

**Summary Minutes of the
U.S. Environmental Protection Agency (EPA)
Science Advisory Board (SAB)
Drinking Water Committee Augmented for the Review of the
Effectiveness of Partial Lead Service Line Replacements (DWC Lead Panel)
Public Teleconference
May 16, 2011**

Date and Time: Monday, May 16, 2011, 1:00 PM – 5:00 PM ET

Location: Teleconference Only

Purpose: The purpose of the teleconference was to discuss the Panel’s draft report evaluating recent studies examining the effectiveness of partial lead service line replacements (PLSLR) in reducing lead drinking water exposures.

Participants: DWC Lead Panel (for full roster, see Attachment A)
Dr. Jeffrey K. Griffiths, Chair
Dr. George Alexeeff
Dr. Mark Benjamin
Dr. Joel Ducoste
Dr. Jeffrey Griffiths
Dr. Susan Korrick
Dr. Michael Kosnett
Dr. Bruce Lanphear
Dr. Desmond Lawler
Dr. Frank Loge
Dr. Stephen Randtke
Dr. Lynn Roberts
Dr. Stephen Rothenberg
Dr. Richard Sakaji
Ms. Janice Skadsen
Dr. Virginia Weaver
Dr. Robert Wright

Mr. Aaron Yeow, Designated Federal Officer (DFO)
Mr. Eric Burneson, EPA OW

Other Attendees (See Attachment B)

Monday, May 16, 2011

Opening Remarks

Mr. Aaron Yeow, the DFO for the SAB DWC Lead Panel, opened the meeting. He noted that as required under the Federal Advisory Committee Act (FACA), the Committee's deliberations are held in public with advanced notice given in the Federal Register¹, and the meeting minutes will be made publicly available after the meeting. He noted that the Panel received two requests from the public to present oral comments, and received several written comments from the public. He also noted that the Panel members were in compliance with federal ethics regulations and conflict-of-interest laws that pertain to them. He then turned the meeting over to Dr. Jeffrey Griffiths, Chair of the DWC Lead Panel.

Dr. Jeffrey Griffiths welcomed everyone and indicated that the purpose of the meeting was to discuss the Panel's draft report² evaluating recent studies examining the effectiveness of partial lead service line replacements (PLSLR) in reducing lead drinking water exposures. He reviewed the Agenda for the meeting³, and introduced Mr. Eric Burneson, from EPA's Office of Water for his remarks.

EPA Remarks and Presentation

Mr. Eric Burneson, EPA OW, indicated that the Agency is undertaking revision of LCR with the goal of improving public health protection provided by the rule and to further reduce exposure to lead and copper. EPA believes there is significant new information particularly with regards to lead service line replacements (LSLR), which is why the SAB was asked to provide an evaluation of the available data. He thanked the public commenters for their submission of data – Rhode Island Department of Health and Ralph Scott. He urged Panel to consider these data sets in the revision of their report. He also requested that the report clarify three issues: the Panel's recommendation regarding full LSLRs; identification of studies supporting statements regarding recommending a lower action level; and updating the Panel's recommendations regarding public education requirements to reflect recent EPA guidance.

Public Comment

Dr. Marc Edwards, Virginia Tech, applauded the efforts of the Panel and found the report to be very well done. He indicated that there was a new long term pilot study by Cartier looking at the long-term effects of galvanic corrosion. The poster shows that if samples are collected at low flow rates, the long-term harmful effects of PLSLR are not observed. When samples are collected at normal or high flow rates, partially replaced pipes, they found more particulates coming off into samples collected over 7 months. The study is continuing into a year now. There is no evidence that the adverse galvanic consequences of partial replacements are lessening in terms of actual lead release to water. Galvanic currents are still going strong after a year. He noted an important caveat that needs to be considered with American Water Works Association (AWWA) submissions was that in those studies, all of the samples were collected at low flow rates.

The Panel members asked Dr. Edwards for further clarification on what he defined as a normal or low flow rate. He indicated that Sandvig and DC Water used 2 liters per minute (lpm) or less. In the Cartier study, for normal flow rates, they used 8 lpm and suddenly they saw massive spikes of particulate from lead service lines. When they collected samples at higher flow rates (32 lpm), they saw even more spikes. He indicated that he has data to show that if you collect samples at low flow rates (2 lpm or less), you are not getting any particulate, you are just getting soluble lead, which isn't the issue here – it's the erratic particulate release.

Mr. Ralph Scott, Parents for Nontoxic Alternatives, commented that his written submission data set contains 658 homes in DC that had PLSLR between 2003-2006. He indicated that this was the largest set of real-world post-partial data. The data reveal that the average lead level for 1st draw was 200 ppb, 2nd draw average was 40 ppb. 14 homes (2%) had 1st draw samples in the thousands and tens of thousands ppb. In a large data set like this, one can start to see the effect of the particulate lead showing up in the overall samples, which is a better indication of what people are actually consuming. He stated that you do not see this effect if only a small number of samples are taken.

Issue 1

The Panel members indicated that they will modify the report to clarify the seemingly contradictory conclusions. The report will be modified to use language that better captures the uncertainty around the conclusion. The members indicated the need to define or provide context around the phrases “short term” and “long term”.

There was some discussion about the statement on p. 13, lines 3-8, that PLSLR probably represents a short-term health risk since it's likely to result in short-term increases in water lead. Members indicated that short term increases in water lead result in short term exposure risk (not health risk). Especially in children, short term exposures can result in lifelong health effects. This needs to be revised.

Members also pointed out that the Wujek study was used inconsistently throughout the report and that the Panel needs to come to agreement regarding its use in the report.

Some parts of report read as if education can be used to compensate for some of the risks associated with PLSLR. The message should be made clear that education is a complementary piece, but does not replace the technology and that the priority should be on the engineering controls.

One member discussed his reanalysis of the CDC dataset that was provided to the Panel⁴. It was clear that it was not the same dataset that Brown used for publication. In the publication, they cite datasets in supplementary tables that have more subjects in them than the dataset they used for analysis in publication. However, based on the reanalyses performed, the odds ratio for elevated lead in PLSLR as compared to the no replacement group was above 1, that is, increased risk, but just like in Brown et al. (2011), these were not significant differences. So the reanalysis provided no more and no less information than reported in Brown et al. (2011).

Issue 2

The Panel members indicated that they will change the language on p. 11 line 9 from “often” to “sometimes”. There are some long-term data now, which do show some reductions over an extended period of time. The Rhode Island Department of Health (RI DOH) study showed that after 4 months in sequential samples, looking at total mass of lead, an average of 62% reduction. DC Water data, some of those showed not much effect after a year or two, others showed slight reductions. There were some misconceptions regarding the mentioning of the various sampling under the LCR in the report. It was just trying to provide context of what a PLSLR is. It was agreed to move this to an appendix, to insert more references and more quantitative information into this section, as well as to provide more of a critical analysis of the data.

Issue 3

The members indicated that the Wujek should not be used to assess the effectiveness of PLSLRs due to the change in disinfectant during the study. The flaws were so substantial that one cannot reach conclusions from it. Other members commented that not enough study has been done to make the distinction in conclusions between systems optimized and not optimized for corrosion control. It was agreed to modify the conclusions to take out the distinction between optimized and non-optimized systems.

Issue 4

The members stated that this section of the report will be updated to reflect the new EPA public education guidance, but that PLSLRs were still not directly addressed, so the recommendations would remain the same. One member suggested that the water quality discussion should go elsewhere in the report, not under the techniques section. It was agreed to condense this section of the report and to move most of it into an appendix.

Issue 5

The lead author provided an overview of this section of the report and the Panel did not have any further edits or changes to it.

Executive Summary

There was discussion on modifying the language for the overall conclusion. Other changes made to the body of the report will also be reflected in the corresponding sections of the Executive Summary.

Letter to the Administrator

It was agreed that the letter will use the same language as in the Executive Summary regarding the overall conclusion. Any other changes to the body of the report will also be reflected in the corresponding sections of the letter.

Dr. Griffiths discussed next steps and action items.

With the business concluded, the Designated Federal Officer adjourned the meeting at 5:30 PM ET.

Respectfully Submitted:

Certified as Accurate:

/Signed/

/Signed/

Mr. Aaron Yeow
Designated Federal Officer
EPA SAB Staff Office

Dr. Jeffrey K. Griffiths
Chair
SAB DWC Lead 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 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.

Materials Cited

The following meeting materials are available on the SAB website: <http://www.epa.gov/sab>, at the [May 16, 2011 SAB DWC Lead Review Panel Meeting page](#):

¹ Federal Register Notice Announcing the Meeting

² Draft (04/25/11) SAB Evaluation of the Effectiveness of Partial Lead Service Line Replacements

³ Agenda for May 16, 2011 Public Meeting

⁴ Lead in Water Dataset Provided to EPA Office of Water by CDC

ATTACHMENT A - ROSTER

U.S. Environmental Protection Agency Science Advisory Board Drinking Water Committee Augmented for the Review of the Effectiveness of Partial Lead Service Line Replacements

CHAIR

Dr. Jeffrey K. Griffiths, Associate Professor, Department of Public Health and Community Medicine, School of Medicine, Tufts University, Boston, MA

MEMBERS

Dr. George Alexeeff, Deputy Director for Scientific Affairs, Office of Environmental Health Hazard Assessment, California Environmental Protection Agency, Oakland, CA

Dr. Mark Benjamin, Professor, Department of Civil and Environmental Engineering, University of Washington, Seattle, WA

Dr. Joel Ducoste, Professor, Department of Civil, Construction, and Environmental Engineering, College of Engineering, North Carolina State University, Raleigh, NC, United States

Dr. Susan Korrick, Assistant Professor of Medicine, Department of Medicine, Brigham and Women's Hospital, Channing Laboratory, Harvard Medical School, Boston, MA

Dr. Michael Kosnett, Associate Clinical Professor, Division of Clinical Pharmacology and Toxicology, Department of Medicine, University of Colorado Health Sciences Center, Denver, CO

Dr. Bruce Lanphear, Professor, Children's Environmental Health, Faculty of Health Sciences, Simon Fraser University, Vancouver, BC, Canada

Dr. Desmond F. Lawler, Bob R. Dorsey Professor of Engineering, Department of Civil, Architectural and Environmental Engineering, University of Texas, Austin, TX

Dr. Frank Loge, Professor, Department of Civil and Environmental Engineering, University of California-Davis, Davis, CA

Dr. Stephen Randtke, Professor, Department of Civil, Environmental, and Architectural Engineering, University of Kansas, Lawrence, KS

Dr. A. Lynn Roberts, Professor, Department of Geography and Environmental Engineering , Johns Hopkins University , Baltimore, MD

Dr. Stephen Rothenberg, Senior Investigator, Environmental Health, Center for Study of Population Health, National Institute of Public Health, Cuernavaca, , Mexico

Dr. Richard Sakaji, Manager, Planning and Analysis for Water Quality, East Bay Municipal Utility District, Oakland, CA

Ms. Janice Skadsen, Environmental Scientist, CDM, Ann Arbor, MI

Dr. Virginia Weaver, Associate Professor, Departments of Environmental Health Sciences & Medicine, Bloomberg School of Public Health, Johns Hopkins University, Baltimore, MD

Dr. Robert Wright, Associate Professor, Pediatrics, Division of Environmental Health, Harvard School of Public Health, Harvard School of Public Health, Boston, MA

Dr. Marylynn Yates, Professor of Environmental Microbiology, Department of Environmental Sciences, University of California-Riverside, Riverside, CA

SCIENCE ADVISORY BOARD STAFF

Mr. Aaron Yeow, Designated Federal Officer, U.S. Environmental Protection Agency, Washington, DC

ATTACHMENT B – Other Attendees
SAB DWC Lead Panel Public Teleconference

May 16, 2011

Name	Affiliation
Brown, Erica	Association of Metropolitan Water Agencies
Commons, Clay	Rhode Island Department of Health
Cuppert, Jonathan	Water Research Foundation
Edwards, Marc	Virginia Tech
Ellis, Jerry	EPA OW
Evans, Kim	NY State Department of Health
Garcia, David	City of Riverside Public Utilities
Lewis, Carrie	Milwaukee Water Works
Martinson, Erica	InsideEPA
McGuire, Sheri	Oklahoma Department of Environmental Quality
Ostrowski, Mary	American Chemistry Council
Porcaro, Patrick	Passaic Valley Water Commission
Rizzo, George	USEPA
Rosenfeldt, Becki	Hazen and Sawyer, P.C.
Rotz, Deborah	Pennsylvania Department of Environmental Protection
Saiyid, Amena	BNA Daily Environment Report
Scott, Ralph	Parents for Nontoxic Alternatives
Swertfeger, Jeff	Greater Cincinnati Water Works
Waller, Monique	CH2M Hill
Welter, Greg	O'Brien & Gere
Woolfolk, Carl	Arizona Public Service
Yorty, Jeffrey	Pennsylvania Department of Environmental Protection