

**Summary Minutes of the  
U.S. Environmental Protection Agency  
Science Advisory Board  
Environmental Justice Technical Guidance (EJTG) Review Panel  
June 19-20, 2013**

**EJTG Review Panel Members:**

Dr. H. Keith Moo-Young (Chair)  
Dr. Troy Abel  
Dr. Gary Adamkiewicz  
Dr. Sue Briggum- not present  
Dr. Linda Bui,  
Dr. Elena Craft  
Dr. Michael DiBartolomeis  
Dr. Neeraja Erraguntla  
Dr. Richard David Schulterbrandt Gragg  
Dr. Michael Greenberg  
Dr. James K. Hammitt  
Dr. Barbara L. Harper  
Dr. Cecilia Martinez  
Dr. Eileen McGurty  
Dr. James Sadd  
Dr. Douglas Noonan  
Dr. Thomas L. Theis  
Dr. Randall Walsh

**Purpose:** The purpose of the Environmental Justice Technical Guidance (EJTG) Review Panel meeting is to allow panel members an opportunity to learn about the development of EPA's Draft Technical Guidance for Assessing Environmental Justice in Regulatory Analysis. The panel will also discuss their preliminary impressions of the guidance document.

**Designated Federal Officer:** Dr. Suhair Shallal  
Other Attendees: see Appendix A

**Meeting Materials and Meeting Webpage:**

The materials listed below may be found on the meeting webpage at:

<http://yosemite.epa.gov/sab/sabproduct.nsf/a84bfee16cc358ad85256ccd006b0b4b/8a693af33c7b504c85257b650075cb7c!OpenDocument&Date=2013-06-19>

- Agenda
- Federal Register Notice
- Roster
- Public Comments submitted to the SAB Staff Office
  - Comments submitted by Ms. Cheryl Cortemeglia
  - Letter Submitted by Ross Eisenberg

- Agency Briefing Material
  - Advancing Environmental Justice presented by Charles Lee
  - An Overview of EJ Technical Guidance presented by Kelly McGuire and Ann Wolverton
  - EJ Analysis for Definition of Solid Waste Rule presented by Tracy Atagi
  - EJ Analysis for Effluent Guidelines under the Clean Water Act
  - OAR, OAQPS EJ Screening and Assessment presented by Laura McKelvey
  - EJ Analysis for Formaldehyde Standards presented by Glenn Sheriff
  - EJ, Regulatory Analysis, and Rulemaking presented by Al McGartland

**Meeting Summary:**

The discussion followed the general plan as presented in the meeting agenda.

**Wednesday June 19, 2013**

Opening Remarks

Dr. Shallal convened the meeting and announced that all panel members were present except Dr. Walsh who would be arriving on the second day of the meeting and Dr. Sue Briggum who would join the panel during their deliberations in subsequent meetings. Dr. Shallal explained that all panel members are required to provide updated information on their confidential financial disclosure forms annually and to respond to questions regarding their impartiality on the issues being presented at the meeting. For today's meeting, she stated that the nature and scope of this SAB activity was examined and it was determined that it is a particular matter of general applicability where panel members will be briefed on the work of the EPA National Center for Environmental Economics and the Office of Environmental Justice regarding their development of the Draft Technical Guidance for Assessing Environmental Justice in Regulatory Analysis. She stated that for this SAB advisory activity, no conflict of interest or loss of impartiality issues were identified.

She also reminded the audience and those participating via teleconference that all meeting materials were available on the SAB website. She then called on Mr. Chris Zarba, Acting Director of the SAB Staff Office, to present his welcoming remarks before turning the meeting over to Dr. Keith Moo-Young, Chair of the EJTG Review Panel.

After Mr. Zarba welcomed the panel and audience members, he turned the meeting over to Dr. Moo-Young. Dr. Moo-Young reviewed the agenda and asked panel members to introduce themselves and to briefly explain their affiliation and areas of expertise. After all members introduced themselves, Dr. Moo-Young read each charge question and asked if there were any comments from the panel members. All panel members indicated they understood the charge to the panel. Dr. Bartolomeis expressed his concerns regarding the documents that were referenced in the technical guidance. Dr. Shallal informed him that panel members may comment on any aspect of the document however the current review should be focused on the technical guidance and the associated charge questions.

Dr. Moo-Young then invited the Agency representatives to begin their presentations.

Mr. Charles Lee, Office of Environmental Justice, was the first speaker (presentation posted on the SAB website). In brief, he explained the role of the technical guidance in advancing the assessment of environmental justice at the EPA. He referred to Executive Order (EO) 12898 that requires federal agencies to identify and address disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. He stated that the EJ Technical Guidance provides the agency with a systematic approach for being consistent and transparent in assessing EJ in rule-making. Panel members had questions about the interpretation of the EO, the population(s) and the environmental effects that the agency considered in their assessments. Mr. Lee responded that the EO says that race and income are the primary focus and then environmental impacts. Children have unique exposures which result in increased susceptibility. Although the EJTG focuses on EPA rules and actions, he noted that EPA also addresses legacy impacts that go beyond what the EO requires. While the EJTG is only looking at minority, income, indigenous groups, not age or gender, consideration of disproportionate health risk can also be considered, he said. Panel members noted that the EPA's guidance will impact other agencies.

Dr. Al McGartland, Office of Policy, was the next speaker (presentation posted on the SAB website). He explained the process of EPA rule-making and how environmental justice is addressed in regulatory analyses. He stated that the agency currently analyzes EJ issues to inform its rulemaking process but with no overarching analytic guidance. The EJTG is intended to make EPA's analytic expectations explicit and ensure that potential EJ concerns are appropriately considered. The guidance should improve the quality and increase the consistency of EPA's analyses of EJ issues, he said. Panel members asked whether there were data available for the EJ analyses, if qualitative or quantitative assessments were more desirable and if earlier public involvement was needed. Dr. McGartland noted that data availability is variable and the speakers following him would have more information on this issue. He also contended that quantitative assessments were preferable to qualitative assessments, when done correctly. Quantitative assessments are more transparent and reproducible, he said. Finally, regarding the need for earlier public involvement, Dr. McGartland stated that the timing differs for various actions although there is a desire to start earlier with the problem formulation step in the analysis.

The next speakers were Dr. Kelly Maguire and Dr. Ann Wolverton of the Office of Policy (presentation posted on the SAB website). Drs. Maguire and Wolverton provided an overview and background of the draft guidance. They also presented the key analytic principles and definitions and discussed the contributors and drivers of EPA environmental justice assessments. Then, they explained the elements of environmental justice that are considered when planning a human health risk assessment and when conducting regulatory analyses to assess environmental justice concerns. Panel members asked about the availability of data and whether it is possible to conduct quantitative analyses. EPA representatives responded that data availability is variable, i.e., the distribution of health effects may not be available. They also commented that only a few analyses have been quantitative and most have a quantitatively derived baseline with the distribution discussed qualitatively. Other panel members suggested that a list of "best practices" may be a way to ensure that assessors are considering EJ issues in a systematic way. In response to a question regarding peer review of EJ analyses, EPA representatives responded that the

analyses would not be peer-reviewed; only new/novel methodologies, models or risk assessments would undergo peer-review.

After the panel returned from their lunch break, Dr. Shallal announced that no members of the public had registered to provide oral comments. Since there was time allotted on the agenda for public comments, the Chair of the panel asked if anyone listening on the teleconference line or in the audience wanted to address the panel. No one requested an opportunity to speak.

Dr. Moo-Young then proceeded with the remainder of the agenda and explained that the upcoming presentations would provide case studies of several types of analyses conducted by various EPA offices where EJ issues were considered.

Ms. Tracy Atagi, Office of Solid Waste and Emergency Response, was the next speaker (presentation posted on the SAB website). She described the development of the *2008 Definition of Solid Waste (DSW) Final Rule – Draft* and explained the process that was used for considering EJ. EPA, she said, followed a 6-step process which includes the following steps: (1) hazard characterization; (2) identification of potentially affected communities; (3) demographics of potentially affected communities; (4) identifying other factors that affect vulnerability in communities; (5) information synthesis and assessment of disproportional impact; and (6) identification of potential preventive and mitigation strategies. The goal was to use the results of DSW EJ analysis to help develop the proposed revisions to the 2008 DSW rule, she said. Panel members asked if additional time was needed to complete the EJ analysis. Dr. Atagi responded that after overcoming a few initial challenges but there was no additional time required. Others asked if the analysis compared the affected community to a baseline community or did the agency look at how to distribute the hazard equally across all communities. She responded that both options can be assessed and there was not a particular strategy used.

The next speaker was Mr. Glenn Sheriff of the Office of Policy (presentation posted on the SAB website). He outlined the environmental justice analysis for the proposed implementation rule for the 2010 Formaldehyde Standards for Composite Wood Products Act. He stated that based on the analysis the proposed rule was found to have no disproportionate adverse human health effect on any population including low-income or minority populations. The limitations of the analysis included the lack of information about the distribution of outcomes across groups, as well as, within groups. Panel members asked about the use of occupational data in the analysis and whether endogenous and exogenous levels of formaldehyde were included. Mr. Sheriff responded that occupational exposures were not used but information on endogenous levels was included along with information on exogenous exposures. Other members asked about the uncertainties in the analysis and if they were characterized quantitatively. There were many uncertainties and assumptions in the analysis and they were characterized qualitatively, Mr. Sheriff said. When asked about doing a sensitivity analysis, Mr. Sheriff stated that EPA looks at major uncertainties and then does a sensitivity analysis if needed.

The next speaker was a representative from the Office of Air and Radiation who joined the meeting via telephone to provide an overview of the methods and tools used in EJ analyses in their program (presentation posted on the SAB website). The OAR representative explained that depending on the availability of information, the degree of sophistication in the analysis varies. These analyses may consist of - from least to most complex – (1) qualitative / narrative

statements; (2) demographic proximity analyses; (3) risk-based demographic analyses; or (4) risk characterization (e.g., NAAQS pollutants). Panel members asked if cumulative risks are assessed. EPA representatives indicated that cumulative impacts are not. When questioned about the accuracy of the maps that depicted the proximity analysis, EPA representatives indicated that the maps provided were only a sketch of the type of analysis that is conducted and do not represent actual data. They also added that the centroids were assumed to correspond to a representative and homogeneous population.

Dr. Julie Hewitt followed with a presentation describing the analyses conducted by the Office of Water (presentation posted on the SAB website). She explained the process of developing Effluent Guidelines and approaches used for integrating EJ considerations. These approaches include- using qualitative inference, determining impacts via lost jobs or plant closures, assessing impacts via cost pass-through to consumers, comparing demographics of areas with facilities to demographics of areas in general (e.g., counties), conducting GIS analysis of proximity, and assessing impacts on subsistence fishing. Panel members asked about the lessons learned from developing the analyses and the interactions with regional EPA offices when developing the assessments. Dr. Hewitt informed panel members that analyses have become more sophisticated over time. A tiered approach is used where refinements are implemented until more analysis is no longer beneficial and does not increase understanding. She also stated that the analyses are informed by the regional concerns. Information about the location of facilities and discharges and the type of effluents are important in assessing the extent of the impacts and determining the populations being impacted.

Dr. Moo-Young asked if members had any further questions; there were none. Dr. Shallal reminded participants that the meeting would continue at 9:00 a.m. the next morning and then recessed the meeting at approximately 5:15 p.m.

### **Thursday June 20, 2013**

Dr. Shallal re-convened the meeting at 9:00 a.m. and reminded the panel members and the audience that today's meeting was a continuation of the meeting of the EPA SAB Environmental Justice Technical Guidance review panel. She informed the panel that no deliberation on the charge would occur at this meeting. A subsequent meeting would be scheduled for deliberation after the public comment period on the document had closed. The end of the public comment period is September 6, 2013.

Dr. Moo-Young reiterated that panel members will be asked to discuss their responses to the charge questions at a subsequent meeting after the comment period on the document ends. He stated that for the remainder of this meeting, panel members would be asked to share their preliminary thoughts on the information they heard during the agency's presentations. He suggested that he would ask members to provide their impressions in the context of each of the charge questions. He referred panel member to the memo that contained the assignments to the charge questions.

## PRELIMINARY IMPRESSIONS

### Question #1

*Please provide your overall impressions of the clarity and technical accuracy of the EJTG for analyzing and presenting quantitative or qualitative information on potential environmental justice concerns in the development of EPA regulations.*

Dr. Moo-Young began by providing his impression on question #1. He commended the agency for undertaking the task of developing a technical guidance to incorporate EJ into regulatory analyses. Other panel members cautioned against the false choice between qualitative and quantitative assessments. Both types of analysis should be done, others agreed.

Other comments include:

- More transparency needs to be included with a discussion of the data with its limitations and the assumptions.
- Better data collection may be possible with new technologies that track human behavior.
- Better definitions for terms such cumulative risk, co-factors, susceptibility, EJ populations and communities.

### Questions #2 and #3

*Are these directions appropriate? Do they strike the right balance between developing information that is useful to the decision making process and the cost (time, resources, data constraints) of doing quantitative EJ assessments?*

*Section 1.1 presents 5 key questions analysts should address when analyzing the environmental justice considerations during the development of a regulation. Are these questions clear and appropriate for considering EJ during the development of a regulation?*

A panel member commented that developing a flow diagram may be helpful. Others commented that the overall strategy and objective should be outlined in the document.

Other comments include:

- The guidance appears to be overly flexible and it is difficult to know what information must be available in order to conduct an EJ analysis.
- Ethnographic methods may help in providing useful information for the analysis
- EJ is not well defined. There named populations but the document also talks about analyses where there are no disproportionate risk to “all” populations.
- Each EJ analysis is a snap shot in time. As environmental conditions improve, minorities and low-income populations are replaced by more affluent populations.

### Questions #4 and #5

*Are the six analytic recommendations listed in Section 1.2 appropriate and comprehensive? Are they consistent with the state of the literature while providing flexibility to EPA program offices in the analytic consideration of EJ in the development of a regulation?*

*Are there any analytic recommendations that should be added? Any that should be removed?*

Panel members suggested that the appropriate time and resources should be allocated to do a credible analysis. The goal should be to reduce risk to vulnerable populations and not to distribute the burden equally to all populations.

Other comments include:

- Vulnerability metrics should include more than race, income, tribal affiliation, e.g., other factors such as age, medical condition, education, language proficiency.
- Public involvement should occur before the analysis phase begins.
- A list of best practices should be used as a roadmap for analysts to follow.
- Better methods and better data are needed. Define the attributes for that data and those methods.

#### Question #6

*Is the description of differences in impacts and disproportionate impacts clear and do reviewers agree with this distinction? Are the types of data listed to aid the decision maker helpful? Are there other categories of data or information that should be added to this list?*

Panel members noted that it is difficult to understand the distinction between difference in impacts and disproportionate impacts.

Comments include:

- Using averages to convey risk overlook some of the EJ concerns.
- When the document uses words such as “significant”, this needs to be clarified.
- Hot Spot analysis may miss EJ concerns in rural areas (e.g., subsistence populations).

#### Question #7

*Does the discussion of contributors and drivers adequately reflect the state of the literature? Is it clear and technically accurate? Are there any additional factors that should be included in the discussion?*

Contributors such as market forces push EJ communities to areas of low environmental quality. Segregation and discrimination in real estate for example also have an impact.

Other comments include:

- National level analyses will not provide accurate information.
- Graphic to summarize this information is available in other documents (see National Environmental Justice Advisory Committee –NEJAC).
- Section 3 in the document should be moved forward.

#### Question #8

*Is section 4 clear and technically accurate? Are the scoping questions outlined in Section 4.3.2.1 appropriate? Do the scoping questions adequately identify opportunities for incorporating environmental justice into a human health risk assessment? Should certain scoping questions be prioritized at various stages of the risk assessment (e.g. exposure, dose-response)?*

Panel members noted that in conducting a human health risk assessment knowing the population you are assessing is important. Race and economics should not be the only factors that are considered.

Other comments include:

- While epidemiology data may be available, it may not be the most appropriate. The mechanism of action (MOA) of the chemical(s) should be included and a biologically significant adverse effect should be defined.
- Cumulative risk should be based on more than MOA only.

#### Question #9 and #10

*Does Section 5 provide a clear overview of the methods that could be used for considering environmental justice? Are there other methods that should be added to the discussion?*

*Section 5.4 discusses analytical considerations that may have a significant impact on results.*

*Are these considerations appropriate for assessing EJ in the context of a regulation? Are there considerations that should be added/removed from the discussion?*

A panel member commented that when relying on models, the assumptions will be very important to the understanding of the outcome. The uncertainties associated with a model must be fully discussed. Another concern is that disproportionate impacts are being determined by the analyst.

Other comments include:

- In proximity analysis, how is appropriate buffering determined?
- Behavior model and approaches should be used in these analyses.
- Multiple stressors may cause the same effects. Stressors other than chemical exposures should also be included.

#### Question #11

*Is there sufficient guidance on when and how to conduct an analysis of the distribution of costs? Is the guidance associated with distribution of costs appropriate?*

When assessing the distribution of costs, a panel member suggested that determining the kinds of costs to be included is important. Should things like plant closings and the loss of job be considered? Should long-term or short-term benefits be calculated? A panel member noted that the executive order does not require a cost calculation. Impacts may be human effects, social effects, and economic effects and there are many indirect effects as well that result from regulatory actions.

#### Question #12

*What are the key methodological or data gaps specific to considering EJ in regulatory analysis? Which factors should be prioritized in the near-term to improve how EPA considers potential EJ concerns in regulatory analyses?*

Methods and data that are lacking include individual level data. Retrospective analysis of the impacts of rules on EJ communities is needed. A better understanding of model error and uncertainty is needed. A baseline map of where EJ issues are located is missing. Educational materials are vital for communicating about environmental impacts and mitigation efforts and should be developed.

After a short break, Dr. Moo-Young asked each of the panel members to summarize their overall impressions.

## FINAL IMPRESSIONS

Dr. Craft – More outreach activities to EJ communities is needed and the guidance document should be made more readable.

Dr. Adamkiewicz – The guidance document is complex and the language should be clarified to reduce misinterpretation.

Dr. Gragg – There should be a clear link made between the guidance document and the EJ Plan 2014.

Dr. Abel – More meaningful involvement by EJ communities is needed.

Dr. Greenberg – There is no preference between qualitative and quantitative data.

Dr. Erraguntla – Using a weight of the evidence approach is preferred.

Di Bartolomeis - The guidance presents an opportunity to build on past experience. Using a holistic environmental, social and economic approach is needed. The guidance should find a balance between being overly flexible and overly prescriptive.

Dr. McGurty – Community involvement is very important and currently missing.

Hammitt – This guidance is a good framework for integrating benefit and cost analysis within a regulatory assessment. However, more clarity in defining which populations are relevant, which hazards are relevant and the factors that cause heterogeneity is needed.

Dr. Bui – The guidance is difficult to write. In order to be useful, clear definitions must be included. If the goal is a credible analysis, the assumptions need to be clearly expressed.

Dr. Walsh – There should be meaningful community involvement. Evaluating the baseline for an EJ issue is critical. Spatial distribution does not appear to be highlighted as a concern.

Dr. Martinez – There is a great deal of variability in the way EJ is evaluated and assessed in various EPA offices.

Dr. Sadd – Meaningful community involvement should take place at the scoping stage of an assessment. A list of best practices should be developed.

Dr. Noonan – It is unclear when the inclusion of an EJ assessment in a rule is necessary and when it is not. The guidance narrows the implementation based on the interpretation of the E.O. but does not give a narrow definition of EJ.

Dr. Harper – The guidance opens the door to include tribal concerns. The interdisciplinary nature of the guidance allows difficult ideas to be integrated.

After all panel members were given an opportunity to give their overall impressions, Dr. Moo-Young thanked the EPA representatives for their presentations and for responding to the panel's questions. He then informed the panel members that a meeting would be scheduled after the end of the public comment period on the guidance document. At the subsequent meeting, the deliberations on the charge questions would occur and the panel would begin to craft their responses at that time.

Dr. Shallal thanked all the participants and adjourned the meeting at approximately 4:00 p.m.

On Behalf of the Panel,  
Respectfully Submitted,

\_\_\_\_\_  
/s/  
Suhair Shallal, Ph.D.  
Designated Federal Officer

Certified as Accurate:

\_\_\_\_\_  
/s/  
H. Keith Moo-Young, Ph.D.  
Chair, SAB Environmental Justice Technical Guidance Review Panel

**NOTE AND DISCLAIMER:** The minutes of this public meeting reflect diverse ideas and suggestions offered by panel 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.

Appendix A List of Participants

<b>EPA/Public Sign - June 19, 2013</b>		
<b>First Name</b>	<b>Last Name</b>	<b>Affiliation</b>
Tom	Brennan	US EPA/SAB Staff Office
Kelly	Maguire	EPA
Tom	Carpenter	US EPA/SAB Staff Office
Ann	Wolverton	EPA
Maureen	Gwinn	EPA
Stephen	Howie	EPA
James	Avery	EPA
TJ	Pepping	EPA
Gelena	Constantine	EPA
Carlton	Epey	EPA
Rebecca	Merrifield	EPA
Jennifer	Bowen	EPA
Al	McGartland	EPA
Glenn	Sheriff	EPA
Tracy	Atagi	EPA
Julie	Hewitt	EPA

<b>EPA/Public Sign - June 20, 2013</b>		
<b>First Name</b>	<b>Last Name</b>	<b>Affiliation</b>
Kelly	Maguire	EPA
Maureen	Gwinn	EPA
Ann	Wolverton	EPA
Tom	Brennan	US EPA/SAB Staff Office
James	Avery	EPA
Loren	Hull	EPA
Bridget	DiCosmo	InSide EPA
Marva	King	EPA
Jenny	Bowen	EPA
David	Rehal	InSide EPA