

Screening Consideration of Four EPA Proposed Regulatory Actions and Supporting Science

Background:

EPA has a new initiative to strengthen coordination with the Science Advisory Board (SAB) by providing the SAB with information about proposed agency actions (Attachment A). The process is intended to provide the SAB a meaningful opportunity to provide advice and comment, where appropriate, on the science supporting proposed agency actions. As the SAB develops an implementation process for this initiative, the SAB is conducting a pilot exercise to evaluate four proposed rules to determine whether or not the SAB wishes to provide advice and comment on the supporting science. The pilot exercise also will help the SAB to identify the types of information that it would need from the agency in the future in order to determine which proposed actions have scientific issues that should receive formal SAB review.

SAB Pilot Process:

On December 23, 2011, the SAB Staff Office was informed by EPA's Office of Air and Radiation of proposed rules relating to (1) standards for air toxics from boilers and incinerators and (2) greenhouse gas emissions and fuel economy standards for light-duty vehicles (see Attachment B). Consistent with the SAB's charge under the Environmental Research, Development and Demonstration Authorization Act (ERDDAA), the SAB will discuss whether or not it wishes to provide advice and comment to the agency on the science supporting these rules.

To assist the SAB deliberations, SAB members Drs. David Allen, Peter Thorne and Jerry Schnoor agreed to serve as lead discussants. In that capacity, they have worked with SAB staff to conduct fact-finding (Attachments F, G and H) and have developed initial recommendations (Attachment C) to the chartered SAB on whether the SAB should develop advice and comment relating to the OAR proposed rules. Historical SAB evaluation criteria (Attachment D) were considered in the screening process.

During the March 22-23, 2012 meeting, the chartered SAB will hear public comments, consider the recommendations from the SAB lead discussants, and consider whether it wishes to offer advice and comment on the adequacy of the scientific and technical basis of the proposed agency actions.

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Attachment A.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JAN 19 2012

OFFICE OF
POLICY

MEMORANDUM

SUBJECT: Coordination with the Science Advisory Board Regarding Proposed Criteria Documents, Standards, Limitations and Regulations

FROM: Michael L. Goo, Associate Administrator *MLG*
Office of Policy

TO: Assistant Administrators
General Counsel
Chief of Staff
Associate Administrators
Regional Administrators

This is to confirm the procedures that we have discussed regarding coordination with the Science Advisory Board (SAB) on the science and technical information underlying the EPA's proposed criteria documents, standards, limitations and regulations.

In addition to the current process by which program offices identify actions on which they plan to seek advice from the SAB on scientific and technical issues, OP will semiannually inform the SAB, through the SAB Staff Office, of upcoming proposed actions. This process will focus on those proposed regulations, criteria documents, standards or limitations that undergo interagency review and will operate as follows:

1. OP will submit to the SAB staff office a list, based on the Agency's *Semiannual Regulatory Agenda (Regulatory Agenda)*, augmented as necessary, of upcoming proposed regulations, criteria documents, standards or limitations that are expected to undergo interagency review. OP will work with program and regional offices to ensure that any actions not listed in the *Regulatory Agenda* that nevertheless are expected to be submitted for interagency review are included in this submission. For any of these additional actions, offices should provide a description similar to that provided for actions included in the *Regulatory Agenda*.

2. Program and Regional offices will notify the SAB staff office when proposed Agency actions that undergo interagency review become formally available for public review and comment. EPA programs are also expected to provide additional information as requested by the SAB Staff Office to facilitate the SAB's consideration of this information.

If the SAB decides to review and, as appropriate, comment on the scientific and technical basis for a proposed action, OP will work with the SAB Staff Office and the relevant program or regional office to establish the appropriate time frame for SAB review and comment.

Thank you for your assistance in adhering to this process. If you have any questions or concerns, please contact me, or your staff can contact Nicole Owens owens.nicole@epa.gov, at 202 (564-1550).

cc: Bob Perciasepe
Bob Sussman
Deputy Assistant Administrators
Deputy Associate Administrators
Deputy Regional Administrators
Assistant Regional Administrators
Alex Cristofaro
Nicole Owens
Vanessa Wu
Thomas Brennan

Attachment B. Summary of Four EPA Proposed Rules from December 2011

Regulatory Action and Fact Sheets	Status	Public Comments Due	Affected Parties	Supporting Technical documents
<p>Commercial and Industrial Solid Waste Incineration (CISWI) Units: Reconsideration and Proposed Amendments; Non-Hazardous Secondary Materials That Are Solid Waste</p> <ul style="list-style-type: none"> • Fact Sheet: CISWI • Fact Sheet: NHSM 	<p>Proposed Rule</p> <p><i>Pages 80452 - 80530</i> [FR DOC # 2011-31648]</p>	<p>02/21/12 (60 days)</p>	<p>Commercial or industrial facilities with devices that burn solid waste (incinerators, energy recovery units, waste burning kilns)</p>	<p>http://www.epa.gov/ttn/atw/boiler/boilerpg.html#TECH</p>
<p>National Emission Standards for HAPs for Area Sources: Industrial, Commercial, and Institutional Boilers</p> <ul style="list-style-type: none"> • Fact Sheet: Area Sources 	<p>Proposed Rule</p> <p>76 FR 80532-80552 (12/23/11)</p>	<p>02/21/12 (60 days)</p>	<p>Facilities using boilers fired by oil, biomass, or coal: (1) industrial boilers, and (2) commercial and institutional boilers</p>	
<p>National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters</p> <ul style="list-style-type: none"> • Fact Sheet: Major Sources 	<p>Proposed Rule</p> <p><i>Pages 80598 - 80672</i> [FR DOC # 2011-31667]</p>	<p>02/21/12 (60 days)</p>	<p>Industries using boilers or process heaters located at major sources of HAPs</p>	
<p>EPA and DOT's Proposed Light-duty GHG and CAFE Vehicle Standards</p> <ul style="list-style-type: none"> • Fact Sheet 	<p>Proposed Rule</p> <p><i>Pages 74854-75420</i> [FR DOC # 2011-30358]</p>	<p>02/13/12 (extended from 01/30/2012)</p>	<p>Motor vehicle manufacturers, importers of vehicles or vehicle components, alternative fuel vehicle converters</p>	<p>http://epa.gov/otaq/climate/regulations.htm#1-1</p>

Attachment C. Recommendations for SAB Consideration from Lead Discussants

1. “The Boiler/Incinerator MACT Reconsideration Proposal” (SAB Fact-Finding Leads: Drs. Allen and Thorne)

Background: On March 21, 2011, the EPA promulgated 4 final rules that set national emission standards for control of hazardous air pollutants from industrial, commercial and institutional boilers at major and area source facilities, revised the definition of non-hazardous secondary material (NHSM) to clarify the scope of biomass and other solid wastes used as fuels, and emissions from commercial and industrial solid waste incineration (CISWI) units. At that time, the agency announced its intention to reconsider certain portions of the final standards to consider additional issues and public comments.

EPA Proposed Action: On December 23, 2011, the agency proposed a limited number of amendments to the 4 final rules, with public comments due within 60 days (i.e., by February 21, 2012). The proposed amendments for the set of rules are summarized in an [EPA overview fact sheet](#) (Attachment E).

Supporting Technical Documents: Regulatory and technical background information for the boiler rules for major and area sources is provided at <http://www.epa.gov/ttn/atw/boiler/boilerpg.html#TECH>, including documents specific to the proposed reconsideration. Technical issues include the timing of compliance tune-ups for seasonal boilers, fuel-specific PM emission limits, new CO emissions limits, and replacing numeric dioxin emissions limits with work practice standards.

SAB Screening Analysis and Recommendation:

In addition to the proposed rule and the summary factsheet, EPA provided additional information requested by Drs. Allen and Thorne in a fact-finding telephone call (meeting summary, Attachment F). Science and technical issues associated with the EPA proposed action, and relevant evaluation criteria that would suggest that the SAB review and comment on these issues, are summarized in the tables below.

1a. HAPS for Boilers at Major and Area Sources

Proposed Rule	Underlying Science/Technical Issues	Evaluation Criteria
HAPS for Boilers at Major Sources	<ul style="list-style-type: none"> • Large risk reduction • Large numbers of impacted facilities • Replacement of required dioxin measurements with workplace practice requirements 	<p>involves major environmental risks;</p> <p>supports major regulatory or risk management activities</p> <p>involves scientific approaches that are new to the agency</p> <p>addresses areas of substantial uncertainty</p> <p>requires the commitment of substantial resources to scientific or technological development</p>
HAPS for Boilers at Area Sources	<ul style="list-style-type: none"> • Large risk reduction • Large numbers of impacted facilities 	<p>involves major environmental risks;</p>

	<ul style="list-style-type: none"> • Replacement of required dioxin measurements with workplace practice requirements 	<p>supports major regulatory or risk management activities</p> <p>involves scientific approaches that are new to the agency</p> <p>addresses areas of substantial uncertainty</p> <p>requires the commitment of substantial resources to scientific or technological development</p>
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Recommendation to the chartered SAB:

I reviewed documents related to the rules on Boilers (both major source and area source). These are major rules with large estimated air quality and risk reduction benefits, and with large populations of impacted facilities. Thus, both rules meet at least two of the criteria for SAB activities (“involves major environmental risks”; “supports major regulatory or risk management activities”). However, if these criteria alone are applied to the selection of regulations for the SAB to examine, the number of rules that the SAB would need to review would be large.

Therefore, in reviewing the regulations, I also focused on additional criteria for SAB activities (“involves scientific approaches that are new to the agency”, “addresses areas of substantial uncertainty”, and “requires the commitment of substantial resources to scientific or technological development”). In both of the rules that I examined, there are scientific issues underlying the regulations that may meet these criteria. One example (and there could be others) is the replacement of required dioxin emission measurements with the use of certain workplace practices. It would require additional review by individuals with expertise in flame chemistry, boiler practices and analytical methods to determine the relative significance of the scientific issues related to this part of the rule.

The lessons I learned from this exercise are:

- All major rules and regulations would satisfy some of the criteria for SAB activities. The Board will need to perform a relative ranking of rules in determining which should be reviewed by the Board, rather than simply determining whether rules meet one or more criteria for Board activities. The number of rules that could be examined would depend on the resources available to the Board.
- The review of rules and regulations will likely need to be at least a three step process, with an initial screening by the Board followed by more detailed analysis by individuals with regulation-specific scientific expertise to refine the Board’s understanding of the scientific issues, and ending with possible review of the scientific issues underlying some of the rules and regulations.

David Allen, SAB Member

1b. Rules for CISWI and NHSM

Proposed Rule	Underlying Science/Technical Issues	Evaluation Criteria
<p>Amendments to the New Source Performance Standards and Emission Guidelines for CISWI* Units</p> <p>*Commercial and Industrial Solid Waste Incineration</p>	<p>Proposed reconsiderations would produce significant reductions in toxic air emission, including mercury and soot.</p> <p>MACT Floor Limits are established for nine pollutants across six subcategories of CISWI Units (year 2000 limits were for “incinerators”). The new limits are more restrictive for all but “small, remote incinerators.”</p>	<p>Supports EPA strategic priorities (reduction of air toxics emissions)</p> <p>Involves major environmental risks (Hg, Pb, Cd, PM_{2.5}, dioxins & furans, NO_x, SO₂, HCl and CO)</p>
<p>Revisions to the Final Rule on Identification of Non-Hazardous Secondary Materials (NHSM) that are Solid Wastes</p>	<p>New information has emerged that will facilitate implementation of rules as originally intended.</p> <p>Clarification was needed as to what constitutes a non-waste fuel (e.g., clean cellulosic biomass, tires managed under tire collection programs, etc.)</p>	<p>Supports EPA strategic priorities (to simplify regulations and facilitate compliance)</p>

Recommendations to the chartered SAB:

CISWI Units

Background:

CISWI Units include incinerators, energy recovery units (ERUs), waste burning kilns and small remote incinerators. Amendments to the New Source Performance Standards and Emission Guidelines for Commercial and Industrial Solid Waste Incineration (CISWI) Units center on four revisions:

- Revise some monitoring requirement to add flexibility and reduce costs of compliance.
- Revise emission limits to reflect updated inventories.
- Change corrections of CO emissions during startup and shutdown.
- Clarification of what units are defined as CISWI units.

There are many more CISWI Units than EPA knew about in March 2011 and some types EPA had not considered. New and existing source MACT floor limits are established for nine pollutants across six subcategories of CISWI Units (year 2000 limits were for “incinerators”). The new limits are more restrictive for all but “small, remote incinerators. All limits are measured at or corrected to 7% oxygen. The nine pollutants are: HCl, CO, Pb, Cd, Hg, PM, dioxins & furans, NO_x and SO₂. The six CISWI Unit subcategories are: incinerators, ERUs-coal, ERUs-biomass, waste burning kilns, small remote incinerators. These rules exclude cyclonic burn barrels, burn-off units, soil treatment units, lab analysis units and space heaters.

Estimated compliance costs are \$859 million capital investment and \$270 million annual outlay. Estimated health benefits are \$330 to \$800 million in 2015 for reduction of PM_{2.5} with comparable benefits thereafter.

Recommendation:

These revisions seem appropriate and responsive to additional data supplied by regulated CISWI Unit operators. I do not find that these revisions significantly meet the criteria for SAB advisory activities. Thus, I recommend that the Science Advisory Board not undertake further review of this set of revisions to the March 2011 rules.

Identification of NHSM

Background:

Revisions to the Final Rule on Identification of Non-Hazardous Secondary Materials (NHSM) that are Solid Wastes include the following:

- Definition of Clean Cellulosic Biomass to include e.g., crop residues, wood debris, untreated wood pallets.
- Allow operators to petition to have EPA accept a NHSM as a non-waste fuel.
- Identification of resinous wood and tires managed under other programs as non-wastes when used as fuel.
- Facilities burning fuels from different categories (e.g., coal and biomass) can use facilities that burn either one alone for comparison.

Recommendation:

These proposed revisions to the March 2011 rules provide clarification to facilitate implementation of rules as originally intended. The available science supports these revisions on a long-standing environmental issue. I recommend that the Science Advisory Board not undertake further review of this set of revisions to the March 2011 rules.

Peter Thorne, SAB Member

2. Proposed Light-Duty Vehicle Greenhouse Gases (GHG) and CAFE Vehicle Standards (SAB Fact-Finding Lead: Dr. Schnoor)

Background: In a [2007 ruling](#), the U.S. Supreme Court concluded that “greenhouse gases fit well within the Clean Air Act’s capacious definition of ‘air pollutant’” and that the EPA has authority under CAA Section 202(a) “to regulate GHG emissions from new motor vehicles in the event that it forms a ‘judgment’ that such emissions contribute to climate change.” Thus, the authority to establish GHG emissions standards for vehicles under the Clean Air Act was a result of EPA’s December 7, 2009, findings that current and projected concentrations of 6 GHG in the atmosphere threaten the public health and welfare of current and future generations (the Endangerment Finding) and that emissions from vehicles contribute to GHG pollution (see <http://www.epa.gov/climatechange/endangerment.html>). Authority to set Corporate Average Fuel Economy (CAFÉ) Standards rests with the National Highway Traffic Safety Agency (NHTSA).

On April 1, 2010, EPA and the National Highway Traffic Safety Agency (NHTSA) issued standards for GHG and fuel economy for 2012-2016 model year light-duty vehicles and for 2014-2018 model year heavy-duty vehicles (e.g., heavy-duty pickup trucks, vans and buses) on August 9, 2011. This National Program allows vehicle manufacturers to develop one fleet that would satisfy both the national and California requirements. (California set GHG standards for light-duty vehicles in 2004 and these standards have been adopted by 13 states and D.C.)

EPA Proposed Action: On December 1, 2011, the EPA and NHTSA issued a proposed rule to extend the National Program of light-duty vehicle GHG emissions and corporate average fuel economy (CAFE) standards to model years 2017–2025. The proposed rule would set GHG emissions and fuel economy standards on the basis of vehicle size (or “footprint”), with larger vehicles held to less stringent standards than smaller vehicles and with standards becoming more stringent in each model year.

Supporting Technical Documents: regulatory and technical background documents are provided at <http://www.epa.gov/otaq/climate/regulations.htm> and include the [Draft Joint Technical Support Document](#) (November 2011) and the [Draft RIA](#) (November 2011). Technical analytical issues include the build-up of the baseline and reference fleets, the derivation of the shape of the footprint-based attribute curves, estimated costs and effectiveness of vehicle technologies, and estimation of costs and benefits of the proposed rules.

SAB Screening Analysis and Recommendation:

In addition to the proposed rule and summary factsheet, EPA provided additional information requested by Dr. Schnoor to summarize technical issues raised at three public hearings on the proposed rule (Attachment G) and to summarize the peer review of technical documents that support the rule (Attachment H). Science and technical issues associated with the EPA proposed action, and relevant evaluation criteria that would suggest that the SAB review and comment on these issues, are summarized in the table below.

Proposed Rule	Underlying Science/Technical Issues	Evaluation Criteria
GHG/fuel economy standards for 2017-2025 model year light-duty vehicles	<ul style="list-style-type: none"> • Endangerment Finding 2009 • Cause & Contribute Finding • EPA + NHTSA Joint Proposal 2010 • GHG + CAFÉ Stds (both required?) 	Major envir. risks Major regulatory initiative Transcends org boundary Making difference in science; model for future
	<ul style="list-style-type: none"> • 1st GHG regs for Heavy Duty Vehicles HDV 	Major regulatory initiative
	<ul style="list-style-type: none"> • Net Benefit Calculations (Benefit:Cost) 	Model for future methods
	<ul style="list-style-type: none"> • Advanced Tech Credits for EVs & PHEVs Zero CO2 equiv/mi emissions 2012-16 	Area of substantial uncertainty

Recommendation to the chartered SAB: Pursuant to the SAB Criteria for Advisory Activities, these GHG/fuel economy standards represent a major regulatory initiative at the specific charge of The President of the United States, and in keeping with the 2007 Supreme Court ruling in Massachusetts v. EPA, the EPA Endangerment and Cause/Contribute Findings of 2009, the Clean Air Act, and the Energy Independence and Security Act of 2007. It also represents a good example of EPA working with another agency on a major regulatory initiative, the National Highway Traffic Safety Administration (NHTSA) to produce a new generation of clean vehicles through reduced GHG emissions and improved fuel use from on-road vehicles and engines.

However, the recent November 2011 proposed rules for 2017-2025 are mostly an extension of the previous rule (April 1, 2010) establishing standards for 2012-2016 model year vehicles. There is not new science or technical issues with the possible exception of the advanced technical credits for electric vehicles and (partially) plug-in electric vehicles (PHEVs) that are being proposed in which incentives are provided for a quota of vehicles at 0 g CO₂ equivalents/mile. This is somewhat controversial because a life cycle analysis would show that these vehicles obtain electrical charge from the grid which certainly causes greenhouse gas emissions. But EPA has proposed this as an incentive to facilitate market penetration of the most advanced vehicle technologies as rapidly as possible, so it is touted as an economic incentive and not as a proposition of the actual GHG emissions from these vehicles. In addition, the new regulations address a methodology for compressed natural gas (CNG) vehicles for the first time.

Overall, my recommendation to the SAB would be that there is not a major new scientific issue associated with these regulations, and it should not be a high priority for action on our part.

Jerry Schnoor, SAB Member

Attachment D. SAB Evaluation Criteria

Because time and resources are always limited, the Science Advisory Board uses criteria for selection of advisory activities. Activities that are best suited for consideration by the SAB are those that meet several criteria. The following criteria have been used in the past to select advisory activities that are best suited for consideration by the SAB.

General Criterion

A. Provides an opportunity to make a difference in the science that supports the agency's mission.

Client-Related Criteria

- B. Supports major regulatory or risk management initiatives.
- C. Serves leadership interests (e.g., the Administrator, the Congress)
- D. Supports EPA strategic priorities.

Science Driven Criteria

- E. Involves scientific approaches that are new to the agency.
- F. Addresses areas of substantial uncertainties.

Problem Driven Criteria

- G. Involves major environmental risks.
- H. Relates to emerging environmental issues.
- I. Exhibits a long-term outlook.

Organizational Criteria

- J. Serves as a model for future agency methods.
- K. Requires the commitment of substantial resources to scientific or technological development.
- L. Transcends organizational boundaries, within or outside EPA (includes international boundaries).
- M. Strengthens the agency's basic capabilities.

Attachment E. EPA's Air Toxics Standards for Major and Area Source Boilers and Certain Incinerators: Overview of Changes and Impacts.

EPA's Air Toxics Standards Major and Area Source Boilers and Certain Incinerators Overview of Changes and Impacts

ACTION

On December 2, 2011, the U.S. Environmental Protection Agency (EPA) proposed changes to standards that would reduce emissions of air pollutants from existing and new boilers and commercial and industrial solid waste incinerators (CISWI).

Using a wide variety of fuels, including coal, oil, natural gas and biomass, boilers are used to power heavy machinery, provide heat for industrial and manufacturing processes in addition to a number of other uses. EPA's boiler proposals recognize the diverse and complex range of uses and fuels and tailors standards to reflect the real world operating conditions of specific types of boilers. The CISWI proposal recognizes the important relationship to the Non-Hazardous Secondary Materials (NHSM) rule, which defines solid waste for purposes of the air rules. The NHSM rule helps categorize units as either boilers or CISWI units. This fact sheet provides an overview of the benefits of the rules and highlights key changes the agency has made.

BACKGROUND

- These rules are developed under sections 112 and 129 of the Clean Air Act, two provisions that target toxic air pollution.
- Under these sections, EPA is required to set technology-based standards for toxic air pollutants, reflective of levels achieved by the best performing existing sources.
- There are more than 1.5 million boilers in the U.S.
- For 86 percent of all boilers in the United States, these rules would not apply, because these boilers burn clean natural gas at area source facilities and emit little pollution.
- For almost 13 percent of all boilers in the United States, EPA's standards would continue to rely on practical, cost-effective work practice standards to reduce emissions.
- For the highest emitting 0.4 percent of all boilers in the United States, including boilers located at refineries, chemical plants, and other industrial facilities, EPA is proposing more targeted revised emissions limits that provide industry practical, protective, cost-effective options to meet the standards.
- For CISWI units, EPA is proposing revised emission limits for certain units that reflect the best performing commercial and industrial waste incineration units.
- Existing boilers would have three years to comply with these standards and can obtain an additional year beyond that, if technology cannot be installed in time.
- Existing incinerators would need to comply no later than three years after EPA approves a state plan or five years after the publication date, whichever is earlier.

Health Benefits and Costs of the Boiler and CISWI Rules

- EPA has worked throughout this reconsideration process to fully consider all of the information provided to the agency. Based on its review of this information, the agency is proposing to establish standards that are achievable, protective and cost-effective.

- Overall, the changes have retained the significant health benefits and resulted in rules that are simpler to implement. Today's reconsideration also maintains the dramatic cuts in the cost of implementation that were achieved in the final rules issued in March.
- The proposed changes would cut emission of pollutants such as mercury, particle pollution, sulfur dioxide, dioxin, lead, and nitrogen dioxide.
- These pollutants can cause a range of dangerous health effects - from developmental disabilities in children to cancer, heart disease and premature death.
- The proposed standards would have direct benefits to many communities where people live very close to these units.
- Together, the standards will avoid up to 8,100 premature deaths, 5,100 heart attacks, and 52,000 asthma attacks.
- EPA estimates that Americans would receive 12 to 30 dollars in health benefits for every dollar spent to meet the proposed standards.
- The proposed standards reflect the latest and best information provided during the public comment period and after the final standards were issued in March.
- EPA will continue the dialogue on these important standards throughout the public comment period, and encourages stakeholders to provide any additional data that may help better target these standards.

Major and Area Source Boiler Rules

Based on public comments and additional data provided after the rules were finalized, EPA is proposing some significant changes to the required air toxics standards for boilers and incinerators.

- **Area Source Boilers:** Due to how little these sources emit, EPA is continuing to require work-practice standards, which include routine maintenance and tune-ups for 98 percent of area source boilers covered by the proposal. Only 2 percent of area source boilers would need to meet emissions limits. The costs and benefits of the standards remain unchanged.
 - **Initial Tune-ups:** To increase flexibility for these sources: EPA is proposing to create additional subcategories and require initial compliance tune-ups after two years instead after the first year to give facilities ample time to comply with the standards.
 - **Seasonal Use Area Source Units:** EPA is proposing to require seasonal operators to conduct tune-ups every five years instead of every other year. These units are operated less frequently and have less of a need to conduct tune-ups than boilers that are operated year-round.
- **Major Source Boilers:** There are approximately 14,000 major source boilers in the US. Eighty-eight percent of those would be required to conduct periodic tune-ups. Twelve percent would be required to take steps to meet emission standards if they do not already meet the standards. Based on additional data provided after the agency issued final standards in March, EPA is proposing to:

- **Create new subcategories for light and heavy industrial liquids** to reflect design differences in the boilers that burn these fuels. This change would improve the standards' achievability, without decreasing public health protections.
- **Set new emissions limits for PM** that are different for each solid fuel subcategory (e.g., biomass, coal) to better reflect real-world operating conditions.
- **Set new emissions limits for carbon monoxide** based on newly submitted data that shows CO emissions from boilers vary greatly. EPA is proposing to set new limits to more adequately capture that variability.
- **Allow alternative total selective metals emission limits** to regulate metallic air toxics instead of using PM as a surrogate, allowing more flexibility and decreasing compliance costs for units that emit low levels of HAP metals.
- **Replace numeric dioxin emissions limits with work practice standards** to reflect a more robust analysis that shows dioxin emissions are below levels that can be accurately measured.
- **Increase flexibility in compliance monitoring** to remove continuous emissions monitoring requirements for particle pollution for biomass units and to propose carbon monoxide limits that are based on either stack testing or continuous monitoring.
- **Revise emissions limits for units located outside the continental United States** to reflect new data and to better reflect the unique operating conditions associated with operating these units.
- **Continue to allow units burning clean gases** to qualify for work practice standards instead of numeric emissions limits, maintaining flexibility and achievability.

CISWI

Based on public comments, additional data provided, and adjusting the methodology EPA used to develop the final rules, the agency is revising emission limits including those for dioxin and mercury. EPA further clarified what units would fall under the definition of CISWI. EPA also revised some monitoring requirements, which would provide facilities with more flexibility in achieving standards and lower compliance costs.

EPA is also proposing revisions to its final rule which identified the types of non-hazardous secondary materials that can be burned in boilers or solid waste incinerators. Following the release of that final rule, stakeholders expressed concerns regarding the regulatory criteria for a non-hazardous secondary material to be considered a legitimate, non-waste fuel, and how to demonstrate compliance with those criteria. To address these concerns, EPA's proposed revisions provide clarity on what types of secondary materials are considered non-waste fuels, and greater flexibility. The proposed revisions also classify a number of secondary materials as non-wastes when used as a fuel and allow for a boiler or solid waste operator to request that EPA identify specific materials

as a non-waste fuel.

BACKGROUND

In March 2011, EPA published a notice stating that the agency intended to reconsider certain aspects of the boiler and commercial and industrial solid waste incinerator rules. EPA also received more than 50 petitions for reconsideration from industry, states, and environmental groups. Based on these petitions, the agency's own reconsideration and on the additional information industry provided, EPA is proposing important changes to the March 2011 standards. This proposed reconsideration would maintain public health protections through significant reductions in toxic air emissions, including mercury and soot, while increasing the flexibility, consistency and achievability of these standards.

EPA will accept public comment on these standards for 60 days following publication in the Federal Register. EPA intends to finalize the reconsideration in Spring 2012.

HOW TO COMMENT

- The EPA will accept comment on the proposals for 60 days after publication in the Federal Register. Comments, identified by Docket ID Number EPA-HQ-OAR-2002-0058 (boiler major) EPA-HQ-OAR-2008-0790 (boiler area), Number EPA-HQ-OAR-2003-0119 (CISWI) may be submitted by one of the following methods:
 - www.regulations.gov: follow the on-line instructions for submitting comments.
 - E-mail: Comments may be sent by electronic mail (e-mail) to a-and-r-Docket@epa.gov.
 - Fax: Fax your comments to: (202) 566-9744.
 - Mail: Send your comments to: Air and Radiation Docket and Information Center, Environmental Protection Agency, Mail Code: 2822T, 1200 Pennsylvania Ave., NW, Washington, DC 20460.
 - Hand Delivery or Courier: Deliver your comments to: EPA Docket Center, 1301 Constitution Ave., NW, Room 3334, Washington, DC 20004. Such deliveries are only accepted during the Docket's normal hours of operation, and special arrangements should be made for deliveries of boxed information.

**Attachment F. Summary of Fact-Finding Meeting on Scientific and Technical Issues for EPA
Proposed Rules Relating to HAPs Emission Standards for Boilers and Incinerators
(SAB Staff Office Summary)**

Teleconference Date: February 3, 2012 (2:00 - 3:15 p.m. Eastern Time)

Participants:

SAB Members: David Allen and Peter Thorne

SAB Staff Office: Stephanie Sanzone, Angela Nugent

EPA Representatives: Carl Mazza, Robert Wayland, David Cozzie

Welcome: Ms. Sanzone thanked the EPA program representatives for taking time to provide background on four proposed rules and answer questions from the Science Advisory Board (SAB) members.

Explanation of the Process: Ms. Sanzone briefly described the context for the meeting and made the following points. In a memorandum from the Associate Administrator for Policy, dated January 19, 2012, the EPA articulated a process for coordinating with the SAB on upcoming proposed actions. Prior to that, the EPA Office of Air and Radiation (OAR) had notified the SAB Staff Office on December 23, 2011, of a set of proposed rules that had been published in the Federal Register. The SAB is piloting a process for evaluating proposed EPA actions to determine for which, if any, the SAB wishes to provide advice and comment. The screening process will include applying some general criteria to identify which proposed actions would be suitable for SAB comment. Since the SAB does not have a standing committee that addresses air quality issues, several SAB members agreed to take the lead to develop an initial recommendation to the full SAB regarding the four proposed air rules. This discussion will be one of the agenda items for an SAB meeting on March 22-23, 2012.

The SAB is a federal advisory committee, so its deliberations are held in public. However, individual members are permitted to conduct fact-finding discussions as needed. Ms. Sanzone noted that her role as Designated Federal Officer (DFO) for the meeting is to facilitate that fact-finding and keep a summary of the discussions for the record.

Background on the Proposed Rules: Ms. Sanzone requested that the EPA representatives provide a brief overview of the rationale for the proposal to reconsider aspects of the final rules released in 2011, after which Drs. Allen and Thorne would ask any technical questions they had about the science underlying the proposed rules.

Dr. Wayland, EPA Office of Air and Radiation, gave a brief overview of the Boiler Major Source proposed rule, noting that the agency had been under a tight schedule to finalize the original rules and had decided to provide an additional opportunity for public comment. The final rules were issued in March 2011, with concurrent notice of the agency's intent to reconsider certain provisions of the rules. In May 2011 the agency issued a stay pending the reconsideration and in December 2011 the agency published the proposed rules with a 60-day period for public comment. The proposed revisions to the rule are intended to provide maximum flexibility, while maintaining the significant health benefits, in response to Congressional and public stakeholder concerns.

He noted some of the changes being proposed, including considering particulate matter (PM) emissions associated with various fuels as a function of the combustion process and control systems; adjusted carbon monoxide (CO) emission limits based on new data; and a shift to a work practice standard for

dioxins and furans rather than an emission limit because much of the data showed that emissions were at or below detection limits for these compounds.

Proposed changes for Area Sources include providing an additional year for area source boilers to meet the goal, and changes to the tune-up schedule for units that operate on a seasonal basis.

Mr. Cozzie, EPA Office of Air and Radiation, gave a brief introduction to the proposed Commercial and Industrial Solid Waste Incinerator (CISWI) rule, noting that the agency had similar reasons for the reconsideration of the rule as with the boiler rules (i.e., the short time between proposal and final rule). The agency is required to set numerical standards for nine pollutants listed in the Clean Air Act (CAA). The CISWI applies to nonhazardous wastes burned in an incinerator so the definition of hazardous waste is important. The non-hazardous secondary material (NHSM) rule defines the types of wastes that can be treated as fuels thereby determining whether they are subject to the boiler rule or the CISWI rule. He noted that the revisions to the rule were based on additional data and information.

SAB Member Questions and Answers: Dr. Allen noted that the current SAB fact-finding is part of its response to the Environmental Research Development and Demonstration Authorization Act (ERDDAA) of 1978, whereby the SAB has an opportunity to provide advice and comment on the adequacy of the science supporting proposed agency actions. To fulfill that role, the SAB needs to identify whether there are science issues associated with the proposed rules that should be considered by the SAB. Dr. Thorne also noted that this exercise is consistent with the SAB's mission to serve the public by bringing forth the best science. The following is a summary of questions posed by the members, and answers provided by agency representatives.

Q. Regarding the proposal to replace numeric dioxin emission limits with work practice standards, how will the agency balance consideration of public health risks at low levels of dioxin emissions with the limitations of detection methods? Would required sampling times be too long and costs too high, or are methods just not available?

A. The EPA approaches to hazardous air pollutant (HAP) regulation (e.g., 3-hour samples) cannot accurately and reliably measure dioxins and furans at the levels emitted from these sources. Also, there is no control technology available other than to reduce the fuel use, so that is why the focus is on ensuring that tune-ups assure best combustion conditions. More than 80 percent of dioxin emission measurements were below three times the detection limit. Many public comments raised this issue, and the agency agreed.

Q. For the flame to produce dioxins, there needs to be a source of chlorine. What is the source (i.e., the air, the fuel)?

A. Small amounts of chlorine are in natural fuels, although some coals or biomass have more chlorine than others. The tune-up of the boiler provides the most efficient flame zone ensuring the most efficient destruction of these compounds.

Q. How does the proposal for work practices relate to the enforcement provisions of the CAA?

A. CAA section 112(h) says that if it is technologically and economically infeasible to monitor a pollutant, EPA can issue a work practice standard. In the proposed rule, the agency makes the case that

both are true for dioxins/furans (i.e., there is not a consistently reliable test method at that level, and a requirement to sample over multiple days would be too costly).

Q. Is there evidence not based on dioxin emission measurements that a tuned-up boiler produces less dioxin?

A. This approach is consistent with engineering practice logic used by EPA for other pollutants (greenhouse gases, etc). The collection of considerations was used to support the approach. Also, the quantified benefits are associated mostly with reductions in primary PM and SO₂. Other HAPs don't have epidemiology studies that can be used to quantify the benefits.

Q. Will combustion characteristics change as a result of the tune-ups? e.g., if a tune-up increases the flame temperature, that can increase NO_x formation. Is there something similar for dioxins?

A. No, in fact boilers are used to destroy chlorine-rich waste streams. If conditions push CO too low, that might increase NO_x, so the goal is to minimize both. There are lots of data for those two pollutants. However, for dioxins, furans, PCBs, etc., there are not continuous emission monitoring data.

Q. If anticipated risks are at levels lower than analytical methods can detect, how does the agency decide to evaluate or develop alternative methods?

A. EPA engineers coordinate with the EPA monitoring personnel with regard to monitoring methods and capabilities. In addition, the Office of Research and Development (ORD) works to refine test methods and instrumentation, works with instrument manufacturers, etc. For the 1990 CAA Amendments, municipal waste combustors were the largest sources of dioxins and existing techniques worked well for assessing those levels. However, the industrial units covered under the current proposed rule are not burning high-chlorine fuels so the dioxin emissions are many orders of magnitude lower than the levels for which EPA had been using the test method. Sulfur actually inhibits dioxin formation, so that is a factor when burning coal. For these reasons, the agency is proposing to set a work practice standard and continue to work with ORD, etc.

Q. When the SAB talks to ORD about research strategies, what is the message on the need to develop a new federal reference method? In other words, how much residual risk is associated with these dioxin emissions and what priority is needed for new methods development?

A. The ORD expert on dioxin has worked with OAR on both of these rules, so he is aware of the issue. One consideration is that only a half dozen laboratories in the U.S. are eligible to run these tests, and only one or two of those are reliable and reputable. In contrast, PM analysis is easy to get. So, regulation requires all three: a reliable test method; engineering that goes with it; and private sector testing expertise.

Q. Pick an example of a waste (e.g., tires, treated lumber) and explain the implications of the proposed NHSM rule.

A. Detailed discussion of that rule should come from the Office of Solid Waste. In brief, however, the NHSM defines what is a waste versus what is a potential fuel thereby determining which emission standards apply. The proposed rule clarifies the legitimacy criteria for being considered a fuel, such as BTU value and comparability with other fuels.

Q. The proposed rule sets PM emissions limits for different fuel categories. How will that be operationalized?

A. The final March 2011 rule considered Hg and HCl as fuel-based pollutants, vs. dioxins and furans which are a function of the type of combustor. PM emissions profiles are more related to combustor type than fuel type. Therefore, instead of a single PM limit for solid vs. liquid vs. gas fuels, the proposed rule sets limits that are combustor-specific. CAA section 112 gives broad discretion to set subcategories where class, size or type differences exist. For PM, there are differences in particle sizes, efficiency of downstream control devices, and the ways these emissions can be measured for different types of combustors. The data supported the conclusion that PM emissions primarily are combustion-related, rather than fuel-related.

Q. Does PM from each of the 16 subcategories have different toxicities?

A. CAA section 112(d) is a technology-driven program, whereas section 112(f) is the residual risk program. Section 112(d) requires establishment of broad national regulations that provide maximum achievable control technology (MACT), so the agency identifies the best available control that can reduce emissions. Under Section 112(f), EPA will look at risks from every remaining source to see if residual risks are reduced to the 1 in a million criterion. If not, EPA is to use a risk-based approach to look at the issue. EPA cannot do both steps at once because of the way the statute is written. (Residual risk assessment happens within eight years of setting the MACT.)

Q. If the data show that different processes have different efficacies, is there a way to phase out the less desirable processes?

A. Under section 112, EPA sets a numerical limit (based on the best-performing 12 percent of facilities) but doesn't specify how to comply. For example, if a unit is burning biomass and can't meet the emission limit, it could switch to natural gas, etc. Some units choose to retire because of the costs to comply in comparison to the utility of the facility. Or, facilities may change from a wet to a dry process, etc.

**Attachment G. Science Topics Raised by Commenters at Public Hearings for Light-Duty 2017-2025 Greenhouse Gas and CAFE Standards Notice of Proposed Rulemaking
(EPA Staff Summary, February 17, 2012)**

This document was prepared in response to a request from Stephanie Sanzone, Designated Federal Officer for the EPA Science Advisory Board, for a summary of the science related comments provided by commenter's at the recently held public hearing for the Joint Notice of Proposed Rulemaking for Model Year 2017-2025 light-duty vehicle greenhouse gas and CAFE standards.

- EPA & the National Highway Traffic Safety Administration (NHTSA) held 3 public hearings in January 2012 regarding the Joint Notice of Proposed Rulemaking for Model Years 2017-2025 light-duty vehicle GHG and CAFE standards.
- Several hundred individual's provided oral testimony regarding the proposed 2017-2025 standards, including private citizens, representatives from individual companies and trade associations, labor unions, elected officials at the local, state and federal level, and a range of non-governmental organizations.
- This document is a brief listing of the comments received at the public hearing related to scientific issues. It should be noted that commenters were asked to keep their testimony to no more than 5 or 10 minutes. Given that time constraint, EPA staff believe it is very likely that many stakeholders will cover a wider range of topics, and in more detail, in their written comments than they were able to cover in testimony at the public hearings. Our initial review of the comments which have been submitted to the public docket for this rulemaking is confirming this view.

Vehicle life cycle modeling (not including fuels) – the American Iron and Steel Institute (AISI) commented that while the NPRM proposed primarily vehicle tailpipe emission standards, for the mid-term review, EPA and NHTSA should consider life cycle GHG emission standards which taken into account the production related emissions of all components which go into a vehicle. AISI was silent on the topic of the inclusion of life cycle emissions for vehicle fuels – their comments focused on the production of the vehicle. AISI cited studies from UC Santa Barbara, UC Davis, and the University of Michigan to support their recommendations. Comments on this topic were also made by U.S. Steel.

- Upstream emissions from electric vehicles – in the Joint NPRM, EPA proposed both a methodology to account for upstream GHG emissions from electric vehicles (and the electric drive portion of driving for plug-in hybrid electric vehicles), as well as a specific time frame and sales volume threshold which would trigger an individual auto companies requirements to begin accounting for upstream emissions for electric vehicles. During the public hearings, several commenter's discussed the policy implications of EPA's proposal, however, no comments were made on the specific accounting methodology proposed by EPA. The policy-related commenter's included General Motors Corporation, Nissan, Honda Motor Company, the Northeast States for Coordinated Air Use Management, BMW, and a large number of environmental non-governmental organizations.

- Off-cycle emission credit opportunities for additional technologies- several companies, including SABIC, Bayer Material Science, and the American Chemistry Council, commented that EPA and NHTSA should consider the potential environmental benefits of using polycarbonate glazing coatings for windows which can reduce thermal loading on a vehicle and thus reduce the need for air conditioning use in a vehicle. Companies cited a number of specific properties or characteristics of polycarbonate materials which they said would result in environmental benefits.

- Climate change - while this specific Notice of Proposed Rulemaking does not include any new analysis regarding the science of climate change (this Joint NPRM proposes new greenhouse gas standards from EPA and CAFE standards from NHTSA), many commenters discuss the types of climate impacts which they believe could be partially mitigated as a result of the proposed standards, and in some cases cited specific literature or provided copies of articles from the literature to supplement their comments. The number of commenters with this view was very large, and includes many private citizens, as well as a large number of non-governmental organizations, including but not limited to the Natural Resources Defense Council, the Center for Biological Diversity, the Sierra Club, Union of Concerned Scientists, World Wildlife Federation, Environment America, Environmental Defense Fund, and the International Council for Clean Transportation.

Attachment H. Peer Reviewed EPA Studies Utilized in the Light-Duty 2017-2025 Greenhouse Gas and CAFE Standards Notice of Proposed Rulemaking (EPA Staff Summary)

The following is the list of key technical reports and models which were funded by EPA and utilized in the 2017-2025 light-duty vehicles NPRM. Note this is by no means the complete list of peer reviewed work relied upon by EPA and NHTSA for the Joint NPRM. Rather, this is a list of the important studies and models utilized by EPA in the Joint NPRM where EPA either performed the work or EPA commissioned the work – that is, EPA paid for the study or model.

“A Study of Potential Effectiveness of Carbon Dioxide Reducing Vehicle Technologies – Revised Final Report”, EPA Report 420-R-08-004a, June 2008

“Peer Review for the PQA/Ricardo Report ‘A Study of Potential Effectiveness of Carbon Dioxide Reducing Vehicle Technologies’”, EPA Report 420-S-08-002, January 2008

“Automobile Industry Retail Price Equivalent and Indirect Cost Multipliers”, RTI International/U. of Michigan, EPA Report 420-R-09-003, Feb. 2009

“Peer Review for the RTI Report, Automobile Industry Retail Price Equivalent and Indirect Cost Multipliers”, EPA Report 420-R-004, June 2009

“Using indirect cost multipliers to estimate the total cost of adding new technology in the automobile industry”, International Journal of Production Economics, April 2010

“Light-Duty Technology Cost Analysis Pilot Study”, EPA Report 420-R-09-020, Dec. 2009

“Peer Review of Light-duty Technology Cost Analysis Pilot Study”, ICF International, Nov. 2009

“Response to Comments of Light-duty Technology Cost Analysis Pilot Study” EPA/FEV, EPA Report 420-R-09-021

“OMEGA Model Documentation”, EPA Report 420-B-10-042

Peer Review of OMEGA and EPA’s Response to Comments, EPA Report 420-R-09-016, Sept. 2009

FEV, Inc., “Light-Duty Technology Cost Analysis, Power-Split and P2 HEV Case Studies”, Contract No. EP-C-07-069, Work Assignment 3-3, EPA Report EPA-420-R-11-015, November 2011.

ICF, “Peer Review of FEV Inc. Report ‘Light Duty Technology Cost Analysis, Power-Split and P2 Hybrid Electric Vehicle Case Studies’”, EPA Report EPA-420-R-11-016, November 2011.

FEV, Inc. and U.S. EPA, “FEV Inc. Report ‘Light Duty Technology Cost Analysis, Power-Split and P2 Hybrid Electric Vehicle Case Studies’, Peer Review Report – Response to Comments Document”, EPA Report EPA-420-R-11-017, November 2011.

Ricardo Inc., “Project Report Computer Simulation of Light-duty Vehicle Technologies for Greenhouse Gas Emission Reduction in the 2020–2025 Timeframe,” 2011, Contract No. EPC-11-007, Work Assignment 0-12, November, 2011. EPA Report EPA-420-R-11-020

Systems Research and Applications Corporation (SRA), "Response to Peer Review of: Ricardo, Inc. Draft Report, 'Computer Simulation of Light-Duty Vehicle Technologies for Greenhouse Gas Emission Reduction in the 2020-2025 Timeframe'" EPA Contract No. EP-C-11-007, Work Assignment 0-12, November, 2011. EPA Report EPA-420-R-11-21

"How Consumers Value Fuel Economy: A Literature Review," by David Greene, Oak Ridge National Laboratory, EPA Report EPA-420-R-10-008, March 2010

"Peer Review for the Report, 'How Consumers Value Fuel Economy: A Literature Review,'" EPA Report EPA-420-S-10-001

"Evaluating the Consumer Response to Fuel Economy: A Review of the Literature.", Gloria Helfand and Ann Wolverton of EPA, published in International Review of Environmental and Resource Economics 5 (2011): 103-146