

Bay Area Air Quality Management District
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APPROVED MINUTES

Advisory Council Regular Meeting/Particulate Matter Symposium
Monday, October 28, 2019

An audio recording of the meeting is available on the website of the Bay Area Air Quality Management District at
<http://www.baaqmd.gov/about-the-air-district/advisory-council/agendasreports>

1. CALL TO ORDER

Advisory Council (Council) Chair, Stan Hayes, called the meeting to order at 9:10 a.m. Chair Hayes gave opening remarks, explaining that while this was a regular meeting of the Council, the first in a series of “Particulate Matter (PM) Symposia” would be held during this meeting. He stated that the three years of intense wildfire smoke, the Air District’s focus on reducing Diesel PM emissions, and the conclusion that PM is the overwhelming health risk driver in Bay Area air, have caused the Air District to focus on the need for measures to further protect public health from PM, and explained that two panels had been convened; one to address “Particulate Matter Health Effects,” and another to address “Particulate Matter Exposure and Risk.”

Roll Call:

Present: Council Chair Stan Hayes; Vice Chair Dr. Michael Kleinman; and Members Prof. Severin Borenstein, Dr. Jane Long, Dr. Linda Rudolph, and Dr. Gina Solomon.

Absent: Members Dr. Tim Lipman and Ex-Officio Council Member, Rod Sinks, Board of Directors (Board) Liaison.

Also Present: Board of Directors Member, David Hudson

2. APPROVAL OF THE MINUTES OF JULY 29, 2019

Council Comments

None.

Council Action

Dr. Long made a motion, seconded by Dr. Solomon, to **approve** the Minutes of July 29, 2019; and the motion carried by the following vote of the Council:

AYES: Borenstein, Hayes, Kleinman, Long, Rudolph, Solomon.
NOES: None.
ABSTAIN: None.
ABSENT: Lipman, Sinks.

3. PUBLIC COMMENT ON AGENDA MATTERS

Public comments were given by Dr. Ashley McClure and Sarah Schear, California Climate Health Now.

4. PARTICULATE MATTER SYMPOSIUM

Jack P. Broadbent, Executive Officer/Air Pollution Control Officer, welcomed everyone to the first part of the Air District's PM Symposia, emphasizing today's focus on the impacts of PM on public health. Mr. Broadbent's opening remarks included an update on the Kincade Fire that began on October 23, 2019 in Sonoma County; the acknowledgment that wildfire smoke events contribute to increases in PM levels; that certain communities and members of the population are more impacted by PM than others; and the hope that this symposia will ultimately provide guidance to the Air District's Board of Directors' policy choices. Dr. Jeffrey McKay, Chief Financial Officer, explained the future symposia in this series that are scheduled for 2020, and then proceeded to moderate the panels.

Panelists gave individual presentations on various sub-topics within their panel topic, and then the Council engaged with each panel in discussion.

PANEL ON HEALTH EFFECTS

Dr. McKay introduced panelist, **JASON SACKS**, Senior Epidemiologist in the Center for Public Health & Environmental Assessment within U.S. Environmental Protection Agency's (EPA) Office of Research and Development.

Mr. Sacks gave the presentation *Current State of Particulate Matter Science: (Working Draft Conclusions) of Particulate Matter Integrated Science Assessment (PM ISA)*, including: disclaimer; outline; overview of the process for reviewing the PM National Ambient Air Quality Standards (NAAQS); weight-of-evidence approach for causality determinations for health and welfare effects; scope; ultrafine particles (UFP); Draft PM ISA health effects: causality determinations; respiratory effects; nervous system effects; cancer; PM components and sources; national trend in PM_{2.5} component concentrations; example: PM_{2.5} components and cardiovascular effects; populations potentially at increased risk of a PM-related health effect; and PM ISA team.

Council Comments on Mr. Sacks' Presentation

The Council and Mr. Sacks discussed whether the 2018 PM ISA suggests that there is a threshold for health impacts from PM; differences in causality determinations between the 2009 PM ISA and the 2018 PM ISA; whether the 2018 PM ISA suggests that animal toxicology studies would not be consistent with human toxicology studies regarding UFP impacts on the nervous system; whether publishing null (or zero effect) results of studies is a common practice; and whether the PM ISA looks at sub-daily PM exposure.

Dr. McKay introduced panelist, **DR. MICHAEL KLEINMAN**, Professor of Environmental Toxicology at the University of California at Irvine, as well as the Vice Chairperson of the Council.

Dr. Kleinman gave the presentation *Particulate Matter: A Complex Mixture That Affects Health*, including: overall goal of this presentation is to address three questions; what are the health-relevant components of urban air; particles come from many sources and affect health and climate; fine PM_{2.5} and UFP are the most biologically active; combustion sources produce Toxic Air Contaminants (TAC); PM_{2.5} and UFP from combustion sources is a mixture of solid and liquid droplets that we call “SOOT”; 1 in 6 deaths, worldwide, is attributable to pollution; air pollution contributes to multiple diseases; a mechanistic framework for PM_{2.5} effects leading to cardiovascular disease; we can examine the health effects of specific pollutants using controlled exposures and help understand the mechanisms by which PM causes or worsens cardiovascular diseases; rodent exposure protocol; what happens when you denude quasi-ultrafine Criteria Air Pollutants (CAP) ($d_p < 180$ nanometers); health-related characteristics of UFP; removing the organic constituents from ambient UFP blocks cardiovascular effects; conclusions; and funding sources.

Council Comments on Dr. Kleinman’s Presentation

The Council and Dr. Kleinman discussed the types of combustion sources that create UFP; and whether taking steps to reduce harmful effects of PM via combustion of fossil fuel could increase the release of carbon dioxide.

Dr. McKay introduced panelist, **DR. JOHN BALMES**, Professor of Medicine at the University of California at San Francisco.

Dr. Balmes gave the presentation *Particulate Matter Health Effects: What Do We Know and What Do We Still Need to Know*, including: outline; ambient PM; PM health effects; key questions; the August 22, 2019 *New England Journal of Medicine* article “Ambient Particulate Air Pollution and Daily Mortality in 652 Cities”; fine-particulate air pollution and life expectancy in the United States; key questions; what is the role of UFP; key questions; demographics of children living near freeways; environmental inequality and cumulative impacts in Richmond, California; inequality curve; cumulative risk; key questions; clear evidence of an association between wildfire smoke and respiratory health; and wildfire PM_{2.5} increases heart attack and stroke.

Council Comments on Dr. Balmes’ Presentation

The Council and Dr. Balmes discussed the concern of cumulative impacts in disadvantaged communities exacerbated by the presence of wildfire smoke; whether baseline exposures ought to be reduced; and the comparison of demographics of children living near high traffic density in the Bay Area and of those living in Southern California.

Dr. McKay introduced panelist, **DR. H. CHRISTOPHER FREY**, University Professor of Environmental Engineering in the Department of Civil, Construction, and Environmental Engineering at North Carolina State University.

Dr. Frey gave the presentation *Recent Developments in the Scientific Review of the National Ambient Air Quality Standards for Particulate Matter*, including: key points; generic “full” NAAQS science review from document perspective; Scott Pruitt/Andrew Wheeler PM NAAQS science review from document perspective; 2015 EPA Clean Air Scientific Advisory Committee (CASAC) PM review panel (26); Pruitt/Wheeler EPA CASAC PM review panel (6 last week, 7 by statute); the latest from CASAC as of 2:25 p.m. Friday, October 25, 2019; Independent PM Review Panel; acknowledgement of EPA staff; causality determinations; major findings: fine particle standards; accounting for limitations; recommended range for annual PM_{2.5} standard; other issues: at-risk groups; Bay Area Air Quality Management District’s questions; next steps; key points; and acknowledgments.

Council Comments on Dr. Frey Presentation

The Council and Dr. Frey discussed actions of the Independent Particulate Matter Review Panel since the disbanding of the EPA’s Clean Air Scientific Advisory Committee, and whether the current EPA Administrator has responded to those actions; whether the media has followed the activity of the Independent Particulate Matter Review Panel; concerns that the Independent Particulate Matter Review Panel’s recommendation for the annual PM_{2.5} standard is not stringent enough; and concerns about the EPA not being able to legally consider costs when considering air quality standards, and how the California Air Resources Board, which is not subject to such legalities, does consider economic impacts when creating regulations and climate change mitigation policies.

Council and Panel Discussion

Chair Hayes thanked the Panel on Health Effects for their presentations and invited the Council to begin a dialogue with the panel.

The Council and panel discussed whether the Independent Particulate Matter Review Panel’s recommendation would sufficiently protect a subgroup whose risk of death from PM exposure was estimated to be three times higher than that of the overall population; (Di, et al. “Air Pollution and Mortality in the Medicare Population.” *New England Journal of Medicine*, 2017); PM-reduction measures that could result in significant improvements to public health; Assembly Bill (AB) 617’s (Community Air Protection Program) lack of requirement in setting a specific goal and then comparing the results of implemented measures activities to that goal; and a lack of research on UFP.

Public Comments

Public comments were given by Dr. Ashley McClure, California Climate Health Now.

The Council recessed at 12:04 p.m.

During the lunch break, a keynote address was given by former US EPA Administrator, Gina McCarthy.

The Council resumed at 1:37 p.m.

PANEL ON EXPOSURE AND RISK

Dr. McKay introduced panelist, **DR. LAUREN ZEISE**, Director of the California Office of Environmental Health Hazard Assessment (OEHHA).

Dr. Zeise gave the presentation *Particulate Matter: Spotlight on Health*, including: population concentration-response relationships; variability underlying concentration response observations; considerations for interventions; individual versus population concentration-response; East Bay Diesel Exposure Project and participant locations; geographic information system (GIS) diesel source layers and maps; complementary Pilot Air Quality Study; OEHHA biomonitoring to support AB 617; estimated PM_{2.5} source contribution by monitoring site; PM_{2.5} in the Bay Area during 2017 Napa Wildfire; wildfire affects annual average of PM_{2.5}; and acknowledgments.

Council Comments on Dr. Zeise's Presentation

The Council and Dr. Zeise discussed the health outcomes and anticipated results from the 2017 Napa wildfires, and whether other fires that occurred in other years will be studied as well; the concern that the public is unaware of the dangers of being outdoors during wildfire incidents, whether enough public education is being circulated, and whether defensive measures to mitigate those risks have been implemented; and how to quantify the risk in the Bay Area.

Dr. McKay introduced panelist, **DR. JULIAN MARSHALL**, Professor of Environmental Engineering at the University of Washington.

Dr. Marshall gave the presentation *Location and Source-Specific Strategies: Consider Impact, Marginal Impact, and Environmental Justice*, including: background; how to address concentrations; sector-specific impacts across all groups; race and ethnicity versus income; who causes, versus benefits, from activities; measurements, not just models; and takeaway points.

Council Comments on Dr. Marshall's Presentation

The Council and Dr. Marshall discussed the suggestion that the Air District advocates for indirect source authority (over mobile sources) to impose prices and standards; who causes and benefits from activities, and disproportions between various demographics; and modeling sources in the presented research.

Dr. McKay introduced panelist, **DR. SCOTT JENKINS**, Senior Environmental Health Scientist in the US EPA's Office of Air Quality Planning and Standards.

Dr. Jenkins gave the presentation *Review of the National Ambient Air Quality Standards for Particulate Matter*, including: outline; current PM standards under review; process and anticipated schedule for this review of the PM NAAQS; evaluating primary PM_{2.5} standards: summary of approach; PM_{2.5} concentrations in epidemiologic studies; PM_{2.5} annual pseudo-design values in locations on key studies; PM_{2.5} risk assessment; summary of risk estimates; preliminary conclusions on the current primary PM_{2.5} standards; preliminary conclusions on the annual standard level; and preliminary conclusions on the 24-hour standard level.

Council Comments on Dr. Jenkins' Presentation

The Council and Dr. Jenkins discussed the balance between annual and 24-hour standard levels; whether studies that have identified thresholds for pollutants exist, and what could define such thresholds; and alternative annual standards below 10 micrograms per cubic meter of air.

Dr. McKay introduced panelist, **DR. PHIL MARTIEN**, Director of the Assessment, Inventory, & Modeling Division at the Air District.

Dr. Martien gave the presentation *Targeting Particulate Matter: West Oakland Community Emissions Reduction Program*, including: acknowledgments; assessment of PM in West Oakland; motivation: implementing AB 617, and West Oakland: Year 1 Community Emissions Reduction Plan; assessment approach: regional-scale and community-scale modeling (2017), and West Oakland emissions by source category (2017); impact varies by location: local impact zones; source apportionment: block by block, modeled Diesel PM (DPM) and PM_{2.5}; equity-based targets: unequal impacts DPM and PM_{2.5} across West Oakland, and targets and source contributions for DPM and PM_{2.5}; impact per ton varies by source: DPM and PM_{2.5} in West Oakland; and more information.

Council Comments on Dr. Martien's Presentation

The Council and Dr. Martien discussed DPM source apportionment in West Oakland neighborhoods; how the emissions levels of the least-polluted census blocks in West Oakland compare to those in less polluted neighborhoods, even in other parts of Oakland; emissions from road dust and brake and tire wear; pollutant sources in West Oakland that the West Oakland Community Action Plan cannot, or does not, address, regarding mitigation; and what ways the public is able to address the pollution sources in West Oakland.

Council and Panel Discussion

Chair Hayes thanked the Panel on Exposure and Risk for their presentations and invited the Council to begin a dialogue with the panel.

The Council and panel discussed whether a margin of safety is considered when assessing PM_{2.5}-associated mortality risk.

COUNCIL DELIBERATION

After deliberation on the day's proceedings, the Council issued this statement: *The Council finds that the current PM standards are not adequately health protective, and reductions in PM will realize additional health benefits. The Council therefore requests that the Air District develops options to further reduce PM levels to the lowest extent feasible within the Air District's legal authority, with appropriate urgency.*

Chair Hayes thanked the panelists for their participation.

5. CHAIRPERSON'S REPORT

In the interest of time, this item was waived.

6. REPORT OF THE EXECUTIVE OFFICER/AIR POLLUTION CONTROL OFFICER

In the interest of time, this item was waived.

7. PUBLIC COMMENT ON NON-AGENDA MATTERS

Public comments were given by Katherine Funes, Rose Foundation for the Communities and the Environment; Jed Holtzman, 350 Bay Area; Jan Warren, Interfaith Climate Action Network of Contra Costa County; Dr. Amanda Millstein, California Climate Health Now; Dr. Cynthia Mahoney, California Climate Health Now; Sarah Schear, California Climate Health Now; Maureen Brennan, Rodeo citizen; Charles Davidson, Sunflower Alliance; Ken Szutu, Citizen's Air Monitoring Network; Margie Lewis, Communities for a Better Environment; and Steve Nadel, Sunflower Alliance.

8. COUNCIL MEMBER COMMENTS / OTHER BUSINESS

None.

9. TIME AND PLACE OF NEXT MEETING

Monday, December 9, 2019, at 375 Beale Street, San Francisco, CA 94105 at 10:00 a.m.

10. ADJOURNMENT

The meeting adjourned at 5:22 p.m.

/s/ Marcy Hiratzka
Marcy Hiratzka
Clerk of the Boards