Secretaries' Science Advisory Board

MEETING SUMMARY
Webex Event Virtual Meeting
Monday, December 7, 2020
9:30 AM-2:10 PM

The Department of Environmental Quality (DEQ) and the Department of Health and Human Services (DHHS) Secretaries' Science Advisory Board (SAB) met on Monday, December 7, 2020 by Webex Event as a virtual public meeting. SAB members in attendance were: Tom Augspurger, PhD (Chair); Viney Aneja, PhD; Richard DiGiulio, PhD; Jamie DeWitt, PhD; David Dorman, PhD; Elaina Kenyon, PhD; Gina Kimble, PhD; Detlef Knappe, PhD; Thomas Starr, PhD; Phillip Tarte; Betsey Tilson, MD, MPH, and John Vandenberg, PhD. Also in attendance were Sheila Holman; Mike Abraczinskas (DAQ); Michael Scott, (DWM); Danny Smith and Julie Grzyb (DWR); Zack Moore, MD (DHHS); Virginia Guidry, PhD (DHHS), and DEQ and DHHS support staff.

I. Call to Order (Chairman Tom Augspurger)

Chairman Augspurger called the meeting to order.

II. Review and approve agenda

Chairman Augspurger asked if there were any modifications to the meeting agenda sent on November 25 and posted on the Board webpage. There were no changes; Dr. Vandenberg moved acceptance, Dr. DiGiulio seconded, and the agenda was approved by unanimous rollcall vote.

III. Ethics Statement

Chairman Augspurger read the ethics statement and reminded the members that if anyone had any conflict of interest to indicate so. Dr. Jamie DeWitt explained that she is currently working on research on PFOS/PFAS, receives funding from the NC General Assembly, and the federal government for said research, and serves as an expert witness in cases involving PFAS. Dr. Knappe also explained that he is working on research regarding PFOS/PFAS, receives funding from the NC General Assembly and from federal agencies and will be presenting his research today. There were no other conflicts expressed.

IV. Approval of Meeting Minutes for October 5, 2020

The draft meeting minutes were circulated to all members for review on November 5.

2020 10 05 FINAL
SAB Meeting Minutes

Chairman Augspurger asked for any additional comments on the minutes. There were none, so he asked for a motion to approve and adopt the minutes as drafted. Dr. Knappe moved to approve the minutes; Dr. Kenyon seconded, and the October minutes were adopted unanimously by rollcall vote.

V. DEQ and DHHS updates

Chairman Augspurger asked for the DEQ update.

DEQ Update:

- Mrs. Sheila Holman thanked the Chairman; she said they have completed three (3) interviews for the Environmental Toxicologist position and hope to announce the accepted candidate in the next few weeks.
- She thanked the Board for sharing their expertise with DEQ and DHHS.
- COVID-19: All boards, commissions and stakeholder meetings will continue to be held virtually at least through the first quarter of year 2021. The majority of the DEQ staff is continuing to work remotely, with some staggered scheduling to allow for social distancing and maintaining safety for all employees and the public.

Mrs. Holman then called upon Dr. Zack Moore for the DHHS update.

DHHS Update:

- Dr. Moore thanked the Board for the opportunity to update on behalf of DHHS, and for Chairman Augspurger's efforts to keep the work of the Board on track in these challenging, unprecedented times.
- COVID-19 trends update: There is an overall increase of cases in the state as well as nationally. We are seeing 400,000 total cases and more than 5,500 deaths. Those monitoring COVID-19 are observing a rapid increase in daily number of

cases with 6,500 cases yesterday alone. They have not seen the full impact in cases increase as a result of the Thanksgiving travel and social gatherings. Percent of positive COVID-19 tests is above 10% while the target is below 5%. Hospitalizations and intensive care unit admissions are trending up with no current shortages at the moment. At the national level, the situation is worse than in NC with 14.5 million cases, 280,000 total deaths since the beginning of the pandemic, adding 200,000 cases each day, and 2,500 deaths each day. Upward trends are seen across age, race, and ethnic groups and across the state. Continued health disparities between races and ethnic groups with improvements in the case rate of non-Hispanic White and non-Hispanic Black populations but the case rate disparities in the Latinx community have not seen improvements. There are higher death rates among the non-Hispanic Black population. The fastest increase of cases is in the 18 to 24-year-old population followed by the 25 to 49-year-old population. The current focus moving forward is to continue the work to prevent transmission, remind people to follow the 3Ws, encourage people not to gather with people outside of their household but if they will have gatherings anyway, there is guidance for safer gatherings.

- COVID-19 Vaccine: The vaccines have shown high efficacy. Two (2) manufacturers have applied for emergency use authorization through the Federal Drug Administration (FDA) and approval is expected soon. . Important to note that although the vaccines were developed quickly, they were developed with the knowledge of years of research for similar viruses and they developed without cutting corners on safety. Over 70,000 people participated in the clinical trials of the first two vaccines. Vaccine has shown to be 95% effective with no safety concerns identified so far. It will be supplied first to hospitals and healthcare workers that work with COVID-19 patients, then to long-term care staff and residents, by early 2021 it will be expanded to patients at high risk for complications and after that to the general public. The Occupational Environmental and Epidemiology Branch (OEEB) is providing consultations on reducing COVID-19 transmission in occupational settings, manufacturing facilities and construction sites. They are working with academic partners and

the Centers for Disease Control and Prevention as part of the National Wastewater Surveillance Network to assess the presence of SARS-CoV-2, the virus that causes COVID-19, in wastewater. This is a way to conduct surveillance or track the prevalence of COVID-19 in the population without having to do direct individual testing. They are working on providing consultation to the Department of Public Instruction and childcare facilities on safe disinfection.

- DHHS' work on PFAS: DHHS is shifting from focus groups recruitment to the development of health education presentations, materials and outreach that will be used to collect feedback from community groups about other materials or information they might need.
- Private Well Water: Starting to receive responses from a survey of 12,000 residents on well test results and risk evaluations they receive from health departments, and actions they take based on the results they receive.
- Fish Consumption Advisories: Collaborating with Duke University, NC State University, and the National Institutes of Environmental Health Sciences (NIEHS) on a research-to-action grant proposal to work with the riverkeepers of the Haw and Cape Fear rivers to increase testing of fish tissue in the eastern part of the state. The project will be testing fish for metals, selected PFAS and non-targeted PFAS. They will work with community groups to identify contaminants of concern, fish species and locations of concern. They will provide training to riverkeepers on the fish consumption advisory process and training on fish sampling.
- Colonial Pipeline Spill in Huntersville, greater Charlotte region: The Health Assessment, Consultation and Education program is drafting a health consultation.
- Climate change and health effects: Drafted a Climate Health Addendum to the NC DHHS' Early Childhood Action Plan. Working with UNC-Chapel Hill's Institute for the Environment on a call-to-action to minimize the anticipated health effects of climate change especially on children 0-8 years of age.
- Working on a new CDC grant called Building Resiliency and Environmental Health Capacity: The grant has several components including increasing core

capacity to use environmental health data, developing an environmental health data dashboard to make health data available to the public. It also has a component on access to safe drinking water from private wells, systematically collecting private well construction records, documenting analyzing barriers to accessing safe drinking water, implementing strategies to improve access to testing of private wells and testing at childcare centers during childhood lead investigations. Lastly, fortifying environmental health resilience in response to natural disasters.

Chairman Augspurger thanked Dr. Moore for the update, all the work on public health, and asked if any of the Board members had questions for Dr. Moore. There being none, he proceeded with his presentation of the goals of today's meeting.

VI. PFAS Mixtures

Chairman Augspurger provided a background on the work accomplished so far to give context to the presentations and discussions of the day. The purpose was to explore different approaches such as a chemical-by-chemical approach versus developing evidence-based health values for PFAS as a class (or classes) approach. The goals were presentations on exposures and hazard assessment, and to receive feedback from the Board and staff to learn what other information would be helpful in exploring the topic of science to support management of PFAS in the environment.

[Recording about 25:20]

20201207_SSAB PFAS topic intro_TPA.pdf

Chairman Augspurger then asked Dr. Knappe to give his presentation.

Knappe_PFAS Occurrence in NC_120

Chairman Augspurger thanked Dr. Knappe for his presentation and asked if there were any questions for him.

Dr. Guidry asked for clarification on slide 18, the difference of the exposures explained; Dr. Knappe replied that some PFAS are more bioaccumulative than others, and both water occurrence and blood serum occurrence are key indicators of exposure.

Dr. Aneja inquired about Dr. Knappe's thoughts on air inhalation as an exposure pathway. Dr. Knappe replied that air emissions from the Chemours plant were significant, and air inhalation is important; however, water affects a broader population, and air inhalation affects population around the plants. Dr. Aneja pointed out that downstream from Chemours was primarily used, but the whole state was examined, and asked why the emphasis on downstream of Chemours. Dr. Knappe replied that in the Cape Fear watershed, both upstream and downstream are impacted, and the group is providing information to communities, to instill confidence in their water supply.

Chairman Augspurger then asked Mr. Michael Scott (DWM) and Ms. Julie Grzyb (DWR) to give their presentations.


SAB 12-20 DWM Presentation.pdf


DWR PFAS SAB Presentation.pdf

In the interest of time to accommodate a short break before the Michigan team presentation scheduled for noon, the presentation by Mr. Mike Abraczinskas (DAQ) was moved to the afternoon session.

The group broke at 11:30 AM for a short break until noon.

Chairman Augspurger reconvened the meeting at noon, and welcomed the Michigan presenters: Dr. Jennifer Gray, Dr. Eric Wildfang, Korey Groetsch, Dr. Ian Smith, and Mr. Steve

Sliver. Drs. Wildfang and Gray presented, giving the history of the science workgroup for Michigan, and their findings.

2020-12-07 MPART presentation to NC SS

Chairman Augspurger thanked Drs. Wildfang and Gray for their presentation and asked if Board and staff had questions for Drs. Wildfang and Gray. Dr. Vandenberg thanked Dr. Gray for the presentation and asked about responses to the drinking water rules proposed; Dr. Gray deferred that question to Dr. Smith, who said the best place to see the responses was the rules review committee website, and provided this link:

> The link below leads to a page with links to meeting packets for Michigan's Environmental Rules Review Committee (ERRC). There are a number of items of interest related to Michigan's PFAS rulemaking, under the heading for the February 27, 2020 meeting. These include the written comments received, transcripts of the three public hearings, and a summary of all comments received.
>
> https://www.michigan.gov/egle/0,9429,7-135-3306_88771_91874-491776--,00.html

Chairman Augspurger asked about the 6 ppt screening level; he understood it was not adopted as an MCL for long-chain PFAS but wondered if the findings of the workgroup have been useful in PFAS management. Dr. Smith replied in the public water supply data, longer-chain PFAS were not detected, so the screening level is not applicable to his knowledge.

Mrs. Holman thanked the Michigan team for their presentation and asked how to use the screening level of longer-chain PFAS, if data indicate detection in public water supply. Dr. Smith replied it would be reviewed on a case-by-case basis, that detection of interest would alert MDHHS for appropriate steps to take, and the discussion is on-going.

Dr. Knappe thanked the group for their presentation, remarking that they have values for individual compounds, and asking if they have any recognizing mixtures. He also asked regarding the implication for the level of protection. Dr. Gray said she did not recall a part of the report addressing a total PFAS value, other than the acknowledgement that the science at this

point supported individual values. Dr. Wildfang replied that there was not significant emphasis for mixtures. Dr. Knappe further asked regarding PFHxA how dynamic is the process as new data become available; Dr. Wildfang replied that review is not cyclical, but as data come out, the workgroup will accommodate changes.

Dr. Guidry inquired that the focus is based on EPA method with scientific method to support, and how that fits together. Dr. Wildfang answered that boundaries are established to keep from over-broadening the focus as Michigan is the largest waste importer in the United States, and the state tests for PFAS piggy-backing on imported waste.

Chairman Augspurger inquired about the frequency of detection cutoff in groundwater or surface water; Dr. Wildfang replied that there is no threshold for PFHxA, but the group uses frequency of detection to try to develop a health-based value recommendation for the department, that there was a robust set of literature sourcing to establish toxicity, as well as exposure assumption side of things to develop a health-based value.

Chairman Augspurger thanked the Michigan team for their presentation and asked Mr. Mike Abraczinskas to give the final DEQ presentation on PFAS.

NCDAQ_Abraczinskas
_PFAS_SAB_mtg_Decer

Chairman Augspurger invited Assistant Secretary Holman to give her closing remarks to the DEQ report.

Mrs. Holman thanked the Board for taking the time to hear from the staff and all the presenters, to hear from the Collaboratory and the university perspective, as well as from DEQ's perspective.

There has been tremendous effort, to see where PFAS are released, or have been released into the environment, and minimizing the exposure risk to the residents across the State. The focus of the agency, through work with Chemours and other potential sources of PFAS, has been to characterize the amount of PFAS going into the environment and figure out how to control it to reduce the pollution entering North Carolina's environment. In the agency's work with Chemours the agency has done several things. In 2017 the agency worked to eliminate the

release of processed wastewater into the Cape Fear River recognizing the downstream water utilities. As the agency realized air emissions were a significant part of the overall contamination of the area, different air controls were installed in May 2018, leading up to the installation of the thermal oxidizer. There remain some concerns about entrainment, and other emissions the agency may have missed. Efforts continue to minimize pollution. Most recently the agency has worked on the addendum to the Consent Order to reduce the amount of PFAS emerging through the groundwater under the site and getting into the Cape Fear River. The agency has been working on placing controls on Outfall 002 which were completed in September 2020. Work on in-situ controls on one of the four major seeps will be completed this week. The focus continues to be reducing the amount of PFAS entering the Cape Fear River and affecting the downstream drinking water utilities.

Although DEQ is glad that some of the data shows levels of PFAS below the 70 ppt health value for PFOA and PFOS, they will continue to work to reduce the pollution whatever is found. They believe the appropriate action is data-driven. A key challenge that still exist is the lack of consistent test methods across all media which is the reason they continue to work with the EPA, other states and private-sector labs for the appropriate test methods. DEQ believes data leads collectively to more informed decisions about source reduction, as well as establishing health goals or environmental standards to protect the public. Questions remain such as how chemicals change in different media, or are we testing for all the compounds that could exist in our environment. There are many media such as groundwater, drinking water, wastewater, surface water, leachate, foam, sediment and air. DEQ has been working in all of those media over the last several months with drinking water being the only media with established testing methods. This is something EPA continues to work on, and DEQ supports their efforts to the best of their ability.

Further analysis of all of the data presented today is needed across divisions but also between DEQ, DHHS and the Collaboratory, to continue to learn from each other and from other states, with what we're finding in the environment, to identify greatest risk of PFAS exposure, where it exists. The focus today has been on ingestion as the primary pathway, but DEQ will continue to ask questions about the role of inhalation and dermal pathway. DEQ will continue to work with DHHS and others on this and other questions.

DEQ is committed to engaging the public in a strong risk communication plan. Communication of this information to the public is tricky; oftentimes we do not have the health studies available to answer if exposure to a particular compound is of concern. While the public appreciates data, they often expect results, which comes from the regulatory programs to drive change. The contamination in North Carolina did not occur overnight; the hardest aspect to understand is the time it takes to address it, but it is imperative for us to continue to share information and eliminate exposures as we transition to remediation type stages, as reflected in the work now being done at Chemours. DEQ continues to work with federal partners, but change at the national level often does not occur in a timeframe as needed by impacted states; today, as an example, we heard Michigan's governor called for standards and their staff took up that charge and put those standards in place. You heard from each of the divisions about the limited resources; so we are directing significant agency resources on PFAS, some of our best minds have been put to that across our Department, but we have stretched our resources thin, and as you know, there is more work to be done.

Assistant Secretary Holman closed by thanking the talented staff in all three DEQ divisions for their ingenuity, resourcefulness and their commitment to serve the citizens of North Carolina. They look forward to working with the Science Advisory Board to take the appropriate next steps to address PFAS exposure across North Carolina.

Chairman Augspurger thanked Mrs. Holman and Mr. Abraczinskas for their comments and opened the floor for questions.

Dr. Vandenberg asked Mr. Abraczinskas why the slide in his presentation referencing the association with particulate matter (PM) and GenX had ng/L as the unit instead of $\mu g/m^3$. Mr. Abraczinskas replied that the method of testing and analysis requires soaking the samples in de-ionized water to determine the concentration of GenX contained in the air. Dr. Vandenberg then asked if the tapes show the amount of air passing through; Mr. Abraczinskas said he would check on that question and follow up with the Board. He said the Collaboratory has done some work on PM2.5, and DEQ has consulted with them on their results. Dr. Vandenberg remarked that it is great to see this work being done.

Dr. DeWitt asked what the biggest data gaps are, how those gaps could be filled. Mr. Scott replied that the Division of Waste Management is looking at groundwater historical data of some facilities but PFAS have not been incorporated into the groundwater analytical suite yet.

There are additional facilities that either produce fire-fighting foam (FFF) or use FFF repeatedly such as training sites. The PFAST Network is looking at some of those sites as well. DWM continues to monitor landfill leachate for PFAS.

Mr. Abraczinskas replied that they lack inhalation and risk data for the PFAS suite and emission source characterization. You cannot do source attribution without emissions data, and you cannot do emissions data without robust stack test methods and a willingness for the entity to test. Ms. Grzyb replied that DWR's greatest concern is to get a certified test method for wastewater and surface water. Since there is no certified method not all permittees are testing, so data are not available.

Mrs. Holman remarked that having test methods for all media would be helpful and a lot of resources are going into that at the EPA. The other data gap is having health studies for all compounds. There is also a gap in understanding the fate of certain PFAS compounds in different media.

Dr. Knappe said a number of states around the country have been active in assessing the health data for PFAS commonly found in NC in particular in the Cape Fear River basin. So far we are using the EPA's health advisory level of 70 ng/L (ppt) for PFOA and PFOS as the guidepost, even though smaller amounts lead to significantly elevated blood serum levels in NC. What is the thinking at DEQ and DHHS for going beyond the established level for PFOA/PFAS?

Mrs. Holman said that when setting of the groundwater standard for PFOA/PFAS was brought to the SAB last fall, the overall recommendation was to go ahead with the 70 ng/L standard to at least get a lower number established with the commitment to revisit the standard in the future. The agencies look to the SAB to see if there is enough new information to re-think that value. During the last SAB meeting there was a discussion about when and how to revisit previously established action levels or standards. We need to look collectively at what that process would look like. Dr. Guidry replied that she also wonders when the value will be revisited and how to do that appropriately.

Chairman Augspurger reminded Board members and the public that the presentations on PFAS exposures are published on the SAB's website for anyone interested in mining the information to help prioritize individual compound review. The Board does not have a formal, specific charge regarding addressing PFAS as a group. Let Chairman Augspurger know if there is any additional information anyone would like to help chart a path forward on this topic.

Chairman Augspurger then shifted the discussion to revisiting hexavalent chromium.

VII. Hexavalent Chromium – Chairman Augspurger

The SAB approved a draft hexavalent chromium recommendation document be sent for public comment during their February 24th meeting. The draft recommendations were subsequently posted for 45-day public comment. Public comment closed on June 1st. A copy of the comments received was shared with board members on June 15th. The SAB discussed the comments during the August board meeting. During the discussion nine comments were flagged for follow up. These comments questioned interpretation and/or consistency with documents the Board cited during their review. Drs. DeWitt and Kimble volunteered to review the comments and write a draft response for the Board to review. Their work was compiled on a spreadsheet that was shared with the Board on September 24th. This spreadsheet was reviewed in detail during the October meeting, and a revised document was circulated to the Board on December 1, 2020 (see below).

20201127_Proposed Final Draft_SSAB Mem

Chairman Augspurger had Mrs. Hughes pull up the document, and the Board members indicated where in the document they had suggestions about the wording. Dr. Starr suggested wording changes in three places, which had been revisited by the Board several times, as indicated by the redline edits. The Board members discussed and concurred with the first two of those suggestions (at lines 132 and 133 on page 4 as well as where this language is repeated later in the document, and lines 275-260 on page 8). Chairman Augspurger said he would go through the document and adjust the wording accordingly. Mrs. Hughes added comments to the PDF, indicating the wording adjustments. A third suggested wording change to Recommendation 6 on page 21 was under discussion when the meeting time elapsed; there were differing opinions on the suggested change that will need to be discussed further. Chairman Augspurger inquired of DEQ and DHHS leadership on the timing of the Board's final recommendations. Further action on final edits will occur at the next meeting.

Chairman Augspurger said there were no requests to speak received for the public forum by the deadline, so there would be no public forum.

VIII. Public Forum (none)

He then asked if there were any more comments; Dr. Knappe thanked Chairman Augspurger for his leadership and keeping the Board focused and timely in addressing questions before it. Dr. Guidry echoed Dr. Knappe's remarks, reminding everyone to stay safe, utilizing the three Ws during the holidays. Chairman Augspurger thanked the Board for their time and remarks and will follow up with the agencies regarding the meeting day/time for the 2021 schedule, as a few Board members have standing conflicts with the Monday morning time.

Chairman Augspurger asked if there were any final comments; there being none, he reminded the Board and public that the next meeting is scheduled for February 2021, date and time to be determined, and it will be a virtual meeting as well. The meeting adjourned at 2:10 PM.

Respectfully submitted,

Louise G. Hughes

Assistant to Sheila Holman, Assistant Secretary for the Environment, DEQ