United States Environmental Protection Agency (U.S. EPA)
Science Advisory Board (SAB)
Teleconference Meeting
September 24, 2015
Meeting Minutes

Date and Time: September 24, 2015, 11:00 a.m. to 1:30 p.m.

Location: By teleconference only

Purpose: To review draft SAB report on the EPA's Fourth Contaminant Candidate List (CCL4) and to discuss information provided in the agency's Spring 2015 Semiannual Regulatory Agenda

Meeting Participants:

SAB Members (see Roster[1])

Dr. Peter Thorne, Chair
Dr. Joseph Arvai
Dr. Sylvie M. Brouder
Dr. George Daston
Dr. Costel Denson
Dr. Michael Dourson
Dr. Joel Ducoste
Dr. David A. Dzombak
Dr. R. William Field
Dr. H. Christopher Frey
Dr. Kimberly L. Jones
Dr. Nancy K. Kim
Dr. Francine Laden
Dr. Denise Mauzerall
Dr. Surabi Menon
Dr. James R. Mihelcic
Dr. Eileen Murphy
Dr. James Opaluch
Mr. Richard L. Poirot
Dr. William Schlesinger
Dr. Gina Solomon
Dr. Daniel O. Stram
Dr. Jeanne VanBriesen
Dr. John Vena
Dr. Charles Werth
Dr. Peter J. Wilcoxen

SAB Staff:

Mr. Thomas Carpenter, Designated Federal Officer (DFO), for the Chartered SAB and SAB Work Group on EPA Planned Actions for SAB Consideration of the Underlying Science
Mr. Thomas Brennan, SAB Staff Office Deputy Director
Ms. Stephanie Sanzone, DFO, SAB Drinking Water Committee (DWC) for the CCL 4 Review

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

Meeting Materials:

All materials for the meeting are available on the SAB webpage at:
http://yosemite.epa.gov/sab/sabproduct.nsf/a84bfee16cc358ad85256ccd006b0b4b/fbfe27e77c8e7e2f85257ea80058adb7!OpenDocument&Date=2015-09-24

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 Register[2] (published August 31, 2015, 80 FR 52472 – 52473). 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 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 topics of this 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 conduct a quality review of the draft SAB report on the EPA's fourth Contaminant Candidate List developed by the SAB Drinking Water Committee (DWC) and to discuss information provided in the review of the agency's Spring 2015 Semiannual Regulatory Agenda. Dr. Thorne noted that there were six registered speakers for the review of CCL 4 and no speakers registered to address the SAB Review of the Spring 2015 Regulatory Agenda.

Quality review of the draft report*, Review of the EPA's draft Fourth Contaminant Candidate List (CCL 4) September 4, 2015*[3]

Dr. Thorne 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. In reaching that determination he asked them to focus on the SAB's four quality review questions:

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

He noted the review would begin with the registered speakers and an opportunity for SAB members to ask clarifying questions. Dr. Kimberly Jones, Chair of the SAB DWC would provide an overview of the report followed by the lead reviewer comments and then comments from other board members. He then introduced the registered speakers.

The first speaker was Ms. Barbara S. Losey, Deputy Director of the Alkylphenols & Ethoxylates Research Council.[4] She expressed concern that the DWC has not adequately responded to the charge question related to recommending chemicals for removal from the draft CCL4. She noted that the SAB DWC removed a recommendation from the earlier DWC draft report to EPA regarding nonylphenol (NP) and the data supporting its inclusion on the CCL4.

Mr. Kevin Bromberg, Small Business Administration, raised a concern about the expenditure of public funds resulting from the CCL4 and noted that the majority of public water systems are classified as small systems. The interests of these systems are represented during regulatory development under the requirements of the Small Business Regulatory Enforcement Fairness Act (SBREFA) when a small business advisory review panel considers drinking water regulations. The CCL is not a regulation and therefore is not subject to SBREFA. He noted that the DWC had limited recommendations for exclusion of contaminants on the CCL. He cited the NP and toluene diisocyanate examples provided by other commenters and suggested these contaminants are not high priority for regulation and present a burden to public water systems potential monitoring and research. He recommended the SAB should reconsider and identify specific contaminants that should not be on the CCL.

Dr. Kimberly Wise White, Senior Director for the Chemical Products & Technology Division of the American Chemistry Council,[5] noted that the recommendation for inclusion and exclusion are general and do not address specific contaminants and recommended sending the report back to an augmented DWC.

Drs. Ralph J. Parod, Senior Toxicologist with BASF Corporation, and Bob West, Senior Environmental Scientist with The Dow Chemical Company, jointly presented on behalf of the Diisocyanates Panel of the American Chemistry Council.[6] They presented three key points: (1) toluene diisocyanate (TDI) does not merit inclusion on the CCL 4 and should be removed because the reactivity of the substance in water precludes its occurrence in drinking water, (2) even if it could occur in drinking water, exposure to TDI by ingestion does not pose a health hazard, and (3) the chartered SAB should not approve the draft report until the SAB DWC meets its obligations and sufficiently responds to all of the charge questions.

Dr. Willem Faber spoke on behalf of the Oxo Process Panel of the American Chemistry Council[7] and provided information on 1-butanol and the Oxo Process Panel's findings that it exhibits low risk to human health from environmental exposures and should not be on the CCL 4.

Members of the SAB had no clarifying questions for the registered speakers.

Presentation from the Panel Chair

Dr. Thorne introduced Dr. Kimberly Jones, Chair of the SAB DWC and asked her to provide an overview of the draft report as an introduction to the quality review discussion. Dr. Jones thanked the public commenters and noted the issues they presented had been raised to the DWC during their review of the draft CCL4 and discussed by the committee.

Dr. Jones thanked the members the DWC and Stephanie Sanzone, the DFO, for their work on this project. She noted that the DWC conducted one face-to-face meeting and a follow up teleconference to develop the draft report. She reviewed the charge questions and summarized the DWC deliberations and recommendations for each question. Dr. Jones noted that there were over 100 contaminants listed on the draft CCL and the DWC agreed to address the charge questions based on guiding principles the agency should apply to the specific contaminants and groups of contaminants. The DWC used specific contaminants as exemplars of the principles to support the recommendations. The committee also recommended the agency increase the transparency of the process by providing further discussion on the data and models used to develop the draft list and user friendly summaries to document the listing decisions. The DWC also recommended that the agency provide better context into the subsequent steps of the regulatory development process and the analyses the agency would undertake for listed contaminants in support of a determination whether or not to regulate and set a standard.

The DWC noted that there are numerous technical support documents and this created difficulties to understand the analyses conducted and how each of the steps in the CCL process relates to one another. The committee was also concerned about the agency's reliance on the nomination of contaminants by the public rather than EPA conducting searches and reviews of the literature and available data. The DWC also provided recommendations for future CCLs including a curated database to facilitate the process and provide greater transparency.

Chartered SAB Discussion and Disposition of the Report

After Dr. Jones completed her remarks, Dr. Thorne asked the lead reviewers to briefly summarize their comments.[8]

Dr. Costel Denson, the first lead reviewer on the call, noted that response to the four charge questions were presented to the SAB in its review of the subject document. The committee's report is written in a clear, concise, easily understood style and its recommendations are unambiguous. However, he found the presentation of the recommendations to be somewhat confusing. In the letter to the Administrator, four (or five) recommendations are provided, but in the body of the report ten or eleven recommendations are offered (Sections 3 and 4). He suggested that additional language be included to reconcile this difference and provide a bit more clarity, and continuity.

Dr. Nancy Kim, the second lead reviewer on the call, found the report to be thoughtful and well-written. It provides EPA with good advice on how to improve the CCL process. She also provided recommendations to improve the clarity and transparency of the report and better align the letter to the Administrator and the Executive Summary. She identified several areas that need additional discussion to support the recommendation: (1) clarify whether the agency documents were unclear in presenting the listing process or whether the process was not scientifically supported; (2) bring some important recommendations in the report (e.g., the discussion of model sensitivity and data variability on the listing result) forward into the letter and Executive Summary; (3) elevate the finding that many of the recommendation in this report were previously given to the agency in 2008 for the third CCL (CCL3); (4) clarify the recommendation that the agency may be too reliant on public comment and public nominations

of candidate contaminants; and (5) expand on the lack of documentation on the specific analysis of contaminants.

Dr. Gina Solomon, the third lead reviewer on the call, agreed with the points made by the previous reviewers. She noted that the conclusions are supported by the body of the report. She also noted that while the report responds to all the charge questions there is some concern in the level of effort that could be required for the latter charge questions[9] (3 and 4). While she understood the committee's reasoning to not evaluate every contaminant and essentially do EPA's work, she suggested that it may be reasonable for the committee to weigh in on obvious omissions from the list, as well as on chemicals and microbial agents that probably don't belong on the list. She encouraged the committee to include more such recommendations in their report, even if they are unable to do a comprehensive review. She noted that some of the microbial contaminants don't seem to belong on the list due to water treatment and other chemical contaminants such as triclosan and DEET may be worthy of inclusion. She noted the difficulty to follow a contaminant through the process, the reliance on public nominations of contaminants and the disparity between candidates on the list and development of drinking water standards. With respect to the public comments, Dr. Solomon urged the committee to provide general guidance to the agency on the scientific basis for the points raised, perhaps by using them as exemplars of the principles for listing contaminants. She noted that overall she found that the draft report is well-crafted, thoughtful and clear and her suggestions are tweaks, not major concerns.

Dr. Jeanne VanBriesen was the fourth lead reviewer on the call. She agreed with the previous reviewers and found the report's conclusions valid with support for the recommendations. She noted the first two charge questions may be too narrow and the last two may be overly broad creating some difficulty in developing more specific recommendation on the contaminants. She also noted that the charge questions are the same as asked in CCL3 and much of the SAB advice from that previous review was not applied to CCL4. Given that the agency is using CCL3 as the basis for CCL4 this needs to be highlighted in the letter to the Administrator. She also noted the agency requested a comprehensive review to evaluate the contaminants on the proposed list, therefore the agency should consider expanding the review cycle and developing a curated database. She found that without implementation of this recommendation the next CCL will encounter the same issues that are discussed in the draft report. Regarding the use of examples to illustrate the principles that the Board recommends, the report needs to clearly describe the examples and principles so that the public does not conclude that the specific contaminant are the only topic of the recommendation. There is a lack of parallelism between the discussion of the listing process for chemical and microbial contaminants and it is not clear whether the approaches need to be different because of the data and nature of the contaminants or the agency simply chose to use different approaches.

Dr. Thorne thanked the lead reviewers for their comments. He then began the Board's general discussion of the draft report.

Dr. Jones responded to the lead reviewers comments and agreed that the report can be reconciled between the letter to the Administrator, Executive Summary and body of the report.

She described the DWC discussions addressing the similarities between the 2008 recommendations for CCL3 and the CCL4 recommendations with the EPA staff. While the agency noted resource constraints she agreed that the report could be revised to strengthen the Board's concern that the agency was not able to address the previous SAB recommendations.

Regarding the issue of commenting on specific contaminants and providing guiding principles as recommendations, she conveyed that the DWC discussed this issue at length and revisions could be made to better present the guiding principles and use the examples to illustrate the guiding principles as the focus of the recommendations.

Dr. Thorne thanked Dr. Jones for responding to the lead reviewers. He then asked other members if they had any comments they would like to bring up. Dr. Opaluch found that charge questions 3 and 4 do not necessarily require the committee to evaluate every chemical, rather they were asked to identify contaminants, within their collective experience, the agency should or should not list on the CCL.

Dr. Solomon also noted that including exemplars to describe guiding principles were very helpful for the reader to understand why the guiding principles are important and recommended keeping the examples in the revised report for both chemical and microbial contaminants. Similarly, the agency should conduct due diligence to identify the data and verify those contaminants that public commenters identified. Drs. Thorne and VanBriesen both agreed that the exemplars were helpful and language could be added to identify the example, the guiding principles, and note public comments on specific contaminants where appropriate.

Dr. Jones agreed that these revisions could be made and noted that Dr. Eileen Murphy, who served on the committee, was on the teleconference and asked if she had any additional thoughts. Dr. Murphy agreed with Dr. Jones. She noted that the DWC members discussed the specific contaminants and there were different views on their status on the CCL. After much discussion the DWC identified contaminants to use as examples only when the DWC arrived at a consensus for the specific contaminant as an exemplar of the principle.

Dr. Thorne asked if there were additional comments and hearing none he proposed two options to address the comments provided during the quality review. Option 1 would be for Dr. Jones to address the comments to finalize the report for his review, and Option 2 would be for Dr. Jones and the lead reviewers to address the comments and finalize the report for his review. He then asked for a motion to dispose of the report. Dr. Opaluch moved that Dr. Jones and the lead reviewers revise the report based on Board members' comments and provide it to the chartered SAB Chair to review before transmittal to the Administrator. Dr. Denson seconded the motion. Dr. Thorne invited SAB members to discuss the motion. Dr. Thorne noted that Drs. Kim and Denson terms of service on the SAB will end on September 30, 2015, and requested that Drs. Solomon and VanBriesen work on finalizing the report. Members did not have any further comments on the motion and agreed to vote. The motion was approved unanimously with no abstentions.

Spring 2015 Regulatory Agenda Review

Dr. Thorne briefly reviewed the purpose of the SAB's regulatory agenda science screening activity, which is to determine, as authorized by the Environmental Research, Development and Demonstration Authorization Act, whether to review the adequacy of the science supporting planned regulatory actions in the agency's Semi-annual Regulatory Agenda. He introduced Dr. James Mihelcic, Chair of the SAB Work Group on EPA Planned Actions for SAB Consideration of the Underlying Science, to review the recommendations from the work group and informed members that the Work Group memorandum[10] contained important background information on this activity.

Presentation of the Work Group Recommendations

Dr. Mihelcic reviewed the Board's statutory authority for screening the science associated with planned actions and the process used by the work group in evaluating agency provided and other available information to develop recommendations for the chartered SAB. The Work Group consists of Drs. James R. Mihelcic (chair), Costel Denson, H. Christopher Frey, Surabi Menon, Eileen Murphy, Charles Werth and Mr. Richard Poirot.

He provided a summary of the major planned actions identified by the EPA that were the focus of SAB attention, the Work Group's recommendations, and supporting rationales presented in the memorandum. The Work Group recommended that no further SAB consideration was merited for seven actions:

- Expansion of Industry Sectors Covered by the Toxics Release Inventory (TRI), Emergency Planning and Community Right-to-Know Act (EPCRA) Section 313 (2025-AA33)
- Interstate Transport Rule for the 2008 Ozone NAAQS (2060-AS05)
- Federal Plan for Regulating Greenhouse Gas Emissions From Electric Generating Units (2060-AS47)
- Pesticides; Certification of Pesticide Applicators (2070-AJ20)
- Trichloroethylene (TCE); Rulemaking Under TSCA Section 6(a) (2070-AK03)
- N-Methylpyrrolidone (NMP) and Methylene Chloride; Rulemaking Under TSCA Section 6(a) (2070-AK07)
- Review of the National Ambient Air Quality Standards for Particulate Matter (2060-AS50)

However, the Work Group identified two areas on which the SAB may wish to provide advice to the agency: (1) the use of safer chemicals and greener processes/technologies and (2) concern that the closed-source, proprietary nature of Integrated Planning Model is not very transparent to external testing and evaluation.

During the review of the two TSCA actions (2070-AK03 and 2070 AK07) the Work Group noted that the SAB has provided advice and recommendations to the agency encouraging the transition to safer chemicals and greener processes/technologies. In its recent reviews of the agency's Strategic Research Action Plans and the six major research program areas, the SAB noted that the EPA must be prepared to address questions such as: how to design and produce

safer chemicals; how chemicals and their byproducts interact in the environment; how to promote safer, sustainable use of chemicals throughout their lifecycle as it addresses chemical exposure to the overall disease burden in humans (including susceptible subpopulations) and the environment. The Work Group recommended that the SAB encourage the agency to use the results from these research programs and the TSCA evaluations to identify risk management alternatives that include safer chemicals and greener processes and technologies.

He noted the Work Group found that several actions on the Agency's current and previous regulatory agendas (i.e., Interstate Transport Rule for the 2008 Ozone NAAQS [2060-AS05] and Greenhouse Gas New Source Performance Standard for Electric Generating Units-Emission Guidelines for Existing Sources [2060-AR33], respectively) rely on the Integrated Planning Model (IPM) for projecting future emissions of ozone precursors or greenhouse gases from electric generating units. The Agency has used the IPM in numerous regulatory and policy analyses for more than 20 years, during which time it has undergone modification and extensive external review. However, the Work Group notes that the closed-source, proprietary nature of IPM requires contractual assistance to run and is not very transparent to external testing and evaluation. The Work Group asked the Office of Air if the agency conducted analyses or has (or could develop) future plans to:

- conduct periodic retrospective analyses of historical IPM performance?
- conduct periodic comparative analyses of results from IPM and other EGU projection tools?
- work toward adoption or development of more transparent, open-source EGU projection tools?

Dr. Mihelcic noted the Agency recently provided a fact sheet[11] on the IPM and suggested that the agency may want to present the information to the Board.

Dr. Thorne recognized Mr. Mikhail Adamantiades, EPA Office of Air and Radiation, to provide a summary of the agency's efforts to update the IPM. He noted that the agency has been using evolving platforms of the Integrated Planning Model (IPM) over the last two decades as part of a suite of analytical decision making tools and there is an ongoing effort to regularly improve the IPM platform. Each version includes a variety of improvements to incorporate: what has been learned from the past/previous modeling applications; updated data inputs for power sector fleet specifics and fuel resource availability and financial assumptions.

He shared that EPA and Department of Energy staff cooperatively updated the model and participate in forums such as the Eastern Regional Technical Advisory Committee (ERTAC), and Stanford University's ongoing Energy Modeling Forum (EMF). In addition to those efforts, the EPA regularly engages with stakeholders to obtain feedback regarding the current version of IPM platform and to inform further development of EPA's power sector projection tools, in addition to publishing full documentation on the website.[12] He remarked that these forums also fostered creative development of complementary analytic tools (e.g., the ERTAC emissions projection tool).

Dr. Thorne thanked Mr. Adamantiades and asked members if they had any questions. One member asked if there are alternatives to the IPM. Mr. Adamantiades confirmed the aggregation of facilities and noted that there are no available models that integrate across the energy sector as well as the IPM. He noted that there are models that do perform well in evaluating components of the energy sector, however they do not integrate those components for input to the modules of the IPM. He noted that comparative analyses are performed.

Another member asked for confirmation that the IPM does not model individual EGUs, rather it models an aggregation of facilities and EPA said that is correct. Mr. Adamantiades noted that on coal-fired fuels the EPA strives to keep the degree of aggregation low and the model is plant based on the highest producing electricity generating units. Dr. Thorne thanked Mr. Adamantiades for his summary of the agency's efforts to improve the IPM and asked if members had any further questions on the review or the agency presentation.

Dr. Thorne then asked if there was further discussion on the Work Group's recommendations. Hearing none, he thanked Dr. Mihelcic for his summary and the Work Group members for their review. Dr. Thorne asked for concurrence on the Work Group's recommendations. The Board unanimously concurred with no abstentions.

He suggested the disposition of the Board's Review of planned actions in the Spring 2015 Regulatory Agenda be for the Board to develop a letter to the Administrator conveying the deliberations noting:

(1) the SAB has determined that no further consideration is merited at this time for seven major planned actions identified by the agency;
(2) Recognition of the agency's efforts toward transparency and peer review in developing the two TSCA actions and reminding the agency of the SAB and Board of Scientific Counselors' advice on transition to safer chemicals and greener processes and technologies, encouraging the agency to continue to use the results from research programs and the TSCA evaluations to identify risk management alternatives that include safer chemicals and greener processes and technologies; and
(3) Acknowledging the agency's response to questions from SAB members regarding the IPM and the agency's efforts to update and improve the IPM and encourage the agency to continue to engage with stakeholders and to publish the full documentation from the IPM to increase its transparency. The SAB recognizes the importance of the IPM to project future emissions and provide the scientific and technical support for future actions relating to emissions of ozone precursors and greenhouse gases and welcomes future briefings on the agency's efforts to increase the transparency and comparability of the IPM to other EGU emission projection tools.

Drs. Thorne and Mihelcic agreed to draft the letter to the Administrator. Dr. Thorne asked for concurrence on the disposition of the activity which was accepted unanimously with no abstentions.

The DFO adjourned the meeting at 12:55 p.m.

Respectfully Submitted	Certified as Accurate
/signed/	/signed/
_____	_____
Mr. Thomas Carpenter	Dr. Peter S. Thorne
SAB DFO	SAB Chair

NOTE AND DISCLAIMER: The minutes of this public meeting reflect diverse ideas and suggestions offered by committee members during the course of deliberations within the meeting. Such ideas, suggestions, and deliberations do not necessarily reflect definitive consensus advice from the panel members. The reader is cautioned to not rely on the minutes to represent final, approved, consensus advice and recommendations offered to the Agency. Such advice and recommendations may be found in the final advisories, commentaries, letters, or reports prepared and transmitted to the EPA Administrator following the public meetings.

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

Angela Lynch, American Chemistry Council (ACC)
Sahar Osman-Sypher, ACC
Michael Clipper, ACC
Sarah Wright, Association of Public Health Laboratories
Kevin Bromberg Small Business Administration
Pat Ware, Bloomberg BNA
Maria Hegstad, Inside EPA
Amanda Palleschi, Inside EPA
Jim Quigley, Stony Brook University Sustainability Studies Program
Miranda Brannon, Dept of Defense Safe Drinking Water Act Committee
Scott Biernat, Association of Metropolitan Water Agencies
Darrell Osterhoudt, Association of State Drinking Water Administrators
Clint Woods, Association of Air Pollution Control Agencies
Ann Grimm, US Environmental Protection Agency (EPA) Office of Research and Development
Misha Adamantiades, EPA, Office of Air and Radiation (OAR)
Carl Mazza, EPA OAR
Richard Haeuber, EPA OAR
Nicholas Swanson, EPA OAR
Bob Benson, EPA Region 8
Gabrielle Thompson, EPA Region 7
Lisa Huff, EPA Office of Ground Water and Drinking Water (OGWDW)
Clifton Townsend, EPA OGWDW
Russ Perkinson, EPA OGWDW

Materials Cited

The following meeting materials are available on the SAB website, http://www.epa.gov/sab, at the page for the September 24, 2015 teleconference: http://yosemite.epa.gov/sab/sabproduct.nsf/a84bfee16cc358ad85256ccd006b0b4b/fbfe27e77c8e7e2f85257ea80058adb7!OpenDocument&Date=2015-09-24

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[1] Roster of SAB members

[2] Federal Register published Vol. 80, No. 168 Monday, August 31, 2015 (52472-52473)

[3] Science Advisory Board (SAB) Draft Report Review of the EPA's draft Fourth Contaminant Candidate List (CCL 4) (9-4-2015

[4] Oral Comments of the Alkylphenols & Ethoxylates Research Council to the Chartered Science Advisory Board

[5] Public Statement by Kimberly Wise White, Ph.D on behalf of the American Chemistry Council,

[6] Oral Comments American Chemistry Council Diisocyanates Panel

[7] Oral Comment form The Oxo Process Panel of the ACC

[8] Comments from Members of the Chartered SAB on the SAB Draft Report: Review of the EPA's draft Fourth Contaminant Candidate List (CCL 4)(9-4-2015)

[9] Charge for Drinking Water Contaminant Candidate List (Fourth List) (PDF, 2 pp., 48,306 bytes)

[10] SAB Work Group Recommendations regarding the Spring 2015 Regulatory Agenda.

[11] Additional Information provided by the Office of Atmospherics Programs September 24, 2015

[12] http://www.epa.gov/airmarkets/powersectormodeling.html