

**United States Environmental Protection Agency (U.S. EPA) Science Advisory Board (SAB)
Teleconference Meeting
July 19, 2013
Meeting Minutes**

Date and Time: July 19, 2013, 1:00 p.m. to 5:00 p.m.

Location: By teleconference only

Purpose: To receive agency briefings on science topics and complete Board discussions of planned actions identified in the agency's regulatory agenda and their supporting science.

Meeting Participants:

SAB Members

Dr. David T Allen, Chair
Dr. George Alexeeff
Dr. Joseph Arvai
Dr. Thomas Burke
Dr. Edward Carney
Dr. Terry Daniel
Dr. George Daston
Dr. Costel Denson
Dr. Otto Doering
Dr. Michael Dourson
Dr. Joel Ducoste
Dr. David Dzombak
Dr. Elaine Faustman
Dr. William Field
Dr. Christopher Frey
Dr. John Giesy
Dr. Cynthia Harris
Dr. Kimberly L. Jones
Dr. Bernd Kahn

Dr. Madhu Khanna
Dr. Nancy K. Kim
Dr. Francine Laden
Dr. Elizabeth Matsui
Dr. Surabi Menon
Dr. James R. Mihelcic
Dr. Eileen Murphy
Dr. James Opaluch
Dr. Duncan Patten
Dr. Martin Philbert
Dr. James Sanders
Dr. Daniel Stram
Dr. Peter Thorne
Dr. Paige Tolbert
Dr. Jeanne VanBriesen
Dr. John Vena

Liaison to the SAB:

Dr. Daniel Schlenk, Chair, FIFRA Scientific Advisory Panel
Dr. Pamela Shubat, Chair, Children's Health Protection Advisory Committee

SAB Staff:

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

Meeting Summary

The teleconference generally followed the issues and timing as presented in the agenda.¹

Convene the meeting

Dr. Nugent, DFO for the chartered SAB, formally opened the meeting and noted that this federal advisory committee meeting of the SAB² had been announced in the Federal Register [published June 18, 2013, 78 FR 36546-36547].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 nine requests for oral comment⁴ and all public commenters were provided time to give their oral comments. One written public comment⁵ 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 SAB 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. The 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 noted that the teleconference would continue a June 5, 2013 chartered SAB discussion of the science associated with the EPA's planned petroleum refinery rule coupled with a planned flare rule. He noted that a number of issues had been identified by public commenters at the June teleconference, and that the SAB had requested an opportunity to hear agency presentations on those issues. After collecting this input from the agency and considering public comments, he noted that the Board would decide on any potential board action on planned regulatory actions of the EPA.

Public comments

Dr. Allen asked the DFO to introduce the public speakers. Dr. Angela Nugent introduced the nine public speakers. Consistent with SAB practice for teleconferences, commenters each had been 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 Mr. Jesse Marquez of the Coalition For A Safe Environment. He addressed the topic of flaring. He stated that he was not aware of any audit conducted by the

California Air Resources Board for flare emissions and no audit or investigation of refinery practices. He noted that flaring has increased over the past 12 years at most refineries, as evidenced by video and photo documentation. He stated that the SAB should investigate proper auditing of flaring practices. He directed Board members' attention to written comments he had provided on June 8, 2013.

The second public commenter was Ms. Cynthia Babich of the Del Amo Action Committee. She reported personal experience observing a "low-lying toxic cloud" near a petroleum refinery. She expressed a need for relief based on current and progressive science for communities impacted by pollution. She stated that the SAB needed to help the EPA with planned rules.

The third public commenter was Ms. Anna Hyrbyk of the Louisiana Bucket Brigade, which she described as an organization that works with communities exposed at the fence line. She requested that the SAB provide EPA with more guidance on spikes of emissions. She directed the SAB's attention to a benzene spill at an Exxon refinery at Baton Rouge, LA, where the community learned that the spill was orders of magnitude larger than initially reported. She recommended that the SAB review EPA's plans for passive monitoring and advocated community monitors, measurement for a variety of chemical emissions, and open-path monitoring.

The fourth public commenter was Mr. Hilton Kelley of the Community In-Power and Development Association Services from Port Arthur, TX. He called for more study of chemical exposures, especially in areas with multiple chemical refineries and other sources of toxic pollutants. He expressed special concern for exposures to benzene and inhalation exposure to other Air Toxics. He noted that his community had been designated as an EPA showcase community project.

The fifth public commenter was Mr. Sparsh Khandeshi of the Environmental Integrity Project. He noted that emissions, especially fugitive emissions, were underestimated from petroleum refineries and found fault with the EPA's current emissions factors. He noted that studies have shown that emissions are 10 to 20 times higher than in the EPA's emissions inventory and, as a result, the EPA cannot evaluate risks from petroleum refineries. He stated that refineries do not accurately report malfunctions. He requested that the SAB aid the EPA in assessing uncertainties associated with inadequate emission factors and help the EPA develop an uncertainty factor or multiplier to adequately assess the risks petroleum refineries pose.

The sixth public commenter was Dr. Amy Roe of the Delaware Chapter of Sierra Club. She spoke of her concern about the impact of Delaware refineries on children's health. She described an event in June 2013, where emissions affected a vulnerable population for four days. She read from a citizen's letter to the editor of a local newspaper. The citizen's letter identified several concerns: lack of knowledge of the levels of pollution in Delaware City; lack of information about protective steps; and lack of information on health impacts. Dr. Roe called for the SAB to provide advice to promote real-time fence-line monitoring and to encourage EPA to factor malfunctions into risk assessments.

The seventh public commenter was Ms. Jane Williams, Director of California Communities Against Toxics. She stated that numerous reports from the National Academy of Sciences have noted that the “EPA is behind the times on current science.” In her view, use of interspecies variability factors is inadequate. She noted that other public commenters have emphasized the importance of cumulative impacts, underreported emissions from fugitive emissions, “grossly inadequate” toxicity data for hazardous air pollutants, and outdated risk assessment methods. Given those comments, she asked the SAB to “see why communities want SAB advice on the risk and technology rule.”

The eighth public commenter was Juan Parras of Texas Environmental Justice Advocacy Services. He noted that residents of the Manchester community were exposed to multiple toxicants and that residents of communities located along the Ship Channel have a higher percentage of contracting leukemia, asthma, and bronchitis. He called for more regulations, better enforcement and consideration of cumulative impacts. He noted that the National Environmental Justice Advisory Committee had developed an analysis of local problems and that communities need technical assistance to deal with these challenges and support from the federal government to deal with problems because state regulations are inadequate. He stated that SAB members would benefit from visiting the Manchester community to see how it is inundated with stressors.

The ninth public commenter was Ms. Emma Cheuse of Earthjustice. She noted that all the public commenters emphasized that the best current science needs to be used in rulemaking. In her view, it would be valuable for the SAB to provide advice to EPA on implementing the National Research Council default factors for exposures *in utero*. She stated that: the EPA does not currently use age-adjusted factors for most carcinogens; the SAB could help the EPA implement use of default factor and current tools for addressing multiple pollutants and multiple exposure pathways, and approaches for community health protection; and the EPA needs help in assessing emissions and developing best practices for fence-line monitoring and exposure assessment. In her view, it was a priority for the SAB to assist the EPA before rule proposal.

The SAB Chair expressed thanks to all public commenters and asked SAB members if they had follow-up questions. One chartered SAB member noted that the EPA’s risk assessment methods are progressive, compared to those used by other countries. He stated for the record that the EPA has a formal policy for the use of uncertainty factors for non-cancer assessment. He noted that the public commenters emphasized the issue of improved monitoring at specific sites. He encouraged the public to explore zoning regulations appropriate for their communities, to speak with industry representatives, and to work with the EPA’s regional offices. He expressed an interest in how the SAB might encourage increased emphasis on enhanced monitoring at the EPA. Another member asked whether the commenters were requesting that the EPA conduct more cumulative risk assessments. One presenter responded that a cumulative impact study would be useful in the Beaumont area and along the Houston Ship Channel.

The SAB Chair concluded the public comment period by thanking commenters for their participation. He noted that the SAB values their input, as evidenced by the agenda developed for the teleconference, which focused on several topics emphasized by public commenters at the June 5, 2013 and July 19, 2013 teleconferences.

Agency briefings

Cumulative Risk Assessment – Overview of agency guidance, practice, and current major research activities

Dr. Glenn Paulson, Science Advisor to the Administrator, began the presentation with a few brief remarks. He noted that the Risk Assessment Forum had been working on tools and techniques supporting cumulative risk assessment and that the topic was a high priority for him personally and professionally. The EPA has made progress on this topic over the past 10 years, building on leadership provided by former Administrator Carol Browner. The EPA's efforts have been reinforced by reports from the National Academy of Sciences. Cumulative risk is a challenging topic and progress has been made by teams working in the EPA's Office of Research and Development (ORD) and across the agency. He acknowledged the leadership of Ms. Linda Teuschler, from ORD in leading efforts in the Risk Assessment Forum in this area. He also noted that EPA's Risk Assessment Forum has sponsored a series of workshops on this topic.

Ms. Linda Teuschler, provided a presentation, Cumulative Risk Assessment: Overview of Agency Guidance, Practice and Current Major Research Activities.⁶ The presentation included: (1) EPA's 2003 definition of cumulative risk assessment; (2) key features; (3) a paradigm for cumulative risk assessment; (4) process; (5) U.S. progress towards cumulative risk assessment; (6) documentation of EPA guidance and practice; (7) example program office and regional applications of cumulative risk assessment concepts; (8) cross-EPA efforts and programs that address cumulative risk assessment; (9) an update on the Risk Assessment Forum's guidelines effort, including challenges and research activities; and (10) ORD research related to cumulative risk assessment.

After Ms. Teuschler finished her presentation, SAB members asked several questions. One member asked whether cumulative risk approaches were being developed to better inform rulemaking. Ms. Teuschler responded that for the risk and technology rule and the National Air Toxics Assessments, the EPA develops a hazard quotient for each individual chemical exposure and divides by the allowable level to determine whether there is a sum greater than one. Another agency representative noted that he would be presenting data on how the agency would address multiple pollutant hazards and exposures from refineries later in the teleconference.

An SAB member asked why the EPA has not made more progress on cumulative risk assessment, given existing publications. Ms. Teuschler responded that the agency does address several aspects of cumulative risk, i.e., multiple chemicals, multiple routes of exposures, and impacts on children and vulnerable populations. It is technically more challenging, however, to address other kinds of vulnerability factors. In addition, for some cumulative risk assessments there have been some limitations because of legislation. Superfund, for example, restricts how the EPA can spend Superfund money. Money allocated for Superfund must be spent for site assessment, not on assessing other stressors that might be relevant to a cumulative risk assessment. Finally, the EPA is still advancing its understanding of toxicology and the mode of action of different chemicals. Dr. Paulson added that cumulative risk assessment is a challenging

task, and some administrators have been more interested in cumulative risk assessment than others.

In response to a question, Ms. Teuschler noted that, although slide 8 focuses on U.S. progress towards cumulative risk Assessment, ORD participates actively in international efforts to advance cumulative risk assessment. Another SAB member noted that cumulative risk assessment is a very important direction for EPA, which certainly affects the multi-pollutant approaches of ORD's Air, Climate and Energy program. She asked if EPA is only focusing on chemical exposures that happen at the same time, or if it is considering chemical exposures that are not contemporaneous but have potentiating effects. Ms Teuschler responded that ORD recognizes the importance of sequential exposures and the need to look at kinetic effects in that context. ORD is also considering the role background exposures play and how some chemicals have differential rates of clearance from the body. The final question came from an SAB member who noted that community-based and cumulative risk approaches have strong implications for increased precision of monitoring and perhaps for source-based monitoring schemes. He noted that public commenters had observed that current monitoring fails to pick up spikes and exposures from multiple sources. A new cumulative risk paradigm will require more precision from source monitoring to figure out the proportions of multiple chemicals to which communities are exposed and the sources of those chemicals. He asked if there is careful thought being given to the implications of this paradigm for monitoring and exposure assessment. Ms. Teuschler acknowledged that this is a big implementation issue and that the EPA's Risk Assessment Forum is reaching out to Program Offices to stimulate discussion about implementation.

Age-dependent child protective factors - Overview of agency guidance, practice, and current major research activities

Dr Lynn Flowers, Office of Research and Development, provided a slide presentation entitled Age-Dependent Child Protective Factors: Overview of Agency Guidance and Practice.⁷ In the presentation, Dr. Flowers spoke about: (1) EPA's view of children's risks; (2) guidance and tools for evaluating risks to children; (3) key features of the EPA's 2005 *Cancer Guidelines* and framework for evaluating hypothesized mode of action; (4) key features of the EPA's 2005 *Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens*, which included how to deal with chemicals where chemical-specific data are available to develop potency estimates for early-life exposures and how to deal with chemicals where such data are absent and there is a mutagenic mode of action; (5) key points for literature review and study inclusion criteria; (6) EPA's 2007 draft *Framework for Determining Mode of Action for Carcinogenicity*; and (7) information about early-life susceptibility and EPA's Integrated Risk Information System (IRIS).

Dr. Elaine Cohen Hubal, Office of Research and Development, provided a slide presentation entitled Children's Environmental Health Research Roadmap.⁸ This presentation provides information on research related to risk assessments protective of children. Dr. Cohen Hubal noted that the EPA's roadmap for children's environmental health research was evolving and has a goal to provide EPA and others with information needed to incorporate consideration of early life-stage susceptibility and vulnerability into decision making. The roadmap involves all six major ORD research programs. She identified four priority research areas: (1) knowledge

infrastructure to provide early life stage-specific data and information; (2) systems understanding of the relationship between environmental exposures and health outcomes across development; (3) methods and models fit for purpose to evaluate early life stage-specific risks and to support decisions protective of all early lifestages; and (4) translational research to incorporate children's environmental health into tools fit for purpose to inform community actions and decisions.

After Drs. Flowers and Cohen Hubal completed their presentations, they responded to questions from members of the chartered SAB. In response to a question about the status and timing of the roadmap, Dr. Cohen Hubal noted that ORD has developed a draft Children's Environmental Health Research Roadmap collaboratively with the EPA's Office of Children's Health Protection and has presented it to the Children's Health Protection Advisory Committees. It is being developed as ORD's programs are developing research plans with a 15-year planning horizon. Dr. Cohen Hubal suggested that a draft with relatively concrete research plans should be developed by October or November 2013. She did not know ORD's plans for peer review of the document.

Another member asked about how EPA was integrating application of the agency's *Child-Specific Exposure Factors Handbook* with use of the age-dependent child protective factors for hazard assessment. Dr. Flowers responded that EPA technical staff is using the age-dependent child protective factors along with different exposure concentrations for calculating risks to children and she hasn't seen any problems. The SAB member also asked for examples of chemicals where slope factors were derived if data were available, as described in Dr. Flower's slide 14. Dr. Flowers responded that some chemicals have early life-stage animal-exposure-type data; she stated that she was not aware of any chemicals with relevant human epidemiology data. Two examples are polychlorinated biphenyls and vinyl chloride.

Dr. Pamela Shubat, the Chair of the Children's Health Protection Advisory Committee and liaison member to the SAB, noted that the identification of mutagenic mode of action may not be the most health protective approach. She asked of ORD planned to study which modes of action might be of most concern at early life stages. Dr. Cohen Hubal responded that such a problem might fit with ORD's effort to frame research in terms of more fundamental systems understanding and adverse outcome pathways. The EPA may need better understanding of endpoints and modes of action of concern to early lifestages. Such a systems approach would be more useful than merely working with available data. Dr. Flowers noted that ORD staff developing IRIS assessments were participating in research activities with the goal of incorporating research outputs into health assessment work.

Exposure assessment and compliance monitoring for petroleum refineries- Emissions inventory, practices for estimating petroleum refinery emissions and fence-line monitoring and update on related research activities

Mr. Ted Palma and Ms. Penny Lassiter, Office of Air and Radiation, provided a joint presentation entitled Petroleum Refinery Sector Risk and Technology Review.⁹ Mr. Palma noted that he was providing the first part of the presentation instead of Ms. Kelly Rimer, who was unable to participate in the teleconference. Mr. Palma spoke about: (1) the human risk assessment process involved in the risk and technology review; (2) estimating inhalation risks;

(3) developing exposure estimates; (4) use of human health benchmarks developed by the EPA and other peer reviewed sources; and (5) inhalation risk outputs. Ms. Lassiter discussed (1) development of emission inventories; (2) the refinery emissions inventory; (3) air toxics emissions from refineries, noting that “fugitive” sources account for half of the air toxics inventory; (4) fence-line monitoring; and (5) different technologies and approaches to detect and measure fugitive emissions, including EPA research efforts in this area.

After Mr. Palma and Ms. Lassiter completed their presentations, they responded to questions from chartered SAB members. In response to a question from an SAB member regarding plans to collect emissions data related to refinery malfunctions and flaring, Ms. Lassiter responded that in 2007 the DC circuit court vacated provisions of a general set of exemptions for petroleum facilities for compliance during start up, shutdowns, and malfunction of equipment. The EPA is considering removing those exemptions for petroleum refineries in the upcoming petroleum refinery risk and technology rule. If a refinery were to exceed standards during those times, that would constitute a violation of standards. Refinery operators would be required to report noncompliance. Such requirements are not in place now. Ms. Lassiter also noted that Maximum Achievable Control Technology (MACT) standards require that flares be operated at conditions which are believed to lead to 98% destruction of gases sent to the flare.. The new rule under consideration would require compliance with the MACT. She also noted that malfunctions and exceedances have not been considered in risk assessments because the rule is based on exposures in compliance with the standard.

An SAB member asked whether the new emissions inventory resulting from the 2011 Refinery Information Collection Request will include reporting of intermittent emissions and provide better data for acute situations. Ms. Lassiter responded that EPA did ask for that information but hasn't modeled those events. She also noted however, that EPA is considering proposing a rule that would require reporting of such information, which would be publicly available. Facilities would have to understand and monitor waste flows and the impacts of steam generated during flaring because of the requirements being considered for reporting. She also noted that EPA is envisioning requirements for monitoring flare emissions at the flame tip.

An SAB member asked about public concerns about uncertainty of emissions factors and what is being done to deal with uncertainty in emissions factors. Ms. Lassiter noted that the greatest uncertainty in emissions factors concerns fugitive emissions. She suggested that the fence-line monitoring being considered will help “true up” information about fugitive emissions, which have been extremely difficult to measure. She expressed the hope that the fence-line monitoring being considered will help confirm that emissions factors are adequate or define what more needs to be done.

SAB members then asked several questions about the risk assessment process. In response to a question from an SAB member regarding use of a default factor of 10 times the annual emissions rate for estimating the maximum off-site acute impacts, Mr Palma noted that the default factor of 10 was developed from Texas Department of Environmental Quality. Where data are available, EPA will adjust the assessment to estimate exposures for different processes at a refinery. Data have shown factors can range from a factor of 2 to factor of 60.

Mr. Palma noted that EPA presents information about acute and chronic risks separately. The result of the chronic risk assessment is very important. Acute risk is one among many factors for the decision makers. In response to a question about assessing risks from multiple refineries within communities, Mr. Palma responded that EPA does consider exposures and risks from multiple facilities close to each other, such as along the Houston Ship Channel. EPA will look at the combined effect, using a Gaussian model of facilities within 50 kilometers of a given location. The Maximum Individual Risk of cancer can be derived from multiple facilities.

Another member asked whether age-adjusted child protective factors are incorporated for chemicals with mutagenic modes of action. Mr. Palma responded that they were. The same member asked whether EPA's exposure assessment for the risk and technology rule would use the agency's *Child-Specific Exposure Factors Handbook*. Mr. Palma responded that EPA assumes that all individuals are highly exposed "24/7" and that such an approach is adequate to assess risks, as required by the Clean Air Act, to the "individual most exposed." When Mr. Palma noted that EPA assumes the inhalation rate is 20 cubic meters per hour for 20 years, the SAB member suggested that EPA consider that children have a higher breathing rate.

An SAB member asked about how the EPA develops a dose-response rate for non-carcinogens. Mr. Palma stated that EPA considers chemical exposures from facilities within 50 miles. The member then asked how EPA evaluates the baseline for exposures to refinery emissions, given the wide range of other possible chemical exposures. Mr. Palma responded that then EPA does use information provided by the National Air Toxics Assessment, but it is difficult to use this information. Improved monitoring could be useful to provide a fuller picture of exposures. Considering such baseline exposures is a complex undertaking and EPA is not currently looking at them.

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

Dr. David Allen asked chartered SAB members to consider whether there should be SAB review of the science associated with two planned actions [Petroleum Refinery Sector Risk and Technology Review (RTR) and New Source Performance Standards (2060 AQ75) and Petroleum Refinery Sector for Flares (2060-AR69)]. He referred members to the recommendation from the SAB fact-finding group on these two actions (as stated in the 05/14/13 Report from Three SAB Fact-finding Groups to the Chartered SAB,¹⁰ p. 16), i.e.:

1. The group recommends that the Petroleum Sector Flare Rulemaking component not be considered a high priority for SAB review.
2. 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.

The Chair asked EPA representatives to confirm plans for proposing the two rules. Ms Lassiter responded that her best information is that EPA plans to publish the rule by the end of calendar year 2013.

SAB members then discussed the fact-finding group recommendations. A member asked whether the fact-finding group “still stand” by the recommendations after hearing all the information presented at the June 5, 2013 and July 19, 2013 teleconference. Dr. James Mihelcic responded that he felt even more comfortable with the recommendations. Dr. Peter Thorne expressed concern about the uncertainty in making a decision before seeing the proposed rule. He noted, however, that the plans discussed by agency representatives sound good. Given all the information presented, he stated that he felt comfortable with the recommendations.

An SAB member asked whether a decision by the Board not to review the science associated with these actions precludes the Board from reviewing it at a future time. Dr. Allen stated that the SAB Board can always do self-initiated activities and decide to initiate a review.

Another member expressed comfort with the fact-finding groups’ recommendations, especially in the domain of risk assessment. He noted that the discussion alerted him to the importance of monitoring and potential issues related to the cost and feasibility of monitoring. He suggested that the SAB consider these issues. Dr. Allen responded that if the chartered SAB considers this topic of strategic importance, it might consider coordinating with the Clean Air Scientific Advisory Committee, which considers new EPA air monitoring efforts.

Dr. Allen requested a motion to adopt the recommendation of the fact-finding group that SAB not undertake any additional review of the science supporting the two rules. Dr. David Dzombak moved that the recommendation of fact-finding group be accepted. Dr. Cynthia Harris seconded the motion. The motion passed unanimously with no abstentions.

Dr. Allen expressed thanks to all for the informative set of deliberations. He asked members to reflect on the experience of reviewing the science supporting major actions in the agency’s regulatory agenda to help prepare for the next cycle of discussions once the new semi-annual regulatory agenda is provided for Board members’ attention.

The DFO adjourned the meeting at 4:50 p.m.

Respectfully Submitted

Certified as Accurate

/Signed/

Dr. Angela Nugent
SAB DFO

/Signed/

Dr. David T. Allen
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:

Tina Bahadori, EPA

Elizabeth Corona, EPA

Emma Cheuse, Earthjustice

Prakash Doraiswamy, RTI International

Bob Fegley, EPA

Ann Johnson, EPA

Chris Knight, Clean Air Report

Laurence Martin, EPA

Carl Mazza, EPA

Ines Pagan, EPA

Paul S. Price, The Dow Chemical Company

Elise Richman

Brian Sjrager

Stephanie Shirley, Texas TCEQ

Miles Stotts, Kansas Department of Health and Environment

Matthew Todd, American Petroleum Institute

Linda Wilson, New York State Office of the Attorney General

Materials Cited

The following meeting materials are available on the SAB Web site,
<http://www.epa.gov/sab>, at the page for the [July 19, 2013](#) teleconference meeting:
<http://yosemite.epa.gov/sab/sabproduct.nsf/a84bfee16cc358ad85256ccd006b0b4b/17920b48d7a28b0d85257b90004392b2!OpenDocument&Date=2013-07-19>

¹ Agenda

² Roster of SAB members

³ Federal Register Notice, June 18, 2013 (78 FR 36546-36547)

⁴ List of registered speakers

⁵ Public comment from Juan Parras.

⁶ Cumulative Risk Assessment – Overview of agency guidance, practice, and current major research activities - Presentation by Linda Teuschler

⁷ Age-dependent child protective factors; Overview of agency guidance and practice - Presentation from Lynn Flowers

⁸ Children’s Environmental Health (CEH) Research Roadmap - Presentation by Elaine Cohen-Hubal

⁹ Petroleum Refinery Sector Risk and Technology Review - Presentation by Kelly Rimer and Penny Lassiter

¹⁰ 05/14/13 Report from Three SAB Fact-finding Groups to the Chartered SAB.