

**Summary Minutes of the United States Environmental Protection Agency (U.S. EPA)
Science Advisory Board (SAB) Quality Review Teleconference
September 25, 2012**

Teleconference of the Chartered SAB and SAB Liaisons¹

Date and Time: September, 2012, 2:00 p.m. – 5:00 p.m. Eastern Time

Location: By Teleconference

Purpose: to conduct quality reviews of an SAB draft review report on EPA’s Toxicological Review of Libby Amphibole Asbestos² and an SAB draft report regarding EPA’s Scientific and Technological Achievement Awards for FY2012³.

SAB Members and Liaison Participants:

SAB Members

Dr. Deborah Swackhamer, Chair	Dr. Kimberly L. Jones
Dr. George Alexeeff	Dr. Bernd Kahn
Dr. David Allen	Dr. Agnes Kane
Dr. Joseph Arvai	Dr. Nancy Kim
Dr. Ingrid Burke	Dr. Cecil Lue-Hing
Dr. Thomas Burke	Dr. James Mihelcic
Dr. Terry Daniel	Dr. Christine Moe
Dr. George Daston	Dr. Horace Moo-Young
Dr. Costel Denson	Dr. Eileen Murphy
Dr. Otto Doering	Dr. Duncan Patten
Dr. Michael Dourson	Dr. Gina Solomon
Dr. David Dzombak	Dr. Daniel Stram
Dr. Taylor Eighmy	Dr. Peter Thorne
Dr. Barbara Harper	Dr. John Vena

SAB Staff Office Participants

Dr. Angela Nugent, Designated Federal Officer (DFO)
Dr. Vanessa Vu, Director
Dr. Thomas Brennan, Deputy Director
Dr. Edward Hanlon, DFO for the SAB Scientific and Technological Achievement Awards Committee
Dr. Diana Wong, DFO for the SAB Libby Amphibole Asbestos Review Panel

Teleconference Summary:

The teleconference was announced in the Federal Register⁴ and discussion generally followed the issues and timing as presented in the agenda.⁵

Convene the meeting

Dr. Angela Nugent, SAB DFO, convened the advisory teleconference and welcomed the group. She noted that the meeting had been announced in the Federal Register, which provided an opportunity for public to provide oral and written comments. She noted that four individuals had requested to provide oral public comments⁶ on the Libby amphibole asbestos draft report. She also noted that five sets of written comments⁷ had been received on the same draft report, provided to SAB members and posted on the SAB website. Preliminary written comments from members of the chartered SAB on both draft reports⁸ are posted on the SAB website. She thanked members for providing information that allowed the SAB Staff Office to determine that participating members of the chartered SAB had no conflicts of interest or appearance of lack of impartiality related to the topics being discussed. The DFO asked members of the public participating by teleconference to contact her so that their names could be listed in the minutes (Attachment A).

Purpose of meeting and review of the agenda

Dr. Deborah Swackhamer, the SAB Chair, welcomed SAB members to the teleconference. Dr. Swackhamer reviewed the purpose of the meeting, to conduct a quality review of two draft reports entitled *Review (August 30, 2012) of EPA's Draft Assessment entitled Toxicological Review of Libby Amphibole Asbestos (August 2011)* and *SAB Recommendations (08/13/2012 Draft) for EPA's FY2012 Scientific and Technological Achievement Awards*. During quality reviews the chartered SAB deliberates to decide whether a draft report is ready to send to the EPA Administrator.

Quality review of the draft report, Review (August 30, 2012) of EPA's Draft Assessment entitled Toxicological Review of Libby Amphibole Asbestos (August 2011)

Public Commenters

Dr. Swackhamer introduced each of the public commenters in turn. Commenters were asked to limit their oral comments to three minutes. Dr. Nancy Beck was the first public speaker and provided comments on behalf of the American Chemistry Council. She stressed the importance of EPA's providing more detail about the models, model assumptions and analyses used in its draft assessment and providing the public with additional opportunity to provide public comment on these datasets. She also noted that the draft SAB report indicated that one panelist non-concurred and asked for the SAB report to explain the nature of this nonconcurrency.

Dr. David Hoel from Exponent Inc. was the second public speaker and provided oral comments on behalf of W.R. Grace, Co. He referenced his written comments and noted that he was not only

speaking on his own behalf but also on behalf of Dr. Suresh Moolgavkar. He noted that he and Dr. Moolgavkar had recently obtained previously unavailable data that provide the public new information about the cohort EPA analyzed. This new data provide an opportunity for the public to conduct new modeling and reassess EPA's hazard estimates. He noted several other issues: EPA's assessment focuses on a small subcohort rather than the full cohort; information on duration of exposure is limited; and there is no scientific justification for linking pleural plaques and reduced pulmonary function and for designating localized pleural plaques as the endpoint of concern for the reference concentration (RfC). He stated that the SAB report should provide justification if it finds such a link.

Dr. Elizabeth L Anderson from Exponent Inc. was the third public speaker. She also provided comments on behalf of W.R. Grace, Co., referenced her written comments, and referred to additional written comments previously submitted in collaboration with Dr. Moolgavkar for consideration by the SAB panel. She noted that the EPA's noncancer assessment included an unusual RfC, which relied on "cumulative lifetime exposure" that will result in false positives. She noted that localized pleural thickening is not an adverse effect; its selection as an endpoint is inconsistent with the definition of critical endpoint in EPA's guidelines. She indicated that if EPA proceeded to set the RfC for Libby amphibole asbestos, the level would be below background in some areas and extension to other forms of asbestos would be inevitable. She noted that EPA's draft risk assessment had many of the problems identified in chapter 7 of the National Research Council 2011 formaldehyde report.

Ms. Karen Ethier from W. R. Grace, Co. was the fourth public speaker. She referred to her written comments and noted several issues she considered significant. Although EPA's draft toxicological assessment identified asbestos narrowly in a specific location, amphibole asbestos is found in rural and urban areas across country. She noted that the SAB panel's draft report identifies items for EPA's attention in revising its assessment but does not address fundamental questions. EPA should allow the public to conduct independent analyses in light of the new data made available. In addition, she pointed out other problems: statistical weakness in the analyses due to small cohorts; inappropriate models; and a need for larger datasets and consideration of data confounders. She asked the SAB to consider whether the EPA's draft report truly addresses key questions, whether it was clearly written, and whether the conclusions drawn are supported by the evidence. She called on the chartered SAB to consider returning the draft report to the SAB panel for further work.

After the public commenters concluded, the SAB Chair asked SAB members if there were clarifying or follow-up questions. One member asked Dr. Hoel to compare the prevalence of decile exposures on page 3 of his written comments with the EPA's assumption of 1 percent background risk for localized pleural thickening. Dr. Hoel responded that the two models under consideration for EPA's use in the final assessment, the Michaelis-Menten model and the dichotomous Hill model, were occupancy models, where EPA presumes upper and lower bounds. The models assume a certain amount of pleural plaques as background, regardless of concentration or exposure. Background is assumed or "guessed at" in EPA's analysis and these uncertainties are not included in the model. He criticized the EPA's analysis for incorporating this parameter and giving it a value, without discussing related uncertainties.

Another member of the chartered asked about the timing and nature of release of the data that Dr. Hoel mentioned. Dr. Hoel responded that the data were made available from the University of Cincinnati through a Freedom of Information Act request. Dr. Anderson received the data in the last six months; Dr. Hoel responded that he was made aware of the data within the last few weeks.

Yet another member asked for the commenters' rationale for finding EPA's use of cumulative exposure data problematic. Dr. Anderson responded that duration is often more important concentration and compared asbestos exposure over time with spoking over time. Dr. Hoel responded that duration, concentration and age are significant in a full model.

Presentation from the Panel Chair

After committee members concluded their questions for public commenters, Dr. Deborah Swackhamer introduced Dr. Agnes Kane, the chair of the SAB Libby Amphibole Asbestos Review Panel, and asked her to provide some background on the draft report. Dr. Kane stated that EPA's Office of Research and Development (ORD) requested the review to support risk assessment activities in a particular location, Libby Montana, where there was a high rate of pleural plaques and asbestosis. ORD developed the draft toxicological assessment to address hazard identification and dose-response for Libby Amphibole Asbestos, and the SAB received specific charge questions on those topics. The panel held a face-to-face public meeting in February 2012, followed by two public teleconferences. The panel reached consensus on draft report text during a July 2012 teleconference. Since that call, one panel member, Dr. Scott Ferson, communicated that he would not concur with the quality review draft because he would like the report to include recommendations for additional uncertainty analysis, but, despite repeated attempts to ask about the specific nature of his concern, he did not provide additional details. Dr. Kane introduced three members of the panel [Drs. Lee Newman, Elizabeth (Lianne) Sheppard and Katherine Walker] to help address technical questions from the chartered SAB regarding the draft report.

Chartered SAB Discussion and Disposition of the Report

After Dr. Kane completed her remarks, Dr. Swackhamer began the quality review discussion by noting that the purpose was not to repeat the panel's work. Instead, it is to consider four key questions:

- 1) Were the charge questions to the committee adequately addressed?
- 2) Are there any technical errors or omissions or issues that are not adequately dealt with in the draft report?
- 3) Is the draft report clear and logical?
- 4) Are the conclusions drawn or recommendations provided supported by the body of the draft report?

She asked the lead reviewers to briefly summarize their major comments. The first lead reviewer, Dr. Thomas Burke, noted that the draft report provided an “incredibly comprehensive” peer review with 61 recommendations. He noted that it was difficult to determine, at times, whether a specific recommendation was required for the revision of the Integrated Risk Information System (IRIS) toxicological assessment or whether it was a general recommendation for future research. He suggested that the report should be strengthened to provide a “clearer bottom line.” He understood the panel’s report to provide a generally favorable review of EPA’s draft document that called on the agency to provide a clearer description and explanation of analytical choices, especially the choice of models and data. In his view, the letter was clear but the draft report gave mixed messages. There is not a need to restructure the assessment; advice related to such major restructuring of IRIS assessments might be better deferred to a broader discussion of IRIS assessments that will be undertaken at the National Academies of Science.

Dr. Michael Dourson, the second lead reviewer, observed that, in general, most charge questions had been adequately addressed. He made several suggestions to strengthen the draft report. The report on page 18, line 42, should explain more clearly the derivation of background incidence, since that information was a concern to public commenters. On page 21, line 18, the report should present a more formal mode of action analysis, following the framework provided in EPA’s 2006 guidelines. Such an analysis, in his view, would not be difficult or time-consuming to develop. He asked for clarification of the term “fibers/cc-year.” He asked whether the panel had considered taking the benchmark dose and dividing by 40 years (not 70 years) as a sensitivity analysis. In his view, the draft report provides good advice about the use of uncertainty factors. EPA should be encouraged to provide additional rationale for their choices. There are firm rules for the choice of database uncertainty factors. He asked for additional clarification on the choice of critical effect. If localized pleural thickening is not an adverse effect but is a precursor to an adverse effect, then the choice is consistent with EPA guidelines. But if the effect is just a histological effect and there are no adverse effects, it should not be labeled as a critical effect.

Dr. Gina Solomon, the third lead reviewer, stated that she was impressed with the panel’s report, which provided a detailed, thoughtful review on a controversial topic. She recommended that the report be revised to communicate its major conclusion more clearly. Some recommendations for additional research may not be central to EPA’s revisions of the toxicological profile, developed to help EPA Region 8 make decisions to clean up contaminated sites. She agreed with Dr. Burke that the panel’s draft report supported most of EPA’s decisions (e.g., to derive an RfC; to use localized pleural thickening as an endpoint for the RfC; to choose the Marysville cohort for analysis and to focus on the subcohort; to develop the cancer descriptor as “Carcinogenic to Humans by the Inhalation Route;” and to use a non-threshold model for cancer dose-response). The report should be revised to more clearly communicate this message. She suggested that the report be strengthened by explaining the rationale for the choice of localized pleural thickening as the RfC endpoint more clearly and to focus on the critical issues, the uncertainty factors and choice of models used. She suggested that revisions to the executive summary along these lines would improve the document. She expressed no major substantive concerns with the body of the draft report, only technical errors and omissions detailed in her written comments.

Dr. Daniel Stram, the fourth lead reviewer, focused on statistical aspects of draft panel report, although he also agreed that the report should: 1) more clearly communicate its rationale for supporting EPA's choice of localized pleural thickening as a critical endpoint and 2) characterize whether recommendations for further literature review were for the "sake of completeness" or necessary to address some concern about uncertainty. His principal comment concerned the selection of the subcohort and modeling for the RfC determination. He found EPA's discussion of exposures of post-1972 cohort analyses confusing, especially the EPA's calculation of time since first exposure. EPA did not clearly explain the relationship of age and exposure within the data set and did not explain and give rationale for model assumptions regarding age at first exposure. He recommended that the panel report ask EPA to provide more information about the relationships between age, exposure and observed effects. His written comments provide additional suggestions about modeling. The draft SAB report should also provide a clearer explanation for its recommendation regarding the Hill model.

Dr. Peter Thorne, the fifth lead reviewer, echoed other lead reviewers' comments. The SAB report thoroughly addressed many questions on a complex topic, but the report could be strengthened by highlighting the key recommendations that EPA must address in the final toxicological assessment. He referenced his written comments and highlighted a few specific areas for clarification. He asked whether the panel intended to require EPA to look at *in vitro* data for other amphibole species. He asked for a clearer rationale for the panel's support for EPA's using a 70-year lifetime instead of a 60 year and 10 year lagged exposure. He asked for a clarification of why the panel report recommended that EPA calculate a standardized mortality ratio and asked how it would be used. The report should communicate more clearly a recommendation of the appropriate measure to use as a measure of central tendency and agreed with Dr. Stram and public comments that exposure measures should be better characterized and justified. Finally, he suggested that the Executive Summary be revised to be more succinct, reduce redundancy and summarize major points more effectively.

Dr. John Vena, the sixth lead reviewer, agreed that the report should be revised to more clearly communicate the critical recommendations that would affect the findings in EPA's assessment. He also agreed with Dr. Stram's comments regarding the need for a clearer explanation for recommending the Hill model.

Dr. Swackhamer asked Dr. Kane to respond to the reviewers' main points. Dr. Kane stated that she will modify the Executive Summary and report for additional clarity. Those revisions will distinguish recommendations for the specific revision of the toxicological profile vs. future research. She noted that the EPA's charge questions did ask for recommendations for strengthening science generally, but the report will be modified to indicate the recommendations regarding addressing data gaps not required for strengthening this IRIS review.

Dr. Kane also noted the recommendation that the panel report call on EPA to provide a more formal exposition of its choice of mode of action. Dr. Solomon noted that the EPA was clear on its choice of a mode of action, but the panel's report should acknowledge the literature on this issue, which indicates the complexity of fiber carcinogenesis and most likely multiple modes of action. This literature supports the choice of a low dose, no threshold model.

Dr. Solomon commented that draft report language on page 4 (i.e., “an understanding of the basic carcinogenic mechanisms of LAA will be extremely useful”) was unclear as to whether “an understanding of the basic carcinogenic mechanisms of LAA” is needed *before* EPA derives a “realistic risk assessment.” The use of the future tense made it unclear to her whether the panel intended to communicate that those studies were needed for the final assessment. It may be that sufficient data exists, even without a clear mode of action, to determine that EPA’s assessment is reasonable.

Dr. Katherine Walker, a member of the Libby Amphibole Asbestos Panel, responded that the panel was uncomfortable with the limited number of assays specific to Libby amphibole asbestos; very few indicate that immunosuppression is a problem. Dr. Solomon indicated that she did not see an explanation for why Libby Amphibole asbestos should be treated differently from other kinds of asbestos and asked for other members’ views. Dr. Dourson noted that he was not suggesting that additional studies were mandatory, but instead that the panel report recommend that the EPA follow its own guidelines on framing and communicating its understanding of mode of action. He agreed that it was appropriate to bring in data on other asbestos moieties.

Dr. Walker noted that the panel members agree that amphibole asbestos is similar to chrysotile, but members do not know how similar their biological effects or potency are. Panel members do agree that Libby amphibole asbestos is very likely similar to other amphibole asbestos.

Drs. Solomon and Burke noted that, although these scientific details are important, the report does not clearly communicate the public health-relevant conclusions about Libby amphibole asbestos. In their view, the SAB report should affirm its support for EPA’s key conclusions because they are based on reasonable assumptions. The SAB report should call on EPA to strengthen key parts of its analyses and clearly communicate science and data gaps.

Dr. Kane then asked members of the Libby Amphibole Asbestos Review Panel members providing background information for the quality review to discuss additional points raised by the lead reviewers on the chartered SAB. Dr. Walker noted that foreign body carcinogenesis was not a relevant mode of action for asbestos. Foreign body carcinogenesis was caused by two-dimensional implants of a wide range of materials and has no relationship to carcinoma in lung or mesothelioma, which is caused by a crystalline structure. A chartered SAB member suggested that the panel report recommend that the EPA incorporate such a discussion into its assessment.

Dr. Lee Newman addressed comments from Drs. Dourson, Stram, and Solomon regarding choice of localized pleural thickening as a critical endpoint. Dr. Newman noted that the panel included three thoracic physicians (plus the panel chair), who discussed public comments on this point thoroughly. All panel members agreed that EPA is correct in choosing this endpoint as a critical endpoint. The panel found that localized pleural thickening is an adverse, irreversible pathological change. It is considered a clinical diagnosis. The literature supports a statistical significant relationship between localized pleural thickening and lung function decrement. Lead reviewers agreed that the letter to the Administrator, Executive Summary and body of the report should communicate this point more clearly and engage the public comments on this point. Dr.

Newman agreed that the language in the report could be “tightened up” and the panel report more clearly recommend that EPA use the references provided on page 18 of the panel report to further strengthen its case.

Panel member Dr. Lianne Sheppard addressed the topic of the background rate for localized pleural thickening. The draft panel report addresses this topic. EPA estimated the background rate at 2 percent, not 8 percent described by the public commenters. Because of the limited data, any tabular exposition can distort the background rate. Therefore, the draft panel report recommends that EPA conduct a sensitivity analysis focused on background rates.

Dr. Sheppard next addressed Dr. Stram’s comments. The panel concurred with EPA’s use of the Marysville subcohort to limit the primary analysis to cases with good exposure data. As a result, there was a small dataset, 12 cases in 188 subjects. The panel then provided advice regarding how to maximize the utility of that small data set. Recommendations regarding the use of the full cohort were intended to substantiate findings in the subcohort, not replace them.

She acknowledged that the panels’ recommendations regarding the use of covariates were innovative. The draft report provides recommendations to help EPA maximize existing data, through working with the BMCL (lower 95% confidence limits of the benchmark concentration). It was “tricky” to establish the time of first exposure and the correlation of exposure with age, since exposure declined since 1972. The panel recommended that EPA change its analysis of time since first exposure, much as Dr. Stram suggested in his written comments. In Dr. Sheppard’s view, EPA should easily be able to incorporate these recommendations regarding the RfC without further oversight by the panel. Dr. Sheppard also clarified that information about high exposures prior to 1972 was anecdotal, not measured. Individuals hired since 1972 have some exposure measurements.

Dr. Sheppard agreed that the language in the SAB draft report should more clearly recommend that EPA simplify presentation of the data in Appendix E, especially regarding presentation of the age at time of examination. The report can also more clearly recommend ways for EPA to improve the clarity of presentation and structuring discussion of the “target of inference,” rather than dose response.

Dr. Swackhamer noted that the lead reviewers had raised no major issues regarding the cancer classification or the inhalation unit risk, other than Dr. Michael Dourson’s request that the draft report better explain the term “fibers/cc-year.”

After the panel chair and panel members had concluded their response to comments from the lead reviewers, other SAB members then provided additional comments and questions. One member noted that the report appeared to communicate different messages about susceptible populations in different sections of the report. Dr. Kane responded that there is no evidence that men or women are more or less susceptible to Libby amphibole asbestos, but that women are more susceptible to malignant mesothelioma at lower doses. That same chartered SAB member also noted that the report on page 37 includes a heading entitled “Clarifications requested,” but it

is not clear if these clarifications are recommendations the panel intends to make. Dr. Kane responded that she will address this issue.

Another SAB member stated that the charge is not clearly communicated in the letter or Executive Summary. Dr. Swackhamer noted that there were many written comments from chartered SAB members suggesting modifications to the Executive Summary to make it shorter and clearer. She acknowledged written comments regarding the letter to the Administrator also. A member suggested that the letter to the Administrator communicate the most important issues that must be addressed before the EPA assessment is finalized. Members agreed that the draft panel report should classify recommendations as to whether they pertain to needed revisions in EPA's document before it is finalized vs. long-term research and then prioritize those recommendations.

A member suggested that the draft report discuss the appropriateness of a 1 percent response rate for the benchmark dose. The SAB Chair asked the panel chair to address this topic more clearly.

Another member noted that the current version of the report identified panel member Dr. Scott Ferson as non-concurring. He asked whether the revised SAB report will provide information about his nonconurrence. Dr. Vanessa Vu, the SAB Office Director, responded that the SAB Staff Office will contact Dr. Ferson to obtain draft language describing how his views differ from those expressed in the panel report. Yet another committee member asked whether Dr. Julian Peto, a panel member, was in agreement with the draft report. Dr. Kane responded that Dr. Peto had responded to Dr. Diana Wong, the panel DFO, that he concurred with the report and that the panel had taken care to incorporate recommendations and wording he provided into the panel draft report.

The last substantive comment came from a panel member who asked that the draft panel report replace text such as "the SAB believes" with text, such as "the SAB finds" or "the SAB concludes," consistent with current practice. Dr. Kane agreed to make those changes.

After discussion had concluded, Dr. Swackhamer asked for a motion to dispose of the report. She reminded members that the purpose of the quality review is to determine if the report is ready to transmit to the Administrator as an SAB report and under what conditions. Dr. Peter Thorne moved that the draft report be revised subject to revisions by the panel chair and then be reviewed by select members of the chartered SAB. This motion was seconded by Dr. David Allen. The SAB Chair asked for discussion. A member asked whether the motion presumed that the report would be recirculated to members of the panel. Dr. Swackhamer responded that this would happen at the chair's discretion. Another member expressed support for the motion because it integrated positive comments from Board members with information provided by panel members. Another member, however, expressed concern that the changes discussed represent "very substantial revisions from an organizational and science standpoint." Other members responded that the changes discussed primarily concerned the clarity of presentation of ideas in the panel report, not the central findings or recommendations. Dr. Vanessa Vu stated that the DFO would send the revised report to panel members for their individual feedback as part of the revision process. Dr. Swackhamer called for a vote. The motion passed with one "Nay" and

no abstentions. Dr. Swackhamer asked lead reviewers (Drs. Burke, Dourson, Solomon, Stram, Thorne, and Vena) to serve on the group to review the revised report; all six agreed. Dr. Swackhamer also asked for volunteers from the chartered SAB to add to the group. Drs. Dzombak and George Daston agreed to serve on the group.

Dr. Swackhamer concluded the discussion by thanking Dr. Kane for her leadership on this activity, panel members for their work and Dr. Diana Wong, the panel DFO.

Quality review of draft report, *SAB Recommendations (08/13/2012 Draft) for EPA's FY2012 Scientific and Technological Achievement Awards (STAA)*

Presentation from Committee Chair

Dr. Deborah Swackhamer introduced the panel chair, Dr. Daston to provide a brief introduction to the draft report. Dr. Daston began by acknowledging the contributions of the committee DFO, Dr. Edward Hanlon, in organizing the review and supporting the committee. Dr. Daston gave a brief history of the STAA program and the SAB's role in it. Since 1980, EPA has managed the STAA program to recognize high quality peer review at the agency, and the SAB has served as the review body for the awards. In 2012, there were 106 nominations. Each nomination was reviewed by two or more STAA committee members for quality, significance and contribution to EPA's mission. There are three levels of award and an honorable mention category. In 2012, the STAA Committee recommended that four nominations met the criteria for Level 1, the highest level of award. In addition, he noted that the draft report includes recommendations for improvement in the STAA process.

Dr. Swackhamer reminded the chartered SAB members that, although the SAB STAA Committee developed recommendations regarding specific awardees, the quality review draft does not include the content for Appendix B "Nominations Recommended for Awards" because the Administrator has not yet made decisions about specific awards. The quality review will focus on the general recommendations in the draft report regarding the STAA process. After the EPA announces the awards, the full report will be made available on the SAB website.

Chartered SAB Discussion and Disposition of the Report

Dr. Swackhamer asked the lead reviewers to provide comments. The lead reviewers, Dr. Costel Denson and Taylor Eighmy stated that the STAA program was an important EPA program and commended the committee for a concise, clearly written report. They also supported the administrative recommendations for improvement in the STAA process.

Other SAB members then provided additional comments and questions. One member asked whether the categories for classifying reports were sufficient for the committee's needs and whether the program should include publications in the "grey literature that are still top notch research." Dr. Daston responded that the 14 categories were sufficient and that some categories were under-represented. He also expressed the view that the award was designed to recognized

peer reviewed literature and that it was important for high quality EPA science to be published in venues where it will “pass muster” and be recognized.

After discussion had concluded, Dr. Swackhamer asked for a motion to dispose of the report. Dr. Duncan Patten moved to convey it to the Administrator with only the approval of the SAB Chair. Dr. Joseph Arvai seconded the motion. There was no discussion. The motion passed unanimously with no abstentions.

Dr. Swackhamer thanked Dr. Daston and Mr. Hanlon for their work and expressed pleasure at the opportunity to recognize EPA scientists for their work.

Dr. Swackhamer concluded the discussion by noting that the quality review represented her last meeting with members of the chartered SAB. She thanked them for the honor of working with them and for their contributions to the Board. She thanked the DFO of the chartered SAB for her contributions, thanked the SAB Staff Office Director for her guidance and support, and thanked all the SAB DFOs for their efforts.

Closing remarks from the SAB Staff Office Director

Dr. Vu acknowledged and thanked SAB members for their contributions in Fiscal Year 2012. She expressed special thanks for Dr. Swackhamer’s leadership and the contributions of members completing their terms as of September 30, 2012. The SAB Staff Office is awaiting the Administrator’s appointment decisions for Fiscal Year 2012. She noted that Dr. Nugent would inform them of the SAB’s new membership and schedule a face-to-face meeting in the December timeframe. She also noted that the SAB Staff Office is developing an Accomplishments Report to document the SAB’s accomplishments under Dr. Swackhamer’s leadership. This report will be circulated to members of the chartered SAB.

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

Respectfully Submitted:

__Signed____

Dr. Angela Nugent

SAB DFO

Certified as Accurate:

__Signed____

Dr. Deborah L. Swackhamer

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 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 Who Indicated Participation in the
September 25, 2012 Teleconference**

Thomas Bateson, EPA
Robert Benson, EPA
Karl Bourdeau, Beveridge and Diamond, LLC
Matt Brown, Associated Press
David Bussard, EPA
Krista Christensen, EPA
Casey Deitrich, CQ Transcriptions
Lydia B. Duff, Senior Environmental Counsel
W. R. Grace & Co.
Glinda Cooper, EPA
Alan Lewis Gerstenecker, The Western News
Jonathan Gledhill, Policy Navigation Group
Maureen Gwinn, EPA
Jenny Hopkinson, Inside EPA
Leonid Kopylev, EPA
Pam Marks, Beveridge and Diamond, LLC
Deborah L. McKean, EPA
Liz Mingione, Beveridge and Diamond, LLC
Charles Ris, EPA
Gina Perovich, EPA
Resha Putzrath, Navy and Marine Corps Public Health Center
Kathleen Raffaele, EPA
Pat Rizzuto, BNA
Jim Rollins, Policy Navigation Group
Keith Salazar, EPA
Cheryl Scott, EPA
Bob Sonawane, EPA
Terry Trent

Materials Cited

The following meeting materials are available on the SAB Web site, <http://www.epa.gov/sab>, at the following address:
<http://yosemite.epa.gov/sab/sabproduct.nsf/a84bfee16cc358ad85256ccd006b0b4b/f0103cec9075a39085257a340005585a!OpenDocument&Date=2012-09-25>

¹ Roster, Chartered SAB Members and Liaisons

² *Review (August 30, 2012) of EPA's Draft Assessment entitled Toxicological Review of Libby Amphibole Asbestos (August 2011)*

³ *SAB Recommendations(08/13/2012 Draft) for EPA's FY2012 Scientific and Technological Achievement Awards*

⁴ Federal Register Notice announcing the meeting (77 FR 52024)

⁵ Agenda

⁶ List of Registered Public Speakers

⁷ Public comments:

- Public Comments from David Fischer on behalf of the American Chemistry Council.
- Public comments from David Hoel and Suresh Moolgavkar
- Public comments from Elizabeth L. Anderson, Exponent, Inc.
- Public comments from Karen E. Ethier, WR Grace Co.
- Public Comments from Karl S. Bourdeau, Beveridge & Diamond, P.C.

⁸ Preliminary Comments from Chartered SAB Members on the Libby Amphibole Asbestos draft report; Preliminary Comments from Chartered SAB Members on the draft STAA Committee report.