. Toxicological studies show that ozone can cause oxidative stress and increase insulin resistance. These pathways may contribute to metabolic changes and diabetes formation. In this paper, we investigate the association between ozone and incident type 2 diabetes in a large cohort of African American women.

METHODS: We used Cox proportional hazards models to calculate hazard ratios (HRs) for incident type 2 diabetes associated with exposure to ozone in a cohort of 45,231 African American women living in 56 metropolitan areas across the United States. Ozone levels were estimated using the U.S. EPA Models-3/Community Multiscale Air Quality (CMAQ) predictions fused with ground measurements at a resolution of 12km for the years 2007-2008.

RESULTS: The HR per interquartile range increment of 6.7ppb of ozone was 1.18 (95% CI 1.04-1.34) for incident diabetes in adjusted models. This association was unaltered in models that controlled for fine particulate matter with diameter <2.5µm (PM2.5). Associations were modified by nitrogen dioxide (NO2) levels, such that HRs for ozone levels were larger in areas of lower NO2.

CONCLUSIONS: Our results provide **initial evidence of a positive association between O3 and incident diabetes in African American women**. Given the ubiquity of ozone exposure and the importance of diabetes on quality of life and survival, these results may have important implications for the protection of public health.

Strengths	Limitations
Prospective cohort, well-designed	High selection bias (higher SES levels); low generalizability
Good follow-up on individual factors and addresses	Address at diagnosis used for exposure assignment, ignores past
Solid analysis, albeit regression-based	No causal modeling; linear regression assumptions
Good exposure modeling validated against monitor values	12x12 km exposure grids too large for ozone modeling?

Average ambient concentration: 35 ppb
Funders: NIEHS, NCI, CDC
Questionable transparency. Data from a prospective cohort study. Although we have not ascertained investigators' willingness to share data with other researchers, this study had authors from 6 different universities, indicating such.

ED_002719_00038049-00007

Short-term (acute) effects

Association of Short-term Exposure to Air Pollution with Mortality in Older Adults

Di Q, Dai L, Wang Y, Zanobetti A, Choirat C, Schwartz JD, Dominici F. *JAMA*. 2017 Dec 26;318(24):2446-2456

Importance: The US Environmental Protection Agency is required to reexamine its National Ambient Air Quality Standards (NAAQS) every 5 years, but evidence of mortality risk is lacking at air pollution levels below the current daily NAAQS in unmonitored areas and for sensitive subgroups.

Objective: To estimate the association between short-term exposures to ambient fine particulate matter (PM2.5) and ozone, and at levels below the current daily NAAQS, and mortality in the continental United States.

Design, Setting, and Participants: Case-crossover design and conditional logistic regression to estimate the association between short-term exposures to PM2.5 and ozone (mean of daily exposure on the same day of death and 1 day prior) and mortality in 2-pollutant models. The study included the entire Medicare population from January 1, 2000, to December 31, 2012, residing in 39 182 zip codes.

Exposures: Daily PM2.5 and ozone levels in a 1-km × 1-km grid were estimated using published and validated air pollution prediction models based on land use, chemical transport modeling, and satellite remote sensing data. From these gridded exposures, daily exposures were calculated for every zip code in the United States. Warm-season ozone was defined as ozone levels for the months April to September of each year.

Main Outcomes and Measures: All-cause mortality in the entire Medicare population from 2000 to 2012.

Results: During the study period, there were 22 433 862 million case days and 76 143 209 control days. Of all case and control days, 93.6% had PM2.5 levels below 25 µg/m3, during which 95.2% of deaths occurred (21 353 817 of 22 433 862), and 91.1% of days had ozone levels below 60 parts per billion, during which 93.4% of deaths occurred (20 955 387 of 22 433 862). The baseline daily mortality rates were 137.33 and 129.44 (per 1 million persons at risk per day) for the entire year and for the warm season, respectively. **Each short-term increase of** 10 µg/m3 in PM2.5 (adjusted by ozone) and **10 parts per billion (10-9) in warm-season ozone (adjusted by PM2.5) were statistically significantly associated with a relative increase of** 1.05% (95% CI, 0.95%-1.15%) and **0.51% (95% CI, 0.41%-0.61%) in daily mortality rate**, respectively. Absolute risk differences in daily mortality rate were 1.42 (95% CI, 1.29-1.56) and 0.66 (95% CI, 0.53-0.78) per 1 million persons at risk per day. There was no evidence of a threshold in the exposure-response relationship.

Conclusions and Relevance**: In the US Medicare population from 2000 to 2012, short-term exposures to PM2.5 and warm-season ozone were significantly associated with increased risk of mortality. This risk occurred at levels below current national air quality standards**, suggesting that these standards may need to be reevaluated.

Strengths	Limitations
Case cross-over study design	Administrative data lacking individual confounder information
2-p exposure modeling with PM.5 in 1 km x 1 km grids	No specific cause of death information
Assessed non-linear concentration-response	No causal modeling; linear regression assumptions (main results)
Assessed SES via "Medicaid eligible"	Deceptive reporting of effects (as % increase in the RR)
	Age of cohort limits generalizability to broader population

Average ambient concentration: Not given, but 91% of days had concentrations below 60 ppb.
Funders: NIH, EPA, HEI
Transparent to the extent that methods and computer codes for Medicare data extraction and processing are shared with other researchers.

Characterization of the concentration-response curve for ambient ozone and acute respiratory morbidity in 5 US cities

Barry V, Klein M, Winquist A, Chang HH, Mulholland JA, Talbott EO, Rager JR, Tolbert PE, Sarnat SE. *J Expo Sci Environ Epidemiol*. 2018 Jun 19

Although short-term exposure to ambient ozone (O3) can cause poor respiratory health outcomes, the shape of the concentration-response (C-R) between O3 and respiratory morbidity has not been widely investigated. We estimated the effect of daily O3 on emergency department (ED) visits for selected respiratory outcomes in 5 US cities under various model assumptions and assessed model fit. Population-weighted average 8-h maximum O3 concentrations were estimated in each city. Individual-level data on ED visits were obtained from hospitals or hospital associations. Poisson log-linear models were used to estimate city-specific associations between the daily number of respiratory ED visits and 3-day moving average O3 levels controlling for long-term trends and meteorology. Linear, linear-threshold, quadratic, cubic, categorical, and cubic spline O3 C-R models were considered. **Using linear C-R models, O3 was significantly and positively associated with respiratory ED visits in each city with rate ratios of 1.02-1.07 per 25 ppb. Models suggested that O3-ED C-R shapes were linear until O3 concentrations of roughly 60 ppb at which point risk continued to increase linearly in some cities for certain outcomes while risk flattened in others.** Assessing C-R shape is necessary to identify the most appropriate form of the exposure for each given study setting.

Strengths	Limitations
Analytical methods; thorough CRF exploration	Limited statistical power due to single-city (x5) approach
Exposure modeling methods	Unclear if "best" CRF is meaningfully different than other forms
	Even small O3 measurement errors = significant CRF impact

Average ambient concentration range over 5 cities: 38 - 42 ppb

Funders: EPA, EPRI

Transparency undetermined, but likely difficult to achieve without access to investigators' dataset. Morbidity data from hospitals and hospital associations in each of the 5 large cities. If data not available from the investigators, other researchers would need to negotiate separate data use agreements with those medical groups.

ED_002719_00038049-00009

The following study is a reanalysis of the previous HEI-funded APHENA study that was featured in the last ozone review [Katsouyanni K, Samet JM, Anderson HR, Atkinson R, Le Tertre A, Medina S, et al. Air pollution and health: a European and North American approach (APHENA). Res Rep Health Eff Inst. 2009; 142:5–90.]. *This reanalysis refined and harmonized the modeling from that original study to address some of the analytical issues that were raised. The results from the study below aren't materially different than those from the original but EPA might consider them as "new".*

Acute effects of ambient ozone on mortality in Europe and North America: results from the APHENA study

Peng RD, Samoli E, Pham L, Dominici F, Touloumi G, Ramsay T, Burnett RT, Krewski D, Le Tertre A, Cohen A, Atkinson RW, Anderson HR, Katsouyanni K, Samet JM. *Air Qual Atmos Health*. 2013 Jun 1;6(2):445-453

The "Air Pollution and Health: A Combined European and North American Approach" (APHENA) project is a collaborative analysis of multi-city time-series data on the association between air pollution and adverse health outcomes. The main objective of APHENA was to examine the coherence of findings of time-series studies relating short-term fluctuations in air pollution levels to mortality and morbidity in 125 cities in Europe, the US, and Canada. Multi-city time-series analysis was conducted using a two-stage approach. We used Poisson regression models controlling for overdispersion with either penalized or natural splines to adjust for seasonality. Hierarchical models were used to obtain an overall estimate of excess mortality associated with ozone and to assess potential effect modification. Potential effect modifiers were city-level characteristics related to exposure to other ambient air pollutants, weather, socioeconomic status, and the vulnerability of the population. Regionally pooled risk estimates from Europe and the US were similar; those from Canada were substantially higher. **The pooled estimated excess relative risk associated with a 10 µg/m3 increase in 1 h daily maximum O3 was 0.26 % (95 % CI, 0.15 %, 0.37 %)**. Across regions, there was little consistent indication of effect modification by age or other effect modifiers considered in the analysis. **The findings from APHENA on the effects of O3 on mortality in the general population were comparable with previously reported results and relatively robust to the method of data analysis**. Overall, there was no indication of strong effect modification by age or ecologic variables considered in the analysis.

Strengths	Limitations
Large number of cities; 3 continents	Administrative data lacking individual confounder information
Common protocol	Still, some non-standard data collection
Common study design protocol	Did not assess non-linear concentration-response
Improved harmonization among reporting locations	No causal modeling; linear regression assumptions
Enhanced regression methods to reduce heterogeneity of RRs	Restricted data on confounders; differing data across locations
	Single pollutant modeling

No ambient exposure information.
Funder: HEI
Transparency is likely nil. Replicating without original investigators' data not practically possible.

Air quality and acute deaths in California, 2000-2012.

Young SS, Smith RL, Lopiano KK. Air quality and acute deaths in California,2000-2012. *Regul Toxicol Pharmacol*. 2017 Aug;88:173-184

Many studies have shown an association between air quality and acute deaths, and such associations are widely interpreted as causal. Several factors call causation and even association into question, for example multiple testing and multiple modeling, publication bias and confirmation bias. Many published studies are difficult or impossible to reproduce because of lack of access to confidential data sources. Here we make publically available a dataset containing daily air quality levels, PM2.5 and ozone, daily temperature levels, minimum and maximum and daily maximum relative humidity levels for the eight most populous California air basins, thirteen years, >2M deaths, over 37,000 exposure days. The data are analyzed using standard time series analysis, and a sensitivity analysis is computed varying model parameters, locations and years**. Our analysis finds little evidence for association between air quality and acute deaths.** These results are consistent with those for the widely cited NMMAPS dataset when the latter are restricted to California. **The daily death variability was mostly explained by time of year or weather variables; neither PM2.5 nor ozone added appreciably to the prediction of daily deaths**. These results call into question the widespread belief that association between air quality and acute deaths is causal/near-universal.

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Strengths	Limitations
Number of years in time-series	Limited number of confounders/covariates in model
O3 concentrations closer to annual std than most studies	Standard time-series modeling (not case-crossover)
Robust sensitivity analysis (e.g., lags, "hold out year")	Single-pollutant modeling
Data availability/access (transparent)	Restricted to California
	Tinged with EPA antipathy

Funder: API
Transparent

Respiratory Function

Effects of Policy-Driven Air Quality Improvements on Children's Respiratory Health

Gilliland F, Avol E, McConnell R, Berhane K, Gauderman WJ, Lurmann FW, et al. 2017. The Effects of Policy-Driven Air Quality Improvements on Children's Respiratory Health. Research Report 190. Boston, MA:Health Effects Institute.

This accountability study provides evidence that multiyear improvements in air quality and emissions, primarily driven through a broad array of science-based regulatory policy initiatives, have resulted in improved public health outcomes. Significant improvements in lung-function growth in progressive cohorts were observed as air quality improved over the study period. Improvements in four-year growth of both forced expiratory volume in the first second of exhalation (FEV1) and forced vital capacity (FVC) were associated with declining levels of NO2 (P <0.0001), PM2.5 (P <0.01), and PM10 (P <0.001). These associations persisted after adjustment for important potential confounders. Further, significant improvements in lung function growth were observed in both boys and girls and among asthmatic and non-asthmatic children. **Within-community decreases in O3 exposure were not significantly associated with lung-function growth**. The proportion of children with clinically low FEV1 (defined as <80% predicted) at age 15 declined significantly, from 7.9% to 3.6% across the study periods, respectively, as the air quality improved (P <0.005). We found little evidence to suggest that improvements in lung-function development were attributable to temporal confounding. **Reductions in outdoor levels of** NO2, **O3,** PM10, and PM2.5 **across the cohort years of participation were associated with significant reductions in the prevalence of bronchitic symptoms regardless of asthma status, but observed improvements were larger in children with asthma**. Among asthmatic children, the **reductions in prevalence of bronchitic symptoms at age 10 were** 21% (P <0.01) for NO2, **34% (P <0.01) for O3**, 39% (P <0.01) for PM10, and 32% (P <0.01) for PM2.5 for reductions of 4.9 ppb, 3.6 ppb, 5.8 µg/m3, and 6.8 µg/m3, respectively. Similar reductions in prevalence of bronchitic symptoms were observed at age 15 among these same asthmatic children.

Strengths	Limitations
Study design	No control for secular trends, e.g., demographic shifts, healthcare
Use of multilevel statistical models	Single-pollutant modeling restriction
Models included several confounders & effect modifiers	No within-community and cohort analysis of pollutant variations
Monitoring and health effects data collected over 20 years	Limited consideration of differences btw successive cohorts over time
	Single-site monitor not representative of time-activity patterns
	Could not link any specific action to specific AQ improvements

Funder: HEI
Transparency: Likely, given that this is an HEI-funded study (their policy). Not available on website however.

ED_002719_00038049-00011

Cardiovascular function and ozone exposure: The Multicenter Ozone Study in oldEr Subjects (MOSES)
Rich DQ, Balmes JR, Frampton MW, Zareba W, Stark P, Arjomandi M, Hazucha MJ, Costantini MG, Ganz P, Hollenbeck-Pringle D, Dagincourt N, Bromberg PA. *Environ Int*. 2018 Jun 29;119:193-202

BACKGROUND: To date, there have been relatively few studies of acute cardiovascular responses to controlled ozone inhalation, although a number of observational studies have reported significant positive associations between both ambient ozone levels and acute cardiovascular events and long-term ozone exposure and cardiovascular mortality.

OBJECTIVES: We hypothesized that short-term controlled exposure to low levels of ozone in filtered air would induce autonomic imbalance, repolarization abnormalities, arrhythmia, and vascular dysfunction.

METHODS: This randomized crossover study of 87 healthy volunteers 55-70 years of age was conducted at three sites using a common protocol, from June 2012 to April 2015. Subjects were exposed for 3 h in random order to 0 ppb (filtered air), 70 ppb ozone, and 120 ppb ozone, alternating 15 min of moderate exercise with 15 min of rest. A suite of cardiovascular endpoints was measured the day before, the day of, and up to 22 h after each exposure. Mixed effect linear and logit models evaluated the impact of exposure to ozone on pre-specified primary and secondary outcomes. Site and time were included in the models.

RESULTS: We found **no significant effects of ozone exposure on any of the primary or secondary measures of autonomic function, repolarization, ST segment change, arrhythmia, or vascular function (systolic blood pressure and flow-mediated dilation).**

CONCLUSIONS: In this multicenter study of older healthy women and men, **there was no convincing evidence for acute effects of 3-h, relatively low-level ozone exposures on cardiovascular function.** However, we cannot exclude the possibility of effects with higher ozone concentrations, more prolonged exposure, or in subjects with underlying cardiovascular disease. Further, we cannot exclude the possibility that exposure to ambient ozone and other pollutants in the days before the experimental exposures obscured or blunted cardiovascular biomarker response to the controlled ozone exposures. *[Note: This will be assessed in MOSES II in several months]*

Strengths	Limitations
Study design/execution; multiple sites	Low generalizability (very health older adults)
Larger than usual number of participants for this study type	Measured acute exposures to single pollutant (unlike ambient air)
Many mechanistic pathways evaluated	
Common labs and data center	
Technical exposure chamber specs/performance	
Choice of 70 & 120 ppt for analyses	

Funder: HEI
Transparent. Data available at https://dataverse.harvard.edu/dataverse/MOSES

ED_002719_00038049-00012

Respiratory Responses to Ozone Exposure. MOSES (The Multicenter Ozone Study in Older Subjects)

Arjomandi M, Balmes JR, Frampton MW, Bromberg P, Rich DQ, Stark P, Alexis NE, Costantini M, Hollenbeck-Pringle D, Dagincourt N, Hazucha M. *J Am J Respir Crit Care Med*. 2018 May 15;197(10):1319-1327.

RATIONALE: Acute respiratory effects of low-level ozone exposure are not well defined in older adults.

OBJECTIVES: MOSES (The Multicenter Ozone Study in Older Subjects), although primarily focused on acute cardiovascular effects, provided an opportunity to assess respiratory responses to low concentrations of ozone in older healthy adults.

METHODS: We performed a randomized crossover, controlled exposure study of 87 healthy adults (59.9 ± 4.5 yr old; 60% female) to 0, 70, and 120 ppb ozone for 3 hours with intermittent exercise. Outcome measures included spirometry, sputum markers of airway inflammation, and plasma club cell protein-16 (CC16), a marker of airway epithelial injury. The effects of ozone exposure on these outcomes were evaluated with mixed-effect linear models. A P value less than 0.01 was chosen a priori to define statistical significance.

MEASUREMENTS AND MAIN RESULTS: The mean (95% confidence interval) FEV1 and FVC increased from preexposure values by 2.7% (2.0-3.4) and 2.1% (1.3-2.9), respectively, 15 minutes after exposure to filtered air (0 ppb). Exposure to ozone reduced these increases in a concentration-dependent manner. After 120-ppb exposure, FEV1 and FVC decreased by 1.7% (1.1-2.3) and 0.8% (0.3-1.3), respectively. A similar concentration-dependent pattern was still discernible 22 hours after exposure. At 4 hours after exposure, plasma CC16 increased from preexposure levels in an ozone concentration-dependent manner. Sputum neutrophils obtained 22 hours after exposure showed a marginally significant increase in a concentration-dependent manner (P = 0.012), but proinflammatory cytokines (IL-6, IL-8, and tumor necrosis factor-α) were not significantly affected.

CONCLUSIONS: **Exposure to ozone at near ambient levels induced lung function effects, airway injury, and airway inflammation in older healthy adults.**

Strengths	Limitations
Study design/execution; multiple sites	Low generalizability (very healthy older adults)
Larger than usual number of participants for this study type	Measured acute exposures to single pollutant (unlike ambient air)
Many mechanistic pathways evaluated	Statistical interpretation of respiratory effects
Common labs and data center	
Technical exposure chamber specs/performance	
Choice of 70 & 120 ppt for analyses	

Funder: HEI

Transparent. Data available at https://dataverse.harvard.edu/dataverse/MOSES

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Toxicological literature

The perpetuation of the misconception that rats receive a 3-5 times lower lung tissue dose than humans at the same ozone concentration

McCant D, Lange S, Haney J, Honeycutt M. *Inhal Toxicol.* 2017 Apr;29(5):187-196. doi: 10.1080/08958378.2017.1323982.

This paper highlights the pervasive misconception concerning 1994 findings from Hatch et al. about ozone (O_3) tissue dose in humans versus rats. That study exposed humans to 0.4 ppm and rats to 2 ppm ^{18}O-labeled O_3 and found comparable incorporation of ^{18}O into bronchoalveolar lavage constituents. However, during O_3 exposure humans were exercising, which increased their ventilation rate five-fold, while rats were at rest. This resulted in similar O_3 tissue doses between the two species, and predominantly explained the comparable ^{18}O incorporation at five-fold different concentrations. The five-times higher exercising human inhalation rate offset the five-times lower concentration, producing the same human dose expected at rest at 2 ppm (i.e. 0.4 ppm × 4686 L/2 hour ≈ 2 ppm × 998 L/2 hour). In 2013, Hatch et al. showed that resting humans and resting rats experienced fairly comparable ^{18}O incorporation at the same O_3 exposure concentration and activity state into BALF cells. Despite these findings, we show here that in the peer-reviewed literature a substantial proportion of researchers continue to perpetuate the misunderstanding that human lung tissue doses of O_3 are simply 3-5 times greater than rat doses at the same O_3 concentration, due to interspecies differences, and not considering activity state. It is important to correct this misconception to ensure an appropriate understanding of the implications of O_3 studies by the scientific community and policy experts making regulatory decisions (e.g. the US Environmental Protection Agency's National Ambient Air Quality Standards for O_3).

Funder: TCEQ
Transparency: N/A

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Exhibit B

RESPONSE TO EPA REQUEST FOR INFORMATION ON OZONE HEALTH EFFECTS STUDIES & POLICY RELEVANT SCIENCE STUDIES

ORIGINAL RESEARCH

Cox LA Jr, Popken DA. Has reducing fine particulate matter and ozone caused reduced mortality rates in the United States? Ann Epidemiol. 2015 Mar;25(3):162-73

Cox LAT, Liu X, Shi L, Zu K, Goodman J. Applying Nonparametric Methods to Analyses of Short-Term Fine Particulate Matter Exposure and Hospital Admissions for Cardiovascular Diseases among Older Adults. Int J Environ Res Public Health. 2017 Sep 12;14(9).

Cox LAT Jr. Socioeconomic and air pollution correlates of adult asthma, heart attack, and stroke risks in the United States, 2010-2013. Environ Res. 2017 May;155:92-107.

Young SS, Smith RL, Lopiano KK. Air quality and acute deaths in California, 2000-2012. Regul Toxicol Pharmacol. 2017 Aug;88:173-184

Goodman JE, Zu K, Loftus CT, Tao G, Liu X, Lange S. Ambient ozone and asthma hospital admissions in Texas: a time-series analysis. Asthma Res Pract. 2017 Aug 1;3:6

Zu K, Liu X, Shi L, Tao G, Loftus CT, Lange S, Goodman JE. Concentration-response of short-term ozone exposure and hospital admissions for asthma in Texas. Environ Int. 2017 Jul;104:139-145

Jerrett M, Burnett RT, Beckerman BS, Turner MC, Krewski D, Thurston G, Martin RV, van Donkelaar A, Hughes E, Shi Y, Gapstur SM, Thun MJ, Pope CA 3rd. Spatial analysis of air pollution and mortality in California. Am J Respir Crit Care Med. 2013 Sep 1;188(5):593-9

Carey IM, Atkinson RW, Kent AJ, van Staa T, Cook DG, Anderson HR Mortality associations with long-term exposure to outdoor air pollution in a national English cohort. Am J Respir Crit Care Med. 2013 Jun 1;187(11):1226-33 [not industry-sponsored]

Atkinson RW, Butland BK, Dimitroulopoulou C, Heal MR, Stedman JR, Carslaw N, Jarvis D, Heaviside C, Vardoulakis S, Walton H, Anderson HR. Long-term exposure to ambient ozone and mortality: a quantitative systematic review and meta-analysis of evidence from cohort studies. BMJ Open. 2016 Feb23;6(2) [meta-analysis, not industry-sponsored]

METHODS & RECOMMENDED PRACTICES

Cox LAT Jr. Do causal concentration-response functions exist? A critical review of associational and causal relations between fine particulate matter and mortality. Crit Rev Toxicol. 2017 Aug;47(7):603-631.

Cox LAT. Effects of exposure estimation errors on estimated exposure-response relations for PM2.5. Environ Res. 2018 Jul;164:636-646.

Obenchain RL, Young SS Local Control Strategy: Simple Analyses of Air Pollution Data Can Reveal Heterogeneity in Longevity Outcomes. Risk Anal. 2017 Sep;37(9):1742-1753.

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Jaffe DA, Cooper OR, Fiore AM, Henderson BH, Tonneson GS, Russell AG, et al. Scientific assessment of background ozone over the U.S.: Implications for air quality management Elem Sci Anth. 2018;6(1):56

McCant D, Lange S, Haney J, Honeycutt M. The perpetuation of the misconception that rats receive a 3-5 times lower lung tissue dose than humans at the same ozone concentration. Inhal Toxicol. 2017 Apr;29(5):187-196

REVIEWS, CRITIQUES, WEIGHT OF EVIDENCE

Zu K, Shi L, Prueitt RL, Liu X, Goodman JE. Critical review of long-term ozone exposure and asthma development. Inhal Toxicol. 2018 Feb;30(3):99-113.

Goodman JE, Zu K, Loftus CT, Lynch HN, Prueitt RL, Mohar I, Shubin SP, Sax SN. Short-term ozone exposure and asthma severity: Weight-of-evidence analysis. Environ Res. 2018 Jan;160:391-397.

Goodman JE, Prueitt RL, Sax SN, Pizzurro DM, Lynch HN, Zu K, Venditti FJ. Ozone exposure and systemic biomarkers: Evaluation of evidence for adverse cardiovascular health impacts. Crit Rev Toxicol. 2015 May;45(5):412-52.

Prueitt RL, Lynch HN, Zu K, Sax SN, Venditti FJ, Goodman JE. Weight-of-evidence evaluation of long-term ozone exposure and cardiovascular effects. Crit Rev Toxicol. 2014 Oct;44(9):791-822

Goodman JE, Prueitt RL, Sax SN, Lynch HN, Zu K, Lemay JC, King JM, Venditti FJ. Weight-of-evidence evaluation of short-term ozone exposure and cardiovascular effects. Crit Rev Toxicol. 2014 Oct;44(9):725-90.

Goodman JE, Prueitt RL, Chandalia J, Sax SN. Evaluation of adverse human lung function effects in controlled ozone exposure studies. J Appl Toxicol. 2014 May;34(5):516-24.

COMMENTARY

Prueitt RL, Goodman JE. The global burden of ozone on respiratory mortality: no clear evidence for association. Environ Health Perspect. 2011 Apr;119(4):A158;author reply A158-9.

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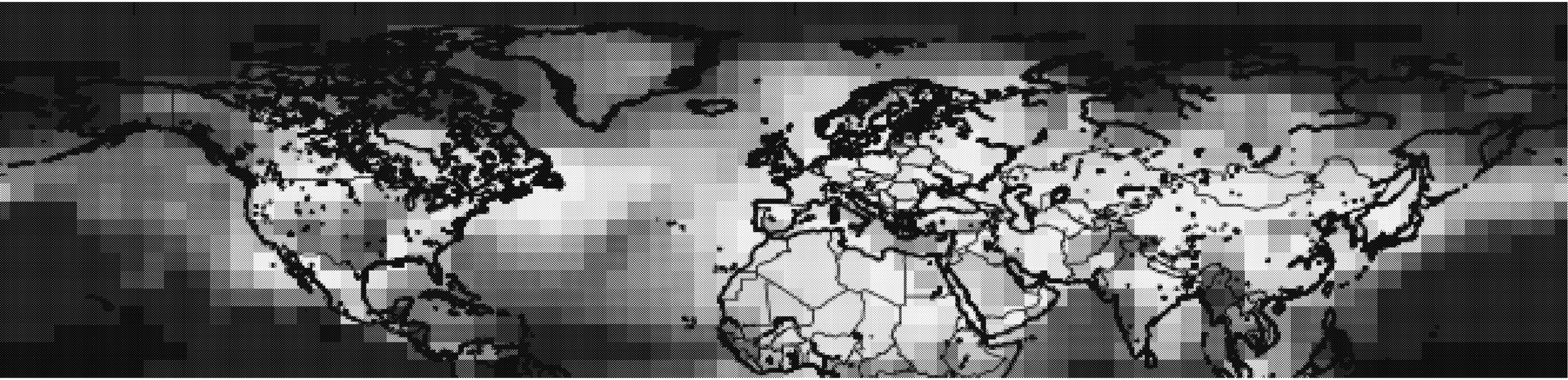
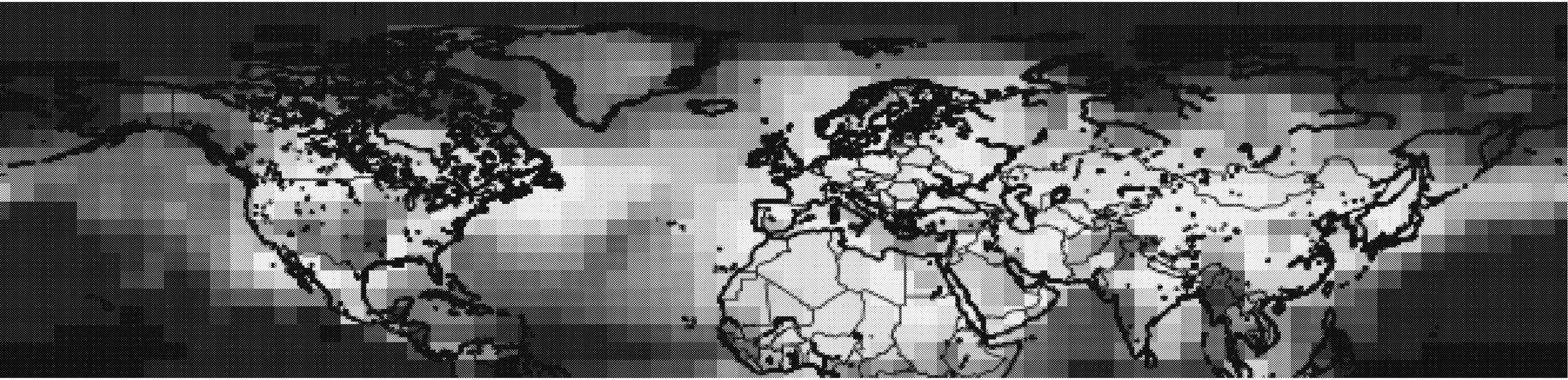


INTERNATIONAL CONTRIBUTIONS TO OZONE ACROSS UNITED STATES

Maria Zatko, Ramboll Environ

November 2, 2017

RAMBOLL



Collaborators:

Ramboll Environ: Ralph Morris, Jaegun Jung, Wei Chun Hsieh

Alpine Geophysics: Dennis McNally

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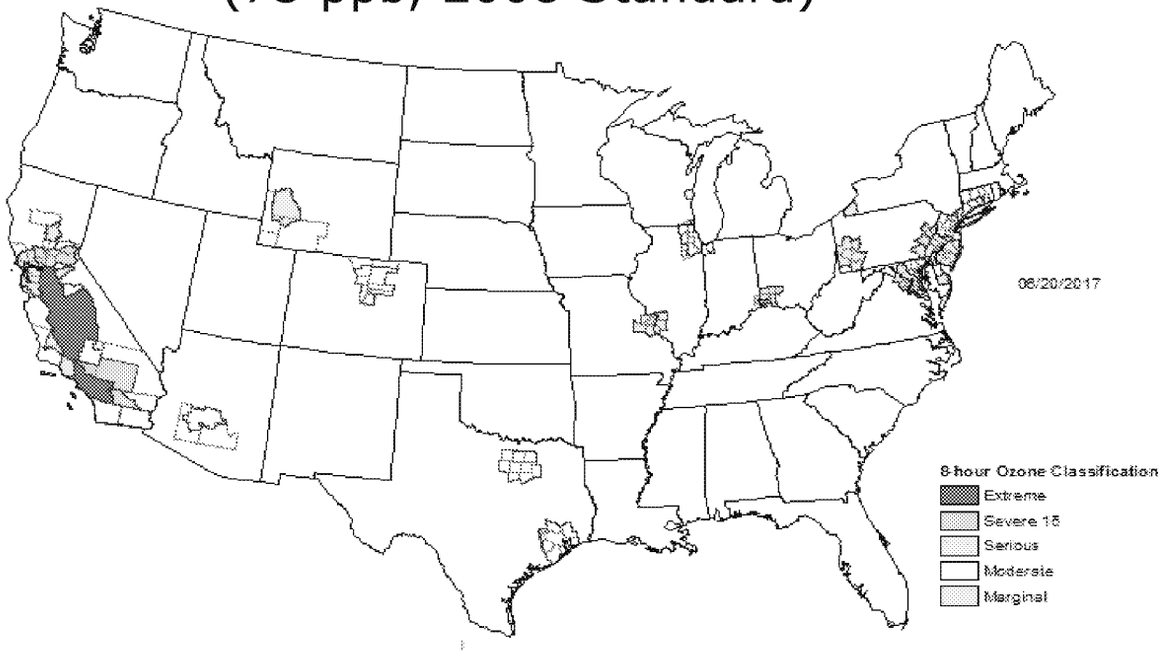
PROJECT MOTIVATION

Objective:

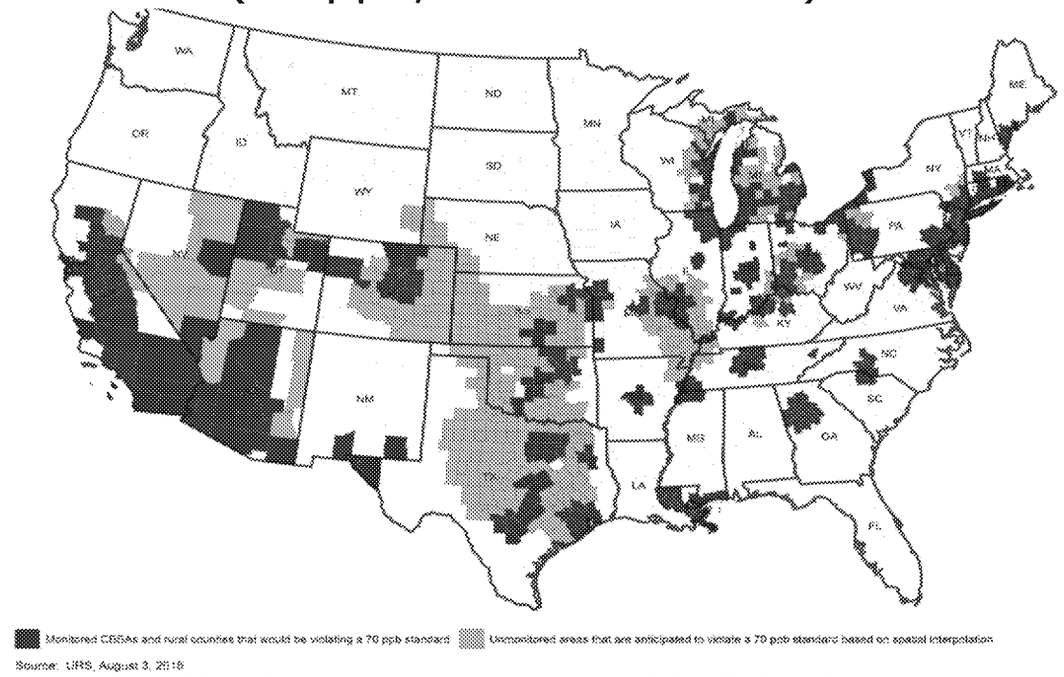
To assess ozone levels in Western United States with contributions of non-U.S. international anthropogenic emissions removed.

8-Hour Ozone Nonattainment Areas
(75 ppb, 2008 Standard)



Source: EPA

Projected 8-Hour Ozone Nonattainment Areas
(70 ppb, 2015 Standard)



Source: URS Based on 2012-2014 observed data

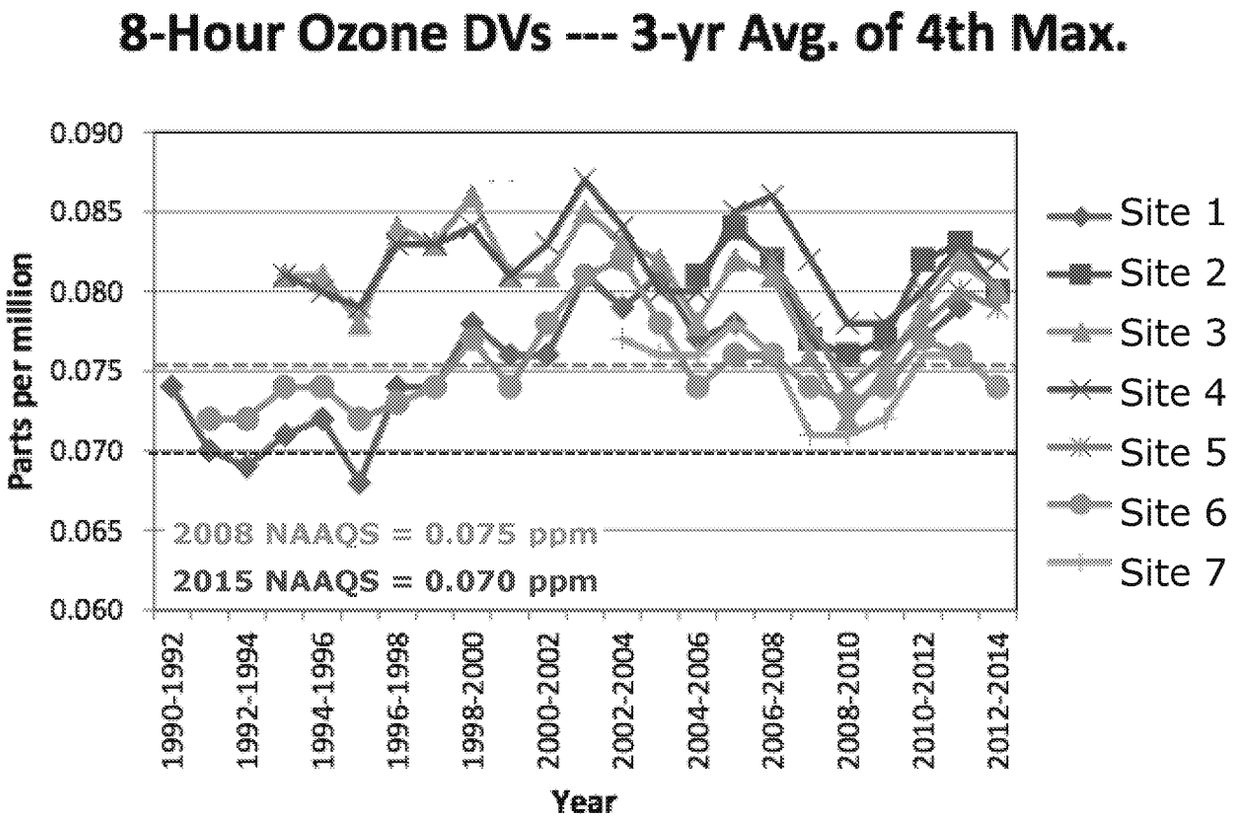
PROJECT MOTIVATION

Ozone Non-Attainment Areas will need to comply with the 2008 ozone NAAQS (75 ppb) and 2015 ozone NAAQS (70 ppb) in near-future.

Based on 2015-2017 ozone air quality observations, some Non-Attainment Areas will not meet these requirements.

Additional areas are also likely to have to attain the new 2015 70 ppb ozone NAAQS.

The ozone NAAQS is expressed as the three year average of the 4th highest daily maximum 8-hour ozone (MDA8).



PROJECT MOTIVATION

- Attainment of the 2008 (70 ppb) and 2015 (70 ppb) ozone NAAQS by the time required by the Clean Air Act may be difficult for many areas due to large contributions of ozone transport.

- Sensitivity of regional ozone concentrations to a variety of local and state ozone precursor control strategies can be examined but may be insufficient.

- Section 179B of the Clean Air Act can also be considered, which allows an area to demonstrate that they would have attained the ozone NAAQS but for the contributions from international sources

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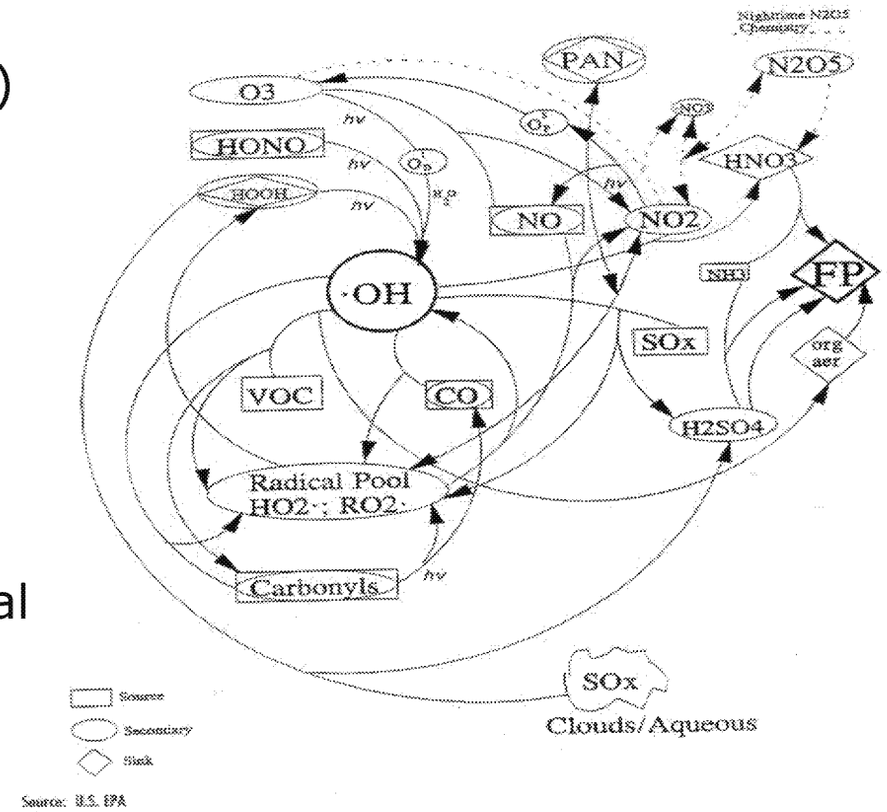
BACKGROUND: GROUND-LEVEL OZONE

- Not emitted directly into the air (secondary pollutant)
  - Primary precursors are nitrogen oxides (NO_x), volatile organic compounds (VOC), and carbon monoxide (CO)
- Ozone formation driven by 'NO_x & VOC' emissions
- Has complex nonlinear photochemistry
  - high ozone events are often associated with sunshine and warm temperatures
  - non-linearity makes it very difficult to predict
  - control strategy and planning usually involves chemical transport models
  - challenging for air quality planners



Source: U.S. EPA

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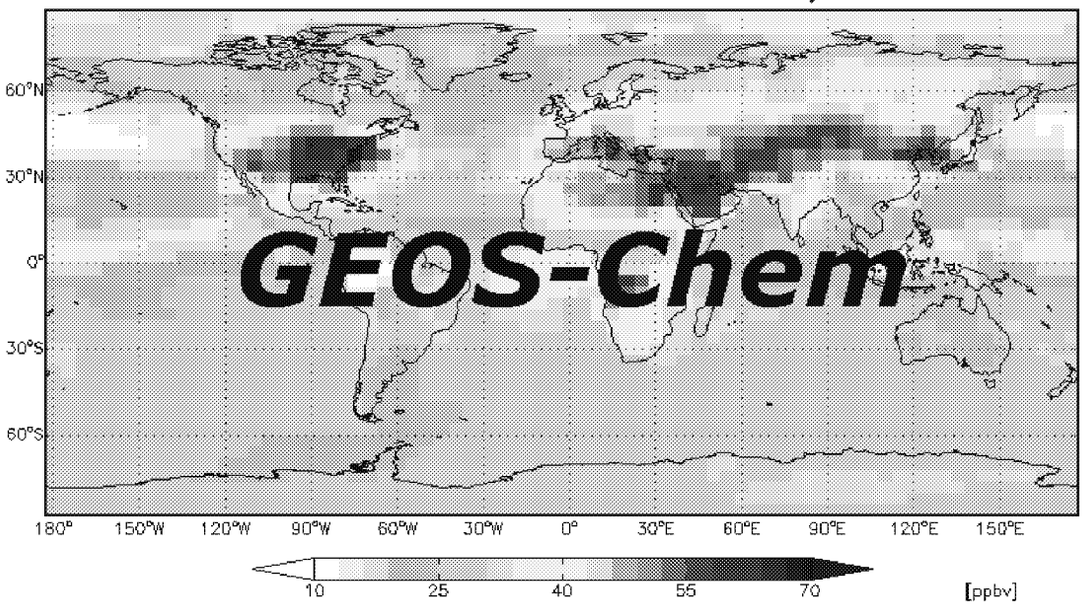
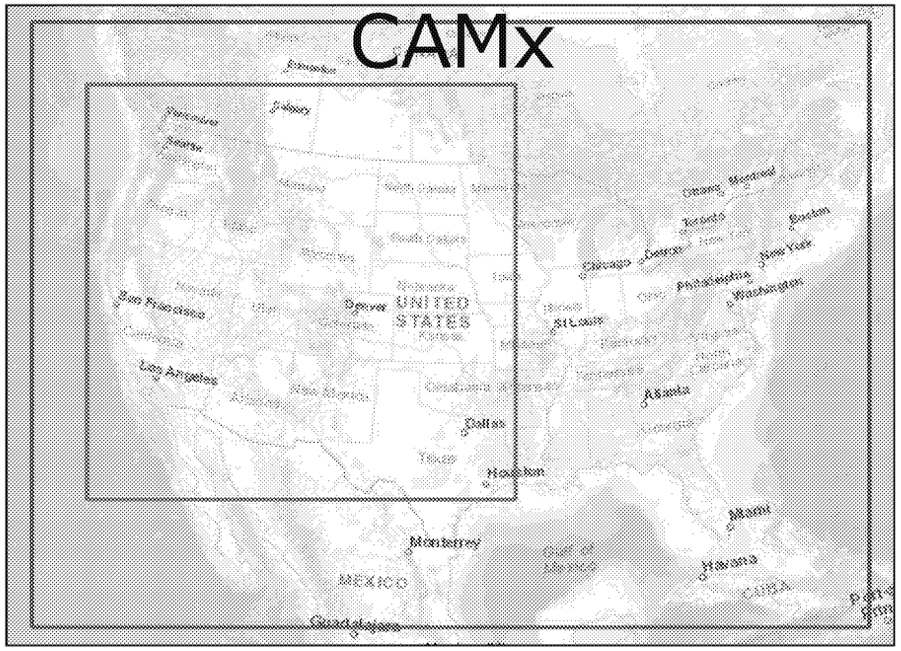
PROJECT APPROACH

Run global (GEOS-Chem) and regional (CAMx) photochemical grid models for year 2011

- Simulation with all emissions
- Simulation with only anthropogenic US emissions

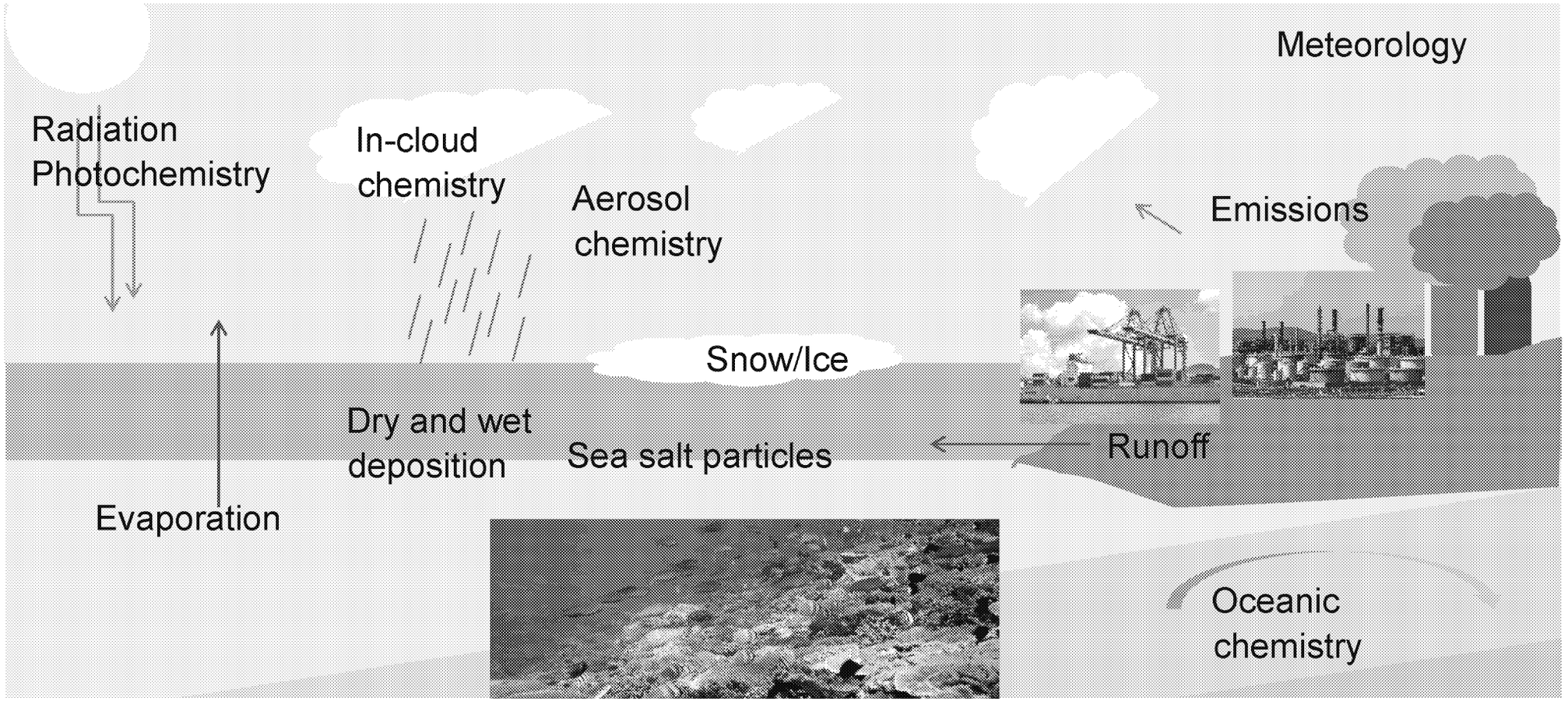
Extract boundary conditions





Compare ozone concentrations between simulations to estimate impact of non-US international Anthropogenic emissions on ozone concentrations across the United States

PHOTOCHEMICAL GRID MODELS
SIMULATED PROCESSES



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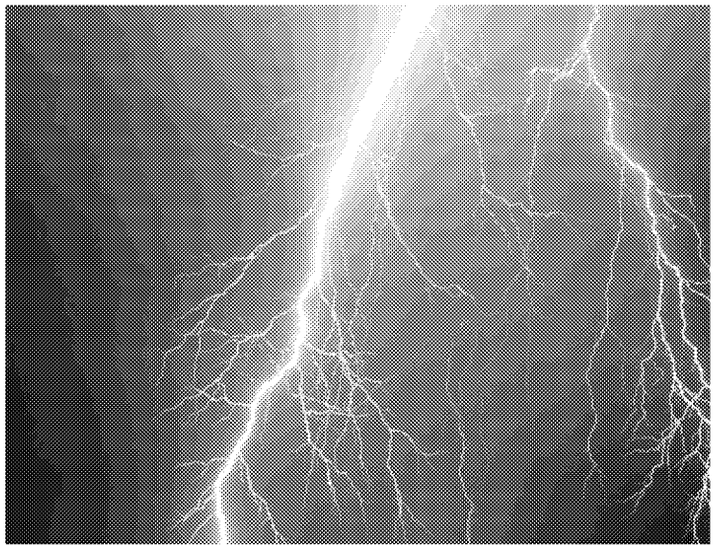
MODEL FUNDAMENTALS
EMISSION INVENTORIES

- Anthropogenic
  - On and Off-Road Mobile
  - Electrical Generating Units
  - Industry
  - Area Sources
- Biogenic
- Aircraft, ship
- Aerosols
- Biomass burning
- Miscellaneous, speciality emissions



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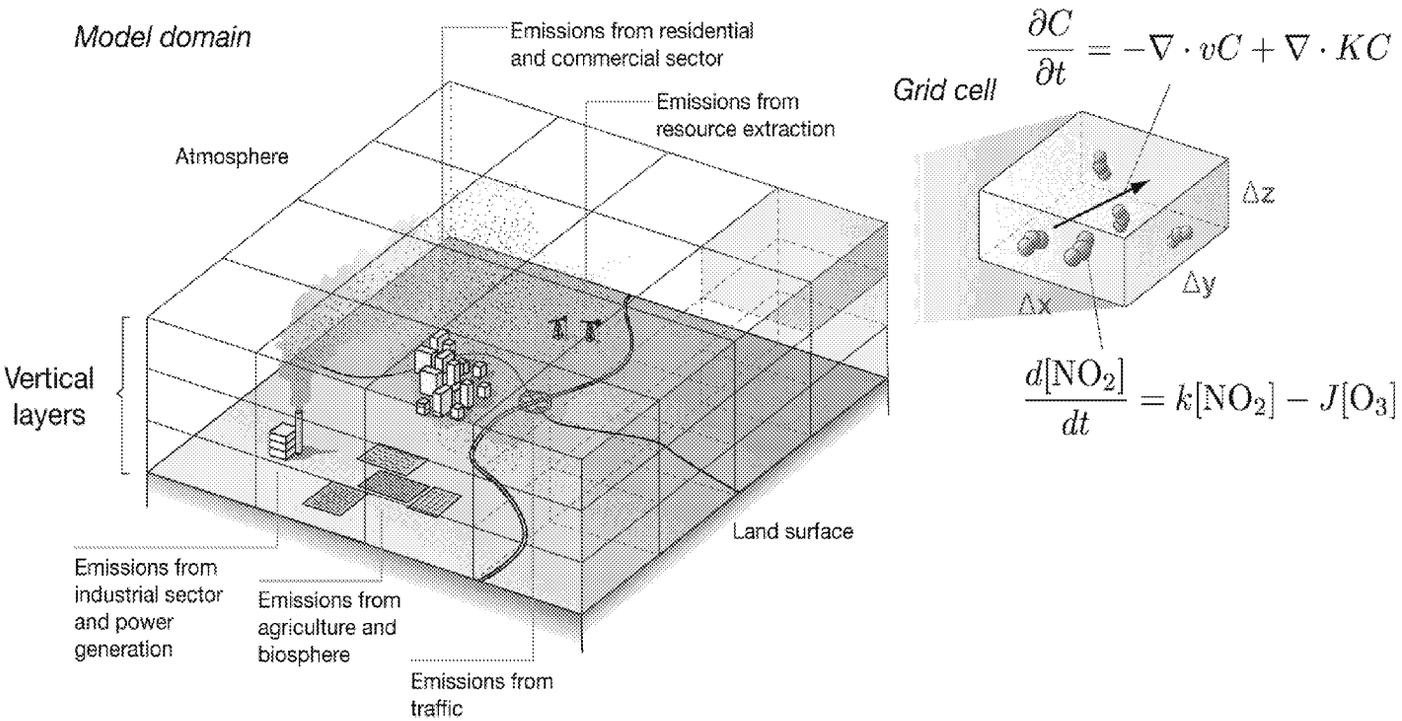
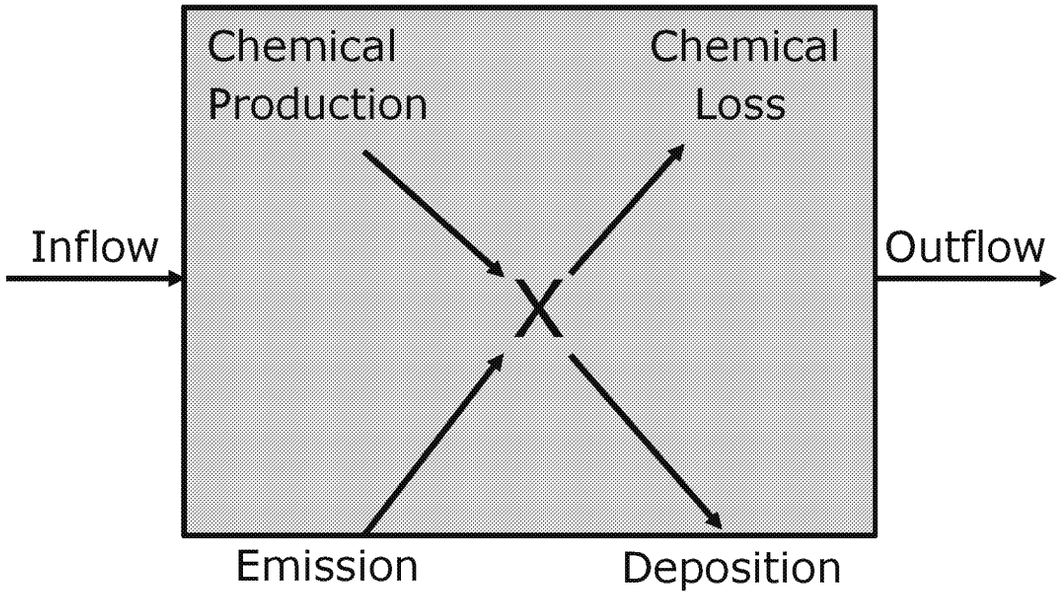
PHOTOCHEMICAL GRID MODELS
TRANSPORT AND CHEMISTRY

Simulate atmospheric chemistry across large regions utilizing variety of chemistry schemes, reanalysis meteorological data, and emissions inventories



Atmospheric "box"
Spatial distribution of X not resolved



Sources = Inflow + Emission + Chemical Production

Sinks = Outflow + Deposition + Chemical Loss

Mass balance of X in grid box = Sources - Sinks

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GEOS-CHEM VS CAMx 2011 MODEL COMPARISON

GEOS-Chem v10.01 (June, 2015)

- Global Modeling Domain
- 2.0 x 2.5 degree (~200 km)
- 72 vertical Layers to region top of 0.01 mb (~ 80 km MSL)
  - 17 Layers below ~3,000 m
- Benchmark chemistry simulation
- FAST-JX radiative transfer algorithm
- ISORROPIA aerosol thermodynamics

CAMx v6.20 (March, 2015)

- 36 km Continental US and 12 km Western US domains
- 25 vertical layers to region top of 50 mb (~19 km MSL)
  - 16 layers below ~3,000 m
- CB6r2 chemical mechanism
- RADM aqueous-phase chemistry
- ISORROPIA aerosol thermodynamics

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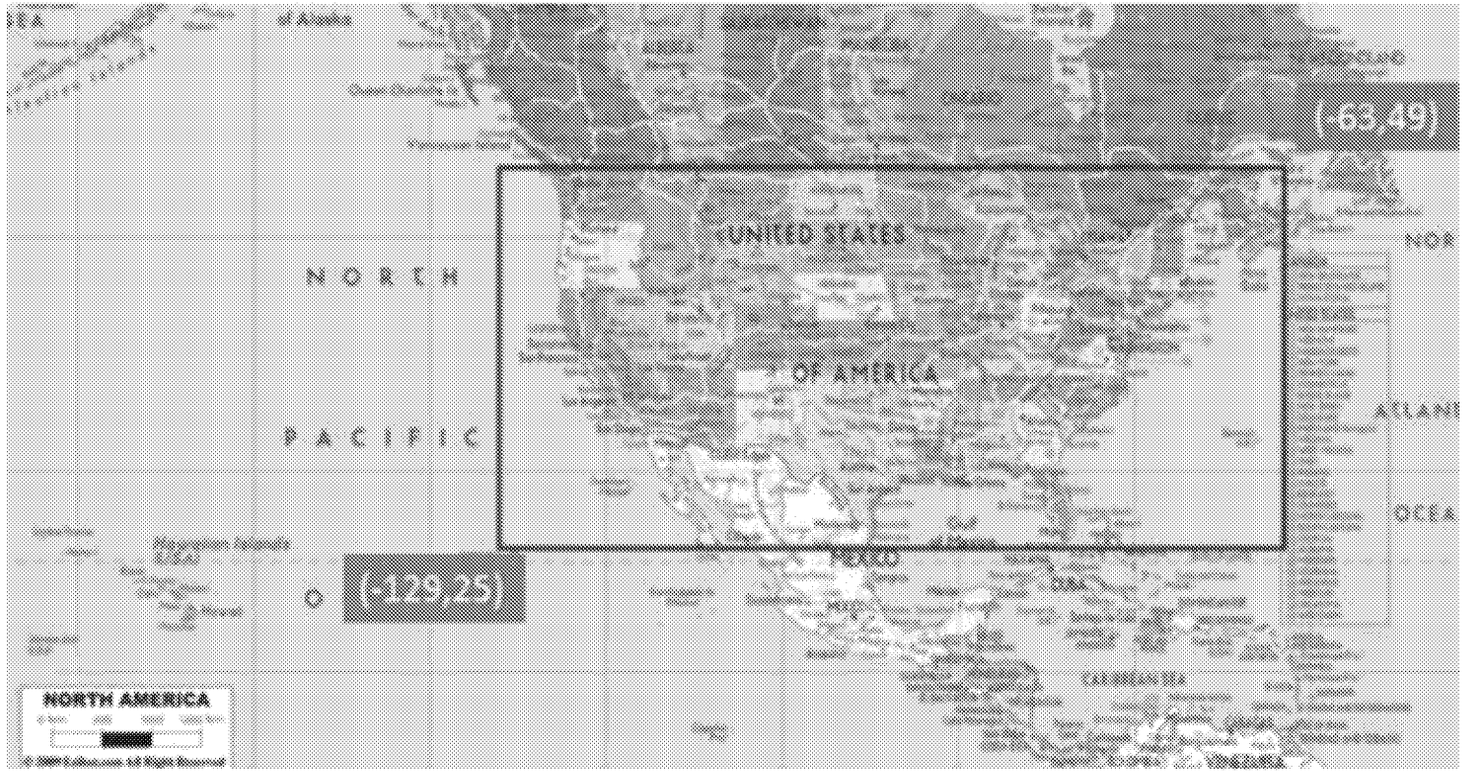
GEOS-CHEM APPROACH FOR NO NON-U.S. INTERNATIONAL ANTHROPOGENIC EMISSION CONTRIBUTIONS

- Turn off all countries anthropogenic emissions except for U.S. (2011 NEI)
- For shipping and aircraft emissions that are not associated with a country, remove emissions outside of red box



- Mexican and Canada (Mex/Can) anthropogenic emissions part of 2011 NEI
- So use additional mask following USA boundaries to eliminate Mex/Can anthropogenic emissions from 2011 NEI

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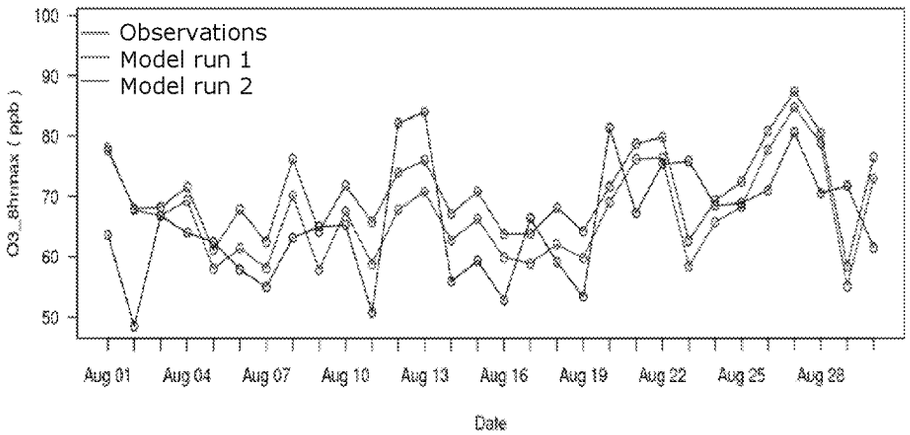
MODEL PERFORMANCE EVALUATION
COMPARE MODEL RESULTS TO OBSERVATIONS

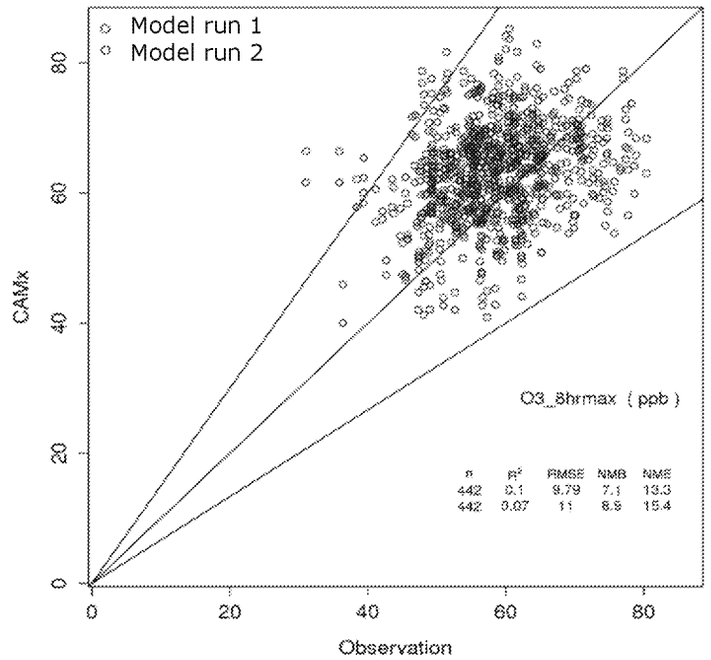
Important to compare base case model results to observations in and near Non-Attainment Region

Timeseries



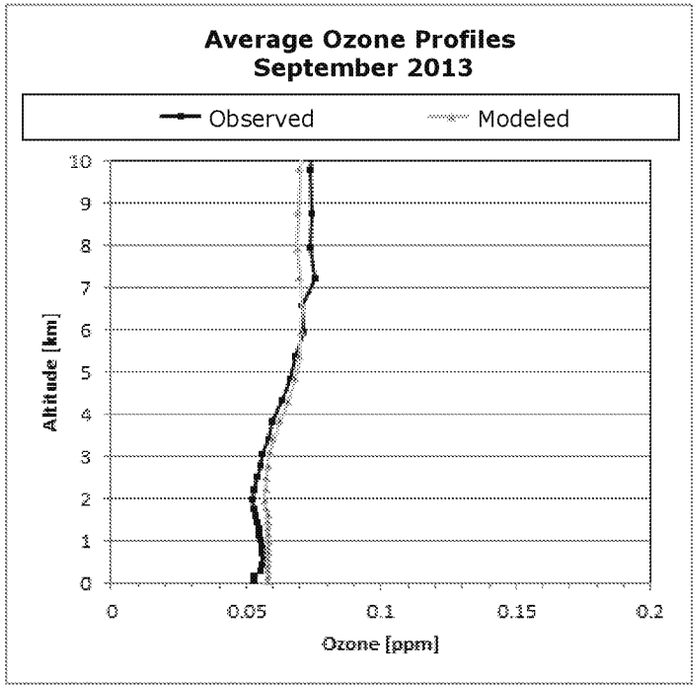
Compare in time at one location

Scatterplots



Compare in time and space at multiple locations

Vertical Profiles

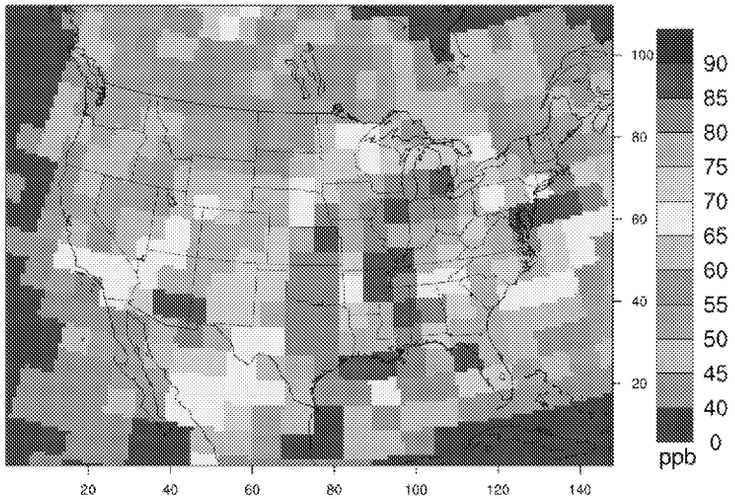


Compare vertically in atmosphere at ozonesonde locations

RAMBOLL

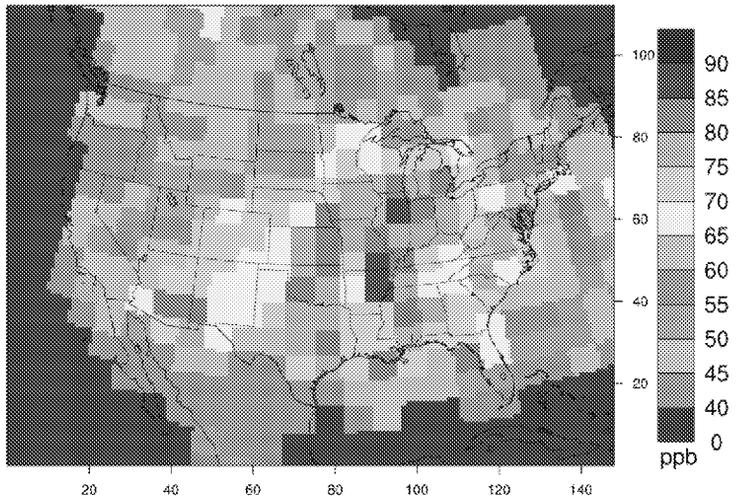
MAX MDA8 OZONE JUNE 2011 -- GEOS-CHEM VS. CAMX

Base Case



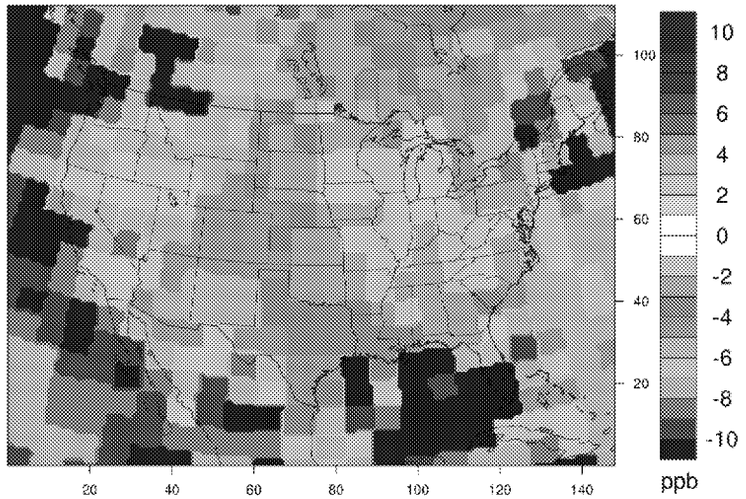
Min(103,111) = 25.9, Max(88,41) = 89.1

US-only Anthro. Emissions



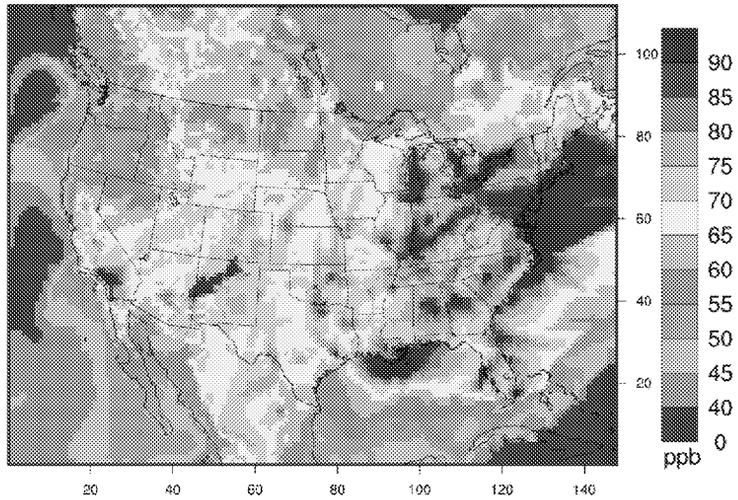
Min(3,112) = 13.2, Max(88,41) = 87.8

US-only anthro. – Base Case



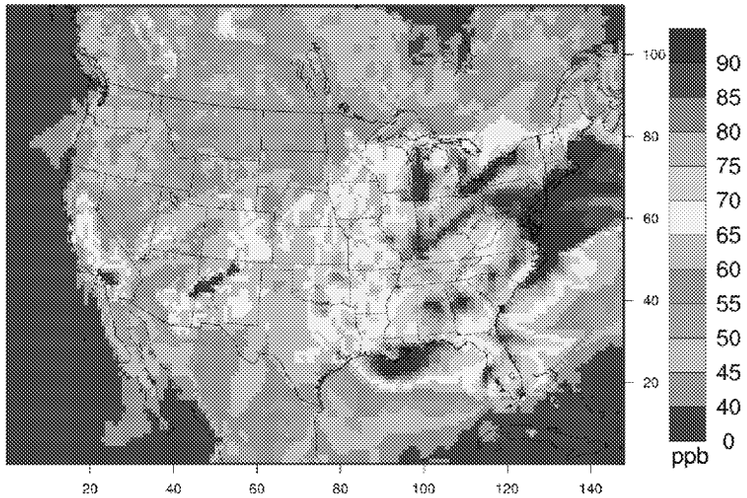
Min(4,98) = -22.6, Max(104,67) = -1.0

Base Case



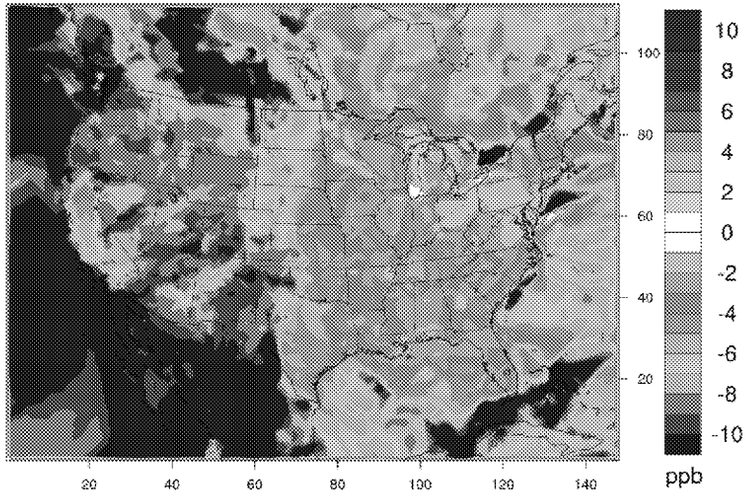
Min(1,1) = 0.0, Max(129,51) = 372.3

US-only Anthro. Emissions



Min(1,1) = 0.0, Max(129,51) = 370.3

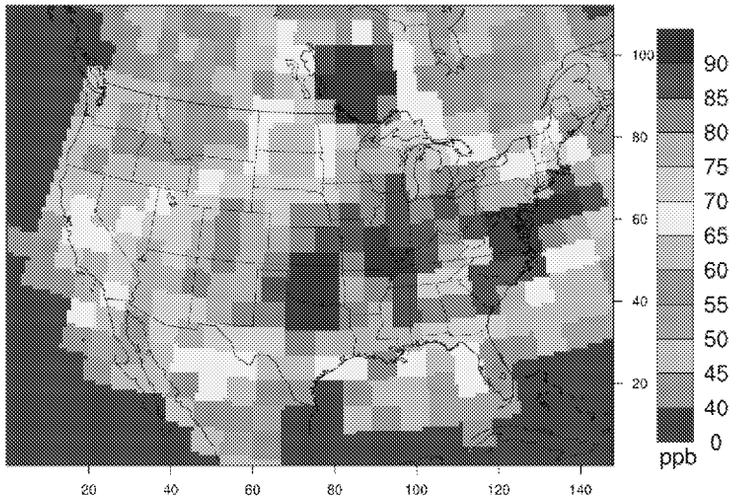
US-only anthro. – Base Case



Min(67,14) = -29.1, Max(132,61) = 0.7

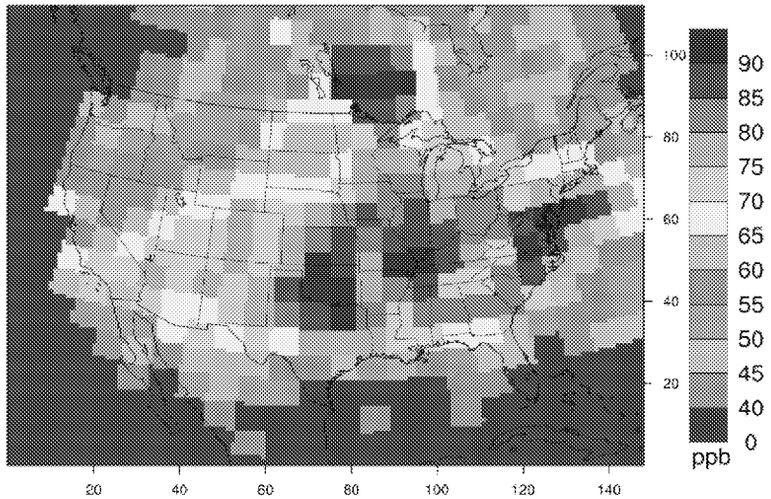
MAX MDA8 OZONE JULY 2011 -- GEOS-CHEM VS. CAMX

Base Case



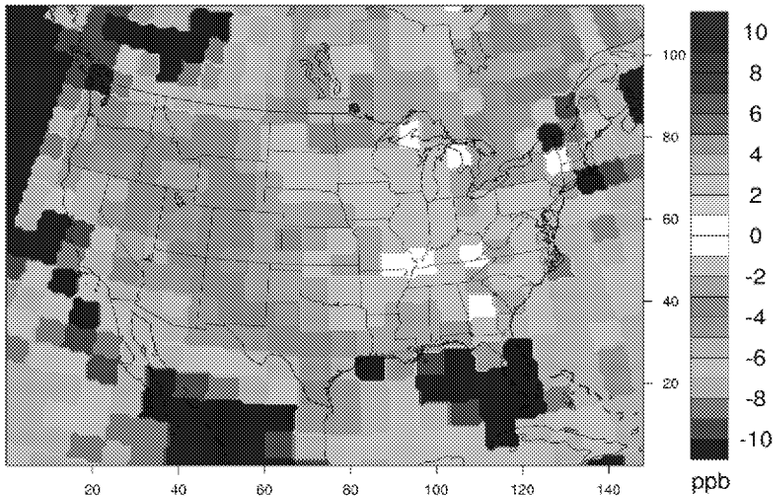
Min(38,1) = 21.3, Max(88,47) = 116.6

US-only Anthro. Emissions



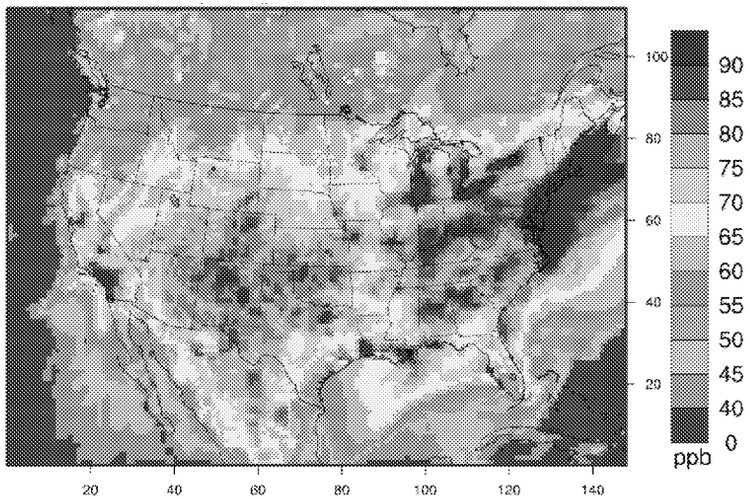
Min(4,98) = 8.2, Max(88,47) = 116.1

US-only anthro. – Base Case



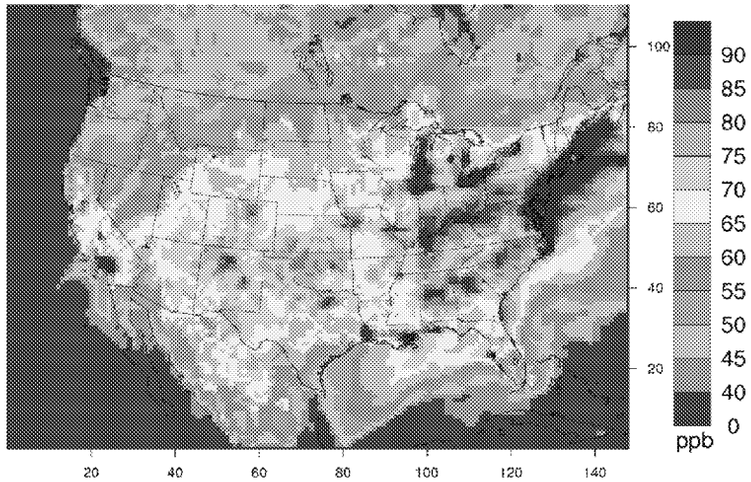
Min(1,103) = -28.3, Max(94,47) = -0.4

Base Case



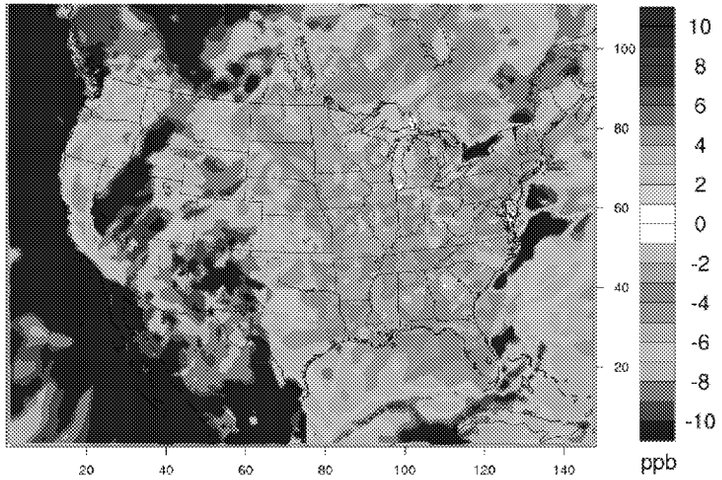
Min(1,1) = 0.0, Max(136,74) = 150.0

US-only Anthro. Emissions



Min(1,1) = 0.0, Max(136,74) = 147.1

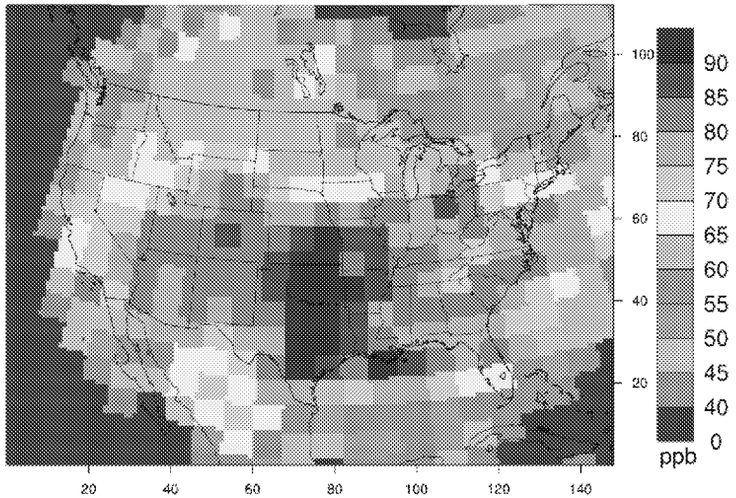
US-only anthro. – Base Case



Min(67,14) = -32.2, Max(1,1) = 0.0

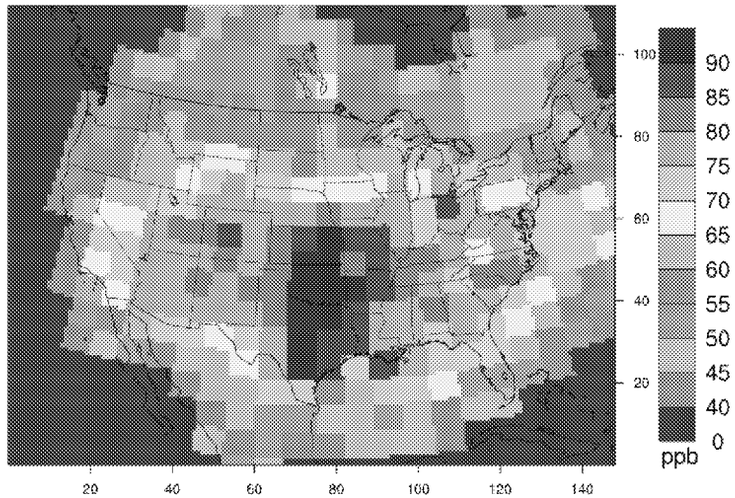
MAX MDA8 OZONE AUGUST 2011 -- GEOS-CHEM VS. CAMX

Base Case



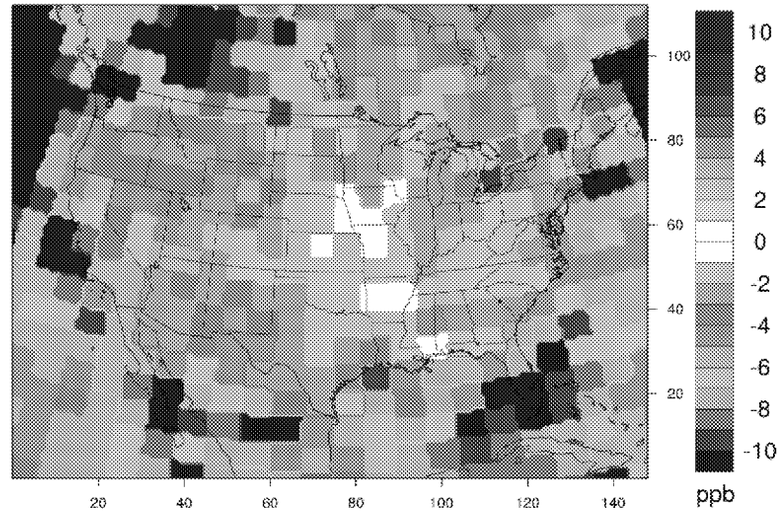
Min(38,1) = 24.9, Max(76,41) = 102.8

US-only Anthro. Emissions



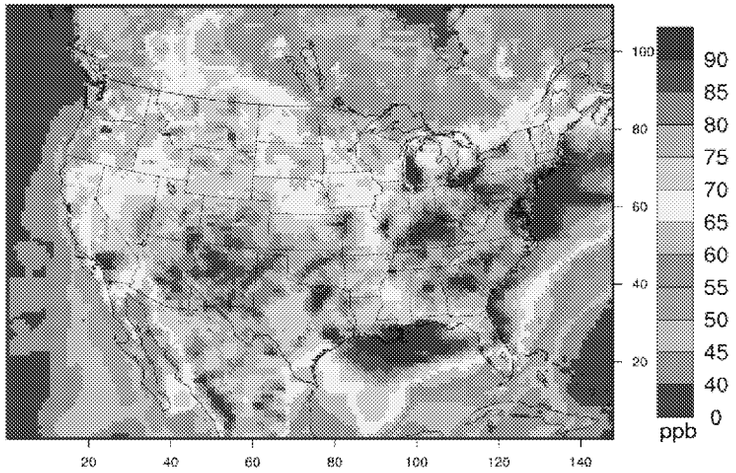
Min(38,1) = 14.9, Max(76,41) = 101.5

US-only anthro. – Base Case



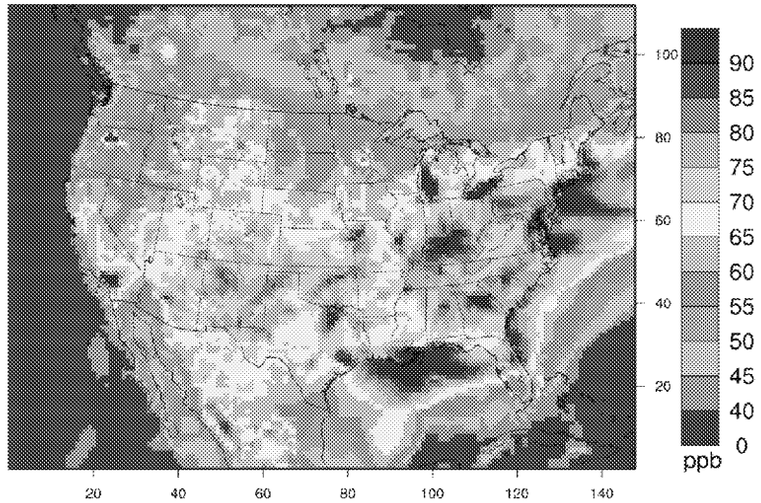
Min(38,100) = -19.1, Max(96,29) = -0.3

Base Case



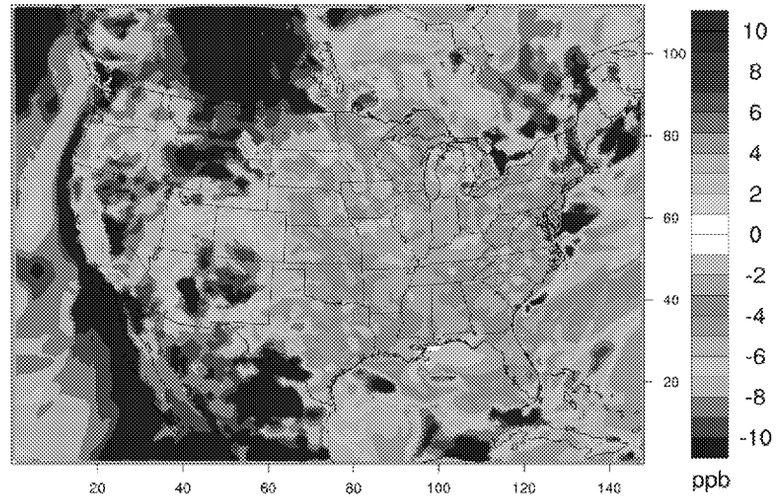
Min(1,1) = 0.0, Max(96,29) = 262.3

US-only Anthro. Emissions



Min(1,1) = 0.0, Max(96,29) = 261.2

US-only anthro. – Base Case



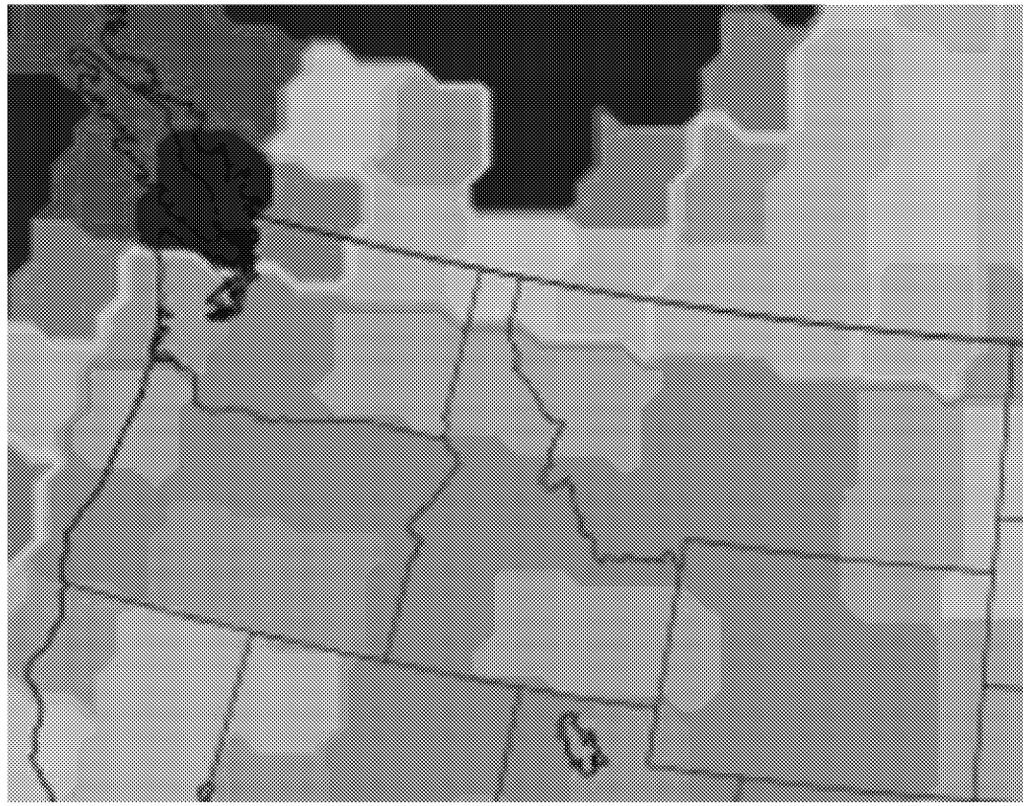
Min(67,14) = -29.6, Max(1,1) = 0.0

MAX MDA8 OZONE IN PACIFIC NORTHWEST -- GEOS-CHEM VS. CAMX

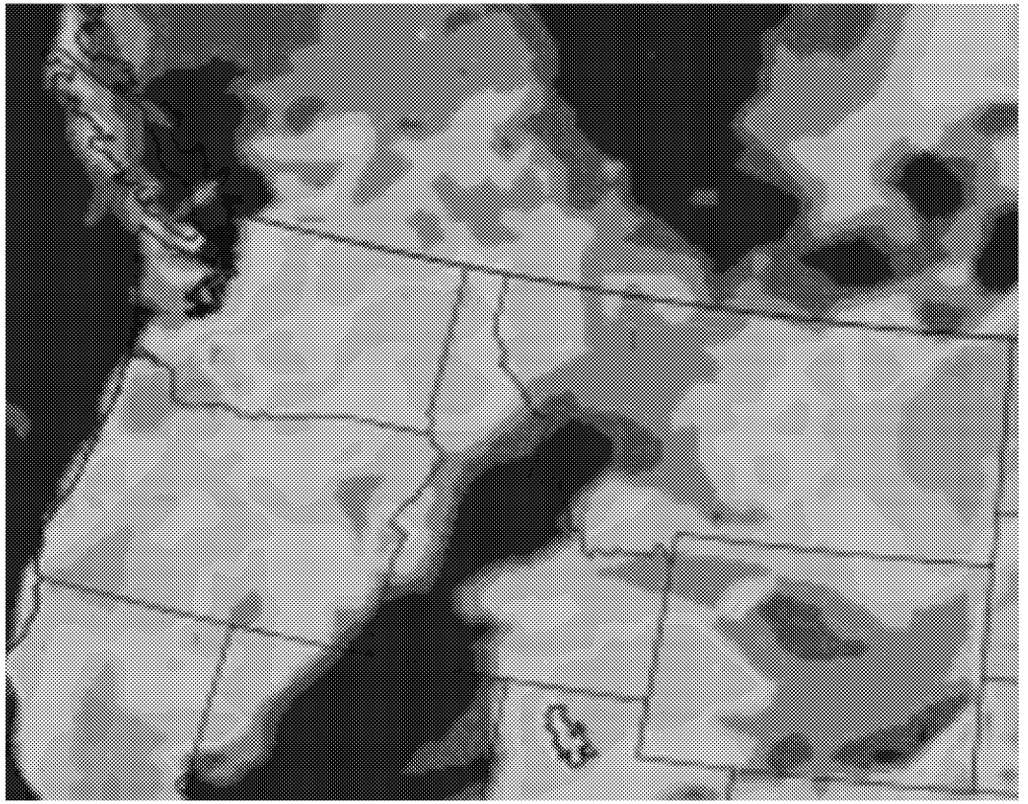
Within Pacific Northwest, change in maximum MDA8 ozone in July:

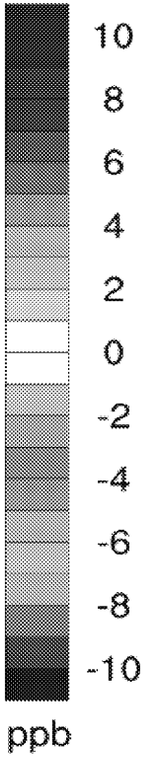
- 2-10 ppb GEOS-Chem (~200 km) and 4-11 ppb CAMx (12 km)
- Ozone contribution of international anthropogenic emissions in CAMx generally higher than GEOS-Chem

GEOS-Chem



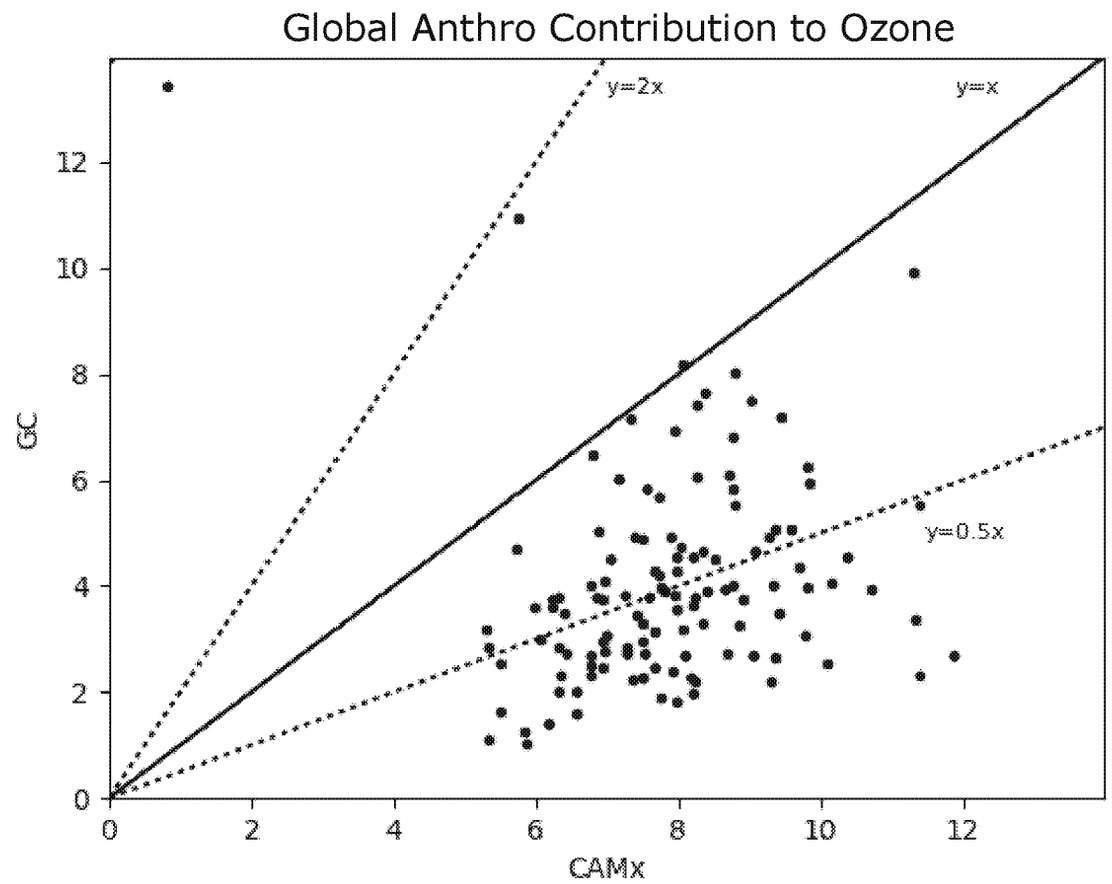
CAMx





CAMX VS. GEOS-CHEM GLOBAL ANTHROPOGENIC CONTRIBUTION TO MDA8 OZONE

- CAMx global anthropogenic contribution ~2x GEOS-Chem
- Consistent with spatial maps presented previously
- Reasons why GEOS-Chem international anthropogenic contributions is lower not clear
  - Likely related to coarse grid resolution used in GEOS-Chem (~200 km)
  - Reduced vertical transport
    - GEOS-Chem fails to see full terrain effects that can generate higher vertical transport



RAMBOLL

ESTIMATING OZONE CONCENTRATIONS ACROSS US WITHOUT INFLUENCE OF INTERNATIONAL ANTHROPOGENIC EMISSIONS

Estimate ozone design values (DVs), which are comparable to NAAQS (3-yr avg of 4th highest MDA8)

Use EPA tool, MATS, to calculate DVs:

- Ozone estimates from CAMx base case simulation (12 km)
- Ozone estimates from CAMx US-only anthropogenic emissions (12 km)
- Ozone measurements from 5 years (e.g., 2009-2013) at monitoring sites in NAA

To estimate ozone DVs without contribution of anthropogenic emissions outside of the US:

Ozone DVs = ozone DVs calculated using observations * RRF

RRF= Modeled ozone from US-only anthropogenic emission run / modeled ozone from base year run

RAMBOLL

MODELED OZONE DESIGN VALUES

Counties in Pacific Northwest

Site ID	State	County	DVC	NoIntl	Diff
160230101	Idaho	Butte	62.3	53.8	8.5
160550003	Idaho	Kootenai	56.0	49.6	6.4
300298001	Montana	Flathead	54.7	47.8	6.9
410050004	Oregon	Clackamas	64.0	58.0	6.0
410090004	Oregon	Columbia	51.3	46.2	5.1
410290201	Oregon	Jackson	61.7	55.6	6.1
410391007	Oregon	Lane	60.0	54.3	5.7
410470004	Oregon	Marion	59.3	53.4	5.9
410510080	Oregon	Multnomah	56.7	50.8	5.9
410591003	Oregon	Umatilla	61.3	55.0	6.3
530090013	Washington	Clallam	55.0	42.9	12.1
530110011	Washington	Clark	56.0	50.2	5.8
530330023	Washington	King	65.0	55.6	9.4
530530012	Washington	Pierce	56.0	47.1	8.9
530630046	Washington	Spokane	58.7	52.0	6.7
530670005	Washington	Thurston	55.7	47.0	8.7
530730005	Washington	Whatcom	45.0	32.9	12.1

Non-U.S. anthropogenic emissions contribute from 5.1 to 12.1 ppb to 2009-2013 ozone DVs in PNW

Example 2008 Ozone Non-Attainment Areas

Site ID	State	County	DVC	NoIntl	Diff
60376012	California	Los Angeles	97.3	91.6	5.7
60670012	California	Sacramento	93.3	87.5	5.8
480391004	Texas	Brazoria	88	84.1	3.9
421010024	Pennsylvania	Philadelphia	83.3	80.4	2.9
240053001	Maryland	Baltimore	80.7	78.6	2.1
80590006	**Colorado**	**Jefferson**	**80.3**	**73.9**	**6.4**
60773005	**California**	**San Joaquin**	**79**	**72.6**	**6.4**
211110051	**Kentucky**	**Jefferson**	**77.3**	**75.0**	**2.3**
370670022	**North Carolina**	**Forsyth**	**75.3**	**72.5**	**2.8**
560350099	**Wyoming**	**Sublette**	**77.3**	**69.3**	**8.0**
250070001	**Massachusetts**	**Dukes**	**77**	**72.1**	**4.9**
490353006	**Utah**	**Salt Lake**	**76**	**69.1**	**6.9**
60592022	California	Orange	72	66.9	5.1
80310014	Colorado	Denver	71	65.2	5.8

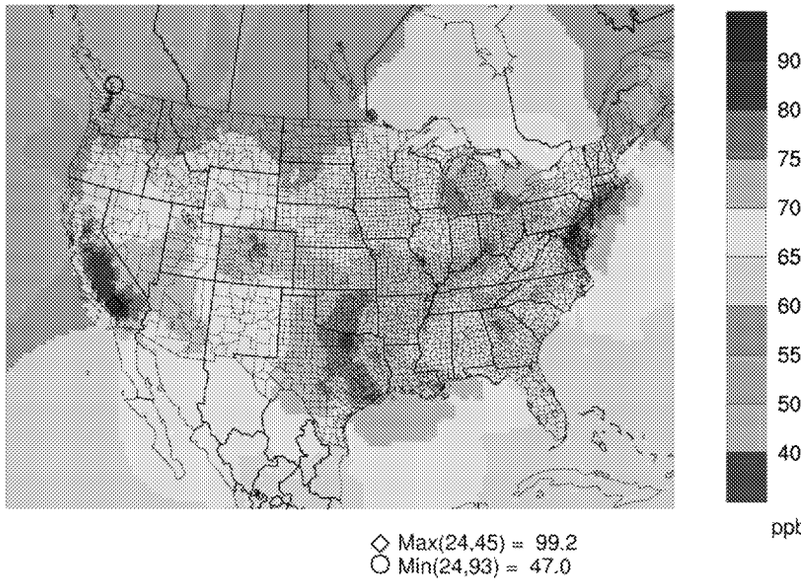
There are NAAs with 2009-2013 design values above 75 ppb.

- "But for" non-U.S. anthropogenic emissions, some NAAs would attain the 2008 75 ppb ozone NAAQS
- Same analysis can be performed for 2015 70 ppb ozone NAAQS standard

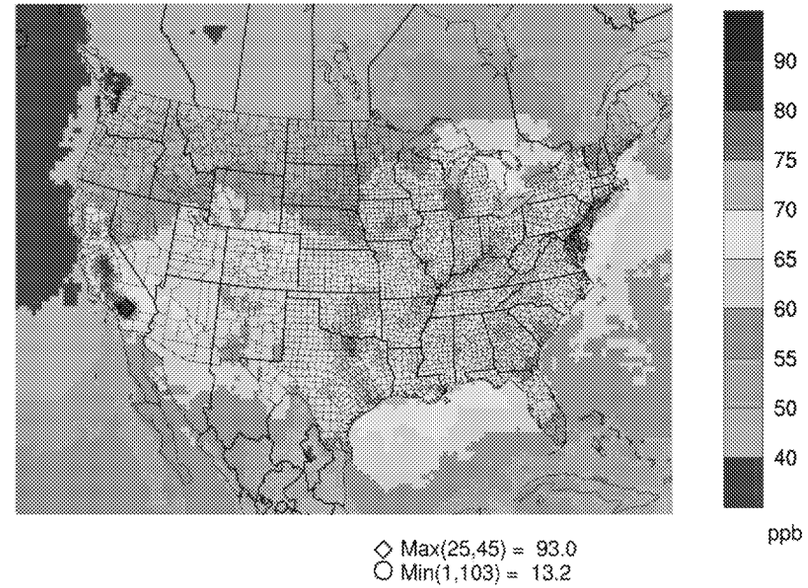
CONTRIBUTION OF INTERNATIONAL ANTHROPOGENIC EMISSIONS ON OZONE CONCENTRATIONS ACROSS US

Contribution of Non-US Anthropogenic Emissions to 2009-2013 Ozone Design Values Across US

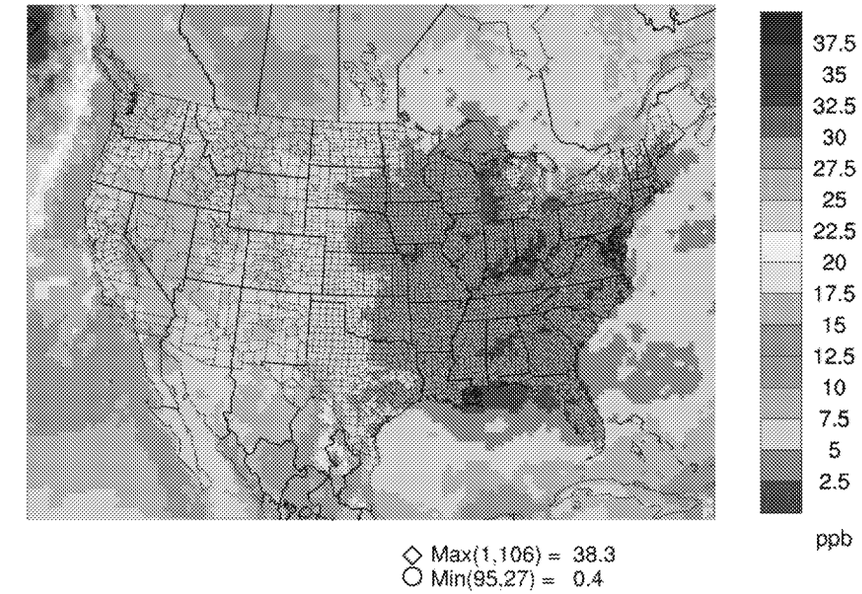
Base Case



US-only Anthro. Emissions



US-only anthro. – Base Case

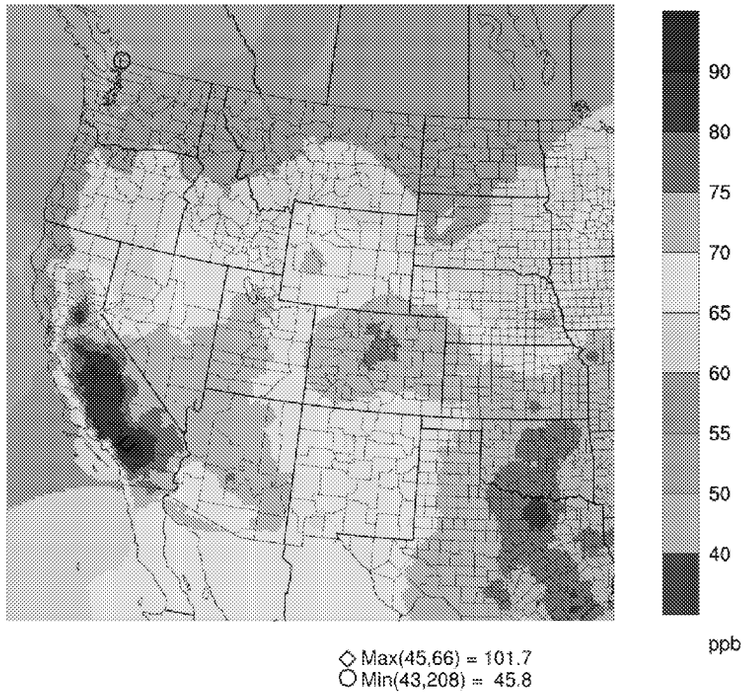


RAMBOLL

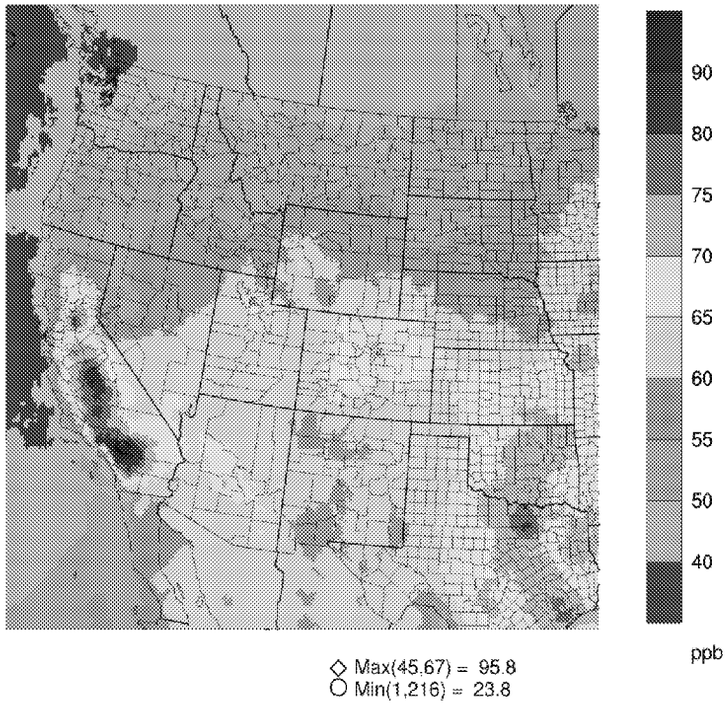
CONTRIBUTION OF INTERNATIONAL ANTHROPOGENIC EMISSIONS ON OZONE CONCENTRATIONS IN WESTERN US

Contribution of Non-US Anthropogenic Emissions to 2009-2013 Ozone Design Values in Western US

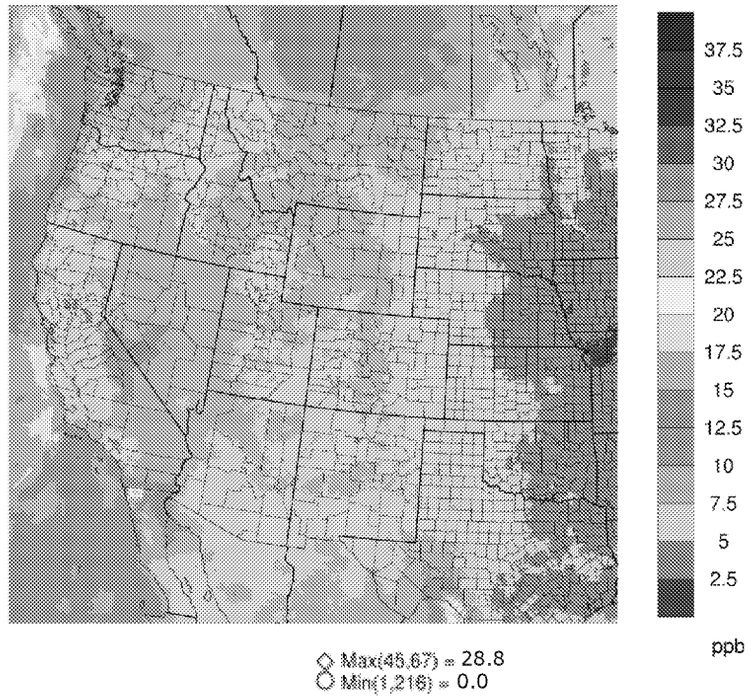
Base Case



US-only Anthro. Emissions

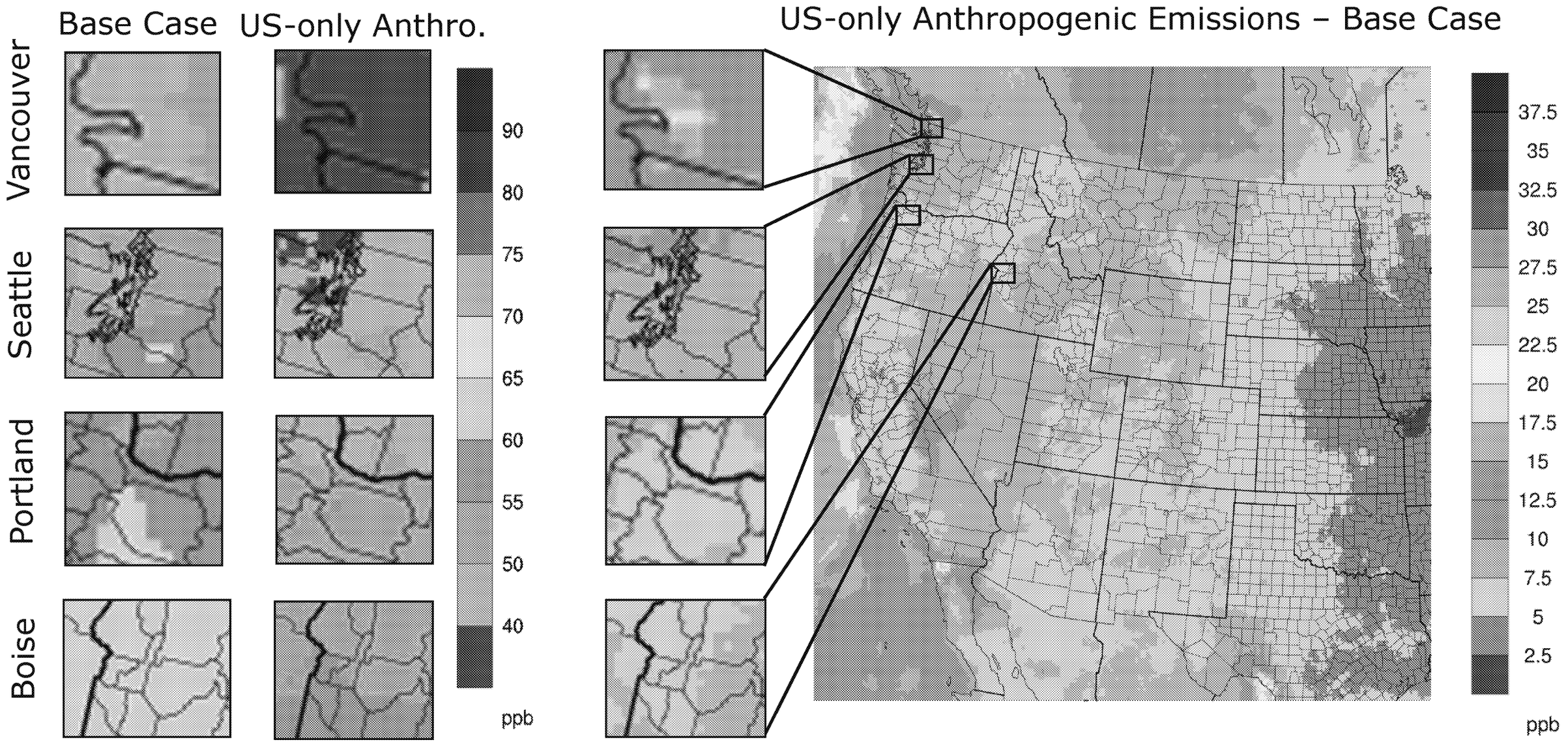


US-only anthro. – Base Case



RAMBOLL

CONTRIBUTION OF INTERNATIONAL ANTHROPOGENIC EMISSIONS ON OZONE CONCENTRATIONS IN WESTERN US



CONCLUSIONS

- Currently several areas in the U.S. are trying to comply with 75 ppb 2008 ozone NAAQS.
- Many additional areas may have to comply with the new 70 ppb ozone NAAQS in the near future.
- Areas in the western U.S. are highly influenced by natural emissions and sources from outside of the United States.
- Along with considering various ozone precursor control strategies, agencies may wish to investigate impacts of international emissions on local ozone concentrations, following Section 179B of the Clean Air Act.
- CAMx contributions of non-U.S. anthropogenic emissions to 2009-2013 average ozone DVs show wide range over United States (0.4 to 38.3 ppb), with bigger impacts in West compared to East.
- Removal of international anthropogenic emissions reduces maximum 2009-2013 average ozone DVs in Pacific Northwest by 5.1 to 12.1 ppb, although there are no ozone NAA currently in region.

ACKNOWLEDGEMENTS

- Ramboll Environ: Ralph Morris, Jaegun Jung, Wei Chun Hsieh
- Alpine Geophysics: Dennis McNally

THANK YOU

RAMBOLL

EXTRA

ED_002719_00038051-00027

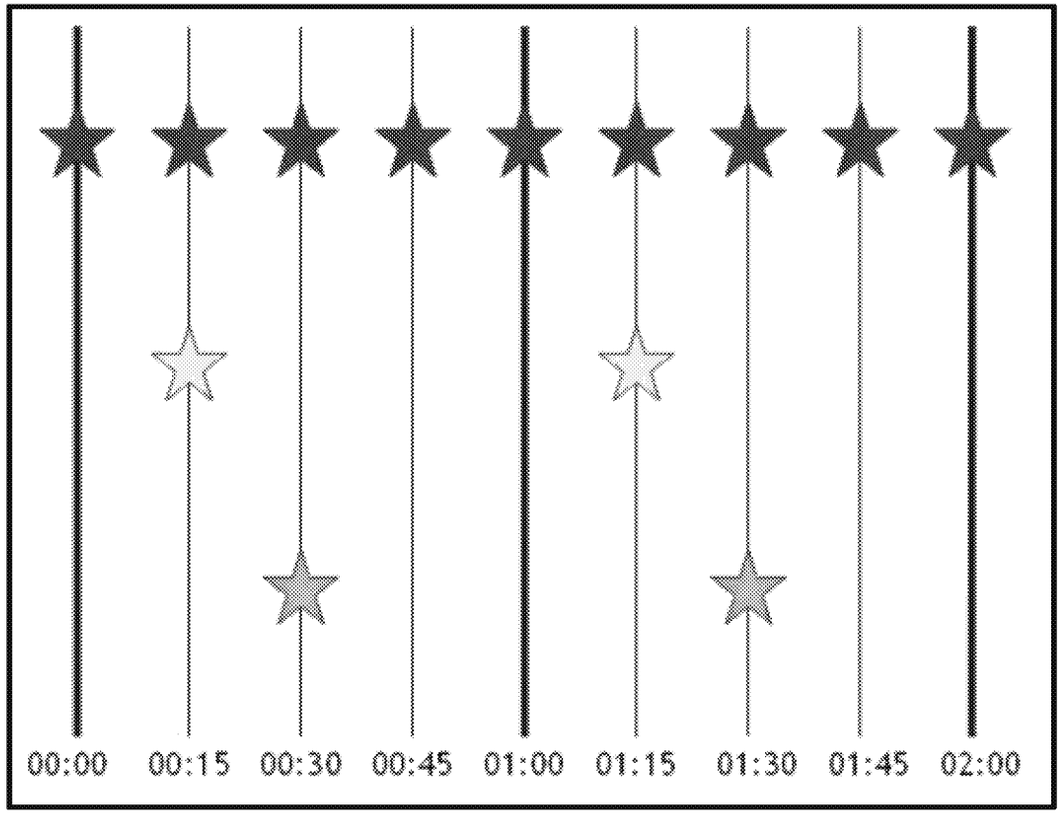
PHOTOCHEMICAL GRID MODELS
TIMESTEP ALGORITHMS

Centralized Chemistry Timestep Algorithm

Transport operations (advection, PBL mixing, cloud convection) →

Chemistry operations (emissions, deposition, Photolysis, reactions) →

Time of day when sun angles are computed (for photolysis) →



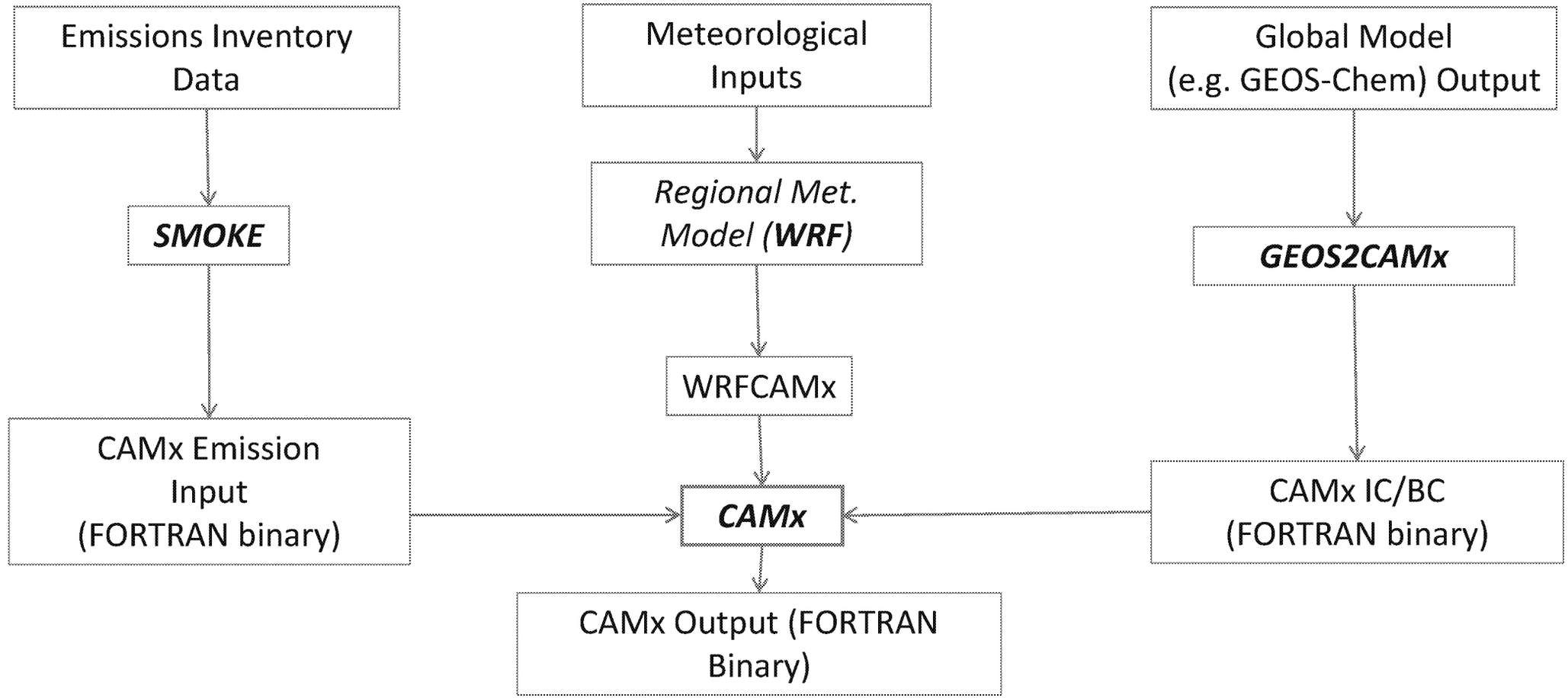
Model Time

ΔT(transport) = 15 min

ΔT(chemistry) = 60 min

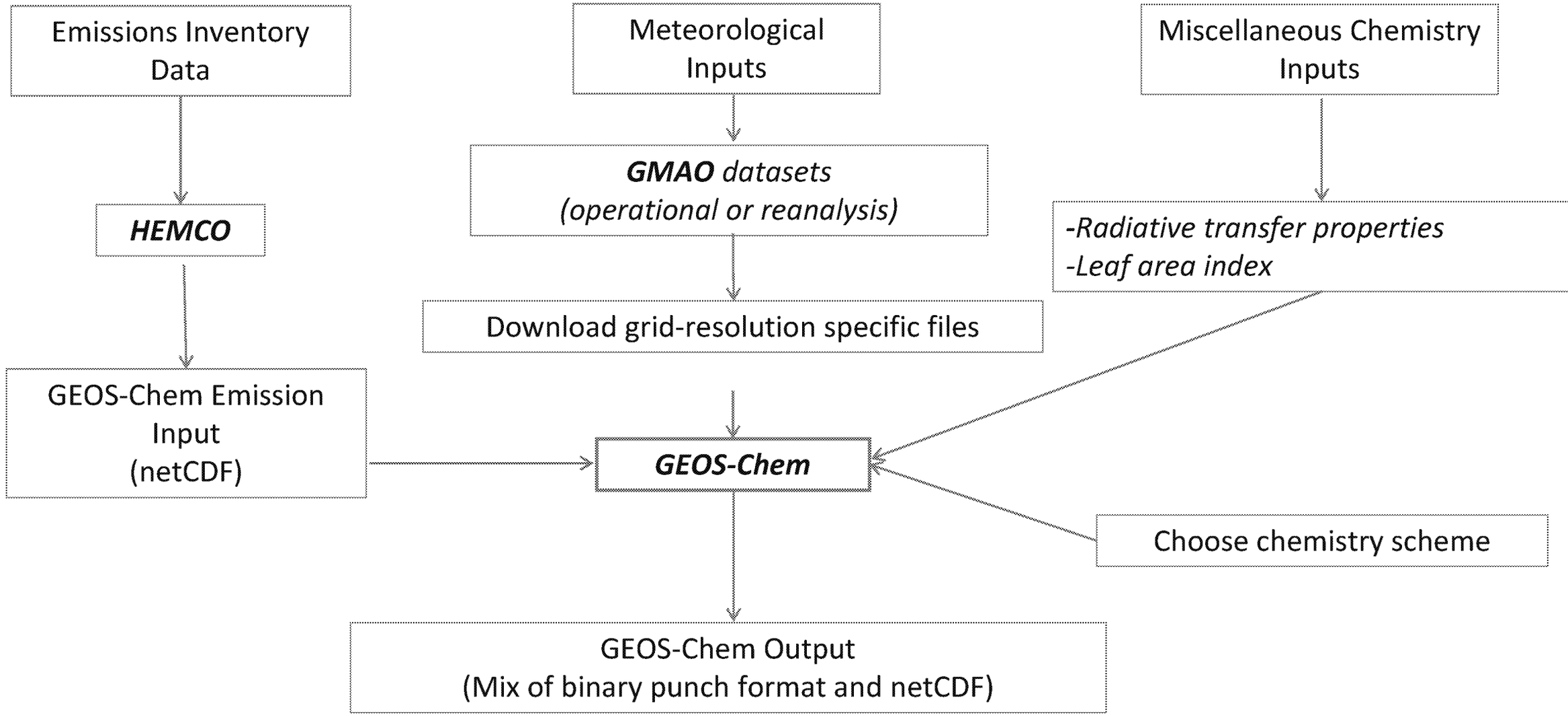
RAMBOLL

CAMX PROCESSING



RAMBOLL

GEOS-CHEM PROCESSING



RAMBOLL

Exhibit C

SUMMARY OF RECENT PAPERS AND STUDIES – INTERNATIONAL TRANSPORT

Title	Authors	Summary points from the paper	Reference weblink
Surface ozone background in the United States: Canadian and Mexican pollution influences	Wang et al., AE, 2009	➢ Global modeling was used to quantify effects of anthropogenic emissions from Canada, Mexico, and outside North America on US ozone during summer 2001. ➢ The Canadian and Mexican pollution enhancement averages 3 ± 4 ppb in the US in summer but can be occasionally much higher in downwind regions of the northeast and southwest, peaking at 33 ppb in New York and 18 ppb in southern California. ➢ Exceedances of the 75-ppb standard in eastern Michigan, western New York, New Jersey, and southern California are often associated with Canadian and Mexican pollution enhancements in excess of 10 ppb.	https://www.sciencedirect.com/science/article/pii/S1352231008011060?via%3Dihub
Intercontinental source attribution of ozone pollution at western U.S. sites using an adjoint method	Zhang et al., GRL, 2009	➢ Global modeling of international transport impacts at 2 sites on the US west coast: elevated (Mount Bachelor in Oregon) and sea-level (Trinidad Head in California). ➢ The elevated site experiences distinct Asian ozone pollution episodes with maximum impacts from northeast China and southern Japan. ➢ The sea-level site shows the same Asian origins for ozone but no distinct Asian pollution episodes.	http://onlinelibrary.wiley.com/doi/10.1029/2009GL037950/pdf
Increasing springtime ozone mixing ratios in the free troposphere over western North America	Cooper et al., Nature, 2010	➢ Springtime ozone measurements in western US show strong increase during 1995-2008; +0.63±0.34 ppb/yr. ➢ Results support that rising Asian ozone precursor emissions would cause springtime ozone increase in western US.	https://www.nature.com/articles/nature08708
Global sources of local pollution: An assessment of long-range transport of key air pollutants to and from the United States.	NRC, 2010 (book)	➢ Summarizes known science and limitations on long-range transport, including important conclusions about impacts of foreign emissions on US pollutant levels.	https://www.nap.edu/catalog/12743/global-sources-of-local-pollution-an-assessment-of-long-range
Causes of high O3 in the lower free troposphere over the Pacific Northwest as observed at the Mt. Bachelor Observatory	Ambrose et al., AE, 2011	➢ Identified the cause and classified high O3 days (MDA8>70 ppb) at Mt. Bachelor Observatory (MBO). Analysis found that upper troposphere/lower stratospheric (UTLS) airmasses, Asian airmasses and mixed UTLS/Asian airmasses accounted for 44%, 33% and 22% of the high O3 days, respectively.	https://www.sciencedirect.com/science/article/pii/S1352231011006686

ED_002719_00038052-00001

Title	Authors	Summary points from the paper	Reference weblink
Asian influence on surface ozone in the United States: A comparison of chemistry, seasonality, and transport mechanisms	Brown-Steiner and Hess, JGR, 2011	➢ Modeling of 2001-2005 indicates that Asian ozone contributions in the western US are maximum in the spring at 3.36 ± 1.3 ppb and are minimum in the summer at 1.36 ± 0.7 ppb. ➢ The import of Asian pollutants into the western United States contributes ~10% of total surface ozone.	http://onlinelibrary.wiley.com/doi/10.1029/2011JD015846/epdf
Long-term ozone trends at rural ozone monitoring sites across the United States, 1990–2010	Cooper et al., JGR, 2012	➢ Long-term analysis of ozone trends at US monitoring sites. ➢ US surface ozone is more sensitive to East Asia emissions than are Europe or Southeast Asia, and western US is more sensitive than eastern US. ➢ Tropospheric ozone over western US has increased at 0.41±0.27 ppb/yr	http://onlinelibrary.wiley.com/doi/10.1029/2012JD018261/pdf
Transport of Asian ozone pollution into surface air over the western United States in spring	Lin et al., JGR, 2012	➢ During certain episodes, modeling suggests that Asian emissions can contribute 8 – 15 ppb ozone during days when ozone exceeds 60 ppb.	http://onlinelibrary.wiley.com/doi/10.1029/2011JD016961/abstract
Estimating North American background ozone in U.S. surface air with two independent global models: Variability, uncertainties, and recommendations	Fiore et al., AE, 2014	➢ At high altitude Western US sites, modeling shows higher background contributions than at low-altitude sites. ➢ Models indicate seasonal background ozone ranging 35-50 ppb from springtime to summer, with typical values of 40 ppb (no explicit information on contribution from anthropogenic international transport).	https://www.sciencedirect.com/science/article/pii/S1352231014005755
An overview of the 2013 Las Vegas Ozone Study (LVOS): Impact of stratospheric intrusions and long-range transport on surface air quality	Langford et al., AE, 2014	➢ Modeling suggests that stratospheric intrusion contributions to surface ozone was about 30 ppb during exception events, while long-range transport from Asia contributed less (< 10 ppb) during those same events.	https://www.sciencedirect.com/science/article/pii/S1352231014006426
China's international trade and air pollution in the United States	Lin et al., PNAS, 2014	➢ Modeling shows that the transport of export-related Chinese pollution contributed 0.5 - 1.5% of ozone over western US in 2006. ➢ Chinese pollution resulted in one extra day or more of noncompliance with US ozone standard in 2006 over Los Angeles basin and eastern US.	http://www.pnas.org/content/111/5/1736
Sources contributing to background surface ozone in the US Intermountain West	Zhang et al., ACP, 2014	➢ Modeling was used to estimate natural contributions over North America to US background ozone: wildfires, lightning NOx, stratosphere (transboundary contributions not addressed) ➢ Stratospheric intrusion events are responsible for the highest ozone concentrations during spring in the western US; models are able to replicate the timing of the intrusion events but not their magnitude.	https://www.atmos-chem-phys.net/14/5295/2014/acp-14-5295-2014.html

Title	Authors	Summary points from the paper	Reference weblink
Photochemical grid model estimates of lateral boundary contributions to ozone and particulate matter across the continental United States	Baker et al., AE, 2015	➢ Modeling shows that the largest ozone contributions entering the US typically come from the middle atmosphere (15,000 feet), where Asian transport occurs, with typically much less contribution from the upper atmosphere (>30,000 feet) where stratospheric intrusion occurs.	https://www.sciencedirect.com/science/article/pii/S135223101530474X
Identification of sources contributing to PM2.5 and ozone at elevated sites in the western U.S. by receptor analysis: Lassen Volcanic National Park, California, and Great Basin National Park, Nevada	VanCuren and Gustin, STE, 2015	➢ A receptor-based model and supporting trajectory calculations were used to identify ozone source regions at Lassen and Great Basin National Parks. ➢ Indicates that anthropogenic enhancement of ozone is primarily due to transport from Asia in spring, but regional North American sources of ozone appear to drive additional ozone peaks in late summer and fall.	https://www.sciencedirect.com/science/article/pii/S0048969715003666
Rapid increases in tropospheric ozone production and export from China	Verstraeten et al., Nature 2015	➢ Satellite-based analysis indicates that ozone concentrations over China increased 7% between 2005 and 2010 as China precursor emissions increased by 21%. ➢ The contribution of ozone transport from China to the western US has grown over 2005 -2010 and has offset ozone reductions resulting from US air pollution controls by 43%.	https://www.nature.com/articles/ngeo2493
Changes in US background ozone due to global anthropogenic emissions from 1970 to 2020	Nopmongcol et al., AE, 2016	➢ Global/regional modeling of western US background over 1970-2020 shows increases from 40-60 ppb, but remained below 45 ppb in the eastern US. ➢ US background increases in the southwestern US are consistent with rising emissions in Asia and Mexico. ➢ Contributions from neighbouring countries can exceed 4 ppb near the Canadian border and 2 ppb near the Mexican border.	https://www.sciencedirect.com/science/article/pii/S1352231016304599
An Assessment of Ground Level and Free Tropospheric Ozone Over California and Nevada	Yates et al., JGR, 2016	➢ Surface data analysis over California and Nevada during 1995-2015 shows an increase in springtime 5th percentile ozone at 0.05-0.19 ppb/yr. ➢ Vertical ozone measurements show distinct seasonal trends, with a high percentage of elevated (3-8 km) ozone layers (>70 ppb) during spring and summer. ➢ Global modeling of May-September 2012-2013 shows large contributions to rural surface ozone from the mid- and upper-troposphere (20+ ppb), which is equivalent or greater than North American contributions (10-20 ppb), and smaller contributions from Asian transport (<5 ppb).	http://onlinelibrary.wiley.com/doi/10.1002/2016JD026266/abstract

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Title	Authors	Summary points from the paper	Reference weblink
Contributions of foreign, domestic and natural emissions to US ozone estimated using the path-integral method in CAMx nested within GEOS-Chem	Dunker et al., ACP, 2017	➢ Global/regional modeling of 2010 indicates maximum US background ozone in the inter-mountain western US, especially at higher elevations, in some places exceeding 60 ppb (contributing 44% of top 10 ozone days in Denver, and 68% at rural sites). ➢ Background ozone generally becomes both a larger fraction of total ozone in the western US and a smaller fraction in the eastern US going from spring to summer. ➢ For 10 US urban areas, the relative importance of sources is generally US emissions (12-53 ppb) > anthropogenic emissions outside North America (3-9 ppb) > Canadian/Mexican emissions (0.2-3 ppb).	https://www.atmos-chem-phys.net/17/12553/2017/
Source Apportionment Modeling to Investigate Background, Regional, and Local Contributions to Ozone Concentrations in Denver, Phoenix, Detroit, and Atlanta	Erdakos et al., CMAS, 2017	➢ Modeled US background ozone in 2011 shows the highest daily values reaching 50-70 ppb in the West and 40-60 ppb in the East; fourth-highest daily values reaching 40-60 ppb in the West and 30-50 ppb in the East (no explicit breakout of international anthropogenic transport). ➢ US background is a larger percentage of total ozone in the West than in the East. ➢ Average modeled in-state anthropogenic contributions to ozone in the selected 4 cities ranges 10-20% of total ozone, except in Atlanta (32%).	https://www.cmascenter.org/conference/2017/slides/erdakos_source_apportionment_2017.pptx
Long-Lived Species Enhance Summertime Attribution of North American Ozone to Upwind Sources	Guo et al., EST, 2017	➢ Global modeling of 2000 shows that seasonal average surface ozone over North America can be attributed to East Asian anthropogenic emissions by 0.5-3 ppb in summer, depending on the modeling method employed. ➢ Approximately 670 cardiovascular and 300 respiratory premature mortalities within North America could be attributed to East Asia. ➢ Carbon Monoxide and longer-lived VOCs, largely overlooked in previous studies, greatly enhance ozone attribution to source region.	https://pubs.acs.org/doi/abs/10.1021/acs.est.6b05664
Impact of intercontinental pollution transport on North American ozone air pollution: an HTAP phase 2 multi-model study	Huang et al., ACP, 2017	➢ Modeling indicates that East Asia (EA) pollution impacts are weaker during US ozone exceedance events in most US regions than on cleaner days, except over some high terrain western US rural/remote areas. ➢ Models may under estimate the US ozone response to EA anthropogenic emissions reductions by at least 10%.	https://www.atmos-chem-phys.net/17/5721/2017/
Entrainment of stratospheric air and Asian pollution by the convective boundary layer in the southwestern U.S.	Langford et al., JGR, 2017	➢ Measurements, modeling and satellite data in Southern Nevada show that during May 2013 ozone exceedance days, 20-40 ppb was due to stratospheric intrusion and 0-10 ppb was transported from Asia. ➢ Stratospheric intrusions in May 2013 increased ozone more than 70 ppb at rural and urban sites in California and Nevada.	http://onlinelibrary.wiley.com/doi/10.1002/2016JD025987/full

ED_002719_00038052-00004

Title	Authors	Summary points from the paper	Reference weblink
US surface ozone trends and extremes from 1980 to 2014: quantifying the roles of rising Asian emissions, domestic controls, wildfires, and climate	Lin et al., ACP, 2017	➢ Since 1990, Asian NOx emissions have tripled and have increased modeled springtime background ozone over the western US at a rate of 0.3-0.5 ppb/yr (contributing 65% of western US background), and outpacing ozone decreases from 50% reduction in US NOx emissions. ➢ Ozone trends in the western US coincide with increases in background ozone by 6.3±1.9 ppb in spring and 4.2±2.0 ppb in summer -- Asian anthropogenic emissions are the major driver of rising background ozone in the past decades.	https://www.atmos-chem-phys.net/17/2943/2017/acp-17-2943-2017.pdf
Ozone Contributions of International Emissions using 2011 Modeling Platform	Morris and McNally, 2017	➢ Investigates impacts of international emissions on local ozone concentrations, following Section 179B of the Clean Air Act. ➢ Modeling indicates that international anthropogenic emission contribute 6-7 ppb to Denver's 2009-2013 average ozone Design Values (DV) ➢ Removal of international anthropogenic emissions would result in attaining the 2008 ozone NAAQS in Denver for the 2009-2013 and 2015-2017 DV periods.	http://raqc.org/documents/modeling-emissions-inventories/
Modeling intercontinental transport of ozone in North America with CAMx for the Air Quality Model Evaluation International Initiative (AQMEII) Phase 3	Nopmongcol et al., ACP, 2017	➢ Modeling indicates that ozone entering the US in the mid-atmosphere (~15,000 feet) contributes up to 40 ppb over the US. ➢ By reducing Asia emissions by 20%, modeling indicates relatively small reductions in average surface ozone during all seasons in the western US (<1 ppb in spring and 0.5 ppb in other seasons).	https://www.atmos-chem-phys.net/17/9931/2017/
International Contributions to ozone Across United States	Zatko, 2017	➢ Expansion of Morris and McNally (2017) analysis to entire US. ➢ Modeling indicates that international anthropogenic emissions contribute 0.4-38.3 ppb to 2009-2013 average ozone Design Values (DV) over the US, with the largest impacts in the west.	Zatko_PNWIS_NoIntlEmis_2017-10-11_v6.p
Trends and sources of ozone and sub-micron aerosols at the Mt. Bachelor Observatory (MBO) during 2004-2015	Zhang et al., AE, 2017	➢ Developed an algorithm to identifying Asian pollution plumes at the Mt. Bachelor Observatory (MBO) in Central Oregon at 2.8 km above sea level. ➢ Identified a statistically significant positive trend in O_3 during spring and summer, using 2004-2015 data. The spring trend was attributed to changing emissions in Asia and the summer trend was attributed to increasing wildfires in the U.S. and Siberia.	https://www.sciencedirect.com/science/article/pii/S1352231017304235?via%3Dihub
Investigating sources of ozone over California using AJAX airborne measurements and models: Assessing the contribution from long-range transport.	Ryoo et al., AE 2017	➢ Asian pollution contributed significantly to high ozone event at low altitudes off the coast of California in 2012. ➢ Analysis with GEOS-Chem, NASA GSFC and WRF-STILT showed minimal influence from the US and stratosphere on this event.	https://www.sciencedirect.com/science/article/pii/S135223101730078X

ED_002719_00038052-00005

Message

From: Pettit, David [dpettit@nrdc.org]
Sent: 8/29/2018 2:43:32 PM
To: Broome, Shannon S. [SBroome@hunton.com]; Woods, Clint [woods.clint@epa.gov]
Subject: RE: call today

Thanks for hosting. My cell is Ex. 6 Personal Privacy (PP)

David

David Pettit
Senior Attorney
Natural Resources Defense Council
(310) 434-2300
www.nrdc.org
Follow me on Twitter @TeamAir

From: Broome, Shannon S. <SBroome@hunton.com>
Sent: Wednesday, August 29, 2018 7:35 AM
To: Woods, Clint <woods.clint@epa.gov>; Pettit, David <dpettit@nrdc.org>
Subject: call today

Thank you both for joining the call today.

Topics and Presentation Format: We discussed focusing our group presentation on the following issues: CAFE, Ozone, CPP – with a brief overview of the status/what it is to level set the audience and then moderated questions that would allow you to explain the important issues from your perspective. We can switch off who gives the overview (which should be a Dragnet-like "just the facts" with as little spin as possible) and then get into the discussion pretty quickly for each topic. I will prepare and circulate moderator questions that you can review so you can flag any concerns in advance and we can make adjustments. Sometimes, when folks are in litigation, they need to be mindful of what they can say so I'd rather phrase questions in ways that you can answer them.

The Paper: I will have a paralegal or junior attorney generate a draft paper we can edit by email. The goal is a joint paper that just tees up status of some things so that we meet the CLE requirement and keep the ABA off my back.

Day of Event Logistics: We should meet briefly the morning of the event or the evening before. When you have your flights/timing done, let me know. We might want to meet the night before for 30 minutes and grab a drink so we are comfortable up there but I don't want to impose on your time. A 15-minute quick run through is helpful so hopefully we can do that. Also, when you have a chance, shoot me your cell number so we can communicate easily day of event for grabbing location to meet and in case anything goes awry.

I think that's it – should be pretty easy. As moderator, my goal is to make your contribution to this effort not only a success but also as simple as possible for you. Looking forward to seeing you in San Diego and I'll keep you posted on whether we get to add Jon Brightbill to the panel!

Best Regards,

HUNTON ANDREWS KURTH
Shannon S. Broome
Partner/Office Managing Partner San Francisco
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202.955.1912
m Ex. 6 Personal Privacy (PP)

bio | vCard |

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HuntonAK.com

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Appointment

From: Broome, Shannon S. [SBroome@hunton.com]
Sent: 8/24/2018 3:04:24 PM
To: Woods, Clint [woods.clint@epa.gov]; dpettit@nrdc.org

Subject: Call re ABA Panel
Location: Ex. 6 Personal Privacy (PP) code Ex. 6 Personal Privacy (PP)

Start: 8/29/2018 2:00:00 PM
End: 8/29/2018 2:30:00 PM
Show Time As: Tentative

Recurrence: (none)

Message

From: Broome, Shannon S. [SBroome@hunton.com]
Sent: 8/24/2018 3:03:57 PM
To: Woods, Clint [woods.clint@epa.gov]
Subject: Re: ABA Panel Call Schedule

Ok then. Thank you! I' ll explain then what happened. Wednesday at 10 eastern again?

Shannon S.Broome
Hunton Andrews Kurth LLP
sbroome@hunton.com
415.975.3718 (o)
Ex. 6 Personal Privacy (PP) (c)

> On Aug 24, 2018, at 8:01 AM, Woods, Clint <woods.clint@epa.gov> wrote:
>
> Absolutely - I'm tied up most of today but could do most times next week (especially Wed or Thursday)
>
>
> -----Original Message-----
> From: Broome, Shannon S. [mailto:SBroome@hunton.com]
> Sent: Friday, August 24, 2018 10:49 AM
> To: Woods, Clint <woods.clint@epa.gov>
> Subject: Re: ABA Panel Call Schedule
>
> Oh my. My phone did not go off. Can we reschedule?
>
> Shannon S.Broome
> Hunton Andrews Kurth LLP
> sbroome@hunton.com<mailto:sbroome@hunton.com>
> 415.975.3718 (o)
> Ex. 6 Personal Privacy (PP) (c)
>
>
> On Aug 24, 2018, at 7:08 AM, Woods, Clint <woods.clint@epa.gov<mailto:woods.clint@epa.gov>> wrote:
>
> Shannon,
>
> Still on for this morning? Thanks!
>
> On Aug 17, 2018, at 11:16 AM, Broome, Shannon S. <SBroome@hunton.com<mailto:SBroome@hunton.com>> wrote:
>
> How is 10 am Eastern on Friday the 24th?
>
> Best Regards,
>
> [Hunton Andrews Kurth]
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>
> Shannon S. Broome
> Partner/Office Managing Partner San Francisco sbroome@HuntonAK.com<mailto:jmatamoros@HuntonAK.com>
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>
> From: Woods, Clint [mailto:woods.clint@epa.gov]
> Sent: Friday, August 17, 2018 11:12 AM
> To: dpettit@nrdc.org<mailto:dpettit@nrdc.org>
> Cc: Broome, Shannon S.
> Subject: Re: ABA Panel Call Schedule
>
> Thanks so much for reaching out - I have limited availability on Thursday except late in the day but could make nearly any time Friday or the following week work.
>
> On Aug 17, 2018, at 8:11 AM, Pettit, David <dpettit@nrdc.org<mailto:dpettit@nrdc.org>> wrote:
> Hi. I am on vacation Mon-Weds next week but available Thursday and Friday.
>
> David
> Sent from my iPhone
>
> On Aug 16, 2018, at 9:54 PM, Broome, Shannon S. <SBroome@hunton.com<mailto:SBroome@hunton.com>> wrote:
> Clint and David,
>
> I want to begin by thanking you both for agreeing to be speakers at the ABA SEER Fall Conference in San Diego, at the session "Deregulation in Focus: The Clean Air Act and States"! You two will provide a great perspective on this panel. I have excerpted the published version of our panel description below from the online catalogue. As the moderator of the panel, my job is to ensure that our communications are clear during the presentation and that we also meet the ABA's requirements for continuing legal education.
>
> In a moderator training call last week, we were asked to coordinate an initial call among our panelists during the first part of August. The purpose of this email is to find out if you both would have availability any time next week to do a quick (15-20 minute) call to go over our panel. Could you kindly email me your availability for Monday at noon eastern, 2 eastern, 4 eastern, Tuesday at 10 eastern, 11 eastern, or 4 eastern, Wednesday at 3 or 4 eastern?
>
> I will pick a mutually convenient time and send an outlook invitation.
>
> On behalf of the ABA (and our future audience), thank you again for agreeing to participate in this panel!
>
> DEREGULATION IN FOCUS: THE CLEAN AIR ACT AND STATES The administration's executive orders, regulation changes, and other deregulatory efforts are reshaping the Clean Air Act landscape. We have seen an effort to repeal and replace the Clean Power Plan as well as a reexamination of many major regulations associated with the act. Moreover, EPA has set out to recalibrate the state and federal relationship with greater deference to state administrators implementing the Clean Air Act. The intensity of this deregulation discussion is no more apparent than in California, where the state environmental agency leads with some of the most protective environmental laws in the nation, including its authority through a special waiver to set California-specific motor vehicles emission standards. Join us for a discussion of the changing (or in some cases, unchanged) regulatory landscape under the act and learn how states have responded to recent and potential changes.
>
> Best Regards,
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>
> Shannon S. Broome
> Partner/Office Managing Partner San Francisco sbroome@HuntonAK.com<mailto:jmatamoros@HuntonAK.com>
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> 415.975.3718
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>

Message

From: Broome, Shannon S. [SBroome@hunton.com]
Sent: 8/24/2018 2:50:19 PM
To: Woods, Clint [woods.clint@epa.gov]
Subject: Re: ABA Panel Call Schedule
Attachments: image001.png; image001.png

Clint can I call you now?

Shannon S.Broome
Hunton Andrews Kurth LLP
sbroome@hunton.com<mailto:sbroome@hunton.com>
415.975.3718 (o)
Ex. 6 Personal Privacy (PP) (c)

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Best Regards,

[Hunton Andrews Kurth]

Shannon S. Broome
Partner/Office Managing Partner San Francisco
sbroome@HuntonAK.com<mailto:jmatamoros@HuntonAK.com>
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From: Woods, Clint [mailto:woods.clint@epa.gov]
Sent: Friday, August 17, 2018 11:12 AM
To: dpettit@nrdc.org<mailto:dpettit@nrdc.org>
Cc: Broome, Shannon S.
Subject: Re: ABA Panel Call Schedule

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David
Sent from my iPhone

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Monday at noon eastern, 2 eastern, 4 eastern,
Tuesday at 10 eastern, 11 eastern, or 4 eastern,
Wednesday at 3 or 4 eastern?

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Best Regards,

<image003.png>

Shannon S. Broome
Partner/Office Managing Partner San Francisco
sbroome@HuntonAK.com<mailto:jmatamoros@HuntonAK.com>
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202.955.1912

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Appointment

From: Ted Steichen [SteichenT@api.org]
Sent: 8/1/2018 5:40:11 PM
To: Woods, Clint [woods.clint@epa.gov]

Subject: Conference Call Details
Location: Ex. 6 Personal Privacy (PP)

Start: 8/3/2018 3:00:00 PM
End: 8/3/2018 3:30:00 PM
Show Time As: Tentative

Recurrence: (none)

Howard will attempt to join the call.

Conference call details:

11:00 a.m. EDT on FRIDAY 8/3

Ex. 6 Personal Privacy (PP)

Then Ex. 6 Personal Privacy (PP)

Message

From: Flynn, Aaron M. [flynna@hunton.com]
Sent: 10/18/2018 11:10:46 AM
To: Woods, Clint [woods.clint@epa.gov]
Subject: Automatic reply: Availability

I will be out of the office October 18 and 19, 2018. I may have limited access to email for part of that time. If you need immediate assistance, please contact Ana Aguirre at aaguirre@hunton.com.

Message

From: Maeng, Yujin [Yujin.Maeng@americanbar.org]
Sent: 8/16/2018 2:47:34 PM
To: sbroome@huntonak.com; dpettit@nrdc.org; Woods, Clint [woods.clint@epa.gov]
CC: jsantini@parsonsbehle.com
Subject: 26th Fall Conference: Upcoming Deadlines
Attachments: Fall 2018 Speaker Release Form.pdf; 26fallregform_speaker.pdf

Dear Conference Speakers and Moderator:

Thank you for lending your time and expertise at the 26th Fall Conference. As the program quickly approaches we want to make sure you are aware of pertinent deadlines. Please be sure to read this email in its entirety. If you should have any questions, please do not hesitate to reach out directly to me.

Abstracts/Papers
This serves as a reminder that draft abstracts/papers are due to your Moderator by **Friday, September 14, 2018.** Final abstracts/papers are due to ABA staff by **Friday, September 28, 2018**.

Please note, at the conference, we will present an award for the best paper. Only papers submitted by the above deadlines will be candidates for the "Best Paper Award."

The paper guidelines can be found below:

- Paper Format Guidelines
- Paper Abstract Guidelines
- Sample Paper and Abstract

Lodging
The 26th Fall Conference will take place at the Marriott Marquis San Diego Marina, 333 West Harbor Drive, San Diego, CA 92101. A block of rooms has been reserved at the discounted rate of $299 plus tax for single/double rooms. A limited number of government rate rooms are also available for $140 plus tax (or the current government rate). A valid government ID will be required upon check in.

The deadline for room reservations at the discounted rate is Tuesday, September 25, 2018 at 5:00 p.m. (CST). To book our contracted rate, call reservations at (800) 228-9290 or the hotel directly at (619) 234-1500 or online at https://book.passkey.com/event/49615007/owner/413/home. Be sure to mention the ABA Section of Environment, Energy, and Resources 2018 Fall Conference.

Please note that the block is quickly selling out so be sure to book your room asap.

Registration
Speakers are invited to attend the meeting free of charge on the day of their panel presentation only and will be registered internally by ABA staff. If you are planning to attend the entire conference, we have developed a special rate of $450. Please register online or complete the attached registration form and return to:

American Bar Association
ATTN: Service Center–Meeting/Event
Registrations Department
321 N. Clark St.
Chicago, IL 60654
SECURE FAX: (312) 988-5850

Discount

The Section has developed a special discount code for friends of speakers and moderators who wish to attend the conference. You colleagues can receive $100 off their registration by entering the discount code **SPEAKER18** at the time of checkout or on their mail-in registration form. Feel free to share this code within your network.

Photo, Bio, Speaker Release From
If you have not done so already, please respond to this email with your photo, bio, and speaker release form (attached). You can find a sample biography on the Speaker Resources page, here. Please be sure your photo is in .jpg format.

If you have any questions or concerns, please do not hesitate to contact me.

Sincerely,

Yujin Maeng
Program Assistant
Section of Environment, Energy, and Resources

American Bar Association | 321 North Clark Street | Chicago, IL 60654
T: 312.988.5642
Yujin.Maeng@americanbar.org | www.americanbar.org/seer

SAVE TIME BY REGISTERING FOR THIS CONFERENCE ONLINE. VISIT, WWW.AMBAR.ORG/ENVIRONFALL

26th Fall Conference

October 17-20, 2018 • Marriott Marquis San Diego Marina• San Diego, CA

RETURN TO:
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REGISTRATION DEADLINE: on or before WEDNESDAY, OCTOBER 3, 2018

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PROGRAM REGISTRATION FEES

Speakers and moderators are invited to attend the meeting free of charge on the day of their panel presentation **only**. If you are planning to attend the entire Fall Conference, we have developed the following special registration rate.

REGISTER FOR ALL OF THE SPRING CONFERENCE

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Speaker and Moderator - Special Segment 1 ☐ $450

ADDITIONS

☐ **$0 Thursday Dinner Attendee*** **Quantity:** _____
** one dinner ticket already included in registration fee*

☐ **$95 Thursday Dinner Guest** **Quantity:** _____

☐ **$25 Friday Run Club** **Quantity:** _____

☐ **$0 Public Service Project** **Quantity:** _____

☐ **$25 (suggested) or $_____ ABA FJE Contribution**
Voluntary contribution to support the Section of Environment, Energy, and Resources Project Support Fund. Contributions to the FJE are tax deductible to the full extent allowed by law.

☐ **$20 Achieving Carbon Neutrality**
Calculated with great care, the Section estimates that the average attendee's participation will generate approximately one metric ton of carbon emissions. Help offset your carbon footprint by adding the cost of a one-ton carbon credit and help pay for tree plantings and service projects that will reduce greenhouse gases. Contributions to the FJE are tax deductible to the full extent allowed by law.

☐ **Dietary Restrictions?** Please specify: _____

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Membership in the ABA and the Section of Environment, Energy, and Resources is one of the most valuable investments you can make for your career. Harnessing the power of over 400,000 members, the ABA is the primary voice of the U.S. legal profession to governments and to the public. The Section of Environment, Energy, and Resources is the premier forum for lawyers working in areas related to environment, natural resources, and energy. Your membership offers access to courses led by national experts, the chance to maintain your connection to national and global legal trends, and even the chance to save money through discounts on consumer products and services, plus member-only pricing at our online store of ABA books and CLE.

PAYMENT

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SUB-TOTAL ADDITIONS $_____

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Template (JPS)
Rev. May 2017

SPEAKER RELEASE
American Bar Association
321 N. Clark Street, Chicago, IL 60654

ABA Entity: Section of Environment, Energy, and Resources

Name of Presenter ("You"): Address:

ABA Program Title ("Program"): 26th Fall Conference

Location of Program: San Diego, CA Date of Program: October 17-20, 2018

Title of Presentation/Paper:

Please sign and return this form by: to: Yujin.Maeng@americanbar.org

==========

As part of its continuing legal education efforts, the ABA occasionally records its programs and makes those audio and video recordings, related Program materials, and/or edited transcriptions thereof, available to its members and other professionals interested in the topics being covered. You agree to participate in the Program described above and grant the following rights for no monetary compensation:

You hereby grant to the ABA the following rights to your presentation and to any written or visual material submitted in connection with your presentation(s) at the Program in any and all media or form of communication whether now existing or hereafter developed: (1) the non-exclusive worldwide right to use, transcribe, publish, reproduce, distribute, sell, display, or license your presentation(s), as presented in the Program, alone or in conjunction with other materials; (2) the non-exclusive worldwide right to use your presentation(s) as part of a course book or in any other publication produced by the ABA; (3) the non-exclusive worldwide right to use your presentation to promote and publicize the ABA; and (4) the non-exclusive right to use Your name, likeness and biography in connection with the advertising, publicity, and promotion of your presentation(s) and/or the ABA, including, but not limited to, print advertising, social media, website and other digital mediums. This license does not change the fact that You retain copyright ownership of your presentation. Any recording of the Program or presentation is the sole copyright of the ABA.

You represent that you have full power and authority to enter into this Agreement, and that your presentation(s) and any other material you submit (i) are original with you; (ii) are not subject to any third party copyright or that you have obtained permission from the copyright proprietor consistent with this Agreement for use of any third party copyrighted material; and (iii) that publication will not libel anyone or infringe on or invade the rights of others. You agree that you will provide any applicable permission agreements for the use of third party copyrighted material upon request.

You acknowledge and agree to comply with the ABA's "Open Meeting Policy," which states in part "all ABA programs are open to the media unless they are to conduct business sessions of a confidential nature." "Media" may include print, radio, TV, internet or other journalists as credentialed by the Division for Media Relations and Communication Services, including ABA journalists. In addition, you acknowledge that media may record, photograph, or make fair use of portions of your presentation.

Please sign and date either Block A or Block B below and return this agreement to the program coordinator. Execution of this Agreement does not obligate the ABA to publish your presentation or other materials.

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Block A

I hereby consent to the use of my presentation and other materials as described and agree with the provisions of this release form:

Signature:_____ **Date**:_____

❑ Please check here if you are a U.S. Government employee and your presentation was written on your own time and was not part of your assigned duties as a U.S. Government Employee.

Block B

If you are a U.S. Government employee and your presentation was written as part of your assigned duties as a U.S. Government employee, please sign below indicating that you agree with the provisions of this release form, except the grant of rights language. A grant of rights is unnecessary as my presentation is considered part of the public domain.

Signature:_____ **Date:**_____

Message

From: Pettit, David [dpettit@nrdc.org]
Sent: 10/18/2018 12:36:44 AM
To: Broome, Shannon S. [SBroome@hunton.com]; Brightbill, Jonathan (ENRD) [Jonathan.Brightbill@usdoj.gov]; Woods, Clint [woods.clint@epa.gov]
CC: Ellis, Clare [CEllis@hunton.com]
Subject: RE: PLEASE READ -- ABA Fall Conference - Deregulation in Focus (the CAA and the States) - Panel Questions_71079350_1 (3).DOCX

Re bio, I am a 1975 graduate of UCLA Law. I've worked in the public and private sectors as a litigator and have been at NRDC since 2007, where I specialize in air quality and climate change litigation. I also play bass in a klezmer band.

David Pettit
Senior Attorney
Natural Resources Defense Council
(310) 434-2300
www.nrdc.org
Follow me on Twitter @TeamAir

From: Broome, Shannon S. <SBroome@hunton.com>
Sent: Tuesday, October 16, 2018 1:29 PM
To: Pettit, David <dpettit@nrdc.org>; Brightbill, Jonathan (ENRD) <Jonathan.Brightbill@usdoj.gov>; Woods, Clint <woods.clint@epa.gov>
Cc: Ellis, Clare <CEllis@hunton.com>
Subject: PLEASE READ -- ABA Fall Conference - Deregulation in Focus (the CAA and the States) - Panel Questions_71079350_1 (3).DOCX

Esteemed panelists, please find attached our agenda/questions for our panel on Friday. Thank you all again for contributing your time and effort to making this program a success. Please review and send me any suggestions. Thanks again to Clare for drafting up much of this!

We are going to meet for breakfast at 7:30 am in a place to be determined – watch for an email from me – on Friday morning to go over last minute logistics.

Finally, please send me your bio with a note of anything you want me to emphasize. I don't intend to read word for word but would like a bit of material to choose from.

Thanks and see you in sunny San Diego!

HUNTON
ANDREWS KURTH

Shannon S. Broome
Managing Partner, SF Office, Partner, DC Office
SBroome@HuntonAK.com
p 415.975.3718
p 202.955.1912

c Ex. 6 Personal Privacy (PP)

Hunton Andrews Kurth LLP

HuntonAK.com

Message

From: Pettit, David [dpettit@nrdc.org]
Sent: 8/17/2018 5:28:44 PM
To: Broome, Shannon S. [SBroome@hunton.com]
CC: Woods, Clint [woods.clint@epa.gov]
Subject: Re: ABA Panel Call Schedule

I can do that. I'm in LA but an early riser.

Sent from my iPhone

On Aug 17, 2018, at 8:16 AM, Broome, Shannon S. <SBroome@hunton.com> wrote:

How is 10 am Eastern on Friday the 24th?

Best Regards,

<image001.png>

Shannon S. Broome
Partner/Office Managing Partner San Francisco
sbroome@HuntonAK.com
p 415.975.3718
202.955.1912
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bio | vCard |

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Washington, DC 20007
HuntonAK.com

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From: Woods, Clint [mailto:woods.clint@epa.gov]
Sent: Friday, August 17, 2018 11:12 AM
To: dpettit@nrdc.org
Cc: Broome, Shannon S.
Subject: Re: ABA Panel Call Schedule

Thanks so much for reaching out - I have limited availability on Thursday except late in the day but could make nearly any time Friday or the following week work.

On Aug 17, 2018, at 8:11 AM, Pettit, David <dpettit@nrdc.org> wrote:

Hi. I am on vacation Mon-Weds next week but available Thursday and Friday.

David

Sent from my iPhone

On Aug 16, 2018, at 9:54 PM, Broome, Shannon S. <SBroome@hunton.com> wrote:

Clint and David,

I want to begin by thanking you both for agreeing to be speakers at the ABA SEER Fall Conference in San Diego, at the session "Deregulation in Focus: The Clean Air Act and States"! You two will provide a great perspective on this panel. I have excerpted the published version of our panel description below from the online catalogue. As the moderator of the panel, my job is to ensure that our communications are clear during the presentation and that we also meet the ABA's requirements for continuing legal education.

In a moderator training call last week, we were asked to coordinate an initial call among our panelists during the first part of August. The purpose of this email is to find out if you both would have availability any time next week to do a quick (15-20 minute) call to go over our panel. Could you kindly email me your availability for
Monday at noon eastern, 2 eastern, 4 eastern,
Tuesday at 10 eastern, 11 eastern, or 4 eastern,
Wednesday at 3 or 4 eastern?

I will pick a mutually convenient time and send an outlook invitation.

On behalf of the ABA (and our future audience), thank you again for agreeing to participate in this panel!

DEREGULATION IN FOCUS: THE CLEAN AIR ACT AND STATES
The administration's executive orders, regulation changes, and other deregulatory efforts are reshaping the Clean Air Act landscape. We have seen an effort to repeal and replace the Clean Power Plan as well as a reexamination of many major regulations associated with the act. Moreover, EPA has set out to recalibrate the state and federal relationship with greater deference to state administrators implementing the Clean Air Act. The intensity of this deregulation discussion is no more apparent than in California, where the state environmental agency leads with some of the most protective environmental laws in the nation, including its authority through a special waiver to set California-specific motor vehicles emission standards. Join us for a discussion of the changing (or in some cases, unchanged) regulatory landscape under the act and learn how states have responded to recent and potential changes.

Best Regards,

<image003.png> **Shannon S. Broome**

Partner/Office Managing Partner San Francisco
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Message

From: Broome, Shannon S. [SBroome@hunton.com]
Sent: 10/16/2018 10:43:02 PM
To: Woods, Clint [woods.clint@epa.gov]
Subject: RE: PLEASE READ -- ABA Fall Conference - Deregulation in Focus (the CAA and the States) - Panel Questions_71079350_1 (3).DOCX

Thank you Clint!

From: Woods, Clint [mailto:woods.clint@epa.gov]
Sent: Tuesday, October 16, 2018 6:42 PM
To: Broome, Shannon S.
Subject: RE: PLEASE READ -- ABA Fall Conference - Deregulation in Focus (the CAA and the States) - Panel Questions_71079350_1 (3).DOCX

Shannon,

Thanks so much – Bio below:

Clint Woods serves as Deputy Assistant Administrator in U.S. EPA's Office of Air and Radiation. Prior to joining EPA in December 2017, Clint was the Executive Director of the Association of Air Pollution Control Agencies (AAPCA), a non-profit organization of state and local air quality agencies located in Lexington, Kentucky. While with AAPCA, he was also a member of U.S. EPA's National Advisory Council on Environmental Policy and Technology. Clint previously served in positions with the Committee on Science, Space, and Technology in the U.S. House of Representatives, the American Legislative Exchange Council, and the Recreation Vehicle Industry Association. He holds an MA in international commerce and policy from George Mason University and a BA from the University of Mary Washington.

Clint Woods
Deputy Assistant Administrator
Office of Air and Radiation, U.S. EPA
202.564.6562

From: Broome, Shannon S. [mailto:SBroome@hunton.com]
Sent: Tuesday, October 16, 2018 4:29 PM
To: dpettit@nrdc.org; Brightbill, Jonathan (ENRD) <Jonathan.Brightbill@usdoj.gov>; Woods, Clint <woods.clint@epa.gov>
Cc: Ellis, Clare <CEllis@hunton.com>
Subject: PLEASE READ -- ABA Fall Conference - Deregulation in Focus (the CAA and the States) - Panel Questions_71079350_1 (3).DOCX

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We are going to meet for breakfast at 7:30 am in a place to be determined – watch for an email from me – on Friday morning to go over last minute logistics.

Finally, please send me your bio with a note of anything you want me to emphasize. I don't intend to read word for word but would like a bit of material to choose from.

Thanks and see you in sunny San Diego!

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SBroome@HuntonAK.com
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p 202.955.1912

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Message

From: Broome, Shannon S. [SBroome@hunton.com]
Sent: 10/16/2018 8:28:43 PM
To: dpettit@nrdc.org; Brightbill, Jonathan (ENRD) [Jonathan.Brightbill@usdoj.gov]; Woods, Clint [woods.clint@epa.gov]
CC: Ellis, Clare [CEllis@hunton.com]
Subject: PLEASE READ -- ABA Fall Conference - Deregulation in Focus (the CAA and the States) - Panel Questions_71079350_1 (3).DOCX
Attachments: ABA Fall Conference - Deregulation in Focus (the CAA and the States) - Panel Questions_71079350_1 (3).DOCX

Flag: Flag for follow up

Esteemed panelists, please find attached our agenda/questions for our panel on Friday. Thank you all again for contributing your time and effort to making this program a success. Please review and send me any suggestions. Thanks again to Clare for drafting up much of this!

We are going to meet for breakfast at 7:30 am in a place to be determined – watch for an email from me – on Friday morning to go over last minute logistics.

Finally, please send me your bio with a note of anything you want me to emphasize. I don't intend to read word for word but would like a bit of material to choose from.

Thanks and see you in sunny San Diego!

HUNTON
ANDREWS KURTH

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ABA Fall Conference
Deregulation in Focus: The Clean Air Act and States

October 19, 2018

Overview of the Panel

[Just to remind, here is what the brochure says about our panel: The administration's executive orders, regulation changes, and other deregulatory efforts are reshaping the Clean Air Act landscape. We have seen an effort to repeal and replace the Clean Power Plan as well as a reexamination of many major regulations associated with the act. Moreover, EPA has set out to recalibrate the state and federal relationship with greater deference to state administrators implementing the Clean Air Act. The intensity of this deregulation discussion is no more apparent than in California, where the state environmental agency leads with some of the most protective environmental laws in the nation, including its authority through a special waiver to set California-specific motor vehicles emission standards. Join us for a discussion of the changing (or in some cases, unchanged) regulatory landscape under the act and learn how states have responded to recent and potential changes.]

Start time: 2:15-ish – we can expect to start about 3 minutes late if history is a judge
Introduction of the panel and the topics (SSB): 2:15-2:30 [NEED YOUR BIOS]
[DISCLAIMERS TO BE GIVEN ABOUT THIS BEING EDUCATIONAL SESSION AND IS NOT TO REFLECT ANYONE'S CLIENT'S POSITION. INDEED, PEOPLE MAY POSTULATE POSITIONS THAT ARE NOT EVEN THEIR OWN.]
Moderated Q&A by topicL 2:30-3:30
Questions from the Audience: 3:30 to 3:45

Clean Power Plan, CAFÉ/GHG, Ozone, RMP, NSR

Questions for review – please review and let me know if any are ones you cannot answer as posed due to your position.

OVERVIEW QUESTIONS

1. *To level set about what we are discussing, I'd like each panelist to speak on their view of our panel topic and how it is cast in our panel's description. What is "deregulation" really? Is it simply right-sizing "over-regulation" which many argue occurred during the preceding administration? Is it always good, always bad, neutral?*

   Each panelist will speak for up to 5 minutes on this question – hopefully giving an example or two but without doing all of the topics below before we get to the structured questions. This is a tricky ask of you all and I appreciated your cooperation in hitting the theme without doing the detail, knowing that you will have the opportunity to make your points as we get into the examples.

2. *Getting to another aspect of our panel, "cooperative federalism" like beauty appears to be in the eye of the beholder. What does it mean under the Clean Air Act and are there limits on state authority?*

   Each panelist will answer this question.

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3. *A key aspect of what has gone on in the last 2 years is EPA making shifts in policy and seeking to change rules that were issued by the last administration. This happened also when the Obama Administration replaced the Bush Administration, though there has been substantially more immediate litigation over the actions done by the current administration than there were during the last transition.*

    a. **David,** putting aside temporary delays during a transition, for permanent rule changes, what type of record should be required for a new administration to change course?

    b. **Jon**, any reactions?

QUESTIONS GEARED TO PARTICULAR RULES

4. *Clean Power Plan.*

    a. EPA has proposed to repeal the Clean Power Plan as it was promulgated in the last administration. States were beginning implementation but the Supreme Court put the rule on hold pending a decision by the D.C. Circuit.

    b. **Jon**, the oral argument in the D.C. Circuit has been on hold pending the new rulemaking. Can you explain the history of the D.C. Circuit's orders since oral argument and the transition? What is the current status on EPA's representations to the court on schedule?

    c. **Clint**, how do you see the role that states played under the Obama-era Clean Power Plan versus the replacement rule, the Affordable Clean Energy or "ACE" rule?

    d. **David,** same question. What do you think were the best features from a cooperative federalism perspective and would you like to comment on anything Clint just offered?

5. *CAFE/GHG Auto Emissions Standards.*

    a. The comment period on EPA's proposed revocation of the Obama Administration GHG emission standards and CAFE standards closes on October 26, 2018. **Clint,** can you briefly lay out what EPA has done in the pending joint proposal with NHTSA with respect to the GHG emission standards that were issued by the Obama Administration, particularly highlighting two things. First, the mid-term review action for the later year GHG standards, since EPA left the earlier phase in place. Second, the preemption analysis that is outlined in the proposal.

    b. **David,** what is your reaction to the proposed rule and since we are among lawyers, the legal basis for the actions and could you specifically address California's waiver authority from your perspective?

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c. **Clint**, can you share any timing expectations for getting the comments responded to and a final action through OMB after coordinating with your sister agency?

d. **Jon**, as a defender of EPA regulations, there are both high level legal issues and a series of technical issues that will surely be at play in this rulemaking when it is challenged. As an advocate, and recognizing you might not be able to speak to this rule directly, how do you focus arguments in such a complex case, even for very smart judges? Does this rule present logistical challenges in the defense, given the two agencies, two statutes set up? Logistically, how does DOJ set up defending a challenge to a rule like this with multiple agencies and statutes? Is there a larger team than when there is a more narrow focus?

6. *Ozone/PM NAAQS.*

a. We all know that EPA sets the NAAQS – with the most hotly contested ones being ozone and fine particulate matter/PM2.5 of late. But states are charged with implementing them and the consequences of failure to do so are extreme – potential loss of federal highway funds. That's a big hammer. **Clint,** as NAAQS become more stringent, what tools is EPA giving states to manage their obligations and not fall of the proverbial cliff?

b. **David**, I am going to ask you to put on your California regulator hat (even though you are not one). As a Los Angeles resident, you know ozone, do you agree that substantial progress has been made in Southern California? What do you make of how states deal with NAAQS becoming more stringent and managing their implementation? What are the best ways that states can deal with the 5-year review of NAAQS to keep ahead of the game and meet their deadlines?

7. *Risk Management Program.*

a. Another situation where the current administration is revising a regulation issued at the end of the last administration is EPA's Risk Management Program under Section 112(r) of the Clean Air Act. The Obama Administration issued "modernization" rules in January of 2017. EPA immediately put those on hold and then issued a "Delay Rule" – which Jon and I both know was invalidated by a two-judge panel of the D.C. Circuit.

b. **Jon,** what are the lessons of *Air Alliance Houston* in terms of EPA's ability to change policy? DOJ did not seek rehearing of that case. What are the considerations of Justice in evaluating whether to seek rehearing or Supreme Court review? Does failure to pursue the case necessarily mean that the government agrees?

c. **Shannon,** what are the state/federal lessons here? [I will address the local response organization and state impacts of concern.]

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8. *Methane*

   a. Another area where some states have played a substantial role is in the regulation of methane from oil and gas upstream and midstream operations. The Obama Administration issued the NSPS in June 2016, and a key feature of that was the ability of state programs to satisfy the federal standard. EPA has come out with a new proposal that puts some meat on the bones of that proposal.

   b. **Clint,** can you describe the contours of it and what EPA is trying to accomplish?

   c. **David**, California and Colorado have extensive programs for methane as do other states. EPA has proposed to allow for state regulations to be approved in place of the federal program. Can you share your thoughts on the authority under Section 111 for states to take a leading role?

9. *NSR/Permitting*

   a. EPA has undertaken a series of steps to address concerns with the New Source Review (NSR) program. EPA has issued a series of specific applicability determinations as well as some broader guidance memoranda. Specifically, the Project Emissions Accounting Memo and the Detroit Edison determination. In addition, EPA has rescinded under a Chevron I interpretation the so-called "once in always in" policy that stated facilities could not become minor sources after the first substantive compliance date of a MACT standard under Section 112. Two of these three are in litigation in the D.C. Circuit, with some states challenging, some defending, and industry generally defending the actions.

   b. **Clint,** what is EPA's general goal in the NSR reforms? I understand that the aggregation rule reconsideration response was returned from OMB and is about to be released. This was a final rule that was issued in the Bush Administration and put on hold for the entire two terms of the Obama Administration. Did you feel you needed to take care of this issue in light of the D.C. Circuit's decisions saying that Clean Air rules should not be put on hold pending reconsideration? Can you share the outcome and rationale with the audience here? [Will update if it is signed before Friday.]

   c. **Jon,** EPA memos have been relying on *Perez v. Mortgage Bankers* case where there is a possibility that they would be viewed as changing a prior position. Can you explain what Perez held and provide any insights as to how it might apply in the context of the Clean Air Act?

   d. **David,** thinking back to your answer about changing policy/regulation, what can or should EPA do if it wants to change NSR policy?

ED_002719_00038080-00004

Appointment

From: Broome, Shannon S. [SBroome@hunton.com]
Sent: 10/9/2018 9:17:53 PM
To: Woods, Clint [woods.clint@epa.gov]

Subject: Quick chat on ABA panel
Location: Ex. 6 Personal Privacy (PP)

Start: 10/11/2018 8:00:00 PM
End: 10/11/2018 8:30:00 PM
Show Time As: Tentative

Recurrence: (none)

Message

From: Hilary Moffett [moffetth@api.org]
Sent: 8/3/2018 12:37:27 AM
To: Woods, Clint [woods.clint@epa.gov]
Subject: Automatic reply: FRI 11AM Call

I am currently out of the office with limited access to email. I will respond to your email upon my return on Monday, August 20. If you need immediate assistance, please contact Carrie Domnitch (DomnitchC@api.org) or Cathleen Kennedy (KennedyC@api.org)

Message

From: Howard Feldman [Feldman@api.org]
Sent: 5/11/2018 1:20:00 PM
To: Woods, Clint [woods.clint@epa.gov]
CC: Reid Porter [porterr@api.org]
Subject: NAAQS Memo

Here you go, Clint! Be well.

NEWS

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FOR IMMEDIATE RELEASE

202.682.8114 | press@api.org

WASHINGTON, May 10, 2018 – Howard Feldman, API senior director of regulatory and scientific affairs, issued the following statement regarding Administrator Pruitt signing of memo to reform the National Ambient Air Quality Standards review process:

> "We have a shared goal in continuing to improve air quality. Since 2005, U.S. ozone concentrations have fallen 17 percent due in part to investments by the natural gas and oil industry toward improving the environmental performance of its products, facilities and operations to help our country run cleaner.
>
> "We look forward to continuing this progress in achieving our shared goals of protecting public health and the environment and meeting the nation's energy needs. The steps identified in the administration's recent memorandum should provide certainty and relief to states and businesses by streamlining the air quality standards process, hopefully reducing the impact on U.S. manufacturing and business expansion while maintaining the protections of public health."

API is the only national trade association representing all facets of the oil and natural gas industry, which supports 10.3 million U.S. jobs and nearly 8 percent of the U.S. economy. API's more than 625 members include large integrated companies, as well as exploration and production, refining, marketing, pipeline, and marine businesses, and service and supply firms. They provide most of the nation's energy and are backed by a growing grassroots movement of more than 45 million Americans.

###

From: Woods, Clint <woods.clint@epa.gov>
Sent: Friday, May 11, 2018 8:40 AM
To: Howard Feldman <Feldman@api.org>
Subject: NAAQS Memo

Howard - I hope all is well! Any chance you might be willing to send over the full statement from this OGJ piece? Our press shop was looking to send out an "in case you missed it" email today w/ statements from trades. Look forward to discussing further.

https://www.ogj.com/articles/2018/05/pruitt-signs-memo-outlining-naaqs-back-to-basics-review-process.html

Message

From: Howard Feldman [Feldman@api.org]
Sent: 5/11/2018 12:44:40 PM
To: Woods, Clint [woods.clint@epa.gov]
Subject: RE: NAAQS Memo

Will do --- I will get the final version to you shortly.

From: Woods, Clint <woods.clint@epa.gov>
Sent: Friday, May 11, 2018 8:40 AM
To: Howard Feldman <Feldman@api.org>
Subject: NAAQS Memo

Howard - I hope all is well! Any chance you might be willing to send over the full statement from this OGJ piece? Our press shop was looking to send out an "in case you missed it" email today w/ statements from trades. Look forward to discussing further.

https://www.ogj.com/articles/2018/05/pruitt-signs-memo-outlining-naaqs-back-to-basics-review-process.html

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From: Dickerson, Phil [Dickerson.Phil@epa.gov]
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Gibson, Benjamin [gibson.benjamin@epa.gov]; anne.gobin@ct.gov; lgomez@baaqmd.gov; hilary@sonomatech.com [Hilary@sonomatech.com]; ahoekzema@capcog.org; hoffmanl@sbcapcd.org; bholland@trinityconsultants.com; akh157@psu.edu; jdhunter@washoecounty.us; mhylton@sonomatech.com; steve.irwin@state.mn.us; lasse.johansson@fmi.fi; lindsey.jones@tceq.texas.gov; cara.keslar@wyo.gov; Harold.W.Kohl@uth.tmc.edu; Mikko.Laakso@vaisala.com; plahm@fs.fed.us; jlam@airquality.org; Sabine.Lange@tceq.texas.gov; barry.lefer@nasa.gov; SharonL_cctexas.com [SharonL@cctexas.com]; Mebust, Anna [Mebust.Anna@epa.gov]; douglas.melnick@sanantonio.gov; Mintz, David [Mintz.David@epa.gov]; MMize@nctcog.org; Morales, Lourdes [Morales.Lourdes@epa.gov]; gmorris1@stedwards.edu; bradp@mdaqmd.ca.gov; apolidori@aqmd.gov; Kelly Poole [kpoole@ecos.org]; AProsterman@aacog.com; dralston@baaqmd.gov; Rappold, Ana [Rappold.Ana@epa.gov]; dsheehan@morpc.org; stephanie.shirley@tceq.texas.gov; ivanka.stajner@noaa.gov; SteichenT@api.org; Stone, Susan [Stone.Susan@epa.gov]; karintuxen@google.com; Victoria Wasem [vawasem@attain.com]; White, Johne [White.Johne@epa.gov]; White, Johne [White.Johne@epa.gov]; bwhite@morpc.org; ewinegar@exponent.com; weining.zhao@tceq.texas.gov; J-Zietsman@tti.tamu.edu; Zuco, Arthur [Zuco.Arthur@epa.gov]; Brockman, Larry [Brockman.Larry@epa.gov]; douglas.haugen@teledyne.com; jessica.mackaro@vaisala.com; amontz@dr-das.com; johnw@jjwilbur.com; diffusion@ormenviro.com; sfoor@cas-en.com; sfoor@cas-en.com; mcolombaro@environics.com; dbirdsall@aqmesh.us; rob.beckius@apis-aq.com; Elmore, Deborah

[Elmore.Deborah@epa.gov]; Brown, Ann [Brown.Ann@epa.gov]; tony.hansen@mageescientific.com; mprotteau@sonomatech.com; t.jackson@sabio.com; tony.czech@tsi.com; nsilva@americanecotech.com; ageorge@americanecotech.com; mhausmann@metone.com; steven.blair@aethlabs.com; hayden@twobtech.com; info@agilaire.com; sdrevik@agilaire.com; nsilva@americanecotech.com; jbrooks@envirosys.com; tpage.ext@bluedata-technologies.com; charles.brumfield@eaglered.com; btaylor@thelcotechnology.com; Ex. 6 Personal Privacy (PP); Kelly Poole [kpoole@ecos.org]; Steve_Sweeney@addesigns.com; jmstone@urgcorp.com; Josh@Sunlab.com; nwolf@MesaLabs.com; TStefanescu@trinityconsultants.com; christina.horner@thermofisher.com; Brown, Ann [Brown.Ann@epa.gov]; greenaction@sustainablesandhills.org; WChevalier@mbard.org; drd10@psu.edu; GAH@adem.alabama.gov; jdhunter@washoecounty.us; gmorris1@stedwards.edu; paprotny@uic.edu; cpena@envirosys.com; Wilkes, Chris [Wilkes.Chris@epa.gov]; Ex. 6 Personal Privacy (PP); C.McGeean@GASL.ca; Heather Reddick [heather.reddick@tceq.texas.gov]

Subject: NAQC Update!

We anticipate moving ahead with the conference pending expected resolution of the Federal funding situation later today. Safe travels!

--Phil

Message

From: Knauss, Chuck [CKnauss@hunton.com]
Sent: 4/28/2018 3:11:51 PM
To: Woods, Clint [woods.clint@epa.gov]
Subject: Ex. 6 Personal Privacy (PP)

-----Original Message-----
From: Woods, Clint [mailto:woods.clint@epa.gov]
Sent: Saturday, April 28, 2018 10:03 AM
To: Knauss, Chuck
Subject: Mind if we talk at noon?

Thanks!

Message

From: Brownell, Bill [bbrownell@hunton.com]
Sent: 3/5/2018 2:54:05 PM
To: Woods, Clint [woods.clint@epa.gov]
Subject: RE: Introduction / Call

That would be fine. I'll hold 3-4pm.

From: Woods, Clint [mailto:woods.clint@epa.gov]
Sent: Monday, March 05, 2018 9:52 AM
To: Brownell, Bill
Subject: Re: Introduction / Call

Thanks so much! Unfortunately, I will be tied up from 2 to 3 but maybe I could try you soon thereafter?

On Mar 5, 2018, at 9:26 AM, Brownell, Bill <bbrownell@hunton.com> wrote:

> Clint—I'm pretty flexible this afternoon. How about 2pm (202-955-1555). Bill
>
> ---
>
> **From:** Woods, Clint [mailto:woods.clint@epa.gov]
> **Sent:** Monday, March 05, 2018 9:12 AM
> **To:** Brownell, Bill
> **Subject:** Introduction / Call
>
> Bill,
>
> I hope all is well! I just wanted to send you a quick note of introduction, and well as to see if you might have some free time this week for a quick call regarding ozone NAAQS issues? Let me know if there's a good date/time.
>
> Thanks!
>
> Clint Woods
> Deputy Assistant Administrator
> Office of Air and Radiation, U.S. EPA
> 202.564.6562

Message

From: Knauss, Chuck [CKnauss@hunton.com]
Sent: 4/28/2018 2:06:56 PM
To: Woods, Clint [woods.clint@epa.gov]
Subject: Re: Mind if we talk at noon?

Ok.

Sent from my iPhone

> On Apr 28, 2018, at 10:02 AM, Woods, Clint <woods.clint@epa.gov> wrote:
>
> Thanks!

Message

From: Hilary Moffett [moffetth@api.org]
Sent: 4/24/2018 4:30:18 PM
To: Woods, Clint [woods.clint@epa.gov]
Subject: Re: Meeting Attendees

Great- 30 minutes will be great.

On Apr 24, 2018, at 12:18 PM, Woods, Clint <woods.clint@epa.gov> wrote:

Hilary,

Looking forward to meeting with you all this afternoon – Just wanted to give you a quick heads up that, unfortunately, I will need to run down to the Administrator's Office at 1:30 but I think our technical team will be able to stick around for the remainder of the meeting. Thanks/Sorry for the trouble!

Clint Woods
Deputy Assistant Administrator
Office of Air and Radiation, U.S. EPA
202.564.6562

From: Hilary Moffett [mailto:moffetth@api.org]
Sent: Monday, April 23, 2018 4:20 PM
To: Woods, Clint <woods.clint@epa.gov>
Subject: Meeting Attendees

Hi Clint,

We're looking forward to the meeting with you tomorrow at 1pm. The list of attendees is as follows:

Hilary Moffett
Ted Steichen
Kevin Medeiros
Khary Cauthen
Stephen Higley
Kate Fay
Puneet Verma
Dale Thanjan
Marnie Funk

Please let me know if you need anything else from me.

Thanks,
Hilary

Hilary Moffett
Director, Federal Relations
American Petroleum Institute
202-682-8040 (desk)
Ex. 6 Personal Privacy (PP) (cell)

MoffettH@api.org

Message

From: Marnie.Funk@shell.com [Marnie.Funk@shell.com]
Sent: 4/9/2019 1:25:17 PM
To: AndersonS@api.org
CC: Woods, Clint [woods.clint@epa.gov]
Subject: Re: Request for a quick API check in call on NAAQS.

Yes. That works. Happy to send a calendar invite.

Sent from my iPad

On Apr 8, 2019, at 8:49 PM, Smythe Anderson <AndersonS@api.org> wrote:

> Clint – 11:00am works for me, but I defer to Marnie on her availability. Thanks in advance. Smythe
>
> **From:** Woods, Clint <woods.clint@epa.gov>
> **Sent:** Monday, April 8, 2019 6:48 PM
> **To:** Marnie.Funk@shell.com
> **Cc:** Smythe Anderson <AndersonS@api.org>
> **Subject:** Re: Request for a quick API check in call on NAAQS.
>
> Marnie,
>
> Any chance 11:00 tmrw might work?
>
> Thanks!
>
> Clint
> 202.564.6562
>
> On Apr 8, 2019, at 6:41 PM, "Marnie.Funk@shell.com" <Marnie.Funk@shell.com> wrote:
>
>> Hi Clint,
>>
>> Thank you again for an excellent meeting last week. Shell appreciated the time of the EPA team in WDC and North Carolina and the thoughtful conversation. I understand Stephen has followed up with our deliverables.
>>
>> I am writing today as chair of the API Environmental Strategy Committee. I have included Smythe, who ably staffs the committee for API. We would welcome a very short phone conversation with you tomorrow morning (10 minutes or less) if your schedule regarding on a NAAQS matter the committee will be discussing tomorrow afternoon. We can accommodate your schedule.
>>
>> Regards,
>> Marnie Funk
>>
>> **Marnie Funk** | Senior Advisor, Government Relations | SHELL | 1050 K Street, NW Suite 700 | Washington, DC 20001 | **Desk Skype Tel:** 1-732-621-5672 | **Mobile:** Ex. 6 Personal Privacy (PP)

Message

From: Rakosnik, Delaney [rakosnik.delaney@epa.gov]
Sent: 4/2/2019 8:21:24 PM
To: Smythe Anderson [AndersonS@api.org]; Woods, Clint [woods.clint@epa.gov]
Subject: RE: API Mtg Request

You are confirmed for April 12th at 10am with Clint Woods.

From: Smythe Anderson <AndersonS@api.org>
Sent: Tuesday, April 2, 2019 3:59 PM
To: Rakosnik, Delaney <rakosnik.delaney@epa.gov>; Woods, Clint <woods.Clint@epa.gov>
Subject: RE: API Mtg Request

Delaney – That works well. Thanks. Smythe

From: Rakosnik, Delaney <rakosnik.delaney@epa.gov>
Sent: Tuesday, April 2, 2019 3:36 PM
To: Smythe Anderson <AndersonS@api.org>; Woods, Clint <woods.clint@epa.gov>
Subject: RE: API Mtg Request

Smythe,

How does 10am work out for you on the 12th?

Thanks,
Delaney

From: Smythe Anderson <AndersonS@api.org>
Sent: Tuesday, April 2, 2019 3:22 PM
To: Woods, Clint <woods.Clint@epa.gov>
Cc: Schwab, Justin <schwab.justin@epa.gov>; Rakosnik, Delaney <rakosnik.delaney@epa.gov>; Shaffer, Patricia <Shaffer.Patricia@epa.gov>
Subject: RE: API Mtg Request

Clint – Thanks. Friday the 12th works well on our end. And, if possible, morning is preferable. Once we have the time confirmed, I will send around invites and get back to you with the names of attendees. Appreciate your help and look forward to seeing you.

Smythe

From: Woods, Clint <woods.clint@epa.gov>
Sent: Tuesday, April 2, 2019 10:51 AM
To: Smythe Anderson <AndersonS@api.org>
Cc: Schwab, Justin <Schwab.Justin@epa.gov>; Rakosnik, Delaney <rakosnik.delaney@epa.gov>; Shaffer, Patricia <Shaffer.Patricia@epa.gov>
Subject: Re: API Mtg Request

Smythe,

Thanks so much, and sorry for the delay. That sounds great - Any chance Friday the 8th or Monday the 12th might work? I think we would likely include a few reps from our Offices of General Counsel, Air Quality Planning and Standards, and Atmospheric Programs.

Clint

On Mar 28, 2019, at 12:40 PM, Smythe Anderson <AndersonS@api.org> wrote:

> Clint and Justin –
>
> On behalf of API's member companies, I would like to request a meeting at your earliest convenience to discuss our industry's position on EPA's regulation of methane. Would you have time in the next week or two to schedule this discussion? I expect to be joined by member company reps and defer to your judgment on who should be included from EPA.
>
> Thanks in advance,
> Smythe
>
> **Smythe Anderson**
> Director of Federal Relations
> API | 200 Massachusetts Ave NW | Washington, DC 20001 | 202.682.8040 | M: Ex. 6 Personal Privacy (PP) AndersonS@api.org
>
> <image001.png>

Message

From: Hilary Moffett [moffetth@api.org]
Sent: 4/26/2018 2:27:35 PM
To: Woods, Clint [woods.clint@epa.gov]
Subject: Ozone Maps
Attachments: 20180305HBmonitors.pdf

Flag: Follow up

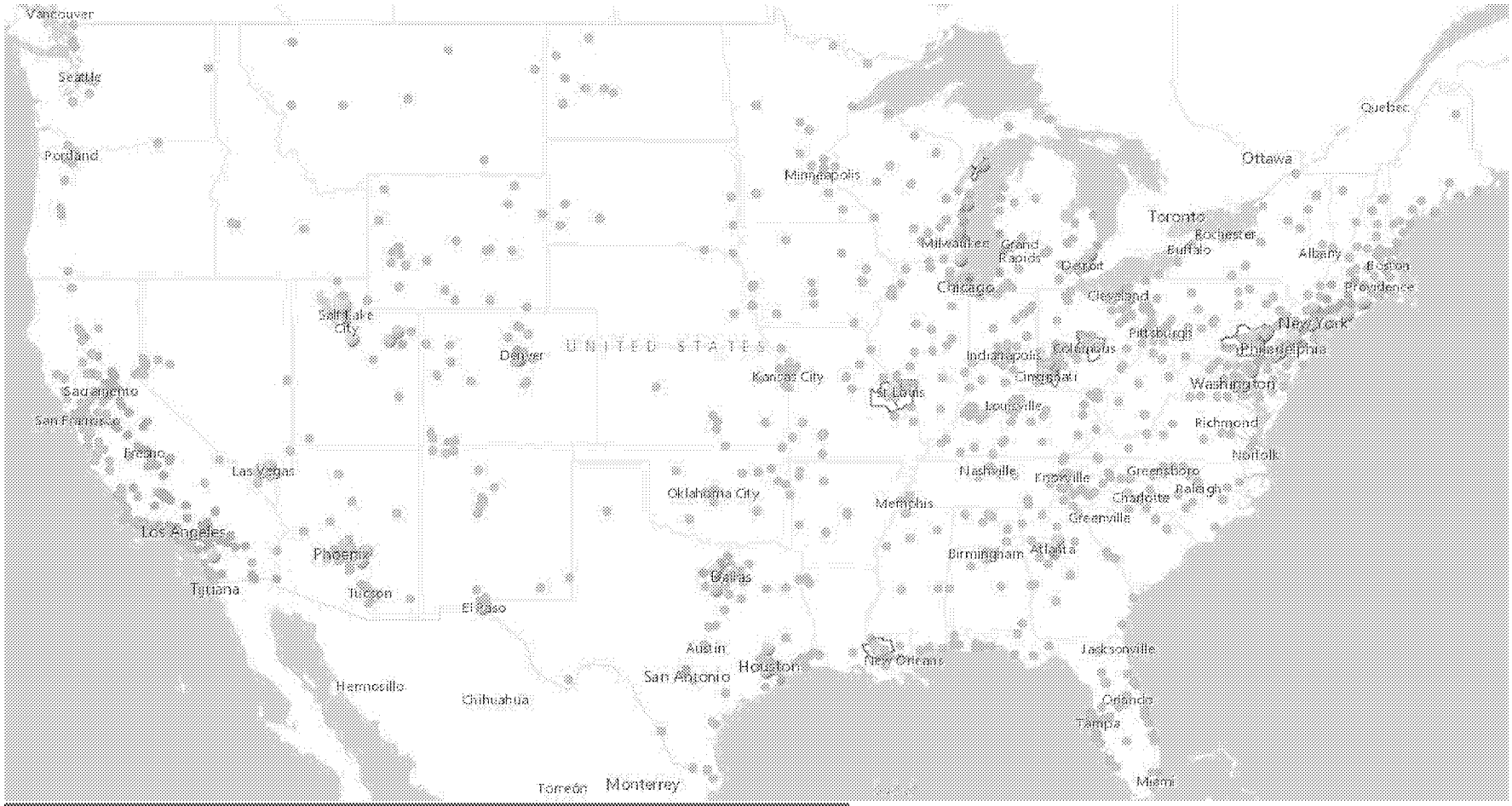
Hi Clint,

Thank you for taking the time to chat earlier this week. Attached is the ozone map that I referenced. Please let me know if you have any questions.

Thanks,
Hilary

Hilary Moffett
Director, Federal Relations
American Petroleum Institute
202-682-8040 (desk)
Ex. 6 Personal Privacy (PP) (cell)
MoffettH@api.org

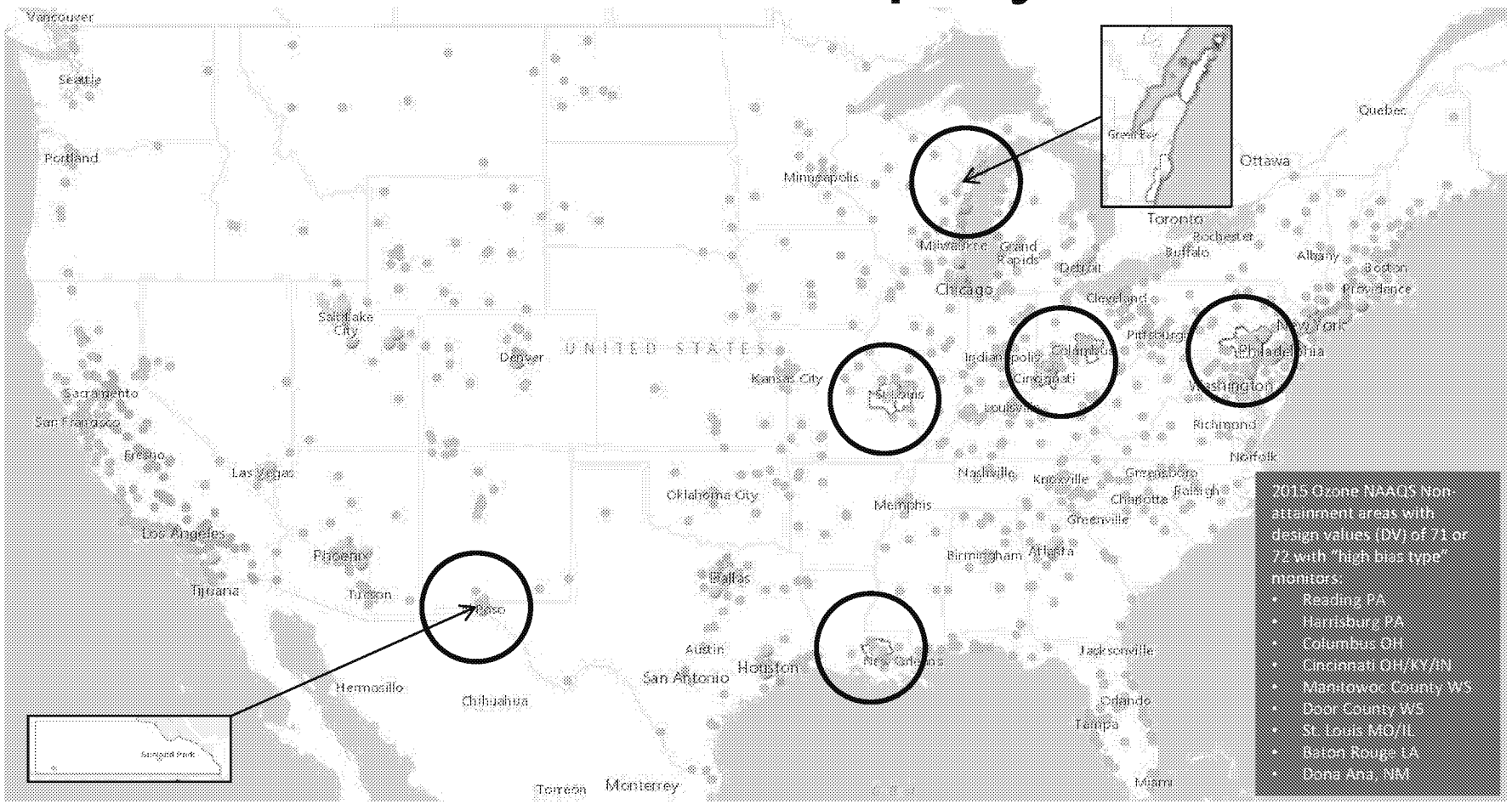
Ozone Monitors



Legend
"high bias type" monitors with values of 71/72 ppb that are in **yellow**
"high bias type" monitors with values of 73 ppb and above plus other monitors above 70 ppb in orange
all monitors with values 70 ppb and below in

Source: https://www.epa.gov/air-trends/air-quality-design-values
2016 Design Value Reports Ozone Design Values, 2016 (XLSX) (10/2/2017)

Areas of Inquiry



2015 Ozone NAAQS Non-attainment areas with design values (DV) of 71 or 72 with "high bias type" monitors:

- Reading PA
- Harrisburg PA
- Columbus OH
- Cincinnati OH/KY/IN
- Manitowoc County WS
- Door County WS
- St. Louis MO/IL
- Baton Rouge LA
- Dona Ana, NM

Legend

"high bias type" monitors with values of 71/72 ppb that are in **yellow**

"high bias type" monitors with values of 73 ppb and above plus other monitors above 70 ppb in orange

all monitors with values 70 ppb and below in

Relevant Monitors

FIPS		State	County	Site ID	Latitude	Longitude	Reference / Equivalent Methods Code	MDA8 Ozone DV (ppb) 2014 4th High	2015 4th High	2016 4th High	2014-16 3-yr DV
42011	Reading PA	Pennsylvania	Berks	420110011	40.38335	-75.96860	087	68	71	75	71
42075	Harrisburg PA	Pennsylvania	Lebanon	420750100	40.33733	-76.38340	087	67	74	72	71
39049	Columbus OH	Ohio	Franklin	390490029	40.08667	-82.81556	047	70	71	72	71
39017	Cincinnati OH/KY/IN	Ohio	Butler	390170004	39.38333	-84.54417	087	70	70	76	72
39017	Cincinnati OH/KY/IN	Ohio	Butler	390170018	39.52948	-84.39336	087	69	70	74	71
39061	Cincinnati OH/KY/IN	Ohio	Hamilton	390610006	39.27850	-84.36597	087	71	72	75	72
39061	Cincinnati OH/KY/IN	Ohio	Hamilton	390610010	39.21493	-84.69072	087	73	70	73	72
39061	Cincinnati OH/KY/IN	Ohio	Hamilton	390610040	39.12861	-84.50417	087	69	71	73	71
39165	Cincinnati OH/KY/IN	Ohio	Warren	391650007	39.42780	-84.20221	087	71	71	74	72
55071	Manitowoc Co.	Wisconsin	Manitowoc	550710007	44.13861	-87.61611	087	66	77	74	72
55029	Door Co.	Wisconsin	Door	550290004	45.23778	-86.99361	087	65	74	77	72
17119	St. Loius MO/IL	Illinois	Madison	171190008	38.89019	-90.14803	087	72	69	73	71
17119	St. Loius MO/IL	Illinois	Madison	171193007	38.86067	-90.10585	087	70	69	75	71
29183	St. Loius MO/IL	Missouri	Saint Charles	291831002	38.87255	-90.22649	047	72	70	75	72
29183	St. Loius MO/IL	Missouri	Saint Charles	291831004	38.89940	-90.44917	047	72	66	76	71
29189	St. Loius MO/IL	Missouri	Saint Louis	291890014	38.71090	-90.47590	047	72	69	73	71
22005	Baton Rouge LA	Louisiana	Ascension	220050004	30.23389	-90.96833	087	69	74	71	71
22033	Baton Rouge LA	Louisiana	East Baton Rouge	220330003	30.41889	-91.18333	047	75	73	68	72
35013	Dona Ana NM	New Mexico	Dona Ana	350130021	31.79611	-106.58389	047	72	74	70	72

Reference / Equivalent Methods

Reference / Equivalent Methods	High Bias Monitor	Description
014	Yes	McMillan 1100-1
019	Yes	Dasibi 1003 series
047	Yes	Thermo 49 series***
053	Yes	Monitor Labs 8810
056	Yes	Dasibi 1008 series
078	****	Environic 300
087	Yes	TAPI 400E, T400; API 400/400A;TML 10***
091	****	Ecotech 10; Opsis AB OPS10;Tisch TE 1.0*
103	****	Opsis 300 & AR 500 Long Open Path
112	****	Horiba APOA 360 series
134	****	DKK-TOA GUX-113E
160	****	Horiba APOA 370 series
165	****	Tanabyte 722-726
187	****	Ecotech 10; Opsis AB OPS10;Tisch TE 1.0
190	No humidity bias	2B Tech 202 & 205
199	Less bias**	FRM TAPI 265E or T265
215	Least bias	FEM 2B Tech 211

*Also ML9810/CM9810/EC9810 or 9810B versions, -11, -12, or Wedding 1010

**Required Nafion dryer concentrates ambient O3 up to 5% but could corrected if absolute humidity also measured

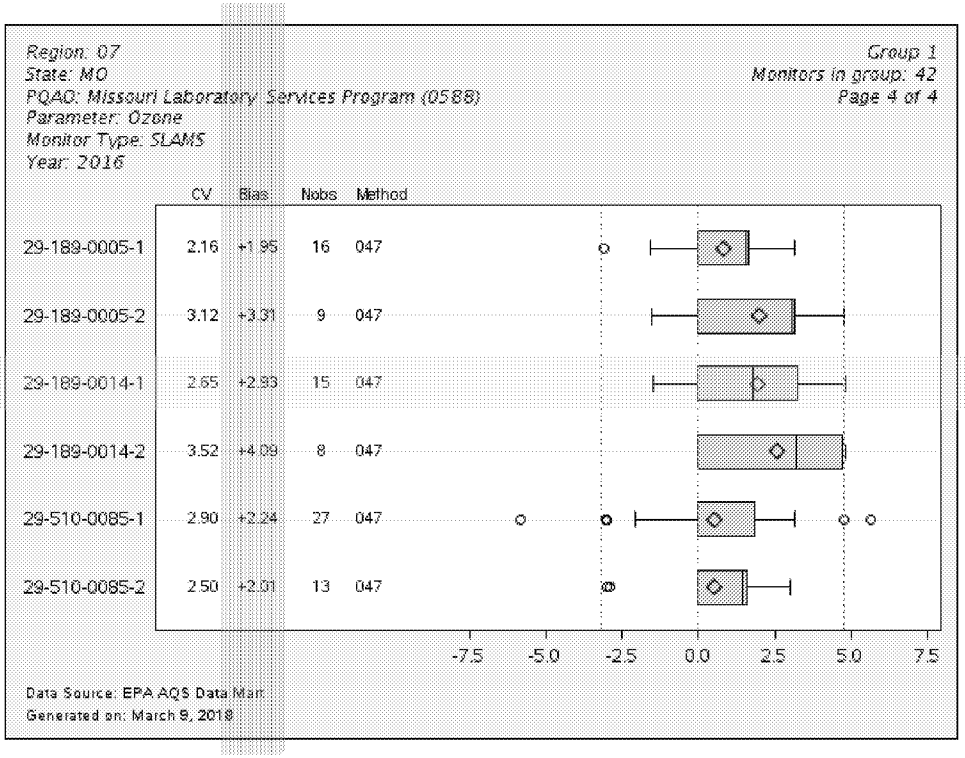
*** These two monitors likely account for over 95% of the current US compliance network

****not classified but possibly some H20, Hg or aromatic HC bias

Yes = conventional MnO2 scrubbed photometer with likely H2O, Hg, and aromatic HC interferences

EPA Information

From EPA's Single Point Precision and Bias website (St. Louis example):



Excerpt from 40 CFR Appendix A to Part 58, Quality Assurance Requirements for Monitors used in Evaluations of National Ambient Air Quality Standards 2.3.1.2 *Measurement Uncertainty for Automated O3 Methods*. The goal for acceptable measurement uncertainty is defined for precision as an upper 90 percent confidence limit for the CV of 7 percent and for bias as an upper 95 percent confidence limit for the absolute bias of 7 percent.

Bias of 7%* = 4.9 ppb

Bias of 2.93%* = 2 ppb

*of the 2015 Ozone NAAQS of 70 ppb

https://www.epa.gov/outdoor-air-quality-data/single-point-precision-and-bias-report

Ozone UV Photometer Interference bibliography

1. G.J. Foley USEPA May 6, 1991 memorandum to E.J. Conley et al. *"…Although we certainly acknowledge the positive interference from aromatic hydrocarbons, we do not believe that corrections for interference for such compounds are practical…it has been our recommendation to either accept the possibility of some error in the UV ozone measurements (such error being conservative in regard to protection of human health), or …eschew UV ozone monitors in favor of chemiluminescence monitors."*
2. ASTM D5149-02(2008) (2016). Test method for Ozone in the Atmosphere – Continuous Measurement by Ethylene Chemiluminescence. Annex A2 Humidity Interference (December 29, 1980 USEPA Memorandum M.E. Beard & K.A. Rehme to T.R. Hauser- Water Vapor Effect on Ozone Reference Methods.)
3. Wilson & Birks *(2006)* Mechanism and Elimination of a Water Vapor Interference in the Measurement of Ozone by UV Absorbance. *ES&T 40: 6361-6367.*
4. ASTM D5156-02 (Reapproved 2008) (2016). Standard Test Methods for Continuous Measurement of Ozone in Ambient, Workplace, and Indoor Atmospheres (Ultraviolet Absorption). Annex A2 Some Reported Interference Species (Table A2.1 Interferant Species).
5. Spicer et al. (2010). A Re-Examination of Ambient Air Ozone Monitor Interferences. JAWMA **60**:1353–1364.
6. Johnson et al. (2014). Measurement of Microenvironmental Ozone Concentrations in Durham, North Carolina, Using a 2B Technologies 205 FEM Monitor and an Interference-Free 2B Technologies 211 Monitor. JAWMA 54: 360-371.
7. Zhao & Stephens (2015) A method to measure the ozone penetration factor in residences under infiltration conditions: application in a multifamily apartment unit. *Indoor Air - doi:10.1111/ina.12228.*
8. USEPA-OAQPS (2015) QA Eye (19) Newsletter. *"…If the monitoring agency determines interferences are an issue with an UV ozone analyzer, they can replace that analyzer with a NO-CL analyzer, or another FEM with a scrubber that is not susceptible to the interferences present."*
9. Leston & Ollison (2017) Field evaluations of newly available "interference-free" monitors for nitrogen dioxide and ozone at near-road and conventional National Ambient Air Quality Standards compliance sites. JAWMA 67: 1240-1248.
10. Turnipseed et al. (2017) Use of a Heated Graphite Scrubber as a Means of Reducing Interferences in UV-Absorbance Measurements of Atmospheric Ozone. Atmos. Meas. Tech. 10: 2253-2269.
11. USEPA FEM Approval of 2B Technologies 211-g ozone photometer (2018) - https://twobtech.com/model-211-g-ozone-monitor.html

Message

From: Atkinson, Emily [Atkinson.Emily@epa.gov]
Sent: 1/2/2018 8:44:49 PM
To: Hilary Moffett [moffetth@api.org]
CC: Woods, Clint [Woods.Clint@epa.gov]
Subject: Confirmed 1/30 at 10am: Meeting Request

Hi Hilary,
You are confirmed for a 45 minute meeting on Tuesday, January 30, 2018 at 10:00am with Clint Woods, Mandy Gunasekara and David Harlow.
Directions and procedures to 1200 Pennsylvania Avenue NW:

Metro: If you come by Metro get off at the Federal Triangle metro stop. Exit the metro station and go up two sets of escalators to the surface level and turn right. You will see a short staircase and wheelchair ramp leading to a set of glass doors with the EPA logo - that is the William Jefferson Clinton Federal Building, North Entrance.

Taxi: Direct the taxi to drop you off on 12th Street NW, between Constitution and Pennsylvania Avenues, at the elevator for the Federal Triangle metro stop - this is almost exactly half way between the two avenues on 12th Street NW. Facing the building with the EPA logo and American flags, walk toward the building and take the glass door on your right hand side with the escalators going down to the metro on your left – that is the North Lobby of the William Jefferson Clinton building.

Security Procedures: A government issued photo id is required to enter the building and it is suggested you arrive 15 minutes early in order to be cleared and arrive at the meeting room on time. Upon entering the lobby, the meeting attendees will be asked to pass through security and provide a photo ID for entrance. Let the guards know that you were instructed to call 202-564-7404 for a security escort.
Please send me a list of participants in advance of the meeting and feel free to contact me should you need any additional information.

Emily

Emily Atkinson
Management Analyst/Office Manager
Immediate Office of the Assistant Administrator
Office of Air and Radiation, USEPA
Room 5412B, 1200 Pennsylvania Avenue NW
Washington, DC 20460
Voice: 202-564-1850
Email: atkinson.emily@epa.gov

From: Hilary Moffett [mailto:moffetth@api.org]
Sent: Tuesday, January 02, 2018 2:52 PM
To: Atkinson, Emily <Atkinson.Emily@epa.gov>
Cc: Woods, Clint <Woods.Clint@epa.gov>
Subject: RE: Meeting Request

Hi Emily,

That would work great – thank you. I will send you a list of attendees ahead of time, along with any handouts we plan to use.

Happy New Year!
Hilary

From: Atkinson, Emily [mailto:Atkinson.Emily@epa.gov]
Sent: Tuesday, January 02, 2018 2:14 PM
To: Hilary Moffett
Cc: Woods, Clint
Subject: FW: Meeting Request

Hi Hilary,

It looks like Clint Woods, Mandy Gunasekara and David Harlow could be available for a 45 minute meeting on Tuesday, January 30 at 10:00am.

Please advise if this could work on your end.

Thank you.
Emily

Emily Atkinson
Management Analyst/Office Manager
Immediate Office of the Assistant Administrator
Office of Air and Radiation, USEPA
Room 5412B, 1200 Pennsylvania Avenue NW
Washington, DC 20460
Voice: 202-564-1850
Email: atkinson.emily@epa.gov

From: Hilary Moffett [mailto:moffetth@api.org]
Sent: Wednesday, December 20, 2017 1:06 PM
To: Woods, Clinton <woods.clinton@epa.gov>
Subject: RE: Meeting Request

Thanks Clint.

On Tuesday 1/30 we could do anything in the morning before about 1. Could also do 330-5.
On Wednesday 1/31, we could do 1-4.
Does anything in there work?

Thanks,
Hilary

From: Woods, Clinton [mailto:woods.clinton@epa.gov]
Sent: Wednesday, December 20, 2017 10:50 AM
To: Hilary Moffett
Subject: RE: Meeting Request

Hilary,

Thanks so much, and it was great to meet you as well. That sounds great – Please let me know if there are some good dates/times the weeks of January 22 or 29 (for the latter, the early part of the week is better from my end) and we can get something set up.

Clint Woods
Deputy Assistant Administrator
Office of Air and Radiation, U.S. EPA
202.564.6562

From: Hilary Moffett [mailto:moffetth@api.org]
Sent: Wednesday, December 20, 2017 10:44 AM
To: Woods, Clinton <woods.clinton@epa.gov>
Subject: Meeting Request

Hi Clint,

I hope this email finds you well –great to meet you yesterday!! I didn't want to bombard you on your first week with a meeting request, so I waited until week 2!! I hope you're settling in nicely.

API would like to bring in a few member companies to talk about Ozone Implementation Assistance. Do you have some time the last week in January?

Thanks,
Hilary

Hilary Moffett
Director, Federal Relations
American Petroleum Institute
202-682-8040 (desk)
Ex. 6 Personal Privacy (PP) (cell)
MoffettH@api.org

Message

From: Hilary Moffett [moffetth@api.org]
Sent: 3/12/2018 3:56:51 PM
To: Woods, Clint [woods.clint@epa.gov]
Subject: Ozone Follow Up
Attachments: 20180305HBmonitors.pdf; Literature review_Intercontinental ozone transport.v6.pdf

Hi Clint,

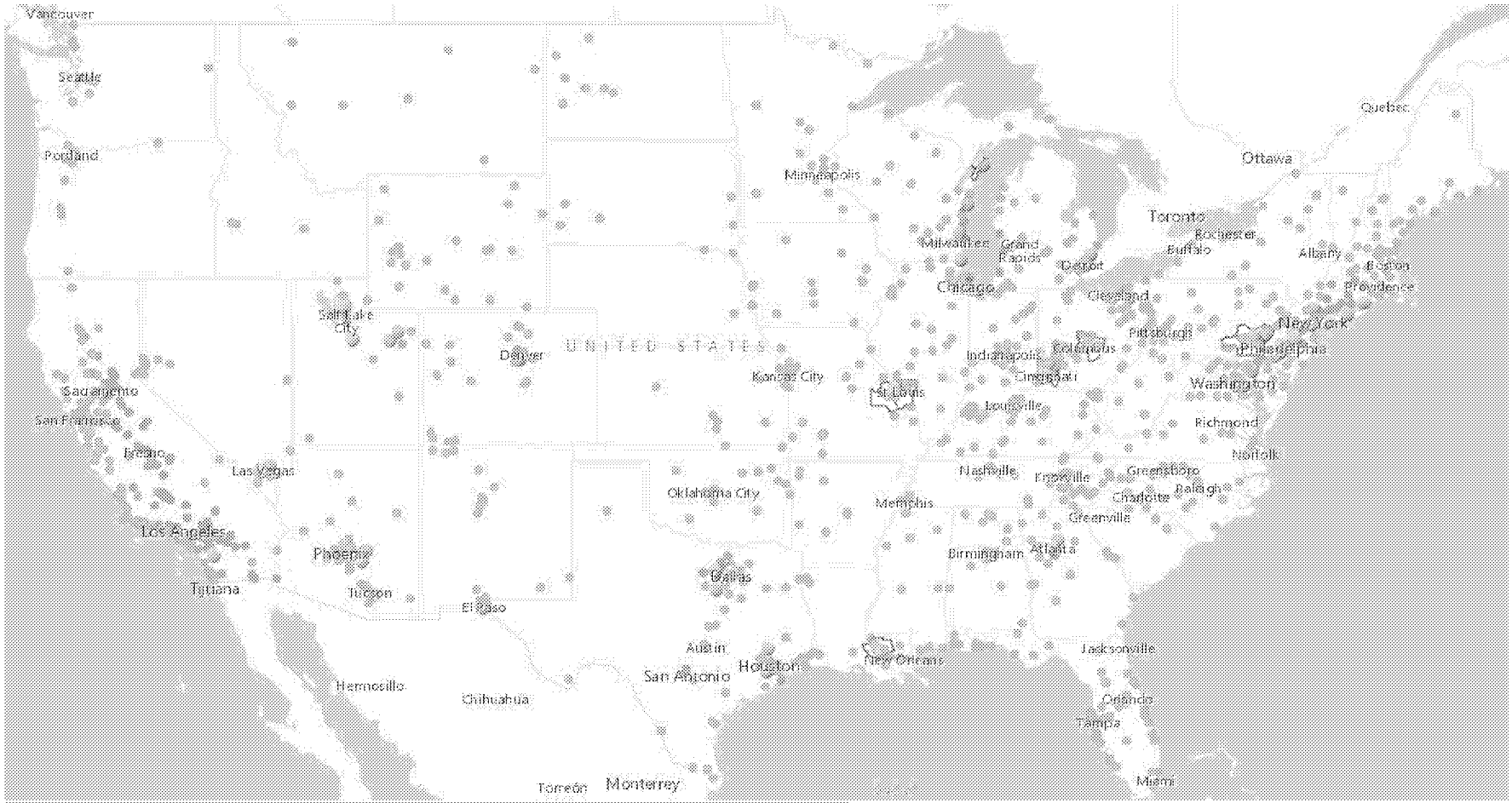
I hope this email finds you well. During our meeting a few weeks ago, you mentioned an interest in more information about high bias monitors and studies on ozone transport. Please see the attached documents. One is a list of literature on ozone transport. The second attachment contains maps and data about high bias monitors.

Please let me know if you have questions.

Thanks,
Hilary

Hilary Moffett
Director, Federal Relations
American Petroleum Institute
202-682-8040 (desk)
Ex. 6 Personal Privacy (PP) (cell)
MoffettH@api.org

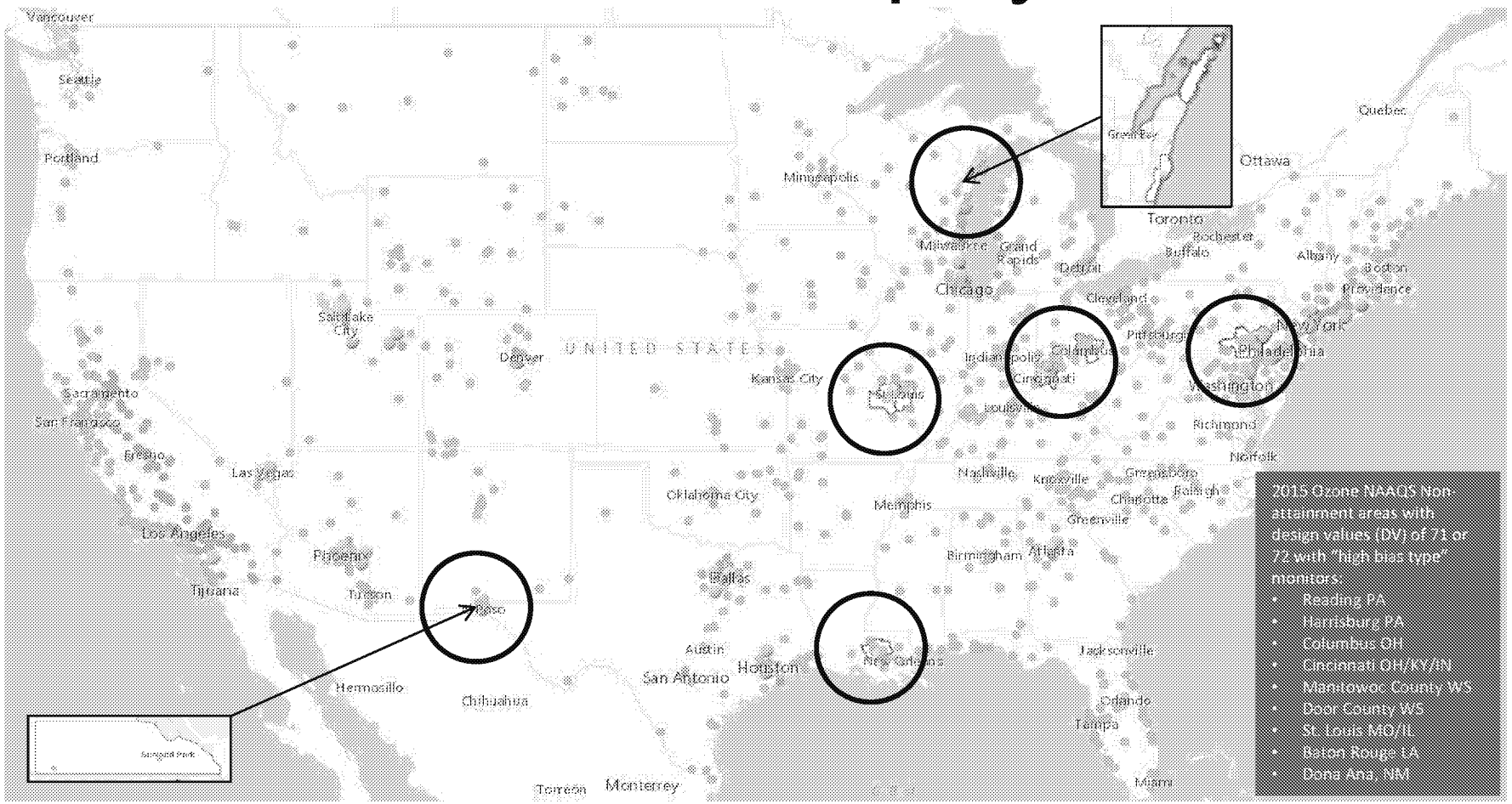
Ozone Monitors



Legend
"high bias type" monitors with values of 71/72 ppb that are in **yellow**
"high bias type" monitors with values of 73 ppb and above plus other monitors above 70 ppb in orange
all monitors with values 70 ppb and below in

Source: https://www.epa.gov/air-trends/air-quality-design-values
2016 Design Value Reports Ozone Design Values, 2016 (XLSX) (10/2/2017)

Areas of Inquiry



Relevant Monitors

FIPS		State	County	Site ID	Latitude	Longitude	Reference / Equivalent Methods Code	MDA8 Ozone DV (ppb) 2014 4th High	2015 4th High	2016 4th High	2014-16 3-yr DV
42011	Reading PA	Pennsylvania	Berks	420110011	40.38335	-75.96860	087	68	71	75	71
42075	Harrisburg PA	Pennsylvania	Lebanon	420750100	40.33733	-76.38340	087	67	74	72	71
39049	Columbus OH	Ohio	Franklin	390490029	40.08667	-82.81556	047	70	71	72	71
39017	Cincinnati OH/KY/IN	Ohio	Butler	390170004	39.38333	-84.54417	087	70	70	76	72
39017	Cincinnati OH/KY/IN	Ohio	Butler	390170018	39.52948	-84.39336	087	69	70	74	71
39061	Cincinnati OH/KY/IN	Ohio	Hamilton	390610006	39.27850	-84.36597	087	71	72	75	72
39061	Cincinnati OH/KY/IN	Ohio	Hamilton	390610010	39.21493	-84.69072	087	73	70	73	72
39061	Cincinnati OH/KY/IN	Ohio	Hamilton	390610040	39.12861	-84.50417	087	69	71	73	71
39165	Cincinnati OH/KY/IN	Ohio	Warren	391650007	39.42780	-84.20221	087	71	71	74	72
55071	Manitowoc Co.	Wisconsin	Manitowoc	550710007	44.13861	-87.61611	087	66	77	74	72
55029	Door Co.	Wisconsin	Door	550290004	45.23778	-86.99361	087	65	74	77	72
17119	St. Loius MO/IL	Illinois	Madison	171190008	38.89019	-90.14803	087	72	69	73	71
17119	St. Loius MO/IL	Illinois	Madison	171193007	38.86067	-90.10585	087	70	69	75	71
29183	St. Loius MO/IL	Missouri	Saint Charles	291831002	38.87255	-90.22649	047	72	70	75	72
29183	St. Loius MO/IL	Missouri	Saint Charles	291831004	38.89940	-90.44917	047	72	66	76	71
29189	St. Loius MO/IL	Missouri	Saint Louis	291890014	38.71090	-90.47590	047	72	69	73	71
22005	Baton Rouge LA	Louisiana	Ascension	220050004	30.23389	-90.96833	087	69	74	71	71
22033	Baton Rouge LA	Louisiana	East Baton Rouge	220330003	30.41889	-91.18333	047	75	73	68	72
35013	Dona Ana NM	New Mexico	Dona Ana	350130021	31.79611	-106.58389	047	72	74	70	72

Reference / Equivalent Methods

Reference / Equivalent Methods	High Bias Monitor	Description
014	Yes	McMillan 1100-1
019	Yes	Dasibi 1003 series
047	Yes	Thermo 49 series***
053	Yes	Monitor Labs 8810
056	Yes	Dasibi 1008 series
078	****	Environic 300
087	Yes	TAPI 400E, T400; API 400/400A;TML 10***
091	****	Ecotech 10; Opsis AB OPS10;Tisch TE 1.0*
103	****	Opsis 300 & AR 500 Long Open Path
112	****	Horiba APOA 360 series
134	****	DKK-TOA GUX-113E
160	****	Horiba APOA 370 series
165	****	Tanabyte 722-726
187	****	Ecotech 10; Opsis AB OPS10;Tisch TE 1.0
190	No humidity bias	2B Tech 202 & 205
199	Less bias**	FRM TAPI 265E or T265
215	Least bias	FEM 2B Tech 211

*Also ML9810/CM9810/EC9810 or 9810B versions, -11, -12, or Wedding 1010

**Required Nafion dryer concentrates ambient O3 up to 5% but could corrected if absolute humidity also measured

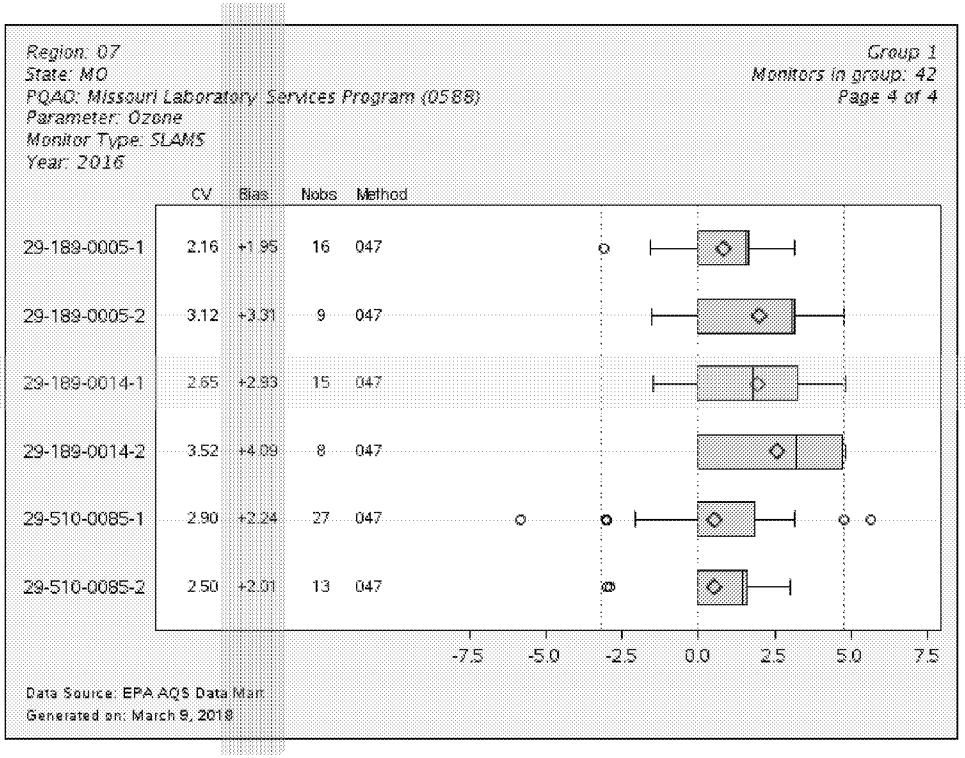
*** These two monitors likely account for over 95% of the current US compliance network

****not classified but possibly some H20, Hg or aromatic HC bias

Yes = conventional MnO2 scrubbed photometer with likely H2O, Hg, and aromatic HC interferences

EPA Information

From EPA's Single Point Precision and Bias website (St. Louis example):



Excerpt from 40 CFR Appendix A to Part 58, Quality Assurance Requirements for Monitors used in Evaluations of National Ambient Air Quality Standards 2.3.1.2 *Measurement Uncertainty for Automated O3 Methods*. The goal for acceptable measurement uncertainty is defined for precision as an upper 90 percent confidence limit for the CV of 7 percent and for bias as an upper 95 percent confidence limit for the absolute bias of 7 percent.

Bias of 7%* = 4.9 ppb

Bias of 2.93%* = 2 ppb

*of the 2015 Ozone NAAQS of 70 ppb

https://www.epa.gov/outdoor-air-quality-data/single-point-precision-and-bias-report

Ozone UV Photometer Interference bibliography

1. G.J. Foley USEPA May 6, 1991 memorandum to E.J. Conley et al. *"…Although we certainly acknowledge the positive interference from aromatic hydrocarbons, we do not believe that corrections for interference for such compounds are practical…it has been our recommendation to either accept the possibility of some error in the UV ozone measurements (such error being conservative in regard to protection of human health), or …eschew UV ozone monitors in favor of chemiluminescence monitors."*
2. ASTM D5149-02(2008) (2016). Test method for Ozone in the Atmosphere – Continuous Measurement by Ethylene Chemiluminescence. Annex A2 Humidity Interference (December 29, 1980 USEPA Memorandum M.E. Beard & K.A. Rehme to T.R. Hauser- Water Vapor Effect on Ozone Reference Methods.)
3. Wilson & Birks *(2006)* Mechanism and Elimination of a Water Vapor Interference in the Measurement of Ozone by UV Absorbance. *ES&T 40: 6361-6367.*
4. ASTM D5156-02 (Reapproved 2008) (2016). Standard Test Methods for Continuous Measurement of Ozone in Ambient, Workplace, and Indoor Atmospheres (Ultraviolet Absorption). Annex A2 Some Reported Interference Species (Table A2.1 Interferant Species).
5. Spicer et al. (2010). A Re-Examination of Ambient Air Ozone Monitor Interferences. JAWMA **60**:1353–1364.
6. Johnson et al. (2014). Measurement of Microenvironmental Ozone Concentrations in Durham, North Carolina, Using a 2B Technologies 205 FEM Monitor and an Interference-Free 2B Technologies 211 Monitor. JAWMA 54: 360-371.
7. Zhao & Stephens (2015) A method to measure the ozone penetration factor in residences under infiltration conditions: application in a multifamily apartment unit. *Indoor Air - doi:10.1111/ina.12228.*
8. USEPA-OAQPS (2015) QA Eye (19) Newsletter. *"…If the monitoring agency determines interferences are an issue with an UV ozone analyzer, they can replace that analyzer with a NO-CL analyzer, or another FEM with a scrubber that is not susceptible to the interferences present."*
9. Leston & Ollison (2017) Field evaluations of newly available "interference-free" monitors for nitrogen dioxide and ozone at near-road and conventional National Ambient Air Quality Standards compliance sites. JAWMA 67: 1240-1248.
10. Turnipseed et al. (2017) Use of a Heated Graphite Scrubber as a Means of Reducing Interferences in UV-Absorbance Measurements of Atmospheric Ozone. Atmos. Meas. Tech. 10: 2253-2269.
11. USEPA FEM Approval of 2B Technologies 211-g ozone photometer (2018) - https://twobtech.com/model-211-g-ozone-monitor.html

SUMMARY OF RECENT PAPERS AND STUDIES – INTERNATIONAL TRANSPORT

Title	Authors	Summary points from the paper	Reference weblink
Surface ozone background in the United States: Canadian and Mexican pollution influences	Wang et al., AE, 2009	➢ Global modeling was used to quantify effects of anthropogenic emissions from Canada, Mexico, and outside North America on US ozone during summer 2001. ➢ The Canadian and Mexican pollution enhancement averages 3 ± 4 ppb in the US in summer but can be occasionally much higher in downwind regions of the northeast and southwest, peaking at 33 ppb in New York and 18 ppb in southern California. ➢ Exceedances of the 75 ppb standard in eastern Michigan, western New York, New Jersey, and southern California are often associated with Canadian and Mexican pollution enhancements in excess of 10 ppb.	https://www.sciencedirect.com/science/article/pii/S1352310080110 60?via%3Dihub
Intercontinental source attribution of ozone pollution at western U.S. sites using an adjoint method	Zhang et al., GRL, 2009	➢ Global modeling of international transport impacts at 2 sites on the US west coast: elevated (Mount Bachelor in Oregon) and sea-level (Trinidad Head in California). ➢ The elevated site experiences distinct Asian ozone pollution episodes with maximum impacts from northeast China and southern Japan. ➢ The sea-level site shows the same Asian origins for ozone but no distinct Asian pollution episodes.	http://onlinelibrary.wiley.com/doi/10.1029/2009GL037950/pdf
Increasing springtime ozone mixing ratios in the free troposphere over western North America	Cooper et al., Nature, 2010	➢ Springtime ozone measurements in western US show strong increase during 1995-2008; +0.63±0.34 ppb/yr. ➢ Results support that rising Asian ozone precursor emissions would cause springtime ozone increase in western US.	https://www.nature.com/articles/nature08708
Global sources of local pollution: An assessment of long-range transport of key air pollutants to and from the United States.	NRC, 2010 (book)	➢ Summarizes known science and limitations on long-range transport, including important conclusions about impacts of foreign emissions on US pollutant levels.	https://www.nap.edu/catalog/12743/global-sources-of-local-pollution-an-assessment-of-long-range
Causes of high O3 in the lower free troposphere over the Pacific Northwest as observed at the Mt. Bachelor Observatory	Ambrose et al., AE, 2011	➢ Identified the cause and classified high O3 days (MDA8>70 ppb) at Mt. Bachelor Observatory (MBO). Analysis found that upper troposphere/lower stratospheric (UTLS) airmasses, Asian airmasses and mixed UTLS/Asian airmasses accounted for 44%, 33% and 22% of the high O3 days, respectively.	https://www.sciencedirect.com/science/article/pii/S1352310110066 86
Asian influence on surface ozone in the United States: A comparison of chemistry, seasonality, and transport mechanisms	Brown-Steiner and Hess, JGR, 2011	➢ Modeling of 2001-2005 indicates that Asian ozone contributions in the western US are maximum in the spring at 3.36 ± 1.3 ppb and are minimum in the summer at 1.36 ± 0.7 ppb. ➢ The import of Asian pollutants into the western United States contributes ~10% of total surface ozone.	http://onlinelibrary.wiley.com/doi/10.1029/2011JD015846/epdf

Title	Authors	Summary points from the paper	Reference weblink
Long-term ozone trends at rural ozone monitoring sites across the United States, 1990–2010	Cooper et al., JGR, 2012	➢ Long-term analysis of ozone trends at US monitoring sites. ➢ US surface ozone is more sensitive to East Asia emissions than are Europe or Southeast Asia, and western US is more sensitive than eastern US. ➢ Tropospheric ozone over western US has increased at 0.41±0.27 ppb/yr	http://onlinelibrary.wiley.com/doi/10.1029/2012JD018261/pdf
Transport of Asian ozone pollution into surface air over the western United States in spring	Lin et al., JGR, 2012	➢ During certain episodes, modeling suggests that Asian emissions can contribute 8 – 15 ppb ozone during days when ozone exceeds 60 ppb.	http://onlinelibrary.wiley.com/doi/10.1029/2011JD016961/abstract
Estimating North American background ozone in U.S. surface air with two independent global models: Variability, uncertainties, and recommendations	Fiore et al., AE, 2014	➢ At high altitude Western US sites, modeling shows higher background contributions than at low-altitude sites. ➢ Models indicate seasonal background ozone ranging 35-50 ppb from springtime to summer, with typical values of 40 ppb (no explicit information on contribution from anthropogenic international transport).	https://www.sciencedirect.com/science/article/pii/S1352231014005755
An overview of the 2013 Las Vegas Ozone Study (LVOS): Impact of stratospheric intrusions and long-range transport on surface air quality	Langford et al., AE, 2014	➢ Modeling suggests that stratospheric intrusion contributions to surface ozone was about 30 ppb during exception events, while long-range transport from Asia contributed less (< 10 ppb) during those same events.	https://www.sciencedirect.com/science/article/pii/S1352231014006426
China's international trade and air pollution in the United States	Lin et al., PNAS, 2014	➢ Modeling shows that the transport of export-related Chinese pollution contributed 0.5 - 1.5% of ozone over western US in 2006. ➢ Chinese pollution resulted in one extra day or more of noncompliance with US ozone standard in 2006 over Los Angeles basin and eastern US.	http://www.pnas.org/content/111/5/1736
Sources contributing to background surface ozone in the US Intermountain West	Zhang et al., ACP, 2014	➢ Modeling was used to estimate natural contributions over North America to US background ozone: wildfires, lightning NOx, stratosphere (transboundary contributions not addressed) ➢ Stratospheric intrusion events are responsible for the highest ozone concentrations during spring in the western US; models are able to replicate the timing of the intrusion events but not their magnitude.	https://www.atmos-chem-phys.net/14/5295/2014/acp-14-5295-2014.html
Photochemical grid model estimates of lateral boundary contributions to ozone and particulate matter across the continental United States	Baker et al., AE, 2015	➢ Modeling shows that the largest ozone contributions entering the US typically come from the middle atmosphere (15,000 feet), where Asian transport occurs, with typically much less contribution from the upper atmosphere (>30,000 feet) where stratospheric intrusion occurs.	https://www.sciencedirect.com/science/article/pii/S135223101530474X

Title	Authors	Summary points from the paper	Reference weblink
Identification of sources contributing to PM2.5 and ozone at elevated sites in the western U.S. by receptor analysis: Lassen Volcanic National Park, California, and Great Basin National Park, Nevada	VanCuren and Gustin, STE, 2015	➢ A receptor-based model and supporting trajectory calculations were used to identify ozone source regions at Lassen and Great Basin National Parks. ➢ Indicates that anthropogenic enhancement of ozone is primarily due to transport from Asia in spring, but regional North American sources of ozone appear to drive additional ozone peaks in late summer and fall.	https://www.sciencedirect.com/science/article/pii/S0048969715003666
Rapid increases in tropospheric ozone production and export from China	Verstraeten et al., Nature 2015	➢ Satellite-based analysis indicates that ozone concentrations over China increased 7% between 2005 and 2010 as China precursor emissions increased by 21%. ➢ The contribution of ozone transport from China to the western US has grown over 2005 -2010 and has offset ozone reductions resulting from US air pollution controls by 43%.	https://www.nature.com/articles/ngeo2493
Changes in US background ozone due to global anthropogenic emissions from 1970 to 2020	Nopmongcol et al., AE, 2016	➢ Global/regional modeling of western US background over 1970-2020 shows increases from 40-60 ppb, but remained below 45 ppb in the eastern US. ➢ US background increases in the southwestern US are consistent with rising emissions in Asia and Mexico. ➢ Contributions from neighbouring countries can exceed 4 ppb near the Canadian border and 2 ppb near the Mexican border.	https://www.sciencedirect.com/science/article/pii/S1352231016304599
An Assessment of Ground Level and Free Tropospheric Ozone Over California and Nevada	Yates et al., JGR, 2016	➢ Surface data analysis over California and Nevada during 1995-2015 shows an increase in springtime 5th percentile ozone at 0.05-0.19 ppb/yr. ➢ Vertical ozone measurements show distinct seasonal trends, with a high percentage of elevated (3-8 km) ozone layers (>70 ppb) during spring and summer. ➢ Global modeling of May-September 2012-2013 shows large contributions to rural surface ozone from the mid- and upper-troposphere (20+ ppb), which is equivalent or greater than North American contributions (10-20 ppb), and smaller contributions from Asian transport (<5 ppb).	http://onlinelibrary.wiley.com/doi/10.1002/2016JD026266/abstract
Contributions of foreign, domestic and natural emissions to US ozone estimated using the path-integral method in CAMx nested within GEOS-Chem	Dunker et al., ACP, 2017	➢ Global/regional modeling of 2010 indicates maximum US background ozone in the inter-mountain western US, especially at higher elevations, in some places exceeding 60 ppb (contributing 44% of top 10 ozone days in Denver, and 68% at rural sites). ➢ Background ozone generally becomes both a larger fraction of total ozone in the western US and a smaller fraction in the eastern US going from spring to summer. ➢ For 10 US urban areas, the relative importance of sources is generally US emissions (12-53 ppb) > anthropogenic emissions outside North America (3-9 ppb) > Canadian/Mexican emissions (0.2-3 ppb).	https://www.atmos-chem-phys.net/17/12553/2017/

Title	Authors	Summary points from the paper	Reference weblink
Source Apportionment Modeling to Investigate Background, Regional, and Local Contributions to Ozone Concentrations in Denver, Phoenix, Detroit, and Atlanta	Erdakos et al., CMAS, 2017	➢ Modeled US background ozone in 2011 shows the highest daily values reaching 50-70 ppb in the West and 40-60 ppb in the East; fourth-highest daily values reaching 40-60 ppb in the West and 30-50 ppb in the East (no explicit breakout of international anthropogenic transport). ➢ US background is a larger percentage of total ozone in the West than in the East. ➢ Average modeled in-state anthropogenic contributions to ozone in the selected 4 cities ranges 10-20% of total ozone, except in Atlanta (32%).	https://www.cmascenter.org/conference/2017/slides/erdakos_source_apportionment_2017.pptx
Long-Lived Species Enhance Summertime Attribution of North American Ozone to Upwind Sources	Guo et al., EST, 2017	➢ Global modeling of 2000 shows that seasonal average surface ozone over North America can be attributed to East Asian anthropogenic emissions by 0.5-3 ppb in summer, depending on the modeling method employed. ➢ Approximately 670 cardiovascular and 300 respiratory premature mortalities within North America could be attributed to East Asia. ➢ Carbon Monoxide and longer-lived VOCs, largely overlooked in previous studies, greatly enhance ozone attribution to source region.	https://pubs.acs.org/doi/abs/10.1021/acs.est.6b05664
Impact of intercontinental pollution transport on North American ozone air pollution: an HTAP phase 2 multi-model study	Huang et al., ACP, 2017	➢ Modeling indicates that East Asia (EA) pollution impacts are weaker during US ozone exceedance events in most US regions than on cleaner days, except over some high terrain western US rural/remote areas. ➢ Models may under estimate the US ozone response to EA anthropogenic emissions reductions by at least 10%.	https://www.atmos-chem-phys.net/17/5721/2017/
Entrainment of stratospheric air and Asian pollution by the convective boundary layer in the southwestern U.S.	Langford et al., JGR, 2017	➢ Measurements, modeling and satellite data in Southern Nevada show that during May 2013 ozone exceedance days, 20-40 ppb was due to stratospheric intrusion and 0-10 ppb was transported from Asia. ➢ Stratospheric intrusions in May 2013 increased ozone more than 70 ppb at rural and urban sites in California and Nevada.	http://onlinelibrary.wiley.com/doi/10.1002/2016JD025987/full
US surface ozone trends and extremes from 1980 to 2014: quantifying the roles of rising Asian emissions, domestic controls, wildfires, and climate	Lin et al., ACP, 2017	➢ Since 1990, Asian NOx emissions have tripled and have increased modeled springtime background ozone over the western US at a rate of 0.3-0.5 ppb/yr (contributing 65% of western US background), and outpacing ozone decreases from 50% reduction in US NOx emissions. ➢ Ozone trends in the western US coincide with increases in background ozone by 6.3±1.9 ppb in spring and 4.2±2.0 ppb in summer -- Asian anthropogenic emissions are the major driver of rising background ozone in the past decades.	https://www.atmos-chem-phys.net/17/2943/2017/acp-17-2943-2017.pdf
Ozone Contributions of International Emissions using 2011 Modeling Platform	Morris and McNally, 2017	➢ Investigates impacts of international emissions on local ozone concentrations, following Section 179B of the Clean Air Act. ➢ Modeling indicates that international anthropogenic emission contribute 6-7 ppb to Denver's 2009-2013 average ozone Design Values (DV) ➢ Removal of international anthropogenic emissions would result in attaining the 2008 ozone NAAQS in Denver for the 2009-2013 and 2015-2017 DV periods.	http://ragc.org/documents/modeling-emissions-inventories/

Title	Authors	Summary points from the paper	Reference weblink
Modeling intercontinental transport of ozone in North America with CAMx for the Air Quality Model Evaluation International Initiative (AQMEII) Phase 3	Nopmongcol et al., ACP, 2017	➢ Modeling indicates that ozone entering the US in the mid-atmosphere (~15,000 feet) contributes up to 40 ppb over the US. ➢ By reducing Asia emissions by 20%, modeling indicates relatively small reductions in average surface ozone during all seasons in the western US (<1 ppb in spring and 0.5 ppb in other seasons).	https://www.atmos-chem-phys.net/17/9931/2017/
International Contributions to ozone Across United States	Zatko, 2017	➢ Expansion of Morris and McNally (2017) analysis to entire US. ➢ Modeling indicates that international anthropogenic emissions contribute 0.4-38.3 ppb to 2009-2013 average ozone Design Values (DV) over the US, with the largest impacts in the west.	Zatko_PNWIS_NoIntlEmis_2017-10-11_v6.p
Trends and sources of ozone and sub-micron aerosols at the Mt. Bachelor Observatory (MBO) during 2004-2015	Zhang et al., AE, 2017	➢ Developed an algorithm to identifying Asian pollution plumes at the Mt. Bachelor Observatory (MBO) in Central Oregon at 2.8 km above sea level. ➢ Identified a statistically significant positive trend in O_3 during spring and summer, using 2004-2015 data. The spring trend was attributed to changing emissions in Asia and the summer trend was attributed to increasing wildfires in the U.S. and Siberia.	https://www.sciencedirect.com/science/article/pii/S1352231017304235?via%3Dihub

Message

From: Atkinson, Emily [Atkinson.Emily@epa.gov]
Sent: 1/25/2018 6:17:10 PM
To: Hilary Moffett [moffetth@api.org]
CC: Woods, Clint [woods.clint@epa.gov]
Subject: RE: MEeting Attendees

Thanks Hilary!

Emily Atkinson
Management Analyst/Office Manager
Immediate Office of the Assistant Administrator
Office of Air and Radiation, USEPA
Room 5412B, 1200 Pennsylvania Avenue NW
Washington, DC 20460
Voice: 202-564-1850
Email: atkinson.emily@epa.gov

From: Hilary Moffett [mailto:moffetth@api.org]
Sent: Thursday, January 25, 2018 1:14 PM
To: Atkinson, Emily <Atkinson.Emily@epa.gov>
Cc: Woods, Clint <woods.clint@epa.gov>
Subject: MEeting Attendees

Hi Emily,

Please find the list of attendees for next week's meeting with Clint, David, and Mandy.

Don't hesitate to reach out if you need anything else from me.

Thanks,
Hilary

Hilary Moffett
Director, Federal Relations
American Petroleum Institute
202-682-8040 (desk)
Ex. 6 Personal Privacy (PP) (cell)
MoffettH@api.org

Hilary Moffett
Ted Steichen
Stephen Higley
Kevin Avery
Khary Cauthen
Lesley Schaaff
Robert Nolan
Dana Wood
Marnie Funk
Cathe Kalisz

Message

From: Woods, Clint [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=BC65010F5C2E48F4BC2AA050DB50D198-WOODS, CLIN]
Sent: 8/30/2018 5:30:27 PM
To: Ted Steichen [SteichenT@api.org]
CC: Howard Feldman [Feldman@api.org]
Subject: Re: CFI - NAAQS Ozone

Thanks so much!

> On Aug 30, 2018, at 9:23 AM, Ted Steichen <SteichenT@api.org> wrote:
>
> Hi Clint,
>
> For your information, please see a copy of API comments filed to the docket on the Call for Information – NAAQS Ozone.
>
> Section II provides suggestions on meeting the October 2020 schedule.
>
> If you or others at EPA would like to discuss our public input, please let me now.
>
> Thank you,
>
> Ted Steichen
> 202 682 8568
> stecihent@api.org<mailto:stecihent@api.org>
>
>
> From: Ted Steichen
> Sent: Wednesday, August 29, 2018 4:40 PM
> To: Sasser, Erika (Sasser.Erika@epa.gov) <Sasser.Erika@epa.gov>
> Subject: CFI - NAAQS Ozone
>
>
> <CFI Ozone.pdf>
> <Exhibit A.pdf>
> <Exhibit B.pdf>
> <Exhibit C Embedded File.pdf>
> <Exhibit C.pdf>

Appointment

From: Woods, Clint [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=BC65010F5C2E48F4BC2AA050DB50D198-WOODS, CLIN]
Sent: 8/24/2018 3:06:44 PM
To: Broome, Shannon S. [SBroome@hunton.com]

Subject: Accepted: Call re ABA Panel
Location: Ex. 6 Personal Privacy (PP) code Ex. 6 Personal Privacy (PP)

Start: 8/29/2018 2:00:00 PM
End: 8/29/2018 2:30:00 PM

Recurrence: (none)

Appointment

From: Woods, Clint [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=BC65010F5C2E48F4BC2AA050DB50D198-WOODS, CLIN]
Sent: 8/24/2018 3:03:58 PM
To: Broome, Shannon S. [SBroome@hunton.com]

Subject: Declined: Call re ABA Panel
Location: Ex. 6 Personal Privacy (PP) code Ex. 6 Personal Privacy (PP)

Start: 8/24/2018 3:00:00 PM
End: 8/24/2018 3:30:00 PM
Show Time As: Busy

Message

From: Woods, Clint [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=BC65010F5C2E48F4BC2AA050DB50D198-WOODS, CLIN]
Sent: 8/17/2018 5:06:26 PM
To: Broome, Shannon S. [SBroome@hunton.com]; dpettit@nrdc.org
Subject: RE: ABA Panel Call Schedule

Works for me – Thanks!

From: Broome, Shannon S. [mailto:SBroome@hunton.com]
Sent: Friday, August 17, 2018 11:14 AM
To: Woods, Clint <woods.clint@epa.gov>; dpettit@nrdc.org
Subject: RE: ABA Panel Call Schedule

How is 10 am Eastern on Friday the 24th?

Best Regards,

HUNTON ANDREWS KURTH

Shannon S. Broome
Partner/Office Managing Partner San Francisco
sbroome@HuntonAK.com
p 415.975.3718
202.955.1912
m Ex. 6 Personal Privacy (PP)

bio | vCard |

Hunton Andrews Kurth LLP
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From: Woods, Clint [mailto:woods.clint@epa.gov]
Sent: Friday, August 17, 2018 11:12 AM
To: dpettit@nrdc.org
Cc: Broome, Shannon S.
Subject: Re: ABA Panel Call Schedule

Thanks so much for reaching out - I have limited availability on Thursday except late in the day but could make nearly any time Friday or the following week work.

On Aug 17, 2018, at 8:11 AM, Pettit, David <dpettit@nrdc.org> wrote:

> Hi. I am on vacation Mon-Weds next week but available Thursday and Friday.
>
> David

Sent from my iPhone

On Aug 16, 2018, at 9:54 PM, Broome, Shannon S. <SBroome@hunton.com> wrote:

Clint and David,

I want to begin by thanking you both for agreeing to be speakers at the ABA SEER Fall Conference in San Diego, at the session "Deregulation in Focus: The Clean Air Act and States"! You two will provide a great perspective on this panel. I have excerpted the published version of our panel description below from the online catalogue. As the moderator of the panel, my job is to ensure that our communications are clear during the presentation and that we also meet the ABA's requirements for continuing legal education.

In a moderator training call last week, we were asked to coordinate an initial call among our panelists during the first part of August. The purpose of this email is to find out if you both would have availability any time next week to do a quick (15-20 minute) call to go over our panel. Could you kindly email me your availability for
Monday at noon eastern, 2 eastern, 4 eastern,
Tuesday at 10 eastern, 11 eastern, or 4 eastern,
Wednesday at 3 or 4 eastern?

I will pick a mutually convenient time and send an outlook invitation.

On behalf of the ABA (and our future audience), thank you again for agreeing to participate in this panel!

DEREGULATION IN FOCUS: THE CLEAN AIR ACT AND STATES
The administration's executive orders, regulation changes, and other deregulatory efforts are reshaping the Clean Air Act landscape. We have seen an effort to repeal and replace the Clean Power Plan as well as a reexamination of many major regulations associated with the act. Moreover, EPA has set out to recalibrate the state and federal relationship with greater deference to state administrators implementing the Clean Air Act. The intensity of this deregulation discussion is no more apparent than in California, where the state environmental agency leads with some of the most protective environmental laws in the nation, including its authority through a special waiver to set California-specific motor vehicles emission standards. Join us for a discussion of the changing (or in some cases, unchanged) regulatory landscape under the act and learn how states have responded to recent and potential changes.

Best Regards,

<image003.png>

Shannon S. Broome
Partner/Office Managing Partner San Francisco
sbroome@HuntonAK.com
p 415.975.3718
202.955.1912
m Ex. 6 Personal Privacy (PP)

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Appointment

From: Woods, Clint [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=BC65010F5C2E48F4BC2AA050DB50D198-WOODS, CLIN]
Sent: 8/17/2018 3:16:06 PM
To: Broome, Shannon S. [SBroome@hunton.com]

Subject: Accepted: Call re ABA Panel
Location: Ex. 6 Personal Privacy (PP) code Ex. 6 Personal Privacy (PP)

Start: 8/24/2018 2:00:00 PM
End: 8/24/2018 2:30:00 PM

Recurrence: (none)

Appointment

From: Woods, Clint [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=BC65010F5C2E48F4BC2AA050DB50D198-WOODS, CLIN]
Sent: 10/11/2018 10:15:16 AM
To: Broome, Shannon S. [SBroome@hunton.com]

Subject: Accepted: Quick chat on ABA panel
Location: Ex. 6 Personal Privacy (PP) code Ex. 6 Personal Privacy (PP)

Start: 10/11/2018 8:00:00 PM
End: 10/11/2018 8:30:00 PM

Recurrence: (none)

Appointment

From: Woods, Clint [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=BC65010F5C2E48F4BC2AA050DB50D198-WOODS, CLIN]
Sent: 10/10/2018 7:17:23 PM
To: Broome, Shannon S. [SBroome@hunton.com]

Subject: Declined: Final Prep ABA Panel
Location: Ex. 6 Personal Privacy (PP) code Ex. 6 Personal Privacy (PP)

Start: 10/11/2018 3:00:00 PM
End: 10/11/2018 4:00:00 PM
Show Time As: Busy

Message

From: Woods, Clint [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=BC65010F5C2E48F4BC2AA050DB50D198-WOODS, CLIN]
Sent: 10/9/2018 8:34:44 PM
To: Broome, Shannon S. [SBroome@hunton.com]
Subject: Re: 2018-09-30_FINAL ABA_Fall_Conference_-_CLE_Materials_-_Deregulat...docx

4:00 Eastern on Thursday? Thanks!

On Oct 9, 2018, at 10:38 AM, Broome, Shannon S. <SBroome@hunton.com> wrote:

That's fine. Please pick a time!

Best Regards,

<image001.png>

Shannon S. Broome
Partner/Office Managing Partner San Francisco
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From: Woods, Clint [mailto:woods.clint@epa.gov]
Sent: Tuesday, October 09, 2018 12:32 PM
To: Broome, Shannon S.
Subject: Re: 2018-09-30_FINAL ABA_Fall_Conference_-_CLE_Materials_-_Deregulat...docx

Shannon,

Think I failed to fill out the doodle poll, so sorry for the trouble but I am tied up on Thurs morning talking to our children's health advisory committee on NAAQS issues. Any chance we might be able to talk one on one later in the day on Thurs to catch up? Thanks!

Clint

On Oct 1, 2018, at 2:14 PM, Broome, Shannon S. <SBroome@hunton.com> wrote:

Thanks for doing it.

Best Regards,

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return email immediately and then delete this message and all copies and backups thereof.

From: Woods, Clint [mailto:woods.clint@epa.gov]
Sent: Monday, October 01, 2018 3:38 PM
To: Broome, Shannon S.
Subject: Re: 2018-09-30_FINAL ABA_Fall_Conference_-_CLE_Materials_-_Deregulat...docx

Reread and I'm comfortable with it - Thanks!

On Oct 1, 2018, at 8:46 AM, Broome, Shannon S. <SBroome@hunton.com> wrote:

> Thanks for responding. I know you are completely buried. As I had hoped, Jon Brightbill included some more caveat language that I think is helpful – I need to finalize it so appreciate your clearance. Talk soon …
>
> Best Regards,

This communication is confidential and is intended to be privileged pursuant to applicable law. If the reader of this message is not the intended recipient return email immediately and then delete this message and all copies and backups thereof.

From: Woods, Clint [mailto:woods.clint@epa.gov]
Sent: Monday, October 01, 2018 9:32 AM
To: Broome, Shannon S.
Subject: Re: 2018-09-30_FINAL ABA_Fall_Conference_-_CLE_Materials_-_Deregulat...docx

Please excuse my delay - I have very minor suggestions that need to be typed up but would not have concerns if this version was finalized. Will follow up on doodle poll. Unfortunately, I will not be getting until late on Thursday. Thanks!

On Oct 1, 2018, at 12:50 AM, Broome, Shannon S. <SBroome@hunton.com> wrote:

> All –
>
> We are now officially late with the paper for the ABA conference. The attached reflects the limited comments received and I do think it is in good shape.
>
> Do I have everyone's clearance to get this in? We have beefed up the disclaimer footnote so that no one can be "tagged" with the language in the paper. Again, it is an attempt to be neutral but to lay out the timing and a few of the issues as a "jumping off point" for our talk.
>
> Please let me know if you have any issues with the paper by 3 pm Monday if you can or let me know that I should hold off – but again we are now late and we need a paper for the panel. My plan is to send in at 5 pm eastern barring objection …

Thanks in advance for your assistance in getting this across the finish line!

Best Regards,

<image001.png>

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return email immediately and then delete this message and all copies and backups thereof.

<2018-09-30_FINAL ABA_Fall_Conference_-_CLE_Materials_-_Deregulat...docx.docx>

Message

From: Woods, Clint [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=BC65010F5C2E48F4BC2AA050DB50D198-WOODS, CLIN]
Sent: 8/3/2018 12:37:20 AM
To: Ted Steichen [SteichenT@api.org]
CC: Howard Feldman [Feldman@api.org]; Hilary Moffett [moffetth@api.org]
Subject: Re: FRI 11AM Call

Got it - Looking forward to it. Thanks!

On Aug 2, 2018, at 5:58 PM, Ted Steichen <SteichenT@api.org> wrote:

Hi Clint,

I am making sure you have the number for our planned 11 AM tomorrow.

Conference call details:

11:00 a.m. EDT on FRIDAY 8/3

Ex. 6 Personal Privacy (PP)

Then Ex. 6 Personal Privacy (PP)

Ted Steichen

From: Woods, Clint <woods.clint@epa.gov>
Sent: Wednesday, August 1, 2018 12:18 PM
To: Ted Steichen <SteichenT@api.org>
Cc: Howard Feldman <Feldman@api.org>; Hilary Moffett <moffetth@api.org>
Subject: Re: CASAC Phone Call

Sounds great - Thanks!

On Aug 1, 2018, at 12:06 PM, Ted Steichen <SteichenT@api.org> wrote:

Thanks Clint,

If you don't mind let's plan for 11 AM on Friday, August 3rd. I'll see if Howard can breakaway from his West Coast vacation at that time to join (8AM his time). If I hear from him we can use a conference line, otherwise we can just handle it on a regular call. I'll finalize that and get back with you.

Thanks again,

Ted

From: Woods, Clint <woods.clint@epa.gov>
Sent: Wednesday, August 1, 2018 11:50 AM
To: Ted Steichen <SteichenT@api.org>
Cc: Howard Feldman <Feldman@api.org>; Hilary Moffett <moffetth@api.org>
Subject: Re: CASAC Phone Call

That sounds great - I'm on the road through Thursday, but maybe 10:00, 11:00, or 3:00 on Friday? Thanks!

On Aug 1, 2018, at 11:07 AM, Ted Steichen <SteichenT@api.org> wrote:

> Hi Clint,
>
> I am available anytime this week except 10-noon on Thursday. I can give you times next week if nothing works for you this week.
>
> Thanks,
>
> Ted
>
> ---
>
> **From:** Hilary Moffett
> **Sent:** Wednesday, August 1, 2018 11:04 AM
> **To:** Woods, Clinton <woods.clinton@epa.gov>
> **Cc:** Ted Steichen <SteichenT@api.org>; Howard Feldman <Feldman@api.org>
> **Subject:** CASAC Phone Call
>
> Hi Clint,
>
> Per our conversation the other day, are you able to chat with Ted Steichen about the CASAC panel for ozone? We'd love to be helpful, but just wanted to clarify a few points.
>
> I've cc'd him so you two can work out the best time. I'm out of pocket starting tomorrow, so don't let me get in your way!
>
> Thanks,
> Hilary

Message

From: Woods, Clint [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=BC65010F5C2E48F4BC2AA050DB50D198-WOODS, CLIN]
Sent: 9/6/2018 1:23:41 PM
To: Broome, Shannon S. [SBroome@hunton.com]
Subject: RE: call today
Attachments: EM Sept NAAQS Article.pdf

Shannon,

Thanks again, and apologies for my delay. Attached is the NAAQS article I had mentioned, which ran in the September issue of EM but is largely based around recent Agency documents. My cell # is Ex. 6 Personal Privacy (PP)

Clint Woods
Deputy Assistant Administrator
Office of Air and Radiation, U.S. EPA
202.564.6562

From: Broome, Shannon S. [mailto:SBroome@hunton.com]
Sent: Wednesday, August 29, 2018 10:35 AM
To: Woods, Clint <woods.clint@epa.gov>; dpettit@nrdc.org
Subject: call today

Thank you both for joining the call today.

Topics and Presentation Format: We discussed focusing our group presentation on the following issues: CAFE, Ozone, CPP – with a brief overview of the status/what it is to level set the audience and then moderated questions that would allow you to explain the important issues from your perspective. We can switch off who gives the overview (which should be a Dragnet-like "just the facts" with as little spin as possible) and then get into the discussion pretty quickly for each topic. I will prepare and circulate moderator questions that you can review so you can flag any concerns in advance and we can make adjustments. Sometimes, when folks are in litigation, they need to be mindful of what they can say so I'd rather phrase questions in ways that you can answer them.

The Paper: I will have a paralegal or junior attorney generate a draft paper we can edit by email. The goal is a joint paper that just tees up status of some things so that we meet the CLE requirement and keep the ABA off my back.

Day of Event Logistics: We should meet briefly the morning of the event or the evening before. When you have your flights/timing done, let me know. We might want to meet the night before for 30 minutes and grab a drink so we are comfortable up there but I don't want to impose on your time. A 15-minute quick run through is helpful so hopefully we can do that. Also, when you have a chance, shoot me your cell number so we can communicate easily day of event for grabbing location to meet and in case anything goes awry.

I think that's it – should be pretty easy. As moderator, my goal is to make your contribution to this effort not only a success but also as simple as possible for you. Looking forward to seeing you in San Diego and I'll keep you posted on whether we get to add Jon Brightbill to the panel!

Best Regards,

HUNTON ANDREWS KURTH

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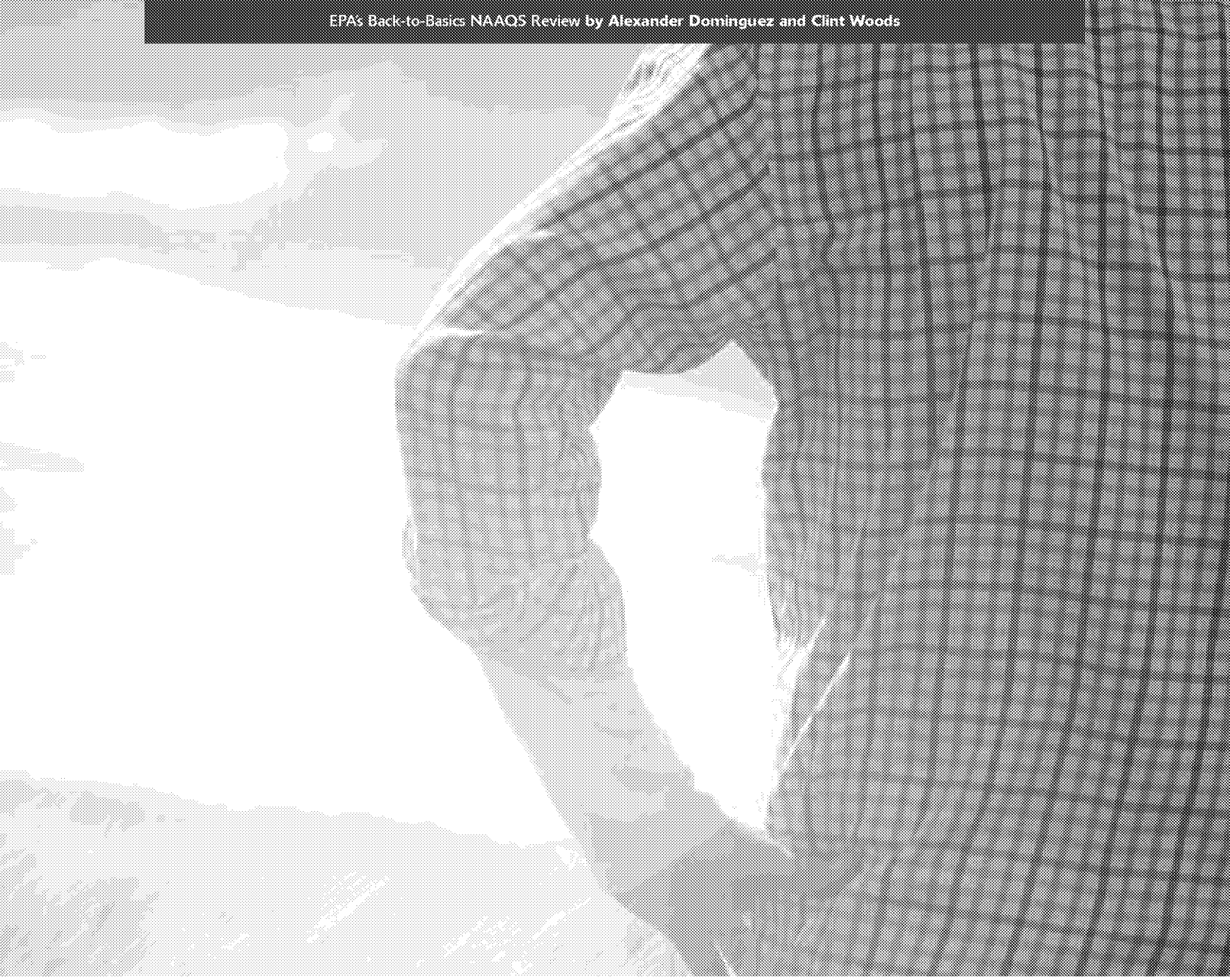

EPA's 'Back-to-Basics' Process for Review of the National Ambient Air Quality Standards

A primer of EPA's process for reviewing the National Ambient Air Quality Standards.

ED_002719_00038139-00001

Consistent with the Administration's commitment to regulatory reform, cooperative federalism, and domestic manufacturing, the U.S. Environmental Protection Agency (EPA) is working to review and reform the National Ambient Air Quality Standards (NAAQS) program of the U.S Clean Air Act (CAA). These efforts include a focus on getting "back-to-basics" for NAAQS setting, designations, and implementation. The United States has experienced tremendous progress in reducing the emission of criteria pollutants and their precursors. Still, challenges remain, both in implementing a number of increasingly stringent NAAQS and in undertaking several upcoming NAAQS reviews. This presents the agency with a unique opportunity, given the direction it has received from the President, to make meaningful changes to the program that, while consistent with EPA's responsibility under the CAA to support public health and the environment, will also ensure a timely, efficient, and transparent process that both respects state agency resources and facilitates robust economic activity.

Background

As readers of *EM* likely know, EPA sets primary and secondary NAAQS for criteria air pollutants that include ozone, nitrogen dioxide, sulfur dioxide, coarse and fine particulate matter, carbon monoxide, and lead. Primary NAAQS are set, based on the judgment of the EPA Administrator and allowing for an adequate margin of safety, at a level to protect the public health. Secondary NAAQS are set at a level to protect the public welfare, which may include effects on soils, water, crops, vegetation, and visibility from the presence of the pollutant in the ambient air. These standards are to reflect the best current scientific information. Under the CAA, EPA is required to review each NAAQS every five years. However, EPA has often failed to do so, sometimes taking twice that amount of time before finalizing a review and any accompanying revision. These delays result in uncertainty as well as lost opportunities for implementing the NAAQS to protect health and the environment in a manner compatible with a vibrant U.S. economy.

In setting the NAAQS, the EPA Administrator receives advice from a critical federal advisory committee established by the CAA, the Clean Air Scientific Advisory Committee (CASAC). EPA staff in the Offices of Research and Development and Air and Radiation develop a comprehensive scientific and technical assessment, which CASAC then reviews in the process of providing advice to the Administrator. Having received this expert advice, EPA publishes a notice of proposed rulemaking and solicits public comment on the Administrator's proposal. After taking into consideration all of the significant public comments received, the Administrator reaches a final decision and issues a final rule either to maintain the current NAAQS or to set a revised standard. Where EPA sets a new NAAQS or revises an existing standard, then the Agency is required within two years, after taking into consideration the recommendations of governors, to designate areas as either attaining or not attaining the standard.

Each NAAQS revision requires significant new planning and permitting for states and regulated entities. In particular, a nonattainment designation can create challenges for the construction or expansion of industrial facilities. Under the NAAQS program, EPA and states cooperate as co-regulators to carry out the CAA's mission of protecting human health and the environment. Implementation of the standards must be accomplished in a manner that is both consistent with the principles of cooperative federalism and which also complies with statutory requirements.

Back-to-Basics

In April 2018, the President issued a memorandum, Promoting Domestic Manufacturing and Job Creation –

The themes of timeliness, cooperative federalism, and recognition of international and background sources of pollution are critical issues EPA is directed to address to ensure states can successfully implement the standards.

ED_002719_00038139-00002

Table 1. April 2018 Presidential Memorandum Topics

Timely Processing of State Implementation Plans
Cooperative Engagement with States to Review Regional Haze Plans
Timely Processing of Preconstruction Permit Applications
Demonstrations or Petitions Submitted Pursuant to Sections 319 and 179B of the CAA Relating to Emissions Beyond the Control of State and Local Air Agencies
Monitoring and Modeling Data
Offsets
Future NAAQS Reviews
Timely Issuance of Implementing Regulations and Guidance
Review of Rules, Guidance, Memoranda, and Procedures Relating to State Implementation Plans and Permitting

Policies and Procedures Relating to Implementation of Air Quality Standards (https://www.gpo.gov/fdsys/pkg/DCPD-201800239/pdf/DCPD-201800239.pdf). This memorandum set forth nine primary directives intended to ensure EPA's efficient and cost-effective implementation of air quality standards under the NAAQS and regional haze programs. These directives are outlined in Table 1. The themes of timeliness, cooperative federalism, and recognition of international and background sources of pollution are critical issues the Agency is directed to address to ensure states can successfully implement the standards.

To advance the initiatives set out in the presidential memorandum, EPA has issued its own memorandum, Back-to-Basics Process for Reviewing National Ambient Air Quality Standards, (https://www.epa.gov/sites/production/files/2018-05/documents/image2018-05-09-173219.pdf) In May 2018. EPA's memorandum directs the agency and its independent science advisors to follow five principles for a transparent, timely, and efficient process in reviewing and revising future public health- and welfare-based NAAQS.

Principle 1: Meet Statutory Deadlines

As noted above, EPA routinely fails to meet the CAA requirements to review each NAAQS every five years. These delays result in uncertainty as well as lost opportunities for implementing the NAAQS to protect health and the environment in a manner compatible with a growing American economy. EPA and CASAC are encouraged to look for efficiencies and opportunities to streamline the NAAQS review process to ensure that it is completed within the statutorily-mandated five-year period. EPA's Back-to-Basics memorandum also directs the agency and CASAC to ensure that any potential revisions to the NAAQS for ozone or particulate matter, last set in 2015 and 2012 respectively, be finalized by late 2020.

Principle 2: Address CAA Provisions for NAAQS Reviews

While the CAA clearly identifies the roles and responsibilities of CASAC in providing important advice in the review of air quality criteria, EPA has frequently failed to request that the committee provide advice with respect to all of the CASAC duties to which the statute specifically speaks. For example, Section 109(d)(2)(C) requires CASAC to advise the Administrator on the "relative contribution to air pollution concentrations of natural as well as anthropogenic activity," as well as "any adverse public health, welfare, social, economic, or energy effects which may result from various strategies for attainment and maintenance of such" NAAQS. To address these past failures, EPA intends to provide CASAC with a standardized set of key charge questions so that the entirety of the NAAQS review process is properly framed. While certain of these charge questions may elicit information which is outside the scope of the Administrator's standard-setting authority itself, such information, by providing important contextual insights, should nevertheless prove valuable to the public, co-regulators, EPA, and other policymakers.

Principle 3: Streamline and Standardize the Process for Development and Review of Key Policy-Relevant Information

CASAC has frequently identified reducing the length and complexity of the scientific assessments as a key process improvement for streamlining NAAQS reviews and ensuring the Agency adheres to the statutory deadlines. To help bridge the gap between the scientific assessments and the

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judgments required of the Administrator, the memorandum recommends incorporating policy-relevant science earlier into the review process. EPA is also directed to ensure that the initial drafts of all technical and policy assessments are high quality and ready for robust review from CASAC and the public.

Principle 4: Differentiate Science and Policy Considerations in NAAQS Review Process

The Back-to-Basics memo directs EPA to establish a clearer distinction between its scientific findings (contained in the Integrated Science Assessment) and the wider range of policy concerns that the Administrator may consider in judgments about the level of the NAAQS. CASAC and EPA should seek to find consensus, but should allow for individual advisors to share their individual perspectives.'

Principle 5: Issue Timely Implementation Regulations and Guidance

When a NAAQS is revised, EPA should strive for expedition in the release of implementation tools for co-regulators, including regulations, guidance, and technical information to assist state agencies in developing approvable plans. In the past, EPA implementation regulations and guidance have often trailed NAAQS revisions by years, which may hinder co-regulators from completing the required steps to administer the NAAQS at the state level. Failure to issue timely implementation regulations and guidance may contribute to nonattainment areas not attaining the NAAQS as quickly as practicable, as well as to the misallocation of state planning resources.

Flexibilities

Based on requirements in the CAA and the President's April 2018 memorandum, EPA has also committed to a number of important milestones in implementing NAAQS collaboratively with the states. Many of these critical measures have been ncorporated in the agency's FY2018–FY2022 strategic plan, as well as other EPA priority documents. These efforts include:

- As an agency priority goal, reducing the number of NAAQS nonattainment areas, including a 20-per cent reduction in these areas in the next few years.
- Addressing the backlog in state implementation plan revision submissions, which the CAA directs EPA to act upon within 18 months of submission.
- Pursuant to Section 319B of the CAA, releasing and communicating a number of tools related to the exclusion of air quality data exceeding the NAAQS when such data result from "exceptional events" outside the control of state, local, or tribal air agencies. Since 2016, EPA has acted upon more than 20 "exceptional event" demonstrations, nearly all of which concurred with state recommendations and thus provided the state with regulatory relief.
- Maximizing states' flexibility to use other tools enabling regulatory relief for appropriate reasons, including CAA provisions to address emissions caused by international sources.
- Working closely with states to facilitate the submission of "Good Neighbor" state implementation plans for the 2015 ozone NAAQS. Under Section 110 of the CAA, states must address in their plans emissions that contribute significantly to nonattainment or interfere with maintenance of the NAAQS in other states.
- Revisiting aspects of the previous Administration's regional haze rule, including identifying flexibilities and technical tools for state plans due in 2021.
- Simplifying the New Source Review process and, by October 2019, reducing by 50 percent the number of permitting-related decisions that exceed six months. **em**

Alexander Dominguez is a Policy Analyst, and **Clint Woods** is Deputy Assistant Administrator, both with the U.S. Environmental Protection Agency's Office of Air and Radiation.

ED_002719_00038139-00004

Message

From: Woods, Clint [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=BC65010F5C2E48F4BC2AA050DB50D198-WOODS, CLIN]
Sent: 4/23/2018 8:42:21 PM
To: Hilary Moffett [moffetth@api.org]
Subject: RE: Meeting Attendees

Thanks so much!

Clint Woods
Deputy Assistant Administrator
Office of Air and Radiation, U.S. EPA
202.564.6562

From: Hilary Moffett [mailto:moffetth@api.org]
Sent: Monday, April 23, 2018 4:20 PM
To: Woods, Clint <woods.clint@epa.gov>
Subject: Meeting Attendees

Hi Clint,

We're looking forward to the meeting with you tomorrow at 1pm. The list of attendees is as follows:

Hilary Moffett
Ted Steichen
Kevin Medeiros
Khary Cauthen
Stephen Higley
Kate Fay
Puneet Verma
Dale Thanjan
Marnie Funk

Please let me know if you need anything else from me.

Thanks,
Hilary

Hilary Moffett
Director, Federal Relations
American Petroleum Institute
202-682-8040 (desk)
Ex. 6 Personal Privacy (PP) (cell)
MoffettH@api.org

Message

From: Woods, Clint [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=BC65010F5C2E48F4BC2AA050DB50D198-WOODS, CLIN]
Sent: 2/22/2018 3:34:30 PM
To: Stanko, Joseph [jstanko@hunton.com]
Subject: RE: Thanks for the VM

Sounds good – Thanks!

Clint Woods
Deputy Assistant Administrator
Office of Air and Radiation, U.S. EPA
202.564.6562

From: Stanko, Joseph [mailto:jstanko@hunton.com]
Sent: Thursday, February 22, 2018 10:09 AM
To: Woods, Clint <woods.clint@epa.gov>
Subject: Thanks for the VM

I'll call at 12:15 if that still works.

Joe

HUNTON & WILLIAMS

Joseph Stanko
Partner
jstanko@hunton.com
p 202.955.1529
bio | vCard

Hunton & Williams LLP
2200 Pennsylvania Avenue, NW
Washington, DC 20037
hunton.com

Message

From: Woods, Clint [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=BC65010F5C2E48F4BC2AA050DB50D198-WOODS, CLIN]
Sent: 3/30/2018 3:28:32 PM
To: Hilary Moffett [moffetth@api.org]
CC: Atkinson, Emily [Atkinson.Emily@epa.gov]
Subject: RE: Meeting Request

Hilary,

Sorry for the delay – That would be great! I think we will have a lot more to share in the latter half of April, and I've copied Emily Atkinson who may be able to help us find a good date/time. We're happy to include the folks from OAQPS too if it would be helpful.

On a related front, earlier in the week we provided a memo with some updated modeling and potential flexibilities for states in developing good neighbor SIPs for the 2015 ozone NAAQS: https://www.epa.gov/airmarkets/march-2018-memo-and-supplemental-information-regarding-interstate-transport-sips-2015

Thanks!

Clint Woods
Deputy Assistant Administrator
Office of Air and Radiation, U.S. EPA
202.564.6562

From: Hilary Moffett [mailto:moffetth@api.org]
Sent: Wednesday, March 28, 2018 10:43 AM
To: Woods, Clint <woods.clint@epa.gov>
Subject: Meeting Request

Hi Clint,

I hope this email finds you well. It was great to see you at the RTR signing last week. I'm reaching out to see if you have some time for a meeting on ozone implementation. We visited with you back in January on exceptional events, international transport, and background ozone. We'd like to come back in and talk about efforts by the agency to address these issues and how we can be helpful. Do you have 30 minutes in the coming weeks to chat?

Thanks for your consideration!

Regards,
Hilary

Hilary Moffett
Director, Federal Relations
American Petroleum Institute
202-682-8040 (desk)
Ex. 6 Personal Privacy (PP) (cell)
MoffettH@api.org

Message

From: Woods, Clint [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=BC65010F5C2E48F4BC2AA050DB50D198-WOODS, CLIN]
Sent: 3/13/2018 2:43:11 PM
To: Hilary Moffett [moffetth@api.org]
Subject: RE: Ozone Follow Up

Hilary,

Thanks so much – This is very helpful!

Clint Woods
Deputy Assistant Administrator
Office of Air and Radiation, U.S. EPA
202.564.6562

From: Hilary Moffett [mailto:moffetth@api.org]
Sent: Monday, March 12, 2018 11:57 AM
To: Woods, Clint <woods.clint@epa.gov>
Subject: Ozone Follow Up

Hi Clint,

I hope this email finds you well. During our meeting a few weeks ago, you mentioned an interest in more information about high bias monitors and studies on ozone transport. Please see the attached documents. One is a list of literature on ozone transport. The second attachment contains maps and data about high bias monitors.

Please let me know if you have questions.

Thanks,
Hilary

Hilary Moffett
Director, Federal Relations
American Petroleum Institute
202-682-8040 (desk)
Ex. 6 Personal Privacy (PP) (cell)
MoffettH@api.org

Message

From: Woods, Clinton [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=BC65010F5C2E48F4BC2AA050DB50D198-WOODS, CLIN]
Sent: 1/2/2018 5:57:28 PM
To: Hilary Moffett [moffetth@api.org]
Subject: RE: Meeting Request

Hilary,

Happy new year, and thanks so much for following up! We're cross-checking schedules but I think we can make the morning of 1/30 work. Emily Atkinson or myself should be in touch shortly on timing.

Clint Woods
Deputy Assistant Administrator
Office of Air and Radiation, U.S. EPA
202.564.6562

From: Hilary Moffett [mailto:moffetth@api.org]
Sent: Tuesday, January 2, 2018 12:53 PM
To: Woods, Clinton <woods.clinton@epa.gov>
Subject: RE: Meeting Request

Hi Clint,

Happy New Year! I hope you were able to take some time to rest and relax over the holidays. I'm sure you're digging through email, but just wanted to make sure you saw this response on meeting times. There is certainly no rush, but just wanted to make sure this didn't get buried.

Thanks,
Hilary

From: Hilary Moffett
Sent: Wednesday, December 20, 2017 1:06 PM
To: 'Woods, Clinton'
Subject: RE: Meeting Request

Thanks Clint.

On Tuesday 1/30 we could do anything in the morning before about 1. Could also do 330-5.
On Wednesday 1/31, we could do 1-4.
Does anything in there work?

Thanks,
Hilary

From: Woods, Clinton [mailto:woods.clinton@epa.gov]
Sent: Wednesday, December 20, 2017 10:50 AM
To: Hilary Moffett
Subject: RE: Meeting Request

Hilary,

Thanks so much, and it was great to meet you as well. That sounds great – Please let me know if there are some good dates/times the weeks of January 22 or 29 (for the latter, the early part of the week is better from my end) and we can get something set up.

Clint Woods
Deputy Assistant Administrator
Office of Air and Radiation, U.S. EPA
202.564.6562

From: Hilary Moffett [mailto:moffetth@api.org]
Sent: Wednesday, December 20, 2017 10:44 AM
To: Woods, Clinton <woods.clinton@epa.gov>
Subject: Meeting Request

Hi Clint,

I hope this email finds you well –great to meet you yesterday!! I didn't want to bombard you on your first week with a meeting request, so I waited until week 2!! I hope you're settling in nicely.

API would like to bring in a few member companies to talk about Ozone Implementation Assistance. Do you have some time the last week in January?

Thanks,
Hilary

Hilary Moffett
Director, Federal Relations
American Petroleum Institute
202-682-8040 (desk)
Ex. 6 Personal Privacy (PP) (cell)
MoffettH@api.org

Appointment

From: Veney, Carla [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=C354B58BF2B1464D8AFAC7BBD2A7A88C-CVENEY]
Sent: 7/26/2018 2:38:02 PM
To: Leopold, Matt (OGC) [Leopold.Matt@epa.gov]; Fotouhi, David [fotouhi.david@epa.gov]; Bulleit, Kristy [kbulleit@hunton.com]; Lin, Elbert [ELin@hunton.com]; 'Stanko, Joseph' [jstanko@hunton.com]; Ross, David P [ross.davidp@epa.gov]; Shaffer, Patricia [Shaffer.Patricia@epa.gov]
BCC: DCRoomARN4045/DC-Ariel-Rios-OGC [DCROOMARN4045@epa.gov]

Subject: Meeting between EPA & Hunton Andrews Kurth LLP
Location: EPA Headquarters, 1200 Pennsylvania Ave. NW (William Jefferson Clinton Building), 4th Floor, Room 4045

Start: 8/16/2018 5:00:00 PM
End: 8/16/2018 6:00:00 PM
Show Time As: Busy

Appointment

From: Edstrom, Brittanie [BEdstrom@hunton.com]
Sent: 10/19/2018 2:55:08 PM
To: Edstrom, Brittanie [BEdstrom@hunton.com]; Stachowiak, Robert [Stachowiak.Robert@epa.gov]; Veney, Carla [Veney.Carla@epa.gov]; Leopold, Matt (OGC) [Leopold.Matt@epa.gov]; Stanko, Joseph [jstanko@hunton.com]; Jaber, Makram [mjaber@hunton.com]

Subject: Panel Preparation Call
Location: Phone Number: Ex. 6 Personal Privacy (PP) Access Code Ex. 6 Personal Privacy (PP)

Start: 10/22/2018 3:30:00 PM
End: 10/22/2018 4:00:00 PM
Show Time As: Busy

Recurrence: (none)

Appointment

From: Veney, Carla [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=C354B58BF2B1464D8AFAC7BBD2A7A88C-CVENEY]
Sent: 9/28/2018 11:09:55 AM
To: Leopold, Matt (OGC) [Leopold.Matt@epa.gov]; 'Stacy Linden' [lindens@api.org]; Leigh Ann Brown [BrownL@api.org]; Schwab, Justin [schwab.justin@epa.gov]
CC: John Wagner [Wagner@api.org]

Subject: EPA/API Meeting
Location: EPA Headquarters, 1200 Pennsylvania Ave. NW (William Jefferson Clinton Building), 4th floor, Room 4000

Start: 10/15/2018 3:30:00 PM
End: 10/15/2018 4:00:00 PM
Show Time As: Busy

Appointment

From: Veney, Carla [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=C354B58BF2B1464D8AFAC7BBD2A7A88C-CVENEY]
Sent: 3/29/2018 3:49:46 PM
To: Leopold, Matt [Leopold.Matt@epa.gov]; rlattimore@croplifeamerica.org; 'syager@beef.org'; 'mhart@beef.org'; 'tward@nahb.org'; 'brooks.smith@troutmansanders.com'; akoethe@aar.org; brownl@api.org; wagner@api.org; lindens@api.org; rmoskowitz@afpm.org; msonnesyn@brt.org; 'rgoss@itic.org'; JRizzo@nahb.org; Jan_Poling@afandpa.org; formicam@nppc.org; ellens@fb.org; ksweeney@nma.org; 'gcrandall@umwa.org'; dell_perelman@americanchemistry.com; Baptist, Erik [baptist.erik@epa.gov]; Schwab, Justin [schwab.justin@epa.gov]; Fotouhi, David [fotouhi.david@epa.gov]; Burke, Marcella [burke.marcella@epa.gov]; Albores, Richard [Albores.Richard@epa.gov]; Epp, Timothy [Epp.Timothy@epa.gov]; Siciliano, CarolAnn [Siciliano.CarolAnn@epa.gov]; lkelly@nam.org; ptolsdorf@nam.org; Neugeboren, Steven [Neugeboren.Steven@epa.gov]; Michaud, John [Michaud.John@epa.gov]; Srinivasan, Gautam [Srinivasan.Gautam@epa.gov]; Minoli, Kevin [Minoli.Kevin@epa.gov]; Aspatore, Amanda [AAspatore@nma.org]
CC: Scott Yager [syager@beef.org]; Veney, Carla [Veney.Carla@epa.gov]; Ward, Thomas [TWard@nahb.org]; Smith, Brooks M. [Brooks.Smith@troutmansanders.com]; Rick Goss [rgoss@itic.org]

Subject: Industry Open House Meeting
Location: EPA Headquarters, 1200 Pennsylvania Ave. NW (William Jefferson Clinton Building), 4th Floor, Room 4045

Start: 5/16/2018 6:00:00 PM
End: 5/16/2018 7:00:00 PM
Show Time As: Busy

Appointment

From: Veney, Carla [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=C354B58BF2B1464D8AFAC7BBD2A7A88C-CVENEY]
Sent: 2/27/2019 6:53:33 PM
To: Leopold, Matt (OGC) [Leopold.Matt@epa.gov]; Broome, Shannon S. [SBroome@hunton.com]; Schwab, Justin [schwab.justin@epa.gov]; Cress, Julie [JCress@hunton.com]; Woods, Clint [woods.Clint@epa.gov]
CC: Shaffer, Patricia [Shaffer.Patricia@epa.gov]; Rakosnik, Delaney [rakosnik.delaney@epa.gov]

Subject: EPA/Hunton Andrews Kurth Meeting
Location: EPA Headquarters, 1200 Pennsylvania Avenue (William Jefferson Clinton Building), 4th Floor, Room 4045

Start: 3/12/2019 2:00:00 PM
End: 3/12/2019 3:00:00 PM
Show Time As: Busy

Appointment

From: Veney, Carla [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=C354B58BF2B1464D8AFAC7BBD2A7A88C-CVENEY]
Sent: 2/27/2019 6:53:33 PM
To: Leopold, Matt (OGC) [Leopold.Matt@epa.gov]; 'Broome, Shannon S.' [SBroome@hunton.com]; Schwab, Justin [schwab.justin@epa.gov]; Cress, Julie [JCress@hunton.com]; Woods, Clint [woods.Clint@epa.gov]; DCRoomARN4045/DC-Ariel-Rios-OGC [DCROOMARN4045@epa.gov]
CC: Shaffer, Patricia [Shaffer.Patricia@epa.gov]; Rakosnik, Delaney [rakosnik.delaney@epa.gov]

Subject: EPA/Hunton Andrews Kurth Meeting
Location: EPA Headquarters, 1200 Pennsylvania Avenue (William Jefferson Clinton Building), 4th Floor, Room 4045

Start: 3/12/2019 2:00:00 PM
End: 3/12/2019 3:00:00 PM
Show Time As: Busy

Appointment

From: Veney, Carla [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=C354B58BF2B1464D8AFAC7BBD2A7A88C-CVENEY]
Sent: 2/27/2019 6:53:33 PM
To: Leopold, Matt (OGC) [Leopold.Matt@epa.gov]; 'Broome, Shannon S.' [SBroome@hunton.com]; Schwab, Justin [schwab.justin@epa.gov]; Cress, Julie [JCress@hunton.com]; Woods, Clint [woods.Clint@epa.gov]; DCRoomARN4045/DC-Ariel-Rios-OGC [DCROOMARN4045@epa.gov]
CC: Shaffer, Patricia [Shaffer.Patricia@epa.gov]; Rakosnik, Delaney [rakosnik.delaney@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]

Subject: EPA/Hunton Andrews Kurth Meeting
Location: EPA Headquarters, 1200 Pennsylvania Avenue (William Jefferson Clinton Building), 4th Floor, Room 4045

Start: 3/12/2019 2:15:00 PM
End: 3/12/2019 3:00:00 PM
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Appointment

From: Veney, Carla [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=C354B58BF2B1464D8AFAC7BBD2A7A88C-CVENEY]
Sent: 3/29/2018 3:49:46 PM
To: Leopold, Matt [Leopold.Matt@epa.gov]; rlattimore@croplifeamerica.org; 'syager@beef.org'; 'mhart@beef.org'; 'tward@nahb.org'; 'brooks.smith@troutmansanders.com'; akoethe@aar.org; brownl@api.org; wagner@api.org; lindens@api.org; rmoskowitz@afpm.org; msonnesyn@brt.org; 'rgoss@itic.org'; JRizzo@nahb.org; Jan_Poling@afandpa.org; formicam@nppc.org; ellens@fb.org; ksweeney@nma.org; 'gcrandall@umwa.org'; dell_perelman@americanchemistry.com; Baptist, Erik [baptist.erik@epa.gov]; Schwab, Justin [schwab.justin@epa.gov]; Fotouhi, David [fotouhi.david@epa.gov]; Burke, Marcella [burke.marcella@epa.gov]; Albores, Richard [Albores.Richard@epa.gov]; Epp, Timothy [Epp.Timothy@epa.gov]; Siciliano, CarolAnn [Siciliano.CarolAnn@epa.gov]; lkelly@nam.org; ptolsdorf@nam.org; Neugeboren, Steven [Neugeboren.Steven@epa.gov]; Michaud, John [Michaud.John@epa.gov]; Srinivasan, Gautam [Srinivasan.Gautam@epa.gov]; Minoli, Kevin [Minoli.Kevin@epa.gov]; Aspatore, Amanda [AAspatore@nma.org]
CC: Scott Yager [syager@beef.org]; Veney, Carla [Veney.Carla@epa.gov]; Ward, Thomas [TWard@nahb.org]; Smith, Brooks M. [Brooks.Smith@troutmansanders.com]; Rick Goss [rgoss@itic.org]

Subject: Industry Open House Meeting
Location: EPA Headquarters, 1200 Pennsylvania Ave. NW (William Jefferson Clinton Building), 4th Floor, Room 4045

Start: 5/16/2018 6:00:00 PM
End: 5/16/2018 7:00:00 PM
Show Time As: Busy

Guests: Please enter through our North side entrance. Upon clearing security, someone will come down to escort you to our offices on the 4th floor. Contact OGC main line at 202-564-8040. Thank you.

Appointment

From: Veney, Carla [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=C354B58BF2B1464D8AFAC7BBD2A7A88C-CVENEY]
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To: Leopold, Matt (OGC) [Leopold.Matt@epa.gov]; 'Broome, Shannon S.' [SBroome@hunton.com]; Schwab, Justin [schwab.justin@epa.gov]; Cress, Julie [JCress@hunton.com]; Woods, Clint [woods.Clint@epa.gov]; DCRoomARN4045/DC-Ariel-Rios-OGC [DCROOMARN4045@epa.gov]
CC: Shaffer, Patricia [Shaffer.Patricia@epa.gov]; Rakosnik, Delaney [rakosnik.delaney@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]

Subject: EPA/Hunton Andrews Kurth Meeting
Location: EPA Headquarters, 1200 Pennsylvania Avenue (William Jefferson Clinton Building), 4th Floor, Room 4045

Start: 3/12/2019 2:15:00 PM
End: 3/12/2019 3:00:00 PM
Show Time As: Busy

PLEASE NOTE: The start time has been adjusted. Please enter via our north side entrance. Upon clearing security, you will be escorted to the conference room.

Appointment

From: Wood, Allison D. [awood@hunton.com]
Sent: 2/5/2019 2:35:16 PM
To: Wood, Allison D. [awood@hunton.com]; Leopold, Matt (OGC) [Leopold.Matt@epa.gov]; Veney, Carla [Veney.Carla@epa.gov]; Vickie Patton [vpatton@edf.org]

Subject: Call To Discuss ALI CLE
Location: Ex. 6 Personal Privacy (PP) pass code Ex. 6 Personal Privacy (PP)

Start: 2/5/2019 8:00:00 PM
End: 2/5/2019 8:30:00 PM
Show Time As: Busy

Recurrence: (none)

Appointment

From: Edstrom, Brittanie [BEdstrom@hunton.com]
Sent: 10/19/2018 2:55:08 PM
To: Edstrom, Brittanie [BEdstrom@hunton.com]; Stachowiak, Robert [Stachowiak.Robert@epa.gov]; Veney, Carla [Veney.Carla@epa.gov]; Leopold, Matt (OGC) [Leopold.Matt@epa.gov]; Stanko, Joseph [jstanko@hunton.com]; Jaber, Makram [mjaber@hunton.com]

Subject: Panel Preparation Call
Location: Phone Number: Ex. 6 Personal Privacy (PP) Access Code Ex. 6 Personal Privacy (PP)

Start: 10/22/2018 3:30:00 PM
End: 10/22/2018 4:00:00 PM
Show Time As: Busy

Recurrence: (none)

Appointment

From: Veney, Carla [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=C354B58BF2B1464D8AFAC7BBD2A7A88C-CVENEY]
Sent: 9/28/2018 11:09:55 AM
To: Leopold, Matt (OGC) [Leopold.Matt@epa.gov]; 'Stacy Linden' [lindens@api.org]; Leigh Ann Brown [BrownL@api.org]; Schwab, Justin [schwab.justin@epa.gov]
CC: John Wagner [Wagner@api.org]

Subject: EPA/API Meeting
Location: EPA Headquarters, 1200 Pennsylvania Ave. NW (William Jefferson Clinton Building), 4th floor, Room 4000

Start: 10/15/2018 3:30:00 PM
End: 10/15/2018 4:00:00 PM
Show Time As: Busy

Please enter via our north side entrance off of 12th street. Upon clearing security, you will be escorted to Matt's office. Also, please send Mr. Wagner's email address to be added to the invite or you can just forward to him. Thank you.

Appointment

From: Veney, Carla [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=C354B58BF2B1464D8AFAC7BBD2A7A88C-CVENEY]
Sent: 7/26/2018 2:38:02 PM
To: Leopold, Matt (OGC) [Leopold.Matt@epa.gov]; Fotouhi, David [fotouhi.david@epa.gov]; Bulleit, Kristy [kbulleit@hunton.com]; Lin, Elbert [ELin@hunton.com]; 'Stanko, Joseph' [jstanko@hunton.com]; Ross, David P [ross.davidp@epa.gov]; Shaffer, Patricia [Shaffer.Patricia@epa.gov]
BCC: DCRoomARN4045/DC-Ariel-Rios-OGC [DCROOMARN4045@epa.gov]

Subject: Meeting between EPA & Hunton Andrews Kurth LLP
Location: EPA Headquarters, 1200 Pennsylvania Ave. NW (William Jefferson Clinton Building), 4th Floor, Room 4045

Start: 8/16/2018 5:00:00 PM
End: 8/16/2018 6:00:00 PM
Show Time As: Busy

RE: Clean Water Act issues

Please enter via our north side entrance. Upon clearing security, you will be escorted to the meeting location. Thanks.

Message

From: Pamela Esterman [pesterman@sprlaw.com]
Sent: 1/2/2019 6:31:34 PM
To: Vickie Patton [vpatton@edf.org]; Wood, Allison D. [awood@hunton.com]; Leopold, Matt (OGC) [Leopold.Matt@epa.gov]
Subject: ALI CLE Environmental Law- AIR PANEL- Feb. 7, 2019, 1-2:15 PM

Air Panel Members:
Happy New Year! I hope you all had a wonderful holiday! I want to remind all of you that the ALI CLE Environmental Law Conference is right around the corner. The Air Panel will take place on February 7, 2019, from 1:00 - 2:15 pm at the Washington Plaza Hotel, DC. It would be great if we could convene a brief planning call in the near future to talk about how you plan to present the panel. Here is a link to the conference brochure: https://www.ali-cle.org/course/Environmental-Law-2019-CA012
It will probably be helpful if I organize this call so let me know your availability this week on Thursday or Friday. If you are not available, let me know what works for you next week.
If anyone has an article(s) that they have authored in the recent past relating to water, ALI CLE would like to include it in the materials. Your powerpoints should also be included in the materials. We can talk about these details on the call.
Best,
Pam Esterman

Pamela Esterman

SIVE, PAGET & RIESEL P.C.

560 Lexington Avenue, 15th Floor
New York, NY 10022

P: 212 421-2150

Direct: 646-378-7212

Mobile: Ex. 6 Personal Privacy (PP)

Fax: 212 421-1891

pesterman@sprlaw.com

Visit our website at www.sprlaw.com

This e-mail message and any attached files are confidential and are intended solely for the use of the addressee(s) named above. This communication may contain material protected by attorney-client, work product, or other privileges. If you are not the intended recipient or person responsible for delivering this confidential communication to the intended recipient, you have received this communication in error, and any review, use, dissemination, forwarding, printing, copying, or other distribution of this e-mail message and any attached files is strictly prohibited. If you have received this confidential communication in error, please notify the sender immediately by reply e-mail message and permanently delete the original message.

Message

From: Broome, Shannon S. [SBroome@hunton.com]
Sent: 3/12/2019 12:16:32 PM
To: Leopold, Matt (OGC) [Leopold.Matt@epa.gov]; Schwab, Justin [Schwab.Justin@epa.gov]; Cress, Julie [JCress@hunton.com]; Woods, Clint [woods.clint@epa.gov]; DCRoomARN4045/DC-Ariel-Rios-OGC [DCROOMARN4045@epa.gov]
CC: Shaffer, Patricia [Shaffer.Patricia@epa.gov]; Rakosnik, Delaney [rakosnik.delaney@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]
Subject: RE: EPA/Hunton Andrews Kurth Meeting

Thank you.

-----Original Appointment-----
From: Veney.Carla@epa.gov [mailto:Veney.Carla@epa.gov] **On Behalf Of** Leopold, Matt (OGC)
Sent: Tuesday, March 12, 2019 8:15 AM
To: Broome, Shannon S.; Schwab, Justin; Cress, Julie; Woods, Clint; DCRoomARN4045/DC-Ariel-Rios-OGC
Cc: Shaffer, Patricia; Rakosnik, Delaney; Dominguez, Alexander
Subject: EPA/Hunton Andrews Kurth Meeting
When: Tuesday, March 12, 2019 10:15 AM-11:00 AM (UTC-05:00) Eastern Time (US & Canada).
Where: EPA Headquarters, 1200 Pennsylvania Avenue (William Jefferson Clinton Building), 4th Floor, Room 4045

PLEASE NOTE: The start time has been adjusted. Please enter via our north side entrance. Upon clearing security, you will be escorted to the conference room.

Message

From: Mike Sommers [registrar@api.org]
Sent: 12/27/2018 3:32:33 PM
To: Leopold, Matt (OGC) [Leopold.Matt@epa.gov]
Subject: Last Chance to Register for The State of American Energy

The American Petroleum Institute invites you to
The 2019 State of American Energy luncheon – a celebration of Generation Energy

December 31, 2018 is the last chance to register for API's 2019 State of American Energy luncheon on **Tuesday, January 8, 2019** from 11:30 A.M.-1:30 P.M. Please RSVP at Registrar@api.org if you have any questions.

Sincerely,

MIKE SOMMERS,
President and CEO, API

This event has been designed to comply with the gifts and ethics rules of the U.S. Senate and House of Representatives as a "widely attended event." Employees of the executive branch may wish to consult their Designated Agency Ethics Official about any rules that may apply to their attendance at this event.

If you do not want to receive future emails from Mike Sommers, go to: Opt-Out

powered by
cvent

Message

From: Pamela McCutcheon [pmccutcheon@ali-cle.org]
Sent: 3/8/2019 8:34:46 PM
To: michael.gerrard@law.columbia.edu; mbenesh@ewg.gov; Ex. 6 Personal Privacy (PP) ; dchorost@sprlaw.com; dchung@crowell.com; jcruden@bdlaw.com; dorsainvild@dcobc.org; aferlo@perkinscoie.com; rfox@mankogold.com; fulton@eli.org; agates@mwlaw.com; ragu-jara.gregg@usdoj.gov; rhammer@nrdc.org; david.hayes@nyu.edu; joshua.kaplowitz@sol.doi.gov; Leopold, Matt (OGC) [Leopold.Matt@epa.gov]; brenda@conservationlitproj.org; nmcaliley@carltonfields.com; Mugdan, Walter [Mugdan.Walter@epa.gov]; jpage@defenders.org; vpatton@edf.org; Rpercival@law.umaryland.edu; squarles@nossaman.com; Ruhl, Suzi [Ruhl.Suzi@epa.gov]; sschwarz@faraci.com; mthurlow@bakerlaw.com; hilary.tompkins@hoganlovells.com; Wheeler, Andrew [wheeler.andrew@epa.gov]; awood@HuntonAK.com
CC: Amy Weinberg [aweinberg@ali-cle.org]; Pamela McCutcheon [pmccutcheon@ali-cle.org]
Subject: ALI CLE (Env Law 2019)
Attachments: CA012 evals (faculty).pdf

Attached are the course evaluations from the ALI CLE program, *Environmental Law*, February 7-8, in Washington, DC.

Pamela McCutcheon DeLarge
ALI CLE
4025 Chestnut Street
Philadelphia, PA 19104
(215) 243-1633

ALI CLE

4025 Chestnut Street, Philadelphia, PA 19104-3099
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Leslie A. Belasco, *Director of Courses*

MEMORANDUM

CA012

TO: Faculty Members of the ALI CLE Program, **Environmental Law,** February 7-8, 2019, in Washington, D.C.

FROM: Amy Weinberg

SUBJ: Course of Study Evaluation Forms

DATE: March 8, 2019

I am enclosing for your information a summary of the evaluations returned by the registrants for the ALI CLE program, **Environmental Law,** February 7-8, 2019 in Washington, DC.

On behalf of ALI CLE and its staff, I would like to take this opportunity to acknowledge with sincere thanks and warm appreciation your participation in this course of study. Your contribution materially assisted ALI CLE's efforts to enhance the professional competence of members of the bar and is a significant service to post-admission legal education in the United States.

Once again, many thanks!

Enclosures

ALI CLE Course Evaluations

	Total		Practitioners		Corporate		Government		Other	
Did the course fulfill the objectives set forth in the brochure?										
Yes	13	100.00%	1	100.00%	5	100.00%	5	100.00%	2	100.00%
No	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No Response	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
The pace at which the material was covered was...										
Too Slow	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
About Right	13	100.00%	1	100.00%	5	100.00%	5	100.00%	2	100.00%
Too Fast	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No Response	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Were the subjects effectively treated within the time allotted?										
Yes	13	100.00%	1	100.00%	5	100.00%	5	100.00%	2	100.00%
No	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No Response	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
For your experience and preparation the course was...										
Too Easy	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Somewhat Easy	2	15.38%	0	0.00%	0	0.00%	1	20.00%	1	50.00%
About Right	9	69.23%	1	100.00%	3	60.00%	4	80.00%	1	50.00%
Somewhat Difficult	2	15.38%	0	0.00%	2	40.00%	0	0.00%	0	0.00%
Too Difficult	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No Response	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Do you practice extensively in the subject of this course?										
Yes	10	76.92%	1	100.00%	3	60.00%	4	80.00%	2	100.00%
No	2	15.38%	0	0.00%	2	40.00%	0	0.00%	0	0.00%
No Response	1	7.69%	0	0.00%	0	0.00%	1	20.00%	0	0.00%
Your purpose(s) in attending(check one or more)										
To get help with a specific problem in my office	2		0		1		1		0	
To improve a specific legal skill	2		0		2		0		0	
To learn about new legal developments	11		1		4		4		2	
To enhance my general legal knowledge	7		0		3		2		2	
To expand my current practice	3		0		0		2		1	
To gain insight into what other practitioners are doing	6		1		2		2		1	
To fulfill continuing education requirements	8		1		3		2		2	
Other	0		0		0		0		0	
Were your purposes in attending met?										
Yes	13	100.00%	1	100.00%	5	100.00%	5	100.00%	2	100.00%
No	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No Response	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%

The Course Materials were...										
Excellent	7	53.85%	0	0.00%	2	40.00%	4	80.00%	1	50.00%
Good	5	38.46%	1	100.00%	2	40.00%	1	20.00%	1	50.00%
Fair	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Poor	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No Response	1	7.69%	0	0.00%	1	20.00%	0	0.00%	0	0.00%
Overall, the COURSE was...										
Excellent	10	76.92%	1	100.00%	3	60.00%	5	100.00%	1	50.00%
Good	3	23.08%	0	0.00%	2	40.00%	0	0.00%	1	50.00%
Fair	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Poor	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No Response	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Meeting Room Environment										
Excellent	7	53.85%	1	100.00%	4	80.00%	2	40.00%	0	0.00%
Good	6	46.15%	0	0.00%	1	20.00%	3	60.00%	2	100.00%
Fair	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Poor	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No Response	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Hotel/Facility										
Excellent	8	61.54%	1	100.00%	3	60.00%	2	40.00%	2	100.00%
Good	3	23.08%	0	0.00%	2	40.00%	1	20.00%	0	0.00%
Fair	1	7.69%	0	0.00%	0	0.00%	1	20.00%	0	0.00%
Poor	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No Response	1	7.69%	0	0.00%	0	0.00%	1	20.00%	0	0.00%
City as course site										
Excellent	11	84.62%	1	100.00%	3	60.00%	5	100.00%	2	100.00%
Good	2	15.38%	0	0.00%	2	40.00%	0	0.00%	0	0.00%
Fair	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Poor	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No Response	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
On-site Course Administration										
Excellent	11	84.62%	1	100.00%	4	80.00%	5	100.00%	1	50.00%
Good	2	15.38%	0	0.00%	1	20.00%	0	0.00%	1	50.00%
Fair	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Poor	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No Response	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Your Current practice/work setting										
Sole Practitioner	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Firm of 2-10 lawyers	1	7.69%	1	100.00%	0	0.00%	0	0.00%	0	0.00%
Firm of 11-50 lawyers	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Firm of 51-100 lawyers	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Firm of 101+ lawyers	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%

In-House corporate counsel	5	38.46%	0	0.00%	5	100.00%	0	0.00%	0	0.00%
Government Lawyer	5	38.46%	0	0.00%	0	0.00%	5	100.00%	0	0.00%
Judge or Judicial Staff	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Other Legal Work	2	15.38%	0	0.00%	0	0.00%	0	0.00%	2	100.00%
Law Faculty	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Law Student	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Accountant	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Actuary	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Chartered Life Underwriter	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Trust Officer	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Other(Please specify)	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No Response	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Years in Practice/work										
0-5 years	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
6-10 years	4	30.77%	1	100.00%	1	20.00%	0	0.00%	2	100.00%
11-15 years	1	7.69%	0	0.00%	0	0.00%	1	20.00%	0	0.00%
more than 15 years	8	61.54%	0	0.00%	4	80.00%	4	80.00%	0	0.00%
No Response	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Size of community in which you work/practice?										
Fewer than 50,000 people	1	7.69%	0	0.00%	0	0.00%	1	20.00%	0	0.00%
50,000 - 99,999 people	1	7.69%	0	0.00%	0	0.00%	1	20.00%	0	0.00%
100,000 - 249,999 people	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
250,000 - 499,999 people	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
500,000 to a million people	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
More than a million people	8	61.54%	0	0.00%	3	60.00%	3	60.00%	2	100.00%
No Response	3	23.08%	1	100.00%	2	40.00%	0	0.00%	0	0.00%
Where do you practice/work?										
Locally (within commuting distance of the course)	5	38.46%	1	100.00%	0	0.00%	2	40.00%	2	100.00%
Not locally but within 100 miles of the course	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
100-500 miles from the course	6	46.15%	0	0.00%	3	60.00%	3	60.00%	0	0.00%
More than 500 miles from the course	2	15.38%	0	0.00%	2	40.00%	0	0.00%	0	0.00%
No Response	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Is this the first ALI CLE program you have attended?										
Yes	5	38.46%	0	0.00%	3	60.00%	1	20.00%	1	50.00%
No	8	61.54%	1	100.00%	2	40.00%	4	80.00%	1	50.00%
No Response	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%

Faculty Summary

		Content		Presentation		Materials		Overall
Whole Faculty								
Excellent	3	23.08%	3	23.08%	2	15.38%	2	15.38%
Good	0	0.00%	0	0.00%	1	7.69%	1	7.69%
Fair	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Poor	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No Response	10	76.92%	10	76.92%	10	76.92%	10	76.92%
Whole Faculty								
Excellent	3	23.08%	3	23.08%	2	15.38%	2	15.38%
Good	0	0.00%	0	0.00%	1	7.69%	1	7.69%
Fair	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Poor	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No Response	10	76.92%	10	76.92%	10	76.92%	10	76.92%
Benesh, Melanie								
Excellent	4	30.77%	4	30.77%	4	30.77%	4	30.77%
Good	2	15.38%	1	7.69%	2	15.38%	2	15.38%
Fair	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Poor	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No Response	7	53.85%	8	61.54%	7	53.85%	7	53.85%
Boling, Edward								
Excellent	4	30.77%	4	30.77%	3	23.08%	3	23.08%
Good	2	15.38%	1	7.69%	3	23.08%	3	23.08%
Fair	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Poor	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No Response	7	53.85%	8	61.54%	7	53.85%	7	53.85%
Chorost, Dan								
Excellent	3	23.08%	3	23.08%	3	23.08%	3	23.08%
Good	1	7.69%	0	0.00%	1	7.69%	2	15.38%
Fair	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Poor	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No Response	9	69.23%	10	76.92%	9	69.23%	8	61.54%
Chung, David								
Excellent	4	30.77%	3	23.08%	4	30.77%	4	30.77%
Good	1	7.69%	1	7.69%	1	7.69%	1	7.69%
Fair	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Poor	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No Response	8	61.54%	9	69.23%	8	61.54%	8	61.54%
Cruden, John								
Excellent	8	61.54%	5	38.46%	6	46.15%	7	53.85%

Good	0	0.00%	1	7.69%	2	15.38%	0	0.00%
Fair	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Poor	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No Response	5	38.46%	7	53.85%	5	38.46%	6	46.15%
Esterman, Pamela								
Excellent	2	15.38%	1	7.69%	2	15.38%	2	15.38%
Good	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fair	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Poor	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No Response	11	84.62%	12	92.31%	11	84.62%	11	84.62%
Ferlo, Albert								
Excellent	3	23.08%	2	15.38%	3	23.08%	3	23.08%
Good	1	7.69%	2	15.38%	1	7.69%	1	7.69%
Fair	1	7.69%	0	0.00%	1	7.69%	1	7.69%
Poor	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No Response	8	61.54%	9	69.23%	8	61.54%	8	61.54%
Fox, Robert								
Excellent	5	38.46%	3	23.08%	5	38.46%	4	30.77%
Good	1	7.69%	1	7.69%	1	7.69%	1	7.69%
Fair	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Poor	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No Response	7	53.85%	9	69.23%	7	53.85%	8	61.54%
Fulton, Scott								
Excellent	3	23.08%	2	15.38%	3	23.08%	3	23.08%
Good	4	30.77%	3	23.08%	4	30.77%	4	30.77%
Fair	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Poor	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No Response	6	46.15%	8	61.54%	6	46.15%	6	46.15%
Gates, Allan								
Excellent	6	46.15%	4	30.77%	6	46.15%	6	46.15%
Good	0	0.00%	1	7.69%	0	0.00%	0	0.00%
Fair	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Poor	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No Response	7	53.85%	8	61.54%	7	53.85%	7	53.85%
Gerrard, Michael								
Excellent	3	23.08%	4	30.77%	4	30.77%	3	23.08%
Good	4	30.77%	2	15.38%	3	23.08%	4	30.77%
Fair	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Poor	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No Response	6	46.15%	7	53.85%	6	46.15%	6	46.15%
Gregg, R. Juge								

Excellent	2	15.38%	1	7.69%	1	7.69%	1	7.69%
Good	0	0.00%	0	0.00%	1	7.69%	1	7.69%
Fair	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Poor	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No Response	11	84.62%	12	92.31%	11	84.62%	11	84.62%
Hammer, Rebecca								
Excellent	5	38.46%	4	30.77%	5	38.46%	5	38.46%
Good	0	0.00%	1	7.69%	1	7.69%	1	7.69%
Fair	1	7.69%	0	0.00%	0	0.00%	0	0.00%
Poor	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No Response	7	53.85%	8	61.54%	7	53.85%	7	53.85%
Hayes, David								
Excellent	4	30.77%	3	23.08%	4	30.77%	4	30.77%
Good	2	15.38%	2	15.38%	2	15.38%	2	15.38%
Fair	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Poor	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No Response	7	53.85%	8	61.54%	7	53.85%	7	53.85%
Kaplowitz, Joshua								
Excellent	3	23.08%	3	23.08%	3	23.08%	3	23.08%
Good	1	7.69%	0	0.00%	1	7.69%	1	7.69%
Fair	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Poor	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No Response	9	69.23%	10	76.92%	9	69.23%	9	69.23%
Leopold, Matthew								
Excellent	1	7.69%	1	7.69%	2	15.38%	1	7.69%
Good	6	46.15%	1	7.69%	3	23.08%	4	30.77%
Fair	0	0.00%	0	0.00%	2	15.38%	2	15.38%
Poor	0	0.00%	2	15.38%	0	0.00%	0	0.00%
No Response	6	46.15%	9	69.23%	6	46.15%	6	46.15%
Mallory, Brenda								
Excellent	4	30.77%	3	23.08%	3	23.08%	3	23.08%
Good	1	7.69%	1	7.69%	1	7.69%	2	15.38%
Fair	1	7.69%	1	7.69%	2	15.38%	1	7.69%
Poor	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No Response	7	53.85%	8	61.54%	7	53.85%	7	53.85%
McAliley, Neal								
Excellent	3	23.08%	3	23.08%	3	23.08%	3	23.08%
Good	3	23.08%	1	7.69%	3	23.08%	3	23.08%
Fair	0	0.00%	1	7.69%	0	0.00%	0	0.00%
Poor	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No Response	7	53.85%	8	61.54%	7	53.85%	7	53.85%

Mugdan, Walter

Excellent	7	53.85%	5	38.46%	6	46.15%	6	46.15%
Good	0	0.00%	1	7.69%	1	7.69%	1	7.69%
Fair	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Poor	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No Response	6	46.15%	7	53.85%	6	46.15%	6	46.15%

Page, Joy

Excellent	2	15.38%	2	15.38%	2	15.38%	2	15.38%
Good	1	7.69%	0	0.00%	1	7.69%	1	7.69%
Fair	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Poor	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No Response	10	76.92%	11	84.62%	10	76.92%	10	76.92%

Patton, Vickie

Excellent	2	15.38%	3	23.08%	3	23.08%	2	15.38%
Good	2	15.38%	1	7.69%	1	7.69%	2	15.38%
Fair	2	15.38%	0	0.00%	3	23.08%	3	23.08%
Poor	1	7.69%	2	15.38%	0	0.00%	0	0.00%
No Response	6	46.15%	7	53.85%	6	46.15%	6	46.15%

Percival, Robert

Excellent	6	46.15%	5	38.46%	5	38.46%	6	46.15%
Good	0	0.00%	0	0.00%	1	7.69%	0	0.00%
Fair	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Poor	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No Response	7	53.85%	8	61.54%	7	53.85%	7	53.85%

Quarles, Steven

Excellent	2	15.38%	2	15.38%	3	23.08%	2	15.38%
Good	2	15.38%	2	15.38%	2	15.38%	3	23.08%
Fair	1	7.69%	0	0.00%	0	0.00%	0	0.00%
Poor	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No Response	8	61.54%	9	69.23%	8	61.54%	8	61.54%

Riesel, Daniel

Excellent	2	15.38%	4	30.77%	4	30.77%	4	30.77%
Good	5	38.46%	2	15.38%	3	23.08%	3	23.08%
Fair	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Poor	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No Response	6	46.15%	7	53.85%	6	46.15%	6	46.15%

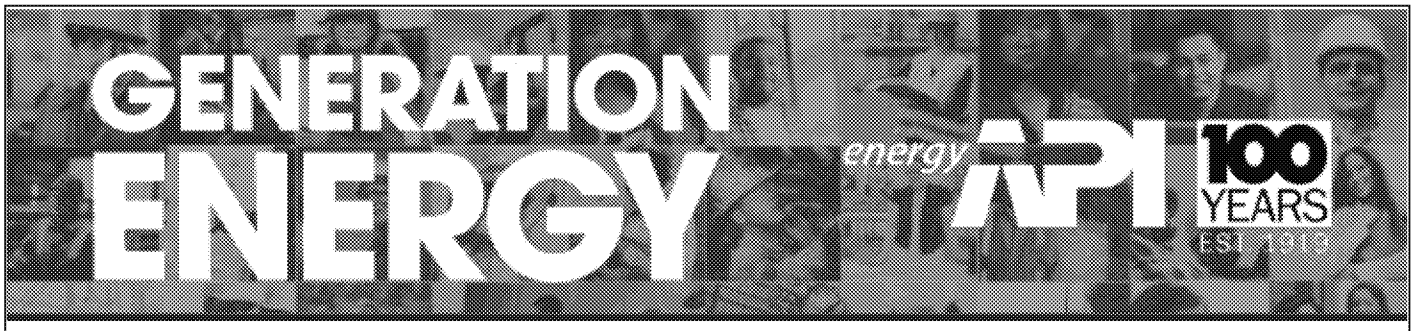
Ruhl, B. Suzi

Excellent	2	15.38%	3	23.08%	3	23.08%	3	23.08%
Good	3	23.08%	1	7.69%	2	15.38%	2	15.38%
Fair	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Poor	0	0.00%	0	0.00%	0	0.00%	0	0.00%

No Response	8	61.54%	9	69.23%	8	61.54%	8	61.54%
Schwarz, Stephen								
Excellent	2	15.38%	3	23.08%	3	23.08%	2	15.38%
Good	3	23.08%	2	15.38%	3	23.08%	2	15.38%
Fair	1	7.69%	0	0.00%	0	0.00%	0	0.00%
Poor	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No Response	7	53.85%	8	61.54%	7	53.85%	9	69.23%
Thurlow, Matthew								
Excellent	3	23.08%	3	23.08%	3	23.08%	2	15.38%
Good	2	15.38%	1	7.69%	2	15.38%	2	15.38%
Fair	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Poor	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No Response	8	61.54%	9	69.23%	8	61.54%	9	69.23%
Tompkins, Hilary								
Excellent	1	7.69%	1	7.69%	1	7.69%	1	7.69%
Good	1	7.69%	0	0.00%	1	7.69%	1	7.69%
Fair	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Poor	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No Response	11	84.62%	12	92.31%	11	84.62%	11	84.62%
Wheeler, Andrew								
Excellent	1	7.69%	0	0.00%	1	7.69%	1	7.69%
Good	1	7.69%	1	7.69%	1	7.69%	1	7.69%
Fair	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Poor	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No Response	11	84.62%	12	92.31%	11	84.62%	11	84.62%
Wood, Allison								
Excellent	0	0.00%	1	7.69%	0	0.00%	0	0.00%
Good	2	15.38%	0	0.00%	1	7.69%	2	15.38%
Fair	0	0.00%	0	0.00%	1	7.69%	0	0.00%
Poor	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No Response	11	84.62%	12	92.31%	11	84.62%	11	84.62%

Message

From: Mike Sommers [registrar@api.org]
Sent: 1/8/2019 5:03:53 PM
To: Leopold, Matt (OGC) [Leopold.Matt@epa.gov]
Subject: Live Now: 2019 State of American Energy



Watch Live: The State of American Energy

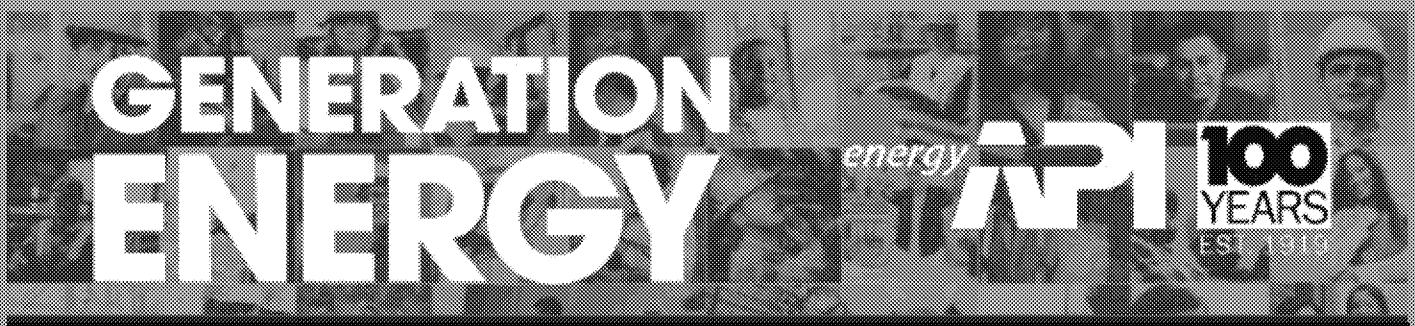
If you were unable to attend API's State of American Energy 2019 event today, you don't have to miss it! Simply watch the event live.

We encourage you to join the conversation on Twitter using #SOAE2019.

powered by
cvent

Message

From: Mike Sommers [registrar@api.org]
Sent: 12/19/2018 3:29:03 PM
To: Leopold, Matt (OGC) [Leopold.Matt@epa.gov]
Subject: You're Invited to API's State of American Energy 2019



The American Petroleum Institute invites you to

The 2019 State of American Energy luncheon – celebrating Generation Energy

We are in the midst of Generation Energy. More natural gas and oil is produced in the United States than any other country in the world. At the same time, U.S. carbon dioxide emissions are at their lowest levels in a generation, largely because of the growing role played by clean natural gas. Our industry is an economic engine, supporting 10.3 million jobs – to produce, deliver and refine natural gas and oil – as well as jobs associated with energy development and the personal spending of our workers.

Guided by smart policies and regulations that unleash innovation and progress, natural gas and oil are playing a powerful role in America's economic progress and will for generations to come.

Join me and industry leaders from coast to coast at the 2019 State of American Energy luncheon.

Sincerely,

MIKE SOMMERS
President and CEO, API

RSVP

BY DECEMBER 31st
This invitation is non-transferable.

WHEN

TUESDAY, JANUARY 8, 2019
11:30 A.M.– 1:30 P.M.

WHERE

RONALD REAGAN BUILDING AND INTERNATIONAL TRADE CENTER
ATRIUM BALLROOM
1300 PENNSYLVANIA AVENUE, NW
WASHINGTON, DC 20004
Please use entrance on 14th Street

energy API | POWER PAST IMPOSSIBLE.ORG

This event has been designed to comply with the gifts and ethics rules of the U.S. Senate and House of Representatives as a "widely attended event." Employees of the executive branch may wish to consult their Designated Agency Ethics Official about any rules that may apply to their attendance at this event.

powered by cvent

Message

From: Amy Weinberg [aweinberg@ali-cle.org]
Sent: 1/7/2019 8:55:56 PM
To: Pamela Esterman [pesterman@sprlaw.com]; Daniel Riesel [driesel@sprlaw.com]; andrew.wheeler@epa.gov; Boling, Ted A. EOP/CEQ[**Ex. 6 Personal Privacy (PP)**]; dchorost@sprlaw.com; dchung@crowell.com; fulton@eli.org; jcruden@bdlaw.com; agates@mwlaw.com; dorsainvild@dcobc.org; michael.gerrard@law.columbia.edu; aferlo@perkinscoie.com; ragu-jara.gregg@usdoj.gov; rfox@mankogold.com; rhammer@nrdc.org; nmcaliley@carltonfields.com; catherine.mccabe@dep.nj.gov; david.hayes@nyu.edu; joshua.kaplowitz@sol.doi.gov; Mugdan, Walter [Mugdan.Walter@epa.gov]; jpage@defenders.org; Leopold, Matt (OGC) [Leopold.Matt@epa.gov]; brenda@conservationlitproj.org; vpatton@edf.org; Rpercival@law.umaryland.edu; sschwarz@faraci.com; mthurlow@bakerlaw.com; squarles@nossaman.com; Ruhl, Suzi [Ruhl.Suzi@epa.gov]; hilary.tompkins@hoganlovells.com; awood@HuntonAK.com
CC: Pamela McCutcheon [pmccutcheon@ali-cle.org]
Subject: Reminder: ALI CLE materials due Thursday

Thank you in advance for agreeing to speak at the ALI CLE/ELI conference, ***Environmental Law 2019***, taking place on February 7-8 at the Washington Plaza Hotel in Washington, DC.

For those who have not yet submitted, this is a reminder of this Thursday's deadline **(JANUARY 10)** for written materials. This deadline also applies to power points, should you choose to use them. All documents should be emailed directly to my assistant Pam McCutcheon DeLarge (pmccutcheon@ali-cle.org) and myself. For accreditation purposes it is essential that each panel has some sort of materials to supplement the presentation. We provide all attendees with the ability to download the materials about a week before the conference commences.

I also wanted to take this moment to remind you that if you have not already done so, please invite colleagues and other contacts to attend this course complimentary or at a greatly reduced faculty rate. You are each entitled to one guest who may attend in person free of charge. Just send me that individual's contact information (name, company, address, phone, email) and I will have them registered.

Additional colleagues, clients, etc. who are not already registered may also attend (in person or by webcast) with your faculty discount for 50% off the regular tuition. To take advantage of this discount, they can sign up at http://www.ali-cle.org/CA012 and enter the coupon code **ALIFAC19** at checkout. Our goal, like yours, is to ensure a broad audience for this program. As the best promotion is often word-of-mouth, we encourage you to help us raise awareness by notifying your colleagues and clients and inviting them to attend.

Please do not hesitate to contact me with any questions regarding this conference. Thank you!

Amy S. Weinberg
Senior Program Attorney and
Manager, Content Licensing and Multimedia
ALI CLE
4025 Chestnut Street
Philadelphia, PA 19104
215-243-1668
aweinberg@ali-cle.org

Message

From: Mike Sommers [registrar@api.org]
Sent: 11/27/2018 4:11:46 PM
To: Leopold, Matt (OGC) [Leopold.Matt@epa.gov]
Subject: You're Invited to API's State of American Energy 2019

The American Petroleum Institute invites you to

The 2019 State of American Energy luncheon – celebrating Generation Energy

We are in the midst of Generation Energy. More natural gas and oil is produced in the United States than any other country in the world. At the same time, U.S. carbon dioxide emissions are at their lowest levels in a generation, largely because of the growing role played by clean natural gas. Our industry is an economic engine, supporting 10.3 million jobs – to produce, deliver and refine natural gas and oil – as well as jobs associated with energy development and the personal spending of our workers.

Guided by smart policies and regulations that unleash innovation and progress, natural gas and oil are playing a powerful role in America's economic progress and will for generations to come.

Join me and industry leaders from coast to coast at the 2019 State of American Energy luncheon.

Sincerely,

MIKE SOMMERS
President and CEO, API

RSVP

BY DECEMBER 31st
This invitation is non-transferable.

WHEN

TUESDAY, JANUARY 8, 2019
11:30 A.M.– 1:30 P.M.

WHERE

RONALD REAGAN BUILDING AND INTERNATIONAL TRADE CENTER
ATRIUM BALLROOM
1300 PENNSYLVANIA AVENUE, NW
WASHINGTON, DC 20004
Please use entrance on 14th Street

This event has been designed to comply with the gifts and ethics rules of the U.S. Senate and House of Representatives as a "widely attended event." Employees of the executive branch may wish to consult their Designated Agency Ethics Official about any rules that may apply to their attendance at this event.

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Message

From: Civins, Jeff [Jeff.Civins@haynesboone.com]
Sent: 6/18/2019 5:17:01 PM
To: 'Bruce.Fogerty@earthx.org' [Bruce.Fogerty@earthx.org]; 'julie@weat.org' [julie@weat.org]; 'kevin.smith@tceq.texas.gov' [kevin.smith@tceq.texas.gov]; 'danny.worrell@kattenlaw.com' [danny.worrell@kattenlaw.com]; 'Luman, Rebecca' [Rebecca.Luman@aecom.com]; 'Alison.Suarato@watcocompanies.com' [Alison.Suarato@watcocompanies.com]; 'sbroome@HuntonAK.com' [sbroome@HuntonAK.com]; 'lily.chinn@kattenlaw.com' [lily.chinn@kattenlaw.com]; Clay, Jeffrey [clay.jeffrey@epa.gov]; 'mdobbins@velaw.com' [mdobbins@velaw.com]; 'cducloux@affinipay.com' [cducloux@affinipay.com]; 'flores@guidaslavichflores.com' [flores@guidaslavichflores.com]; 'fulton@eli.org' [fulton@eli.org]; 'Avi.Garbow@patagonia.com' [Avi.Garbow@patagonia.com]; 'egarcia@winstead.com' [egarcia@winstead.com]; Gray, David [gray.david@epa.gov]; 'amanda.halter@pillsburylaw.com' [amanda.halter@pillsburylaw.com]; 'phughes@next-decade.com' [phughes@next-decade.com]; 'scott.janoe@bakerbotts.com' [scott.janoe@bakerbotts.com]; 'martha.landwehr@tceq.texas.gov' [martha.landwehr@tceq.texas.gov]; Leopold, Matt (OGC) [Leopold.Matt@epa.gov]; 'emily.lindley@tceq.texas.gov' [emily.lindley@tceq.texas.gov]; 'tmcgarity@mail.utexas.edu' [tmcgarity@mail.utexas.edu]; 'james.murphy@tpwd.state.tx.us' [james.murphy@tpwd.state.tx.us]; 'ann.navaro@bracewell.com' [ann.navaro@bracewell.com]; 'tymeka.reevessobers@kirkland.com' [tymeka.reevessobers@kirkland.com]; Ex. 6 Personal Privacy (PP); Ross, David P [ross.davidp@epa.gov]; Sencenbaugh, Adam [Adam.Sencenbaugh@haynesboone.com]; 'jsmith@craincaton.com' [jsmith@craincaton.com]; 'bstokes@galvbay.org' [bstokes@galvbay.org]; 'mtaylor@law.utexas.edu' [mtaylor@law.utexas.edu]; 'jvaneaton@bdlaw.com' [jvaneaton@bdlaw.com]; 'nvassar@lglawfirm.com' [nvassar@lglawfirm.com]; 'Kenneth.Wagner@ee.ok.gov' [Kenneth.Wagner@ee.ok.gov]; 'pwahl@jw.com' [pwahl@jw.com]; 'lwhiting@foley.com' [lwhiting@foley.com]; 'daniel.wiseman@oag.texas.gov' [daniel.wiseman@oag.texas.gov]
CC: Mercer, Jo El [JoEl.Mercer@haynesboone.com]; Lehnhardt, Trudi [Trudi.Lehnhardt@haynesboone.com]; Lozano, Marti [Marti.Lozano@haynesboone.com]; Mendoza, Mary S. [Mary.Mendoza@haynesboone.com]
Subject: 31st Annual Texas Environmental Superconference--"The Greatest Superconference on Earth"
Attachments: SC FINAL Brochure USE THIS ONE 06 18 2019.pdf; Press Release 4816-3460-5720 v.3.docx

Speakers,

Attached are the final brochure and press release (short form is the first 2 paragraphs) for our program. Please spread the word to your contacts who might like to attend and encourage them to register soon. There are steep discounts for government registrants as well as for students. The conference routinely sells out. As a speaker, you need not register for the conference; we will register you. But if you'd like to attend the Wednesday evening ethics program, please let Jo EL Mercers know and we'll register you for it also. Jo El is copied on this email. As a speaker, your registration fee for both programs is taken care of. Please also let Jo El know if you'd like a hard copy of the course materials; otherwise, we'll assume an electronic copy is satisfactory.

Thank you again for agreeing to participate. This conference should be a super one. We look forward to seeing you in August.

haynes*boone*
Jeff Civins
Senior Counsel
jeff.civins@haynesboone.com

Haynes and Boone, LLP
600 Congress Avenue
Suite 1300
Austin, TX 78701-3285

(t) 512.867.8477
(f) 512.867.8691

(m) Ex. 6 Personal Privacy (PP)

vCard | Bio | Website

CONFIDENTIALITY NOTICE: This electronic mail transmission is confidential, may be privileged and should be read or retained only by the intended recipient. If you have received this transmission in error, please immediately notify the sender and delete it from your system.

Thursday--Friday, August 1-2, 2019

Four Seasons Hotel—Austin, TX

It's time to register for this year's Texas Environmental Superconference, our 31st. With a circus theme, "The Greatest Superconference on Earth," promises to be exactly that, with an outstanding lineup of prominent speakers. The conference will be held on Thursday and Friday, August 1-2, as always, at the Four Seasons Hotel at 98 San Jacinto Blvd, Austin, Texas 78701. The July 31st Wednesday evening program, "Walking a Tightrope," will provide 2 hours of entertaining ethics credits, from 6 to 8 PM. Additional Superconference details are available online at www.texenrls.org.

As past attendees can attest, the conference sells out each year, so register soon. Registration is only online--at https://www.texenrls.org/cle-programs/texas-environmental-superconference/ There are discounted rates for government attendees and law students. There are also a limited number of scholarships; for further information, please contact superconference@texenrls.org.

As always, conference speakers include distinguished representatives from the public and private sectors. From EPA, speakers include: David Ross, Assistant Administrator for the Office of Water; Matt Leopold, General Counsel; Steven Cook, Deputy Assistant Administrator, Office of Land and Emergency Management; Acting Region 6 Regional Administrator, David Gray; and Assistant Regional Counsel, Jeffrey Clay. From state government, from TCEQ, Commissioner Emily Lindley, and Martha Landwehr; from Texas Parks & Wildlife, James Murphy; from the Texas judiciary, The Honorable Jeff Rose, Chief Justice, Third Court of Appeals; from the Office of the Attorney General of Texas, Daniel Wiseman; and from Oklahoma, Energy and Environment Secretary, Kenneth Wagner.

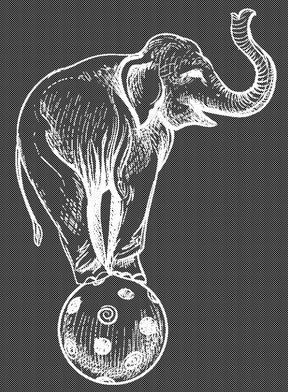
Topics for this year's conference include: Legislative Update – "*A Three Ring Circus*"; Case Law Update – "*A Menagerie*"; Waters of US / Ground Water Discharges – "*Water for Elephants*"; Coastal Issues – "*The Greatest Flow on Earth*"; The Struggle for Sustainable Electricity – *"Eating Fire"*; Air Quality – "*Under the Big Top*"; Climate Change – *"Cirque du Soleil"*; Administrative Challenges and Appeals – *"Sword Swallowing"*; Patagonia's Environmental Advocacy – *"Human Cannonball"*; Enforcement *"Globe of Death"*; Environmental, Social, and Governance ("ESG") Reporting – Legal Risks – *"A Disappearing Act"*; CERCLA Issues – *"Elephants on Parade"*; Oil & Gas Environmental Issues – *"Taming Tigers"*; Reconciling Energy Development with Environmental Protection the Big Bend Area – *"A Balancing Act*"; Region 6/TCEQ/Oklahoma – Environmental Developments in Energy Development – *"Ring Masters*"; Hot Legal Issues - *"Keep Spinning Plates in the Air*"; Transactions – Environmental Deal Killers – *"Throwing Knives*"; and Ethics – Evolving Issues – *"A High Wire Act."*

The award-winning Superconference is sponsored by the Environmental and Natural Resources Law Section of the State Bar of Texas and co-sponsored by the Air & Waste Management Association–Southwest Section, the Water Environment Association of Texas, the Texas Association of Environmental Professionals, the Environmental Health and Safety Audit Center of the IIA, and the American Bar Association Section of Environment, Energy, and Resources. EarthX, a nonprofit that around Earth Day each year in Dallas puts on the world's largest environmental expo, is a generous supporter of the conference.

The State Bar of Texas Committee on MCLE has approved the conference for 12.25 credit hours, of which 1 credit hour will apply to legal ethics/professional responsibility credit, and the Wednesday evening program for 2 credit hours, both of which apply to legal ethics/professional responsibility credit. The Texas Board of Legal Specialization has approved the conference for 12.25 credit hours of CLE requirements and the Wednesday evening program for 2 credit hours for lawyers and legal assistants in the following specialty fields: Administrative Law; Civil Trial Law; Civil Appellate Law; Oil, Gas and Mineral Law; and Real Estate Law.

A limited block of rooms has been reserved at the Four Seasons Hotel at a special group rate of $265/night for a city view or $305/night for lake view. Rates are effective through the weekend. Reservations must be made no later than July 10, 2019; the deadline for changing and cancelling reservations without penalty is July 24. In past years, the room block has sold out well in advance of the deadline for registering. Once the room block is filled, the rate will be higher. For

reservations and to request these special rates, please contact the hotel directly by phone at 512.685.8100 or online at www.fourseasons.com, using as a code: Group Name: Texas Environmental Superconference 2019 Block Rate Code: 190731TEX



31ST ANNUAL TEXAS ENVIRONMENTAL SUPERCONFERENCE

Thursday - Friday ★ August 1-2, 2019 ★ Four Seasons Hotel ★ Austin, TX

"THE GREATEST SUPERCONFERENCE ON EARTH"

THURSDAY, AUGUST 1, 2019

8:00 – 8:35 **REGISTRATION/CONTINENTAL BREAKFAST –** *"Welcome Children of All Ages"*

8:35 – 9:00 **OPENING REMARKS –** "Sending in the Clowns"
Jeff Civins, *Texas Environmental Superconference*
Steve McMillen, *Environmental and Natural Resources Law Section, State Bar of Texas*
Kevin Smith, *Air & Waste Management Association, Southwest Section*
Julie Nahrgang, *Water Environment Association of Texas*
Rebecca Luman, *The Enviromental Health and Safety Audit Center of the IIA*
Alison Suarato, *Texas Association of Environmental Professionals*
Danny Worrell, *ABA Section of Environment, Energy & Resources*
Bruce Fagerty, *EarthX*

★★★★★

Moderator: Chris Smith, Smith, Jolin LLP

9:00 – 9:30 **LEGISLATIVE UPDATE –** *"A Three Ring Circus"*
Martha Landwehr, *TCEQ*

9:30 – 10:00 **CASE LAW UPDATE –** *"A Menagerie"*
Erika Garcia, *Winstead PC*

10:00 – 10:30 **WATERS OF US / GROUND WATER DISCHARGES –** *"Water for Elephants"*
David Ross, Assistant Administrator, *Office of Water, EPA DC*

10:30 – 10:45 **BREAK – sponsored by Golder**

★★★★★

Moderator: Debra Baker, Baker Wotring LLP

10:45 – 11:30 **COASTAL ISSUES –** *"The Greatest Flow on Earth"*
James Murphy, *Attorney, Texas Parks & Wildlife Department*
Bob Stokes, *President, Galveston Bay Foundation*

11:30 – Noon **THE STRUGGLE FOR SUSTAINABLE ELECTRICITY –** *"Eating Fire"*
Tom McGarity, *Professor, University of Texas School of Law*

12:00 – 1:00 **LUNCH –** *Intermission* **– sponsored by RPS Group**

★★★★★

Moderator: Cindy Smiley, Smiley Law Firm

1:00 – 2:00 **AIR QUALITY –** *"Under the Big Top"*
Shannon S. Broome, *Hunton Andrews Kurth LLP*
Jeffrey Clay, *Assistant Regional Counsel, EPA Region 6*
Jean Flores, *Guida, Slavich & Flores, P.C.*
Peter Wahl, *Jackson Walker*

2:00 – 2:30 **CLIMATE CHANGE –** *"Cirque du Soleil"*
Pam Giblin, *Climate Leadership Council*

2:30 – 3:30 **ADMINISTRATIVE CHALLENGES AND APPEALS (Panel Discussion) –** *"Sword Swallowing"*
The Honorable Jeff Rose, *Chief Justice, Third Court of Appeals*
Daniel Wiseman, *Assistant Attorney General of Texas*
Adam Sencenbaugh, *Haynes and Boone, LLP*

3:30 – 3:45 **BREAK – sponsored by Geosyntec**

★★★★★

Moderator: Jeff Saitas, Saitas and Seales

3:45 – 4:15 **PATAGONIA'S ENVIRONMENTAL ADVOCACY –** *"Human Cannonball"*
Avi Garbow, *Environmental Advocate, Patagonia*

4:15 – 5:15 **ENFORCEMENT –** *"Globe of Death"*
Deloris "Bobbie" Prince, *Former Port Arthur Mayor*
Lily Chinn, *Kaften Muchin Rosenman LLP*
Nathan Vassar, *Lloyd Gosselink*
Josh Van Eaton, *Beveridge & Diamond, PC*

5:15 – 6:00 **RECEPTION –** *"A Swinging Time"* **– sponsored by Ensafe**

FRIDAY, AUGUST 2, 2019

8:00 – 8:25 **CONTINENTAL BREAKFAST**

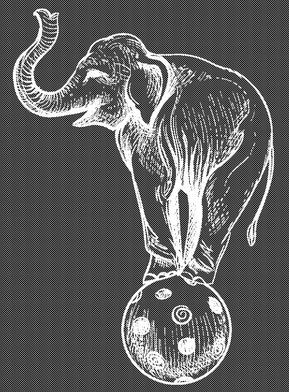
8:25 –8:30 **OPENING REMARKS –** *"Hurry Hurry, Step Right Up"*

★★★★★

Moderator: Cindy Bishop, C Bishop Law PC

8:30 – 9:00 **ENVIRONMENTAL, SOCIAL, AND GOVERNANCE ("ESG") REPORTING—LEGAL RISKS** – *"A Disappearing Act"*
Laura Whiting, *Foley Gardere*

9:00 – 9:30 **CERCLA ISSUES –** *"Elephants on Parade"*
Steven Cook, *Deputy Assistant Administrator, Office of Land and Emergency Management, EPA DC*



9:30 – 10:30 **OIL & GAS ENVIRONMENTAL ISSUES –** *"Taming Tigers"*
Scott Janoe, *Baker Botts*
Ann Navaro, *Bracewell*
Patrick Hughes, *Sr. VP Strategy and Business Development, Next Decade Corporation*

10:30 – 10:45 **BREAK – sponsored by Ramboll**

★★★★★

Moderator: Peter Gregg, DuBois, Bryant & Campbell L.L.P.

10:45 – 11:15 **RECONCILING ENERGY DEVELOPMENT WITH ENVIRONMENTAL PROTECTION IN THE BIG BEND AREA –** *"A Balancing Act"*
Melinda Taylor, *University of Texas*

11:15 – Noon **REGION 6/TCEQ/OKLAHOMA — ENVIRONMENTAL DEVELOPMENTS IN ENERGY DEVELOPMENT** –*"Ring Masters"*
David Gray, *Acting Regional Administrator, EPA Region 6*
Emily Lindley, *Commissioner, TCEQ*
Kenneth Wagner, *Secretary of Oklahoma Energy & Environment*

Noon – 1:00 **LUNCH –** *Intermission* **– sponsored by Terracon**

1:00 – 1:15 **Texas Environmental & Natural Resources Law Section Meeting** – *"At the Midway"*

★★★★★

Moderator: Tucker Henson, Assistant Regional Counsel, EPA Region 6

1:15 – 1:45 **HOT LEGAL ISSUES – Matt Leopold, General Counsel, EPA DC "Keeping Spinning Plates in the Air"**

1:45 – 2:30 **TRANSACTIONS – ENVIRONMENTAL DEAL KILLERS –** "Throwing Knives"
Ty'Meka Reeves, *Sabers, Kirkland & Ellis*
Matt Dobbins, *Vinson & Elkins*

2:30 – 3:30 **ETHICS – EVOLVING ISSUES –** *"A High Wire Act"*
Claude E. Ducloux, *Attorney at Law*
Amanda Halter, *Pillsbury*
Jim Smith, *Crain Caton & James*

3:30 **ADJOURN –** *"Flipping Out"*
SUNDAES – *"A Cool Attraction"* **– sponsored by Targus**

Wednesday Program, July 31, 2019

"WALKING A TIGHTROPE"

Sponsored by Langan Engineering

Wednesday Evening Program
Sponsored by Langan Engineering
Please register online at www.texenrls.org
Non-Government..... $160.00
Government..... $110.00
Student..... $25.00

CLE: The State Bar of Texas Committee on MCLE has approved 2 credit hours for the Wednesday evening session. We have also received approval from the Texas Board of Legal Specialization for 2 credit hours for the Wednesday evening session for lawyers and legal assistants in the following specialty fields: Administrative Law; Civil Trial Law; Civil Appellate Law; Oil, Gas and Mineral Law; and Real Estate Law

6:00 – 6:05 **OPENING REMARKS — Mary Mendoza,** *Haynes and Boone, LLP*

OUR ETHICS PANELIST/COMMENTATORS
Kevin Dubose, *Alexander Dubose Jefferson & Townsend*
Beverly Godbey, *Amy Stewart Law*
Robert Prentice, *McCombs School of Business University of Texas*
Jonathan E. Smaby, *Texas Center for Legal Ethics*

6:05 – 7:00 **YOUR BRAIN ON ETHICS – HOW THAT THING BETWEEN YOUR EARS CAN LEAD YOU ASTRAY**

7:00 – 8:00 **ETHICS AND THE ENVIRONMENTAL LAWYER**

OUR ETHICS PLAYERS
Daniel Pope, *Bracewell LLP*
Kathryn Schroeder, *TCEQ*
Andrew Van Osselaer, *Haynes and Boone, LLP*

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INFORMATION

CLE: The State Bar of Texas Committee on MCLE has approved 12.25 total credit hours for the Superconference, of which 1 credit hours will apply to legal ethics/professional responsibility credit, and 2 credit hours for the Wednesday evening session. We have also received approval from the Texas Board of Legal Specialization for 12 credit hours for the Superconference and 2 credit hours for the Wednesday evening session for lawyers and legal assistants in the following specialty fields: Administrative Law; Civil Trial Law; Civil Appellate Law; Oil, Gas and Mineral Law; and Real Estate Law.

PARKING: Conference attendees receive a discounted self-parking rate of $16/day in the Four Seasons Hotel garage, but parking is very limited. Information on parking alternatives can be found at www.texenrls.org. Overnight parking for hotel guests is an additional charge.

DRESS: Casual (It's Austin!)

HOTEL: A limited block of rooms has been reserved at the Four Seasons Hotel at a specialgroup rate of $265/night for a city view or $305/night for lake view. Rates are effective through the weekend. Reservations must be made no later than July 10, 2019; the deadline for changing and canceling reservations without penalty is July 24. In past years the room block has sold out well in advance of the deadline for registering. Once the room block is filled, the rate will be higher. For reservations and to request these special rates, please contact the hotel directly by phone at 512.685.8100 or online at www.fourseasons.com, using as a code:

Group Name: Texas Environmental Superconference 2019
Block Rate Code: 190731TEX

FOUR SEASONS HOTEL: 98 San Jacinto Blvd., Austin, Texas 78701

SUPERCONFERENCE REGISTRATION INFORMATION

REGISTRATION IS ONLINE AT WWW.TEXENRLS.ORG

Payment may be made by credit card online or by check, payable to the State Bar of Texas – Texas Environmental Superconference, 600 Congress Avenue, Suite 1300, Austin, TX 78701. If paying by check, you must first register online and select the "pay by check" option and follow the directions on the website for mailing in a payment.

CHECK PAYMENTS: Must be received by July 12, 2019 or your registration will be cancelled. We accept Purchase orders from Texas State Agencies and from the United States Environmental Protection Agency. Purchase Order must be provided to the Superconference prior to July 12, 2019 for early registration pricing, and no later than July 19, 2019, to avoid the cancellation of your registration(s). If you have questions regarding the vouchers or purchase orders, please email superconference@texenrls.org.

ALL ONLINE REGISTRANTS: Will receive a confirmation email. Please bring the confirmation email with you to the conference. If you do not receive an email within 24 hours of online registration, please contact Superconference as you may not be registered.

REGISTRATION DEADLINE: Register early! Don't be left out! Registration is limited to 500 attendees and is on a first come, first served basis. Registration received after July 12, 2019, if still open, will be an additional $35.00.

CANCELLATION POLICY: Registrants will receive a full refund if cancellation notice is received by July 12, 2019. After this date, a $150 cancellation fee will be assessed. Cancellations after July 19, 2019 will not receive a refund, but you may substitute an attendee by notifying Superconference prior to July 26, 2019.

REGISTRATION OPTIONS: All Registrants will receive meals, as noted on program, and an electronic version of the course materials. Registrants may opt for printed materials as well – at an extra charge of $75.00.

Non-Government without printed course materials	$ 530.00
Government without printed course materials	$ 220.00
Full time Student without printed course materials	$ 135.00

For those not attending but who wish to purchase course materials, course materials can be purchased for $175.00.

If you have any questions, please contact:
The Superconference at superconference@texenrls.org. For further information concerning the Environmental and Natural Resources Law Section of the State Bar of Texas, please visit: www.texenrls.org

THE SUPERCONFERENCE WILL NOT ACCEPT ANY WALK-IN OR ONSITE REGISTRATIONS – PLEASE REGISTER ONLINE.

REGISTER NOW!

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31ST ANNUAL

TEXAS ENVIRONMENTAL SUPERCONFERENCE

Thursday - Friday ★ August 1-2, 2019 ★ Four Seasons Hotel ★ Austin, TX

PRESENTED BY:

State Bar of Texas Environmental & Natural Resources Law Section

Air & Waste Management Association, Southwest Section
Water Environment Association of Texas
Texas Association of Environmental Professionals
American Bar Association Section of Environment, Energy & Resources

SUPPORTED BY: EarthX

Message

From: Jaber, Makram [mjaber@hunton.com]
Sent: 10/22/2018 7:12:06 PM
To: Stachowiak, Robert [Stachowiak.Robert@epa.gov]
CC: Leopold, Matt (OGC) [Leopold.Matt@epa.gov]
Subject: RE: Questions for 10/24/18 panel with Matt Leopold; link to Leopold biography

Rob, and Matt,

Thank you both for taking the time to chat with me this morning, and for the suggestions below. I look forward to seeing you on Wednesday.

Best Regards.

Makram

HUNTON
ANDREWS KURTH

Makram Jaber
Partner
mjaber@HuntonAK.com
p 202.955.1567
bio | vCard

Hunton Andrews Kurth LLP
2200 Pennsylvania Avenue, NW
Washington, DC 20037

HuntonAK.com

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From: Stachowiak, Robert [mailto:Stachowiak.Robert@epa.gov]
Sent: Monday, October 22, 2018 3:07 PM
To: Jaber, Makram
Cc: Leopold, Matt (OGC)
Subject: Questions for 10/24/18 panel with Matt Leopold; link to Leopold biography

Hello Mr. Jaber –

Thank you again for talking earlier today with Matt and me, about Wednesday's panel at your offices.

Below is my list of questions for Matt. I have also suggested a ranking with the mixed legal/non-legal audience in mind – specifically, with the more-general topics up front, and the narrower legal questions lower on the list.

1. Discuss your role as agency lawyer – what are the roles of EPA and DOJ when EPA is sued? How does EPA and DOJ handle the process?
2. Can you talk about major areas of Agency action, including what to expect in the near future?
3. A theme of the first years of the Administration has been policy change in some major rule makings & agency decisions. How & when are such changes in position appropriate?
4. Can you share your thoughts on EPA's reconsideration efforts, including on some of the recent decisions (e.g., *Clean Air Council* and *Air Alliance Houston*) related to them?
5. Can you discuss the role of agency guidance in litigation?

6. Can you discuss future of *Chevron* deference?

Finally, here is a link to Matt's biography: https://www.epa.gov/aboutepa/about-epas-general-counsel.

I hope this helps. Please let us know if you have questions about any of this.

-Rob S.

Robert Stachowiak
U.S. Environmental Protection Agency
Acting Associate Deputy General Counsel
Office of General Counsel (2310A)
1200 Pennsylvania Ave., N.W.
Washington, D.C. 20460
(202) 564-0580

Message

From: Mike Sommers [registrar@api.org]
Sent: 12/13/2018 3:42:48 PM
To: Leopold, Matt (OGC) [Leopold.Matt@epa.gov]
Subject: You're Invited to API's State of American Energy 2019

The American Petroleum Institute invites you to

The 2019 State of American Energy luncheon – celebrating Generation Energy

We are in the midst of Generation Energy. More natural gas and oil is produced in the United States than any other country in the world. At the same time, U.S. carbon dioxide emissions are at their lowest levels in a generation, largely because of the growing role played by clean natural gas. Our industry is an economic engine, supporting 10.3 million jobs – to produce, deliver and refine natural gas and oil – as well as jobs associated with energy development and the personal spending of our workers.

Guided by smart policies and regulations that unleash innovation and progress, natural gas and oil are playing a powerful role in America's economic progress and will for generations to come.

Join me and industry leaders from coast to coast at the 2019 State of American Energy luncheon.

Sincerely,

MIKE SOMMERS
President and CEO, API

RSVP

BY DECEMBER 31st
This invitation is non-transferable.

WHEN

TUESDAY, JANUARY 8, 2019
11:30 A.M.– 1:30 P.M.

WHERE

RONALD REAGAN BUILDING AND INTERNATIONAL TRADE CENTER
ATRIUM BALLROOM
1300 PENNSYLVANIA AVENUE, NW
WASHINGTON, DC 20004
Please use entrance on 14th Street

This event has been designed to comply with the gifts and ethics rules of the U.S. Senate and House of Representatives as a "widely attended event." Employees of the executive branch may wish to consult their Designated Agency Ethics Official about any rules that may apply to their attendance at this event.

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Message

From: Mike Sommers [registrar@api.org]
Sent: 12/17/2018 3:40:16 PM
To: Leopold, Matt (OGC) [Leopold.Matt@epa.gov]
Subject: You're Invited to API's State of American Energy 2019

The American Petroleum Institute invites you to

The 2019 State of American Energy luncheon – celebrating Generation Energy

We are in the midst of Generation Energy. More natural gas and oil is produced in the United States than any other country in the world. At the same time, U.S. carbon dioxide emissions are at their lowest levels in a generation, largely because of the growing role played by clean natural gas. Our industry is an economic engine, supporting 10.3 million jobs – to produce, deliver and refine natural gas and oil – as well as jobs associated with energy development and the personal spending of our workers.

Guided by smart policies and regulations that unleash innovation and progress, natural gas and oil are playing a powerful role in America's economic progress and will for generations to come.

Join me and industry leaders from coast to coast at the 2019 State of American Energy luncheon.

Sincerely,

MIKE SOMMERS
President and CEO, API

RSVP

BY DECEMBER 31st
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Please use entrance on 14th Street

This event has been designed to comply with the gifts and ethics rules of the U.S. Senate and House of Representatives as a "widely attended event." Employees of the executive branch may wish to consult their Designated Agency Ethics Official about any rules that may apply to their attendance at this event.

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Message

From: Albrecht, Virginia [valbrecht@hunton.com]
Sent: 3/6/2018 5:00:22 PM
To: Leopold, Matt [Leopold.Matt@epa.gov]
Subject: Return call

Matt – I tried calling you back but no answer. If you get this call my cell – Ex. 6 Personal Privacy (PP)

Virginia Albrecht

Sent from my iPhone

Message

From: Cress, Julie [JCress@hunton.com]
Sent: 2/27/2019 1:49:20 AM
To: Leopold, Matt (OGC) [Leopold.Matt@epa.gov]
CC: Broome, Shannon S. [SBroome@hunton.com]; Veney, Carla [Veney.Carla@epa.gov]
Subject: RE: Request for Meeting

Thank you!

HUNTON
ANDREWS KURTH

Julie A. Cress
Counsel
JCress@HuntonAK.com
p 415.975.3709
bio | vCard

Hunton Andrews Kurth LLP
50 California Street
Suite 1700
San Francisco, CA 94111

HuntonAK.com

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From: Leopold, Matt (OGC) [mailto:Leopold.Matt@epa.gov]
Sent: Tuesday, February 26, 2019 5:49 PM
To: Cress, Julie
Cc: Broome, Shannon S.; Veney, Carla
Subject: Re: Request for Meeting

Carla is copied here.

Sent from my iPhone

On Feb 26, 2019, at 8:46 PM, Cress, Julie <JCress@hunton.com> wrote:

> Matt,
> I was hoping to reach out to your assistant to coordinate scheduling of the meeting, but I don't see her contact info. Could you send her email address or her last name so that I can look her up in the EPA directory?
>
> Thank you,
> Julie

Julie A. Cress
Counsel
JCress@HuntonAK.com
p 415.975.3709
bio | vCard

Hunton Andrews Kurth LLP
50 California Street
Suite 1700
San Francisco, CA 94111

HuntonAK.com

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From: Leopold, Matt (OGC) [mailto:Leopold.Matt@epa.gov]
Sent: Monday, February 25, 2019 11:43 AM
To: Broome, Shannon S.; Woods, Clint; Schwab, Justin
Cc: Cress, Julie
Subject: RE: Request for Meeting

Hello Shannon, we are happy to have a meeting. I am copying my assistant Carla to help arrange.

Matthew Z. Leopold
General Counsel
U.S. Environmental Protection Agency
(202) 564-8040

From: Broome, Shannon S. <SBroome@hunton.com>
Sent: Monday, February 25, 2019 1:38 PM
To: Woods, Clint <woods.Clint@epa.gov>; Schwab, Justin <schwab.justin@epa.gov>
Cc: Leopold, Matt (OGC) <Leopold.Matt@epa.gov>; Cress, Julie <JCress@hunton.com>
Subject: Request for Meeting

Dear Messrs. Woods and Schwab:

On behalf of the Racing Enthusiasts and Suppliers Coalition (RESC), I write to request a meeting with the Office of Air and Radiation and the Office of General Counsel in your Washington, D.C. offices. RESC is a coalition of companies that supplies parts to racing enthusiasts and its members are themselves enthusiasts. Our members are available for a meeting during the week of March 11. To allow for travel and accommodating schedules, the best dates for our group are either March 12, 2019 or March 15, 2019. We could also do a later date if these dates are not workable. Please let us know if either of these dates works for you and a preferred time. We request a 90-minute meeting but understand if your schedules will only allow for 60 minutes.

We look forward to discussing the issues related to EPA's guidance/regulations on competition vehicles with you and thank you in advance for your time and attention.

Best Regards,

<image004.png> **Shannon S. Broome**

Partner/Office Managing Partner San Francisco
sbroome@HuntonAK.com
p 415.975.3718
202.955.1912
m Ex. 6 Personal Privacy (PP)

bio | vCard |

Hunton Andrews Kurth LLP
50 California Street
Suite 1700
San Francisco, CA 94111

2200 Pennsylvania Avenue, NW
10th Floor
Washington, DC 20007
HuntonAK.com

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Message

From: Stachowiak, Robert [Stachowiak.Robert@epa.gov]
Sent: 2/1/2019 9:05:00 PM
To: Pamela Esterman [pesterman@sprlaw.com]; Leopold, Matt (OGC) [Leopold.Matt@epa.gov]; Vickie Patton [vpatton@edf.org]; Wood, Allison D. [awood@hunton.com]
CC: Veney, Carla [Veney.Carla@epa.gov]; Patrick, Monique [Patrick.Monique@epa.gov]
Subject: RE: ALI CLE Environmental Law- AIR PANEL- Feb. 7, 2019, 1-2:15 PM

Hello everyone –

To follow up on this, we've identified the following times that appear to be available right now on Matt's calendar:

Monday 2/4, 11:30 – 12:00pm
Tuesday 2/5, between 2:30 – 5:30pm

Would either of those time periods work for a 30-minute pre-call?

Thanks,
Rob S.

Robert Stachowiak
U.S. Environmental Protection Agency
Acting Associate Deputy General Counsel
Office of General Counsel (2310A)
1200 Pennsylvania Ave., N.W.
Washington, D.C. 20460
(202) 564-0580

From: Pamela Esterman <pesterman@sprlaw.com>
Sent: Tuesday, January 29, 2019 12:52 PM
To: Leopold, Matt (OGC) <Leopold.Matt@epa.gov>; Vickie Patton <vpatton@edf.org>; Wood, Allison D. <awood@hunton.com>
Cc: Veney, Carla <Veney.Carla@epa.gov>; Stachowiak, Robert <Stachowiak.Robert@epa.gov>
Subject: RE: ALI CLE Environmental Law- AIR PANEL- Feb. 7, 2019, 1-2:15 PM

Hi Everyone,
I would like to set up a brief conference call in order to give everyone on the air panel a chance to coordinate for next week's presentation. Allison and Vicki have already talked but it would be helpful to now include Matt in the discussion. Please let me know when you are available for a call:
Wednesday- morning or afternoon
Thursday – morning or afternoon
Best,
Pam Esterman

Pamela Esterman
SIVE, PAGET & RIESEL P.C.
560 Lexington Avenue, 15th Floor
New York, NY 10022
P: 212 421-2150
Direct: 646-378-7212
Mobile: Ex. 6 Personal Privacy (PP)
Fax: 212 421-1891
pesterman@sprlaw.com

Visit our website at www.sprlaw.com

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From: Pamela Esterman <pesterman@sprlaw.com>
Sent: Wednesday, January 02, 2019 3:59 PM
To: Leopold, Matt (OGC) <Leopold.Matt@epa.gov>
Cc: Vickie Patton <vpatton@edf.org>; Wood, Allison D. <awood@hunton.com>
Subject: Re: ALI CLE Environmental Law- AIR PANEL- Feb. 7, 2019, 1-2:15 PM

Understood! Thanks!

Pamela Esterman

SIVE, PAGET & RIESEL P.C.

560 Lexington Avenue, 15th Floor
New York, NY 10022

P: 212 421-2150

Direct: 646-378-7212

Mobile: Ex. 6 Personal Privacy (PP)

Fax: 212 421-1891

pesterman@sprlaw.com

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From: Leopold, Matt (OGC) <Leopold.Matt@epa.gov>
Sent: Wednesday, January 2, 2019 3:58:07 PM
To: Pamela Esterman
Cc: Vickie Patton; Wood, Allison D.
Subject: Re: ALI CLE Environmental Law- AIR PANEL- Feb. 7, 2019, 1-2:15 PM

Hello, as a result of the government shutdown I am only working on essential activities. Let's touch base when the government reopens.

Regards, Matt

Sent from my iPhone

On Jan 2, 2019, at 2:42 PM, Pamela Esterman <pesterman@sprlaw.com> wrote:

Let's talk briefly tomorrow morning at **10:00 am ET**. I have not heard back from Matt but am assuming he will have difficulty joining regardless of the time. I want make sure we talk before Allison goes away.

Please use the following number for the call:

Ex. 6 Personal Privacy (PP)

Passcode: Ex. 6 Personal Privacy (PP)

Best,
Pam Esterman

Pamela Esterman
SIVE, PAGET & RIESEL P.C.
560 Lexington Avenue, 15th Floor
New York, NY 10022
P: 212 421-2150
Direct: 646-378-7212
Mobile: Ex. 6 Personal Privacy (PP)
Fax: 212 421-1891
pesterman@sprlaw.com

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From: Vickie Patton <vpatton@edf.org>
Sent: Wednesday, January 2, 2019 1:59 PM
To: Wood, Allison D.; Pamela Esterman; leopold.matt@epa.gov
Subject: RE: ALI CLE Environmental Law- AIR PANEL- Feb. 7, 2019, 1-2:15 PM

Dear All, I could participate tomorrow between 9:30-11 and 1-2 ET. Best wishes to all for peace and joy in the new year, Vickie

From: Wood, Allison D. <awood@hunton.com>
Sent: Wednesday, January 2, 2019 11:37 AM
To: Pamela Esterman <pesterman@sprlaw.com>; Vickie Patton <vpatton@edf.org>; leopold.matt@epa.gov
Subject: RE: ALI CLE Environmental Law- AIR PANEL- Feb. 7, 2019, 1-2:15 PM

Pam,

I am available tomorrow (Thursday), except from 11 to 1 Eastern. After that, I will be gone on vacation for two weeks. Because I will be in Asia, it will be very difficult for me to speak during that time. If we can speak tomorrow, that would be great. If we can't, I can catch up by email or when I return.

Happy New Year!

Allison

From: Pamela Esterman [mailto:pesterman@sprlaw.com]
Sent: Wednesday, January 02, 2019 1:32 PM
To: Vickie Patton; Wood, Allison D.; leopold.matt@epa.gov
Subject: ALI CLE Environmental Law- AIR PANEL- Feb. 7, 2019, 1-2:15 PM

Air Panel Members:

Happy New Year! I hope you all had a wonderful holiday! I want to remind all of you that the ALI CLE Environmental Law Conference is right around the corner. The Air Panel will take place on February 7, 2019, from 1:00 - 2:15 pm at the Washington Plaza Hotel, DC. It would be great if we could convene a brief planning call in the near future to talk about how you plan to present the panel. Here is a link to the conference brochure: https://www.ali-cle.org/course/Environmental-Law-2019-CA012

It will probably be helpful if I organize this call so let me know your availability this week on Thursday or Friday. If you are not available, let me know what works for you next week.
If anyone has an article(s) that they have authored in the recent past relating to water, ALI CLE would like to include it in the materials. Your powerpoints should also be included in the materials. We can talk about these details on the call.
Best,
Pam Esterman

Pamela Esterman
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New York, NY 10022
P: 212 421-2150
Direct: 646-378-7212
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Message

From: Cress, Julie [JCress@hunton.com]
Sent: 2/27/2019 1:45:55 AM
To: Leopold, Matt (OGC) [Leopold.Matt@epa.gov]
CC: Broome, Shannon S. [SBroome@hunton.com]
Subject: RE: Request for Meeting
Attachments: ATT00001.txt

Matt,
I was hoping to reach out to your assistant to coordinate scheduling of the meeting, but I don't see her contact info. Could you send her email address or her last name so that I can look her up in the EPA directory?

Thank you,
Julie

Julie A. Cress
Counsel
JCress@HuntonAK.com
p 415.975.3709
bio | vCard

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From: Leopold, Matt (OGC) [mailto:Leopold.Matt@epa.gov]
Sent: Monday, February 25, 2019 11:43 AM
To: Broome, Shannon S.; Woods, Clint; Schwab, Justin
Cc: Cress, Julie
Subject: RE: Request for Meeting

Hello Shannon, we are happy to have a meeting. I am copying my assistant Carla to help arrange.

Matthew Z. Leopold
General Counsel
U.S. Environmental Protection Agency
(202) 564-8040

From: Broome, Shannon S. <SBroome@hunton.com>
Sent: Monday, February 25, 2019 1:38 PM
To: Woods, Clint <woods.Clint@epa.gov>; Schwab, Justin <schwab.justin@epa.gov>
Cc: Leopold, Matt (OGC) <Leopold.Matt@epa.gov>; Cress, Julie <JCress@hunton.com>
Subject: Request for Meeting

Dear Messrs. Woods and Schwab:

On behalf of the Racing Enthusiasts and Suppliers Coalition (RESC), I write to request a meeting with the Office of Air and Radiation and the Office of General Counsel in your Washington, D.C. offices. RESC is a coalition of companies that supplies parts to racing enthusiasts and its members are themselves enthusiasts. Our members are available for a meeting during the week of March 11. To allow for travel and accommodating schedules, the best dates for our group are either March 12, 2019 or March 15, 2019. We could also do a later date if these dates are not workable. Please let us know if either of these dates works for you and a preferred time. We request a 90-minute meeting but understand if your schedules will only allow for 60 minutes.

We look forward to discussing the issues related to EPA's guidance/regulations on competition vehicles with you and thank you in advance for your time and attention.

Best Regards,

HUNTON ANDREWS KURTH

Shannon S. Broome
Partner/Office Managing Partner San Francisco
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p 415.975.3718
202.955.1912
m Ex. 6 Personal Privacy (PP)

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Message

From: Amy Weinberg [aweinberg@ali-cle.org]
Sent: 1/31/2019 5:03:40 PM
To: Pamela Esterman [pesterman@sprlaw.com]; Daniel Riesel [driesel@sprlaw.com]; Wheeler, Andrew [wheeler.andrew@epa.gov]; mbenesh@ewg.gov; Ex. 6 Personal Privacy (PP) dchorost@sprlaw.com; dchung@crowell.com; aferlo@perkinscoie.com; rfox@mankogold.com; fulton@eli.org; agates@mwlaw.com; jcruden@bdlaw.com; dorsainvild@dcobc.org; Dunn, Alexandra [dunn.alexandra@epa.gov]; michael.gerrard@law.columbia.edu; ragu-jara.gregg@usdoj.gov; rhammer@nrdc.org; david.hayes@nyu.edu; brenda@conservationlitproj.org; nmcaliley@carltonfields.com; Mugdan, Walter [Mugdan.Walter@epa.gov]; jpage@defenders.org; joshua.kaplowitz@sol.doi.gov; Leopold, Matt (OGC) [Leopold.Matt@epa.gov]; vpatton@edf.org; Rpercival@law.umaryland.edu; squarles@nossaman.com; Ruhl, Suzi [Ruhl.Suzi@epa.gov]; sschwarz@faraci.com; mthurlow@bakerlaw.com; hilary.tompkins@hoganlovells.com; awood@HuntonAK.com
Subject: Final details for next week's ALI CLE/ELI Environmental Law conference

We are now just one week away from the annual ALI CLE/ELI Environmental Law conference! To make sure that everyone is prepared for the big event, I wanted to reach out on a few final items:

1. **Materials**: The book of course materials was released to registrants (and yourselves) today. If you have not yet sent in your materials, or are preparing a last-minute PowerPoint, it will be placed in a separate "handouts" folder and then added to the e-book after the course has ended. Please send me any last-minute PowerPoints no later than next Wednesday, February 6, so that we can have it pre-loaded onto the laptop in the meeting room.

Speaking of materials --- don't forget that ALI CLE has gone green. No paper copies of the course materials are distributed. You should have received the link that was sent out, and you can choose to print it if you want (it's almost 700 pages!), or save it to a tablet or laptop that you can bring to the course. We will have ample power strips in the rooms to keep you charged.

2. **Faculty Dinner**: We will have a faculty dinner on Thursday evening (Feb. 7) at 6:15 pm at Sette Osteria, located at 1634 14th Street NW, about a 10 min. walk north of the Washington Plaza. Please let me know at your earliest convenience if you will be able to join us so that I can confirm the reservation.

3. **Thursday Lunch**: For those who are attending on Thursday, we hope that you will join the registrants for a group lunch provided by ALI CLE and ELI. These are valuable networking opportunities for our attendees and for you, too, and your presence greatly enhances the experience for everyone.

7. 4. **CLE Credit**: If you need CLE credit for your participation/attendance, please make sure that you put your name on the appropriate state sign-in sheets that will be out on a table at the program. You will receive the attendance certs by email after the course. We invite and encourage you to attend as much of the course as your schedule allows.

Please do not hesitate to reach out with any final issues, concerns, etc. this week or next. I know it's going to be a great program, and we owe much of that to your contributions. I look forward to seeing you there!

Amy S. Weinberg
Senior Program Attorney and
Manager, Content Licensing and Multimedia
ALI CLE
4025 Chestnut Street
Philadelphia, PA 19104
215-243-1668
aweinberg@ali-cle.org

Message

From: Leigh Ann Brown [BrownL@api.org]
Sent: 9/28/2018 2:13:58 PM
To: Leopold, Matt (OGC) [Leopold.Matt@epa.gov]
Subject: Re: EPA/API Meeting

Thanks. I will share the invite with John Wagner.

Leigh Ann Brown
API
202-682-8508 direct
202-682-8000 main
Brownl@api.org

> On Sep 28, 2018, at 4:10 AM, Leopold, Matt (OGC) <Leopold.Matt@epa.gov> wrote:
>
> Please enter via our north side entrance off of 12th street. Upon clearing security, you will be escorted to Matt's office. Also, please send Mr. Wagner's email address to be added to the invite or you can just forward to him. Thank you.
>
> <meeting.ics>

Message

From: Gonzales, Gilbert [Gilbert.Gonzales@haynesboone.com]
Sent: 7/18/2018 5:01:07 PM
To: 'ldyar@winstead.com' [ldyar@winstead.com]; 'booker.harrison@tceq.texas.gov' [booker.harrison@tceq.texas.gov]; 'Tobias.Smith@clarkhillstrasburger.com' [Tobias.Smith@clarkhillstrasburger.com]; Wehrum, Bill [Wehrum.Bill@epa.gov]; 'megan.berge@bakerbotts.com' [megan.berge@bakerbotts.com]; 'ilevin@environmentalintegrity.org' [ilevin@environmentalintegrity.org]; Leopold, Matt (OGC) [Leopold.Matt@epa.gov]; 'bryan.shaw@tceq.texas.gov' [bryan.shaw@tceq.texas.gov]; 'awood@HuntonAK.com' [awood@HuntonAK.com]; 'matthew.morrison@pillsburylaw.com' [matthew.morrison@pillsburylaw.com]; 'JCruden@bdlaw.com' [JCruden@bdlaw.com]; Pam.Giblin@bakerbotts.com; jbb@blackburncarter.com; 'seals@guidaslavichflores.com' [seals@guidaslavichflores.com]; Mendoza, Mary S. [Mary.Mendoza@haynesboone.com]; 'sue@envirowaterminerals.com' [sue@envirowaterminerals.com]; 'kim.mickelson@houstontx.gov' [kim.mickelson@houstontx.gov]; 'mlawless@mcguirewoods.com' [mlawless@mcguirewoods.com]
CC: Lozano, Marti [Marti.Lozano@haynesboone.com]
Subject: Bio and presentation materials for Super conference 2018

Good afternoon everyone, You are receiving this email because we show we do not have any bio or presentation materials for you as of 7/18/2018. Please submit any bios or presentation material as soon as possible. The super conference team is organizing the presentation binders with the materials and preparing to send them to our production vendor by tomorrow.

If you have already submitted your materials or will not have any please excuse this interruption.

Thank you and have a wonderful day.

haynes*boone*
Gilbert Gonzales
Administrative Services Clerk
gilbert.gonzales@haynesboone.com

Haynes and Boone, LLP
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Message

From: Civins, Jeff [Jeff.Civins@haynesboone.com]
Sent: 8/16/2018 2:16:46 PM
To: 'carolyn@baw.com' [carolyn@baw.com]; 'dbaker@bakerwotring.com' [dbaker@bakerwotring.com]; 'cbishop@cbishoplaw.com' [cbishop@cbishoplaw.com]; 'cbrooke-davidson@velaw.com' [cbrooke-davidson@velaw.com]; 'molly.cagle@bakerbotts.com' [molly.cagle@bakerbotts.com]; 'anthony.cavender@pillsburylaw.com' [anthony.cavender@pillsburylaw.com]; Civins, Jeff [Jeff.Civins@haynesboone.com]; 'Heather.Cooke@austintexas.gov' [Heather.Cooke@austintexas.gov]; 'Shelly.Doggett@TexasAttorneyGeneral.gov' [Shelly.Doggett@TexasAttorneyGeneral.gov]; 'ldyar@winstead.com' [ldyar@winstead.com]; 'Bruce.Fogerty@earthx.org' [Bruce.Fogerty@earthx.org]; 'phillip.goodwin@houstontx.gov' [phillip.goodwin@houstontx.gov]; 'Pgregg@dbcllp.com' [Pgregg@dbcllp.com] Ex. 6 Personal Privacy (PP) 'lydiagromatzky@huntonak.com' [lydiagromatzky@huntonak.com]; 'booker.harrison@tceq.texas.gov' [booker.harrison@tceq.texas.gov] Ex. 6 Personal Privacy (PP) ; Henson, Tucker [Henson.Tucker@epa.gov]; 'dklein@lglawfirm.com' [dklein@lglawfirm.com]; 'eddie.lewis@nortonrosefulbright.com' [eddie.lewis@nortonrosefulbright.com]; 'Arnoldo.Medina@Valero.com' [Arnoldo.Medina@Valero.com]; Mendoza, Mary S. [Mary.Mendoza@haynesboone.com]; 'Tammy.Mitchell@tceq.texas.gov' [Tammy.Mitchell@tceq.texas.gov]; 'bmoore@bdlaw.com' [bmoore@bdlaw.com]; 'james.morriss@tklaw.com' [james.morriss@tklaw.com]; 'steve.morton@klgates.com' [steve.morton@klgates.com]; 'julie@weat.org' [julie@weat.org]; 'mnasi@jw.com' [mnasi@jw.com]; 'jsaitas@westcapitol.com' [jsaitas@westcapitol.com]; 'seals@guidaslavichflores.com' [seals@guidaslavichflores.com]; 'rkskiba@marathonoil.com' [rkskiba@marathonoil.com]; 'cindy@smileylawfirm.com' [cindy@smileylawfirm.com]; 'Chris.Smith@smithjolin.com' [Chris.Smith@smithjolin.com]; 'Connie.Westfall@clarkhillstrasburger.com' [Connie.Westfall@clarkhillstrasburger.com]; 'lwhiting@foley.com' [lwhiting@foley.com]; 'timothy.wilkins@bracewelllaw.com' [timothy.wilkins@bracewelllaw.com]; 'danny.worrell@kattenlaw.com' [danny.worrell@kattenlaw.com]; 'Bruce.Fogerty@earthx.org' [Bruce.Fogerty@earthx.org]; Janet Anderson [janderson@integral-corp.com]; 'dbaker@bakerwotring.com' [dbaker@bakerwotring.com]; 'megan.berge@bakerbotts.com' [megan.berge@bakerbotts.com]; jbb@blackburncarter.com; 'anthony.cavender@pillsburylaw.com' [anthony.cavender@pillsburylaw.com]; Cook, Steven [cook.steven@epa.gov]; 'ken.cross@oag.state.tx.us' [ken.cross@oag.state.tx.us]; 'JCruden@bdlaw.com' [JCruden@bdlaw.com]; 'jdelafuente@lglawfirm.com' [jdelafuente@lglawfirm.com]; 'ldyar@winstead.com' [ldyar@winstead.com]; 'ramiro.garcia@tceq.texas.gov' [ramiro.garcia@tceq.texas.gov]; sarah@pocca.com; Pam.Giblin@bakerbotts.com; 'kg@kgstrategies.com' [kg@kgstrategies.com]; 'booker.harrison@tceq.texas.gov' [booker.harrison@tceq.texas.gov]; 'tholcomb@velaw.com' [tholcomb@velaw.com]; Idsal, Anne [idsal.anne@epa.gov]; 'kelly.keellinden@tceq.texas.gov' [kelly.keellinden@tceq.texas.gov]; 'mlawless@mcguirewoods.com' [mlawless@mcguirewoods.com]; 'David.Lear@dell.com' [David.Lear@dell.com]; Leopold, Matt (OGC) [Leopold.Matt@epa.gov]; 'ilevin@environmentalintegrity.org' [ilevin@environmentalintegrity.org]; 'jeff.lindner@hcfcd.org' [jeff.lindner@hcfcd.org]; 'debbra.mamula@ltgov.texas.gov' [debbra.mamula@ltgov.texas.gov]; Mendoza, Mary S. [Mary.Mendoza@haynesboone.com]; 'kim.mickelson@houstontx.gov' [kim.mickelson@houstontx.gov]; 'dmiller@kempsmith.com' [dmiller@kempsmith.com]; 'matthew.morrison@pillsburylaw.com' [matthew.morrison@pillsburylaw.com]; 'jsroseman@jonesday.com' [jsroseman@jonesday.com]; 'tsalem@tceq.texas.gov' [tsalem@tceq.texas.gov]; 'seals@guidaslavichflores.com' [seals@guidaslavichflores.com]; 'bryan.shaw@tceq.texas.gov' [bryan.shaw@tceq.texas.gov]; 'Tobias.Smith@clarkhillstrasburger.com' [Tobias.Smith@clarkhillstrasburger.com]; 'sue@envirowaterminerals.com' [sue@envirowaterminerals.com]; 'bwahlberg@nossaman.com' [bwahlberg@nossaman.com]; 'Connie.Westfall@clarkhillstrasburger.com' [Connie.Westfall@clarkhillstrasburger.com]; 'swightman@martenlaw.com' [swightman@martenlaw.com]; 'timothy.wilkins@bracewelllaw.com' [timothy.wilkins@bracewelllaw.com]; 'awood@HuntonAK.com' [awood@HuntonAK.com]; Woods, Clint [woods.clint@epa.gov]; 'danny.worrell@kattenlaw.com' [danny.worrell@kattenlaw.com]; 'kevin.smith@tceq.texas.gov' [kevin.smith@tceq.texas.gov]; 'rkskiba@marathonoil.com' [rkskiba@marathonoil.com]; 'julie@weat.org' [julie@weat.org]; rebecca@healthytweaks.com; Ex. 6 Personal Privacy (PP)
CC: Mendoza, Mary S. [Mary.Mendoza@haynesboone.com]; Lozano, Marti [Marti.Lozano@haynesboone.com]; Mercer, Jo El [JoEl.Mercer@haynesboone.com]; Gonzales, Gilbert [Gilbert.Gonzales@haynesboone.com]; Lehnhardt, Trudi [Trudi.Lehnhardt@haynesboone.com]
Subject: 30th Annual Texas Environmental Superconference-- A Texas State of Mind
Attachments: SC_Governors letter to welcome SC2018.pdf

Speakers, Planning Committee Members, Moderators, and Opening Remarkers,

You all did an excellent job in helping make this year's conference one of--if not the best ever--Superconferences in our 30+ year history. Attendees were uniform in their praise for both the Wednesday evening program and the conference itself. On behalf of the Planning Committee, thanks for all your efforts and for your willingness to be part of this unique event. The quality of each of the presentations was outstanding and everything pretty much ran both on time and smoothly. Special thanks to our speakers from the public sector for your willingness to share your particular insights with us, to representatives from both TCEQ and EPA for your continued support of the conference, and to Brooke and Clint for jumping in at the last minute and doing such a great job.

Pictures, which our official conference photographer, Connie Westfall took, may be found here. The link to the slides, which Ric and Patrick Dexter prepared introducing speakers, may be found here.

Thank you all again and hope to see you at next year's conference!

haynes*boone*
Jeff Civins
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STATE OF TEXAS
OFFICE OF THE GOVERNOR

Greetings:

As Governor of Texas, it is my pleasure to welcome everyone to the 30th Annual Texas Environmental Superconference in Austin.

Texas is home to a beautiful and diverse landscape, as well as a booming population, and that creates some big challenges. We are leading the way in developing policies that protect both our environment and our economy, helping to ensure the Lone Star State remains the special place it is today.

I commend everyone participating in this year's conference and for helping Texas recover from environmental damage caused by Harvey and other events. Over the last 30 years, you all have made outstanding contributions to the state of Texas, and your hard work will ensure that future generations can enjoy the natural wonders of the Lone Star State, one community at a time.

To those of you from out of town, I encourage you to explore and enjoy Austin, a city rich in history, music, art, and culture. From the Capitol Complex to music festivals, Austin is a matchless treasure trove for anyone with an interest in Texas history and culture.

First Lady Cecilia Abbott joins me in wishing you continued success in keeping our Lone Star State green.

Sincerely,

Greg Abbott
Governor

Message

From: Leopold, Matt (OGC) [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=4E5CDF09A3924DADA6D322C6794CC4FA-LEOPOLD, MA]
Sent: 2/17/2019 9:28:48 PM
To: Pamela Esterman [pesterman@sprlaw.com]; Wood, Allison D. [awood@hunton.com]; Vickie Patton [vpatton@edf.org]
Subject: RE: Thank you!

Thank you for the opportunity Pam. I was a pleasure to see you all.

Best regards, Matt

Matthew Z. Leopold
General Counsel
U.S. Environmental Protection Agency
(202) 564-8040

From: Pamela Esterman <pesterman@sprlaw.com>
Sent: Friday, February 15, 2019 5:12 PM
To: Wood, Allison D. <awood@hunton.com>; Vickie Patton <vpatton@edf.org>; Leopold, Matt (OGC) <Leopold.Matt@epa.gov>
Subject: [SPAM-Sender] Thank you!

Allison, Vickie and Matt,

Thank you so much for your help in making last week's 49th annual ALI CLE Environmental Law program a tremendous success. The Air panel was excellent! My sincere apologies for not sending this email to you sooner.

I look forward to working with you again in the future.

Best,

Pam Esterman

Pamela Esterman

SIVE, PAGET & RIESEL P.C.

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