United States Environmental Protection Agency (U.S. EPA) Science Advisory Board (SAB)
Teleconference Meeting
June 5, 2013
Meeting Minutes

Date and Time: June 5, 2013, 1:00 p.m. to 4:00 p.m.

Location: By teleconference only

Purpose: To receive an update on the SAB Hydraulic Fracturing Research Advisory Panel Consultation on May 7-8, 2013 and to continue Board discussions of information provided by the EPA on planned actions and their supporting science.

Meeting Participants:

SAB Members

Dr. David T Allen, Chair
Dr. George Alexeeff
Dr. Joseph Arvai
Dr. Thomas Burbacher
Dr. Ingrid Burke
Dr. Thomas Burke
Dr. Edward Carney
Dr. Terry Daniel
Dr. George Daston
Dr. Costel Denson
Dr. David Dzombak
Dr. T. Taylor Eighmy
Dr. Elaine Faustman
Dr. William Field
Dr. John Giesy
Dr. Cynthia Harris
Dr. Robert Johnston
Dr. Kimberly L. Jones
Dr. Bernd Kahn
Dr. Catherine Karr
Dr. Madhu Khanna
Dr. Nancy K. Kim
Dr. Francine Laden
Dr. Cecil Lue-Hing
Dr. Elizabeth Matsui
Dr. Surabi Menon
Dr. James R. Mihelcic
Dr. Horace Moo-Young
Dr. Eileen Murphy
Dr. James Opaluch
Dr. Duncan Patten
Dr. Amanda Rodewald
Dr. William Schlesinger
Dr. Gina Solomon
Dr. Daniel Stram
Dr. Peter Thorne
Dr. Paige Tolbert
Dr. John Vena

Liaison to the SAB:
Dr. Daniel Schlenk, Chair, FIFRA Scientific Advisory Panel

SAB Staff:
Dr. Angela Nugent, SAB Staff Office, Designated Federal Officer (DFO)
Mr. Christopher Zarba, Acting Director, SAB Staff Office
Dr. Thomas Carpenter, SAB Staff Office

Meeting Summary June 5, 2013:

The DFO announced that the teleconference had been extended from the previously announced time of 1:00 p.m. to 3:00 p.m. to 1:00 p.m. to 4:00 p.m. to accommodate Board deliberations. The teleconference generally followed the issues and timing as presented in the agenda.[1]

Convene the meeting

Dr. Nugent formally opened the meeting and noted that this federal advisory committee meeting of the SAB[2] had been announced in the Federal Register [published May 13, 2013 (78 FR 27964 - 27965).[3] She briefly noted that the SAB is an independent, expert federal advisory committee chartered under the authority of the Federal Advisory Committee Act (FACA). The SAB is empowered by law, the Environmental Research, Development, and Demonstration Authorization Act (ERDDAA), to provide advice to the EPA Administrator on scientific and technical issues that support EPA's decisions. The DFO noted that the Federal Register notice announcing the meeting had provided the public with an opportunity to provide written and oral comment. There were seven requests for oral comment[4] and all public commenters were to be provided time to give their oral comments. Three sets of written public comments[5,6,7] had been received, provided to SAB members, and posted on the SAB web page for the meeting. Attachment A lists members of the public who requested the call-in information for this advisory teleconference.

The DFO noted that the SAB consists entirely of special government employees (SGEs) appointed by EPA to their positions. As government employees, all the members are subject to all applicable ethics laws and implementing regulations. EPA has determined that advisors participating in this meeting have no financial conflicts of interest or appearance of lack of impartiality relating to the topics to be discussed at the meeting.

Goals and agenda for the meeting

Dr. David Allen, the SAB Chair, welcomed the group. He summarized the purpose of the meeting: to receive an update on the SAB Hydraulic Fracturing Research Advisory Panel Consultation on May 7-8, 2013 and to continue Board discussions of information provided by the EPA on planned actions and their supporting science. As context for the last item, he noted that the EPA had provided the SAB in December 2012 with a list of planned major actions. This list had been reviewed by the SAB Work Group on EPA Planned Actions for SAB Consideration of the Underlying Science, led by Dr. James Mihelcic. That work group considered 41 major actions and recommended a list of four planned actions for SAB consideration. At a March 8, 2013 public teleconference, the SAB decided not to take action on one action and to charge three fact-finding groups to gather additional information on three actions. During the June 5, 2013 teleconference, the chartered SAB discussed the remaining three actions. In addition, the Board received an update on the SAB Hydraulic Fracturing Research Advisory Panel Consultation, which occurred on May 7-8, 2013.

Dr. Allen then introduced Dr. David Dzombak to provide the update on the SAB Hydraulic Fracturing Research Advisory Panel Consultation, which occurred on May 7-8, 2013.

Update on the SAB Hydraulic Fracturing Research Advisory Panel Consultation on May 7-8, 2013

Dr. David Dzombak, Chair of the SAB Hydraulic Fracturing Research Advisory Panel, described the charge to panel members, general agenda, and activities that took place at the public meeting on May 7-8, 2013. He noted that the meeting was a consultation, where panel members provided their independent expert comments on the EPA's *Study of the Potential Impacts of Hydraulic Fracturing on Drinking Water Resources: Progress Report*, which was released in December 2012. Because the meeting was a consultation, no consensus report was to be developed. Dr. Nugent informed the Board that the meeting took place as a consultation at ORD's request and Dr. Allen noted that, following SAB standard practice, no quality review by the chartered SAB would follow because no consensus report was being prepared.

Dr. Dzombak noted that the panel would later peer review the EPA's *Study of the Potential Impacts of Hydraulic Fracturing on Drinking Water Resources*, expected to be issued in 2014. Dr. Dzombak informed the group that he and Dr. Allen had received a letter dated May 2, 2013, related to the panel's work from the Honorable Chris Stewart, Chair of the Environment Subcommittee of the House Science, Space, and Technology Committee. This letter had been provided to panel members and posted on the SAB web page for the meeting. The Acting Director of the SAB Staff Office, Mr. Christopher Zarba, provided a response to Chairman Stewart on May 31, 2013. Drs. Allen and Dzombak participated in the development of the response letter. Dr. Dzombak requested that the response letter be posted on the SAB website and it has been posted on the web page for the May 7-8, 2013 meeting.

As a final comment, Dr. David Allen noted that the SAB Staff Office had webcast the public meeting and that the webcast was very effective. He commended the SAB Staff Office for this effort.

Public comments

Dr. Allen asked the DFO to introduce the public speakers and he noted that all requests for oral comments had been accommodated. Dr. Angela Nugent introduced the seven public speakers. Consistent with SAB practice for teleconferences, commenters had been each asked to provide no more than three minutes of oral comment. She informed participants that the SAB Chair would allow time for chartered SAB members to pose clarifying or follow-up questions after the oral comments were complete.

The first public commenter was Ms. Cynthia Babich of the Del Amo Action Committee, CA. She noted that her community was the site of several refineries and Superfund sites. She stated that independent testing had found that emissions of benzene from refineries were much higher than benzene plume monitoring indicates. She stated her interest in reducing air toxic emissions. She was reaching out to EPA and the SAB for help in employing cutting-edge science for development of a rule which she stated was overdue. She noted that she had participated in meetings of the Board of Scientific Counselors for the Agency for Toxic Substances and Disease Registry and recognized the contributions that a science advisory committee can make in

encouraging science-based regulation. She stated that the environmental justice community emphasized the need for assistance for impacted communities. She stated that refineries are expanding and communities need help.

The second public commenter was Ms. Whitney Ferrell of the Environmental Integrity Project. She focused her remarks on the use of inadequate emissions factors that under-report toxic emissions. An effective rulemaking requires scientifically valid methods that ensure adequate emission factors. EPA's planned Petroleum Refinery Sector Risk and Technology Review (RTR) rule depends on accurate data, but she stated that there is a history of using emissions factors that under-report releases of hazardous air pollutants. She stated that EPA needs science advice on emissions factors and proper assessment of the impact of flares. Ms. Farrell provided a written statement of her oral remarks after the teleconference. [8]

The third public commenter was Mr. Jesse Marquez of the Coalition For A Safe Environment. He asked that the RTR and New Source Performance rules be given high priority for SAB attention. As planned, he stated that the rule is likely to provide no significant reduction in refinery flaring emissions. He noted that recent experience indicates that the numbers of planned and unplanned flaring events have increased and that actual emissions exceed annual reported emissions. He singled out Los Angeles refinery emissions for under-reporting emissions. He noted that emissions can be reduced with use of vapor reduction technologies or on-site back-up generators.

The fourth public commenter was Mr. Juan Parras of the Texas Environmental Justice Advocacy Services. He noted that air toxic rules faced strong scrutiny by the State of Texas and that such rules should be supported by high quality peer-reviewed science. He stated that there is a high density of refineries plants that require regulation in the Houston area. He observed that the National Environmental Justice Advisory Committee had written to EPA and that the Agency responded by devoting more attention to the area surrounding Houston refineries. He stated that similar advice from the SAB focusing on the scientific support for the RTR rule will further strengthen implementation of the Environmental Justice Executive Order.

The fifth public commenter was Dr. Amy Roe of the Delaware Chapter of Sierra Club. She spoke of cumulative impacts of exposures experienced by Delaware communities on the "Route Nine chemical corridor," where there are multiple sources of pollutants in air, water, and soil and cancer rates higher than the national and state rates. In that area, refineries are sometime located close to schools. She noted that children experience multiple sources of exposure and are a vulnerable population. She stated that state of the art science tools are needed and she asked the SAB to review the science supporting the RTR rule and make recommendations for EPA to follow.

The sixth public commenter was Mr. Adrian Shelley of Air Alliance Houston. He emphasized the importance of the SAB's reviewing the RTR rule. He pointed out that effective regulation depended on effective monitoring technologies and that regulations lag behind advancements in monitoring techniques. He observed that the SAB's documentation of fact-finding discussions indicated that EPA characterized the monitoring technologies being considered for the planned rulemaking as "not novel," but community groups often hear that new technologies are

unproven. He also noted that emission factors being considered by EPA are outmoded and do not account for malfunctioning, startup and shutdown. Consideration of cumulative risks requires that off-the-books emissions be captured.

The seventh public commenter was Ms. Jane Williams, Director of California Communities Against Toxics. She noted that many members of her organization are adversely affected by emissions from petroleum refineries. She stated that EPA's approach to risk at this time could use SAB expertise where there are major uncertainties related to emissions and risk that undermine EPA's ability to meet its RTR mandate. She also pointed out that children's risk merit special attention. She stated that when the risk is unknown, risk is treated as zero, and that where there are data, EPA assigns an uncertainty factor to account for risks to children. EPA only uses California's age-dependent adjustment factors for mutagenic carcinogens. For developmental exposures, EPA relies on the inter-human variability factor in IRIS.

The SAB Chair expressed thanks to all public commenters. In the spirit of transparency, Dr. Allen stated that prior to the teleconference he had informed the SAB Staff Office that EPA's technical assessment supporting the flare rule included discussion of an emissions flare study for which he had served as lead investigator. The EPA Deputy Ethics Official concluded that there was no appearance of lack of impartiality because the Dr. Allen's study was one of several evaluated by EPA and the EPA analysis was subsequently peer reviewed.

The SAB Chair then asked if chartered SAB members had questions for public commenters. One member asked a public commenter to clarify the concern related to inaccuracy of emissions factors and flaring incidents. Ms. Farrell responded that industry is not able to measure the efficiency of flaring directly and, instead, uses emissions factors that assume 98% combustion efficiency. She noted that, in actuality, flares achieve a more variable range and suggested that industry reports assume that flares destroy more waste gas that they are actually destroying.

Another member asked whether Ms. Farrell understood that part of the emissions question involved the ratio of volatile organic compounds to the amount of steam injected into the flare combustion zone. Ms. Farrell stated that over-steaming of flares attributes to the lower combustion efficiency. She also noted that risk assessments need to account for flares, malfunctions, and spikes in emissions. Other public commenters added that there is a database of self-reported emissions events in Texas. The commenters noted that emissions found in this database are often not included in EPA's emissions. Yet another public commenter added that EPA's emissions data do not account for different chemical species emitted and yet another emphasized high exposures in the Houston ship channel.

A chartered SAB member asked Dr. Amy Roe to clarify the National Academy of Sciences recommendations that EPA should address. Dr. Roe responded that her organization was interested in cumulative risk assessment and that some communities in Delaware were assessing body burdens of chemicals.

Continuation of Discussions of Planned Agency Actions and their Supporting Science - Reports from Three SAB Fact-Finding Groups

Dr. Allen introduced discussions of reports from each of the three SAB fact-finding groups. He noted that summaries of the charges to each fact-finding group and their responses, along with documentation of discussions with agency representatives, were included in the *Report from Three SAB Fact-finding Groups to the Chartered* SAB.[9]

Effluent Guidelines and Standards for Unconventional Oil and Gas Extraction Including Coalbed Methane and Shale Gas Extraction (2040 AF35)

Prior to introducing the chair of the first fact-finding group, Dr. Dzombak, Dr. Allen stated that prior to the teleconference he had informed the SAB Staff Office that one of his research projects was funded jointly by an environmental group and nine natural gas producers to measure methane air emissions from national gas production. The SAB Staff Office determined that there was no conflict of interest.

Dr. Dzombak summarized the report from the fact-finding group addressing the EPA planned action Effluent Guidelines and Standards for Unconventional Oil and Gas Extraction Including Coalbed Methane and Shale Gas Extraction (2040 AF35). He acknowledged the assistance of Designated Federal Official Mr. Edward Hanlon in gathering information on hydraulic fracturing science and advisory activities as part of the report from the fact-finding group. He also acknowledged the two sets of written comments received from six oil and gas associations related to shale gas and coalbed methane extraction. He noted that the associations' letter addressing coalbed methane extractions "made the case" that EPA will likely choose not to move forward with that regulation because the industry is using existing technology and the production volume is so small. As a result, there is currently small incentive for natural gas producers to invest in coalbed methane production. Dr. Dzombak noted that the EPA Office of Water representatives made similar points during the fact-finding discussion.

Dr. Dzombak noted that the fact-finding group made three recommendations for consideration by the chartered SAB:

- For discharges of wastewaters associated with shale gas extraction, the group does not recommend SAB advice or comment because any revision to the existing effluent limitation guidelines (ELGs) would be focused on attainment of zero discharge of wastewater and there are no new technical or scientific issues associated with this component of the rulemaking.
- For discharges of wastewater associated with coal bed methane extraction, the group recommends that SAB consider providing advice and comment on the science and technology associated with the planned action because the rulemaking would create new ELGs for this industrial sector for which ELGs do not currently exist. EPA is considering establishment of discharge requirements for both direct and indirect discharges as part of the planned rulemaking
- The SAB should monitor the progress of the suite of activities described in Attachment B of their fact-finding report. Attachment B is entitled "Characterization of the scope of the EPA's hydraulic fracturing research and existing or planned science advice relating to potential environmental effects related to hydraulic fracturing."

After Dr. Dzombak finished his presentation, members of the chartered SAB asked several questions. One member asked Dr. Dzombak to confirm that there were no new science or engineering issues related to shale gas extraction. Dr. Dzombak confirmed that there were no new issues since the Office of Water has stated that it plans to implement a zero discharge requirement that would allow no wastewater to be released to surface waters or Publicly Owned Treatment Works. Another member asked for confirmation that the agency plans to take a similar approach for coal-bed methane. Dr. Dzombak confirmed that the Office of Water stated it would take a similar approach for this sector. The fact-finding group, however, observed that no rule currently exists for this sector and there was a possibility that new technologies may emerge. As a result, the group agreed it to bring the planned rule to the full committee for discussion. One chartered SAB member noted that although gas prices are currently low and discourage investment, prices and market incentives can change quickly.

Chartered SAB members also asked questions related to EPA science activities related to hydraulic fracturing. In response to a question regarding the EPA's response to previous SAB advice on the Office of Research and Development's (ORD's) Hydraulic Fracturing Study Plan, Dr. Dzombak noted that ORD did take note of the SAB's 2010 advice to focus research to develop results that will be useful. In his view, the EPA's 2012 Progress Report described progress in focusing the study, although there will be a need to continue to set priorities for the study. Another member commented that Attachment B of the Fact-finding Group's report indicated many different activities. She advocated the need for an overall science and research strategy and the need for the SAB to hold open the option of looking at the coalbed methane and shale gas rule in the future. Chartered SAB members commented that it was premature to develop an SAB self-nominated study while the ORD Study on the Potential Impact of Hydraulic Fracturing on Drinking Water Resources was still in development.

After discussion had concluded, Dr. Allen asked for three motions to dispose of the recommendations made by the fact-finding group.

Dr. Elaine Faustman moved that the SAB should monitor the progress of the suite of hydraulic fracturing science and advisory activities described in Attachment B of the fact-finding group's report. This motion was seconded by Dr. Cecil Lue-Hing. The SAB Chair asked for discussion. There was no discussion. The motion passed unanimously with no abstentions.

Dr. George Daston moved that, with the understanding that EPA plans to take a zero discharge approach to an ELG involving shale gas extraction and that no new technical or scientific issues are associated with the shale gas component of the planned Effluent Guidelines and Standards for Unconventional Oil and Gas Extraction Including Coalbed Methane and Shale Gas Extraction, the SAB will not provide advice and comment on this component of the action. This motion was seconded by Dr. Cecil Lue-Hing. The SAB Chair asked for discussion. There was no discussion. The motion passed unanimously with no abstentions.

Dr. Elaine Faustman moved that, with the understanding that EPA plans to take a zero discharge approach to a planned ELG involving coalbed methane extraction, the SAB will not provide advice and comment on coalbed component of the planned Effluent Guidelines and Standards for Unconventional Oil and Gas Extraction Including Coalbed Methane and Shale Gas Extraction.

This motion was seconded by Dr. Gina Solomon. The SAB Chair asked for discussion. There was no discussion. The motion passed unanimously with no abstentions.

Revised Regulations for Environmental Radiation Protection Standards for Nuclear Power Plant Operations (2060 AR12)

Dr. William Field summarized the report from the fact-finding group addressing the EPA planned action Revised Regulations for Environmental Radiation Protection Standards for Nuclear Power Plant Operations (2060 AR12). Dr. Field acknowledged the leadership of Dr. Daniel Stram for the fact-finding group and the involvement of Dr. Bernd Kahn. He briefly summarized the fact-finding discussions with staff from the EPA's Office of Air and Radiation. He noted that agency staff considers it is too early for the SAB to provide advice on the planned Advanced Notice of Proposed Rulemaking (ANPR) because no technical document would be available. He also noted that the Office of Air and Radiation staff committed to providing information summarizing public comments in response to the ANPR.

Dr. Field noted that the fact-finding group made two recommendations for consideration by the chartered SAB, as described on page 14 of the Report from Three SAB Fact-finding Groups to the Chartered SAB:

- Based on the information provided by the EPA in a fact-finding discussion on March 26, 2013 about the scope and timing of the regulatory action (See Attachment C), the fact-finding group recommends that the SAB not provide advice and comment prior to publication of the ANPR on the science underlying the ANPR and instead provide a consultation and/or an SAB advisory following EPA's consideration of public comments in response to the ANPR.
- After the SAB consultation or advisory, if the EPA decides to develop a proposed rule with supporting scientific and technical analyses technical approach for the proposed rule, the fact-finding group recommends that SAB provide advice and comment on the scientific and technical basis of the proposed rule.

Dr. Allen asked for discussion of Dr. Field's report. There were no comments or questions. Dr. Allen asked for a motion to dispose of the actions as descried on page 14 of the Report. Dr. Daston moved that the fact-finding groups' recommendations on page 14 be accepted by the chartered SAB. This motion was seconded by Dr. Peter Thorne. The SAB Chair asked for discussion. There was no discussion. The motion passed unanimously with no abstentions.

Petroleum Refinery Sector Risk and Technology Review (RTR) and New Source Performance Standards (2060 AQ75) and Petroleum Refinery Sector for Flares (2060-AR69)

Dr. James Mihelcic summarized the report from the fact-finding group addressing the EPA planned action Petroleum Refinery Sector Risk and Technology Review (RTR) and New Source Performance Standards (2060 AQ75) and Petroleum Refinery Sector for Flares (2060-AR69). He briefly summarized the fact-finding discussions that he and fellow fact-finding group member Dr. Peter Thorne held with staff from the EPA's Office of Air and Radiation and the information they provided (see Attachment D of the Report from Three SAB Fact-finding Groups to the Chartered SAB).

Dr. Mihelcic noted that the fact-finding group made two recommendations for consideration by the chartered SAB:

- Based on fact finding summarized in Attachment D, the group recommends that the Petroleum Sector Flare Rulemaking component not be considered a high priority for SAB review.
- Based on additional fact finding, the group recommends that the Petroleum Refinery Sector Risk and Technology Review (RTR) and New Source Performance Standards (2060 AQ75) component of the rulemaking not be considered a high priority for SAB review.

Dr. Mihelcic noted that after he and Dr. Thorne received the public comments provided for the teleconference, they had several questions for agency representatives. Dr. Thorne asked the agency to explain how the EPA's risk assessment will account for increased susceptibility of children to refinery emissions and the difference between using age-dependent adjustments versus human variability uncertainty factors. Mr. Robert Fegley of ORD responded. He stated that the EPA uses age-dependent adjustment factors, consistent with agency guidance for mutagenic carcinogens. For mutagens, the EPA uses adjustment factors depending on the age of the child. The EPA does not use these factors for all carcinogens, because there can be many different possible mechanisms for carcinogenicity and not all are relevant to or amenable to the age-dependent adjustment factor approach. EPA uses human variability uncertainty factors, "a different approach altogether," for non carcinogens. In assessing non carcinogens, the EPA develops reference concentrations or reference doses to identify an exposure level at which the agency does not expect a significant risk of an adverse effect. In these analyses, the EPA uses an uncertainty factor that can vary for intra species variability. This uncertainty factor adds extra protection for children's exposures. The EPA adds an uncertainty factor where there is database deficiency, for example, where there is a lack of data on reproductive or developmental effects. EPA takes this approach agency-wide. An SAB member asked if the EPA's approach to handling mutagenic vs. non-mutagenic policy had been peer reviewed. The SAB DFO noted that the SAB issued a report in March 2004 entitled *Review of EPA's Draft Supplemental Guidance for Assessing Cancer Susceptibility from Early-Life Exposure to Carcinogens - A Report by the Supplemental Guidance for Assessing Cancer Susceptibility Review Panel of the EPA SAB* (EPA-SAB-04-003).

Dr. Thorne then asked whether the planned risk assessment supporting the RTR rule considers risks from inhalation of emissions from multiple sources at neighboring facilities. If the answer was yes, he asked agency personnel to describe how the analysis considers these multiple emissions. If the answer was no, he asked agency personnel to explain why not.

Ms. Kelly Rimer from EPA's Office of Air and Radiation explained that the Clean Air Act directs EPA to consider whether it's necessary to establish risk-based standards for certain source categories. The EPA gathers available data and focuses assessments on those categories. Where information is available, the EPA can examine data in context. Where data from other source categories are not available or not high quality, it is not useful to consider those data in understanding the context for exposures.

In evaluating the results of the RTR analysis, EPA first determines the acceptable level of risks, which is usually in the one-in-a-million to one-hundred-in-a-million range. The EPA then identifies controls that would reduce risks to that acceptable level. The agency then considers other information. The EPA must work within the strict legislative mandate and set the standard considering health information and other information about cost and technical feasibility. This is called the ample margin-of-safety step. The EPA has limited ability to bring information from other facilities into the agency's decision, because of the limited amount and quality of this other data. The EPA aims to develop assessments that are as cumulative as possible within a given sector. Sometimes a facility involves two or more source categories and the EPA can obtain data on those multiple source categories within those facilities. In those cases, the agency has conducted a facility-wide assessment for an individual facility. This is something new for the agency and represents an effort to push "the envelope as we can." She acknowledged that such an assessment is not what is commonly understood as a community-based assessment.

Dr. Mihelcic then asked if EPA responded to questions raised by the 2012 peer review of "Parameters for properly designed and operated flares." If so, how, and where, and how will that information be incorporated into the rulemaking record? Ms. Penny Lassiter of EPA's Office of Air and Radiation responded that the peer review was conducted and posted on the agency website, as described in Attachment D of the Report from Three SAB Fact-finding Groups to the Chartered SAB. The EPA has been assessing information provided in the peer review to inform development of the rule for flare performance, which the agency plans to publish at the end of this year or first part of 2014. In that proposal, the EPA will summarize peer review comments and the agency's response.

Dr. Thorne asked whether the agency's response will address shutdowns and malfunctions or operations as usual. Ms. Lassiter responded that current Maximum Achievable Control Technology (MACT) standards require 98% reduction in emissions or that emissions be routed to a flare. The current MACT refinery rule does not include operational requirements that flares meet a98% reduction. In addition, the current petroleum MACT rule includes exemptions for startup, shutdowns and malfunctions. The planned rulemaking would require flares to meet the 98% reduction and ensure that refineries conform to MACT standards at all times.

After Drs. Mihelcic and Thorne finished their questions, other members of the chartered SAB made several comments. One member suggested that it would be interesting for the chartered SAB to take a close look at the 2004 SAB report and agency practices related to child-protection factors. She also asked whether the agency's focus on monitoring for benzene is satisfactory in light of recent National Research Council report *Exposure Science in the 21st Century: A Vision and a Strategy*. Dr. Thorne responded that the purpose of benzene monitoring is to identify fugitive emissions, which are expensive to monitor, and not to monitor stack emissions. Benzene fence-line emission monitoring is highlighted because it drives the risk assessment.

Another member noted the significance of public comments calling for community-based risk assessment. He noted that despite calls for progress in cumulative risk assessment, EPA is only considering assessing whole facilities and does not address the issue of co-location of multiple facilities or other types of chemical exposures and risks.

Dr. Allen acknowledged that several broad-ranging topics had been introduced in the course of discussion of the RTR and flare rules. He identified four topics of special interest to the Board: cumulative risk, age-dependent child protective factors, emission inventories, and exposure monitoring/exposure assessment. Since the time allowed for the teleconference had been exceeded, he asked the DFO to schedule another teleconference as quickly as possible for the chartered SAB to address those topics and conclude its deliberations on whether to provide advice and comment to the Administrator on either or both of the RTR and flare rules.

Dr. Thorne emphasized the time-critical nature of the chartered SAB decision, since the agency is working with litigants on a rulemaking schedule.

It was the sense of the group to adopt the next steps suggested by the SAB Chair.

The DFO adjourned the meeting at 4:25 p.m.

Respectfully Submitted Certified as Accurate

____*Signed*_____ ___*Signed*_____
Dr. Angela Nugent Dr. David T. Allen
SAB DFO SAB Chair

NOTE AND DISCLAIMER: The minutes of this public meeting reflect diverse ideas and suggestions offered by committee members during the course of deliberations within the meeting. Such ideas, suggestions, and deliberations do not necessarily reflect definitive consensus advice from the panel members. The reader is cautioned to not rely on the minutes to represent final, approved, consensus advice and recommendations offered to the Agency. Such advice and recommendations may be found in the final advisories, commentaries, letters, or reports prepared and transmitted to the EPA Administrator following the public meetings.

Attachment A: Members of the public requesting call-in information for the teleconference:

Doug Austin, ICAC

Cynthia Babich, Del Amo Action Committee

Angie Burckhalter, Devon Energy Corporation

Amy Emmert, API

Robert Fegley, EPA

Whitney Ferrell, Environmental Integrity Project

Bob Hetes, EPA

Ann Johnson, EPA

Cathe Kalisz, American Petroleum Institute

Clay Freeberg, Chevron Corporation

Chris Knight, Clean Air Report

Penny Lassiter, EPA

Jesse Marquez, Coalition For A Safe Environment

Barbara Martinez, EPA

Carl Mazza, EPA

Stephanie R. Meadows, American Petroleum Institute

Dawn Miller, Crowell & Moring LLP

Juan Parras,Texas Environmental Justice Advocacy Services

Glenn Paulson, EPA

David Reynolds, IWP news

Elise Richman, EPA

Kelly Rimer, EPA

Amy Roe, Delaware Chapter of Sierra Club

Adrian Shelley, Air Alliance Houston

Stephanie Shirley, TCEQ

Jane Williams, California Communities Against Toxics

Materials Cited

The following meeting materials are available on the SAB Web site, http://www.epa.gov/sab, at the page for the June 5, 2013 teleconference meeting: http://yosemite.epa.gov/sab/sabproduct.nsf/a84bfee16cc358ad85256ccd006b0b4b/ccae7526c337561c85257b5d006b03e5!OpenDocument&Date=2013-06-05

[1] Agenda
[2] Roster of SAB members
[3] Federal Register Notice, May 13, 2013 (78 FR 27964 - 27965)
[4] List of registered speakers
[5] Public comments (05/28/13) from Jane Williams from the California Communities Against Toxics with comments (03/22/13) from nine environmental groups attached .
[6] Public comments (05/29/13) regarding coalbed methane from Amy Farrell of America's Natural Gas Alliance and five other oil and gas associations.
[7] Public comments (05/29/13) regarding shale gas from Amy Farrell of America's Natural Gas Alliance and five other oil and gas associations.
[8] Oral Comments from Whitney Ferrell, Environmental Integrity Project
[9] Report from Three SAB Fact-finding Groups to the Chartered SAB; Report from Three SAB Fact-finding Groups to the Chartered SAB (link p. 7 fixed-06.04.13)