

**U.S. Environmental Protection Agency
Science Advisory Board
Public Meeting
Meeting Minutes**

Date and Time: June 8, 2016, 2:00-5:00 p.m.

Location: Teleconference

Purpose: To receive public comments on the draft SAB (4/26/2016) Review of the Assessment of the Potential Impacts of Hydraulic Fracturing for Oil and Gas on Drinking Water Resources.

Meeting Participants:

SAB Members

Dr. Peter S. Thorne, Chair	Dr. Francine Laden	Dr. Tara L. Sabo-Atwood
Dr. Sylvie M. Brouder	Dr. Robert E. Mace	Dr. William Schlesinger
Dr. Michael Dourson,	Dr. Mary Sue Marty	Dr. Gina Solomon,
Dr. Joel J. Ducoste,	Dr. Kristina D. Mena	Dr. Daniel O. Stram
Dr. David A. Dzombak	Dr. Surabi Menon	Dr. John Vena
Dr. William Field	Dr. James R. Mihelcic	Dr. Charles Werth
Dr. H. Christopher Frey	Dr. H. Keith Moo-Young	Dr. Peter J. Wilcoxon
Dr. Steven Hamburg	Dr. James Opaluch	Dr. Robyn S. Wilson
Dr. Cynthia M. Harris	Mr. Richard L. Poirot	
Dr. Robert J. Johnston	Dr. Kenneth M. Portier	
Dr. Kimberly L. Jones	Dr. Kenneth Ramos	
Dr. Catherine J. Karr	Dr. David B. Richardson	

(For the full SAB see Roster¹)

SAB Staff:

Mr. Thomas Carpenter, Designated Federal Officer (DFO) for the Chartered SAB
Mr. Thomas Brennan, SAB Staff Office Deputy Director
Dr. Edward Hanlon, DFO, Hydraulic Fracturing Research Panel

Other Attendees: Names of those in attendance and those who requested the teleconference call-in number are provided in Attachment A.

Meeting Summary:

Convene the meeting

Mr. Thomas Carpenter, Designated Federal Officer (DFO) for the chartered SAB, formally opened the meeting and noted that this federal advisory committee teleconference was announced in the Federal Register² (published May 3, 2016 81 FR 26551-26552). 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 the 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.

The DFO stated that the SAB consists entirely of special government employees (SGEs) appointed by EPA to their positions. As SGEs, chartered SAB members are subject to all applicable ethics laws and implementing regulations. EPA has determined that advisors participating in this meeting have no financial conflicts of interest or appearance of a loss of impartiality under ethic regulations specified in 5 CFR §2635 relating to the topic of this meeting. The DFO noted that Dr. Thomas Parkerton recused himself and will not attend the meeting.

Purpose of the teleconference and review of the agenda

The SAB Chair, Dr. Peter Thorne, stated that the purpose of the teleconference was to hear public comments regarding the quality review of the SAB Draft (4-26-2016) Review of Assessment of the Potential Impacts of Hydraulic Fracturing for Oil and Gas on Drinking Water Resources and the report itself. Dr. Thorne noted that there were 34 registered speakers³ and they would present their statements in order the registration was received. Speakers able to attend the teleconference are included in the summary.

Comments on the Draft SAB (4-26-2016) Review of Assessment of the Potential Impacts of Hydraulic Fracturing for Oil and Gas on Drinking Water Resources

Public commenters

Dr. Yuri Gorby, PhD, Rensselaer Polytechnic Institute, commented there is sufficient scientific information to support the SAB panel's report. He found the draft SAB report to more address the pertinent issues and did an excellent job with ground water. He found the advice provided to the agency to be a prudent approach and thought the evidence sufficient to request moratoria on hydraulic fracturing.

Ms. Kim Feil summarized public comments she submitted to the SAB.⁴ She expressed concern over the potential for local impacts from hydraulic fracturing and provided citations to news stories and anecdotal information on contamination related to hydraulic fracturing.

Ms. Christine Guldi, Dallas Sierra Club Conservation Co-Chair, summarized her written statement⁵ expressed support for the panel's reports and encouraged the EPA to protect the Nation's water.

Dr. Richard L. Guldi, PhD, Dallas Sierra Club Conservation Co-Chair, summarized his written statement⁶ and noted that as an engineer is concerned about the safety of hydraulic fracturing. He also provided references and published article links regarding potential contamination and drilling practices that gave him concern.

Mr. George Watson expressed concern over impacts attributable to hydraulic fracturing in Green County, Pennsylvania. He provided anecdotal evidence of wastewater disposal issues and herd loss from exposure to wastewater and exposure to nearby hydraulic fracturing.

Ms. Kimberly McAvoy provided her personal experience, concerns regarding local impacts from hydraulic fracturing and possible adverse health effects including her use of bottled water as a

sole source for the last three years. She described her experiences with Pennsylvania DEP and EPA Region 3 staff.

Ms. Leslie Beyer, Petroleum Equipment & Services Association, stated the industry understanding and implementation of hydraulic fracturing is steadily improving. Hydraulic fracturing processes undergo multiple reviews at the state level. She expressed concern that the SAB draft report is calling for additional research and noted the industry is already focused on improving. She also expressed concern regarding the discussion of Dimock, PA; Parkerton, TX; and Pavillion, WY as local studies for inclusion in the report. She further noted that there has been no linkage between contamination at those sites and hydraulic fracturing.

Ms. Barbara Arrindell, Damascus Citizens for Sustainability summarized her statement⁷. She noted Damascus Citizens for Sustainability strongly supported the panel's report and emphasized the importance of understanding "local impacts" and the potential damage caused by drilling.

Mr. Steven Lipsky noted that he lived in Parker County, Texas, that his home and water was contaminated with methane since 2012, and that his daughter thought their home would explode. He stated that there was an isotopic fingerprint of methane releases caused by hydraulic fracturing that was provided as part of Geoffrey Thyne's report submitted to the panel. He noted that scientists had concluded that the Lipsky well was contaminated with 80 milligrams/liter of methane, and that the EPA prevented this data from reaching the SAB Panel. He stated that the EPA ignored these problems in 2012 and asked whether the EPA was hiding other information. He noted that over the past year, ten new instances have occurred where hydraulic fracturing had contaminated drinking water. He stated that the EPA makes a ridiculous conclusion within its draft Assessment Report that hydraulic fracturing did not contaminate water supplies.

Mr. Ronald Gulla provided summary of his written statement⁸ expressing concern regarding impacts from hydraulic fracturing. He noted the lack of local impact analysis in the EPA assessment and encouraged the SAB request stronger protection from hydraulic fracturing.

Mr. Jack Kreull expressed concern about contaminations that may result from hydraulic fracturing. He provided anecdotal information regarding tribes in Montana and exposure to heavy metals, radionuclides and trihalomethanes. He also expressed concern over hydraulic fracturing disposal approaches and radium contamination in landfills, storm water releases, and abandoned mines.

Mr. Jesse Sandlin, Devon Energy Corporation, expressed concern about the SAB report and the characterization that EPA did not find evidence regarding wide spread impacts. While the overall approach may be sufficient he noted there are factual errors and the SAB needs to be scientifically correct.

Dr. Anthony Ingraffea, Dwight C. Baum Professor Emeritus at Cornell University, provided a summary of his written comments.⁹ He expressed concern regarding the properties of shale geology and the potential for migration and contamination in this geology.

Ms. Jill Cook found the SAB review to be a very thorough report that will shed light on the hydraulic fracture industry. She expressed concern regarding the use of carbon based fuels and the report should be used to move energy production away from fossil and carbon fuels.

Ms. A.G. Randoll (VA Scientists and Engineers for Energy and Environment), Ms. Dana Donley (Friends of the Harmed, Allegheny County, Pennsylvania), and Ms. Shirley Eakin provided their personal experiences and concerns regarding local impacts from hydraulic fracturing and possible adverse health effects. They noted these and other anecdotal evidence are provided in Shalefield Stories Volume 2¹⁰ submitted as a public comment.

Mrs. Jeanie Moten provided her personal experience, concerns regarding local impacts from hydraulic fracturing and possible adverse health effects. She noted her father passed away and attributed his stroke to exposure of contaminants from hydraulic fracturing operations and asked for a moment of silence.

Ms. Virginia Kirby asked the SAB to reaffirm the key findings of the EPA assessment, that hydraulic fracturing poses no threat, hydraulic fracturing provides the nation the opportunity to extricate itself from foreign politics and exert our independence through energy.

Mr. Fred Baldassare commented on the strength of the SAB review. He agreed with the concerns regarding methane gas migration, unknown long term contamination concerns for ground water, and the need for increased monitoring. He called for better regulation of this industry. He also commented on the local impacts of the Dimock, PA study claiming they are clearly a result of hydraulic fracturing.

Ms. Jenny Lisak summarized her written statement¹¹ and provided anecdotal evidence from Pennsylvania drilling sites and called for a ban on hydraulic fracturing.

Ms. Yvonne Watson, Sierra Club/Angeles Chapter summarized her written statement¹² and urged the EPA to assess the potential threat posed by hydraulic fracturing on drinking water sources with independent testing. She noted in addition to groundwater issues, hydraulic fracturing can be associated with air quality and air pollution issues.

Ms. Tara Miexsell expressed concern from impacts attributable to hydraulic fracturing fluids from class II evaporation pits. She noted reuse of fracking fluids can lead to increase concentrations of contaminants in Green County, Pennsylvania. She also provided anecdotal evidence of wastewater disposal issues, aerosol contamination, and collateral damage from hydraulic fracturing operations. She expressed concern about the limited regulation on fracturing operations and the damage left to small towns once the companies leave.

Mr. Bryce Payne, Director of Science and Technology for Gas Safety Inc. summarized his written statement.¹³ He provided information and citations regarding out-of-zone fracturing and safety measures employed in hydraulic fracturing.

Ms. Natalie Mebane, Sierra Club summarized her written statement¹⁴ on behalf of the Sierra Club. She provided specific recommendation for the report and noted it is important that the EPA study clearly recognizes the impacts on drinking water that have taken place as a result of fracking and that arbitrary summary statements referencing those impacts not being “widespread or systemic” be removed.

Dr. Thorne thanked the members of the public for their comments and stated the importance of their input to the process. He noted the SAB would reconvene on June 14, 2016 for additional public comments and conduct the quality review as well as other agenda items.

Dr. Thorne then turned to the DFO to adjourn the meeting. The DFO adjourned the meeting at 4:30 p.m.

Respectfully Submitted and Certified as Accurate,

/s/

Mr. Thomas Carpenter
SAB DFO

/s/

Dr. Peter S. Thorne
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.

Materials Cited

The following meeting materials are available on the SAB website,
<http://www.epa.gov/sab>, at the page for the June 8, 2016 teleconference:

<https://yosemite.epa.gov/sab/sabproduct.nsf/a84bfee16cc358ad85256ccd006b0b4b/b2e055b55628f0b685257f9b00578cb8!OpenDocument&Date=2016-06-08>

¹ Roster of SAB members

² Federal Register published Vol. 81 No.85. Tuesday, May 3, 2016 (26551-26552)

³ List of Registered Speakers.

⁴ Comments on the draft Hydraulic Fracturing Assessment Review: Submitted by Kim Fiel.

⁵ Statement from Christine Guldi.

⁶ Statement from Richard L. Guldi.

⁷ Statement from B. Arrindell.

⁸ Statement from Ronald Gulla.

⁹ Statement from Dr. Anthony Ingraffea.

¹⁰ Comments on the draft Hydraulic Fracturing Assessment Review: Shalefield Stories submitted by Dana Donley, Friends of the Harmed.

¹¹ Statement from Jenny Lisak.

¹² Statement from Yvonne Watson, Sierra Club/Angeles Chapter.

¹³ Statement from Bruce Payne.

¹⁴ Statement from Natalie Mebane, Sierra Club.

Attachment A: Names of those who requested the teleconference call-in number

Walt Hufford, Reposol
A. Brown
Taylor Hollis Saginaw Chippewa Indian Tribe
Michael Zehr, Consumer Energy Alliance
Hope ForPeace
Catherine Dickert, Director, Division of Mineral Resources, New York State Department of
Environmental Conservation
Edward Clements, Department of Natural Resources, State of Indiana
Meredith Barnard, Policy Analyst, Conservancy of Southwest Florida
Shari Ring, The Cadmus Group
Colleen Newman, Policy Communications Advisor, American Association of Petroleum
Geologists
Natalie Mebane, Sierra Club
Dr. Susan Burden, US Environmental Protection Agency (USEPA)
Stephanie R. Meadows, Upstream and Industry Operations, American Petroleum Institute
Jay Albert, Xto
Dan Goode, USGS
Dr. Katie Brown, FTI Consulting
Chris Guldi, registered speaker
Stephen Kraemer, USEPA
Dr. Kevin Teichman, US EPA
Bonnie Robinson, USEPA
Kelly Warner, USGS
Heather DeLucia, Sierra Club
Mary Mindrup, US EPA Region 7
Daniel Ryan, US EPA, Region 3
Tim Eriksen, Moody and Associates, Inc.
Tara Meixsell, registered speaker
Jordan Blackburn, SM Energy Company
Alexander Livnat, US EPA Andrew MacDonald, Ontario Ministry of Natural Resources and
Forestry
Zachary Cepelcha, FTS International
Tom Jackson, Baker Botts, LLP
Bridget Dicosmo, Inside EPA
Nancy Dean
Lily Lee, Wyoming Department of Environmental Quality,