

Bay Area Air Quality Management District
939 Ellis Street
San Francisco, California 94109

APPROVED MINUTES

Advisory Council Public Health Committee Meeting
1:30 p.m., Tuesday, April 18, 2005

- 1. Call to Order – Roll Call.** Chairperson Torreano called the meeting to order at 1:33 p.m.
Present: Victor Torreano, Chair, Cassandra Adams, Elinor Blake, Jeffrey Bramlett, Linda Weiner.
- 2. Public Comment Period.** There were no public comments.
- 3. Approval of Minutes of February 15, 2005.** Ms. Adams moved approval of the minutes; seconded by Mr. Bramlett; carried unanimously.
- 4. Indoor Air Quality: A California Air Resources Board (CARB) Perspective.** Peggy Jenkins, Manager, CARB Indoor Exposure Assessment Section Research Division, stated that CARB staff recently made a presentation on indoor air quality (IAQ) to the Board of Directors of CARB. The report noted that there are numerous sources of indoor air pollutants, including air cleaners such as ozone generators, biological contaminants such as mold, building materials and furnishings which contain formaldehyde, combustion appliances such as gas stoves, environmental tobacco smoke, soil that contains radon and water with chlorinated solvents, architectural coatings with volatile organic compounds (VOCs), consumer products, household and office equipment, and pesticides.

California adults and teenagers spend 87% of their time indoors, while young children spend a bit more time outdoors than adults. Faculty at the University of California at Berkeley have calculated that emissions from indoor sources emitted in a home or a school building have a thousand times greater likelihood of being inhaled than emissions in ambient air from industrial sources.

The health effects associated with indoor air pollution include asthma, allergies, cancer, premature death, increased heart and respiratory disease, and irritants and other effects. A report in the year 2000 on asthma and exposures confirmed known indoor triggers of asthma, and found new triggers such as high levels of nitrous oxide and also identified possible triggers in formaldehyde and fragrances. More recent studies have also focused on VOCs as possible asthma triggers.

The CARB Indoor Exposure Assessment Section Research Division has produced a preliminary estimate on the potential cancer burden from air toxics in California annually by source: 375 deaths annually from environmental tobacco smoke, 250 from indoor toxic air contaminant, and 375 from outdoor toxic air contaminant sources such as diesel exhaust particles and other sources.

While outdoor particulate matter (PM) is associated with severe respiratory and cardiovascular health effects, a corresponding amount of research has not been conducted on the causal relationship of indoor emissions to health effects. Nevertheless, the general perspective is that indoor sources do contribute to respiratory and cardiovascular health effects. Indoor sources of air pollution contain carbon monoxide which is capable of producing death- and flu-like symptoms.

Indoor sources of air pollution also emit nitrous oxide and ozone which can cause lung damage and respiratory disease. Communicable diseases are also transmitted indoors, and other health effects include irritant effects and sick building syndrome.

Excluding PM, the costs of indoor air pollution in California are estimated at \$45 billion annually, with \$36 billion in premature deaths; \$8.5 billion in lost worker productivity; and \$0.6 billion in other medical costs.

Principle categories of IAQ improvement include source control, ventilation, proper building operation and maintenance, professional training, public education and air cleaning devices. The status quo on IAQ regulations and guidelines features regulations and guidelines spread out among a number of agencies. Workplace standards are regulated by the California Occupational Safety and Health Administration which has adopted some regulations on ventilation. The California Energy Commission has also adopted some ventilation requirements, particularly with regard to the amount of outdoor air applied to a building. In 1995, AB 13 was adopted which established the state's smoke-free workplace requirement. The federal Consumer Products Safety Commission regulates consumer products, although its greatest concern is safety and safe product operation. When it concerns air quality, a labeling requirement comes into play. CARB also regulates consumer products to some extent, as do air districts, when it comes to products that have an impact on outdoor air quality. There are also some indoor air quality benefits associated with this type of regulation. However, no single agency is designated to oversee indoor air quality. There are voluntary guidelines from government agencies, industry and professional groups, with some success. The American Society of Heating, Refrigerating and Air-Conditioning Engineers has developed standards for ventilation; the Carpet and Rug Institute has also developed some product guidelines with the encouragement of the Environmental Protection Agency.

In its report to the Legislature, CARB set forth a prioritization of indoor air pollution by source categories rather than by specific pollutants. Air cleaners—particularly the ones that generate ozone, biological contaminants, building materials and furnishings, combustion appliances, such as gas stoves that are not vented, environmental tobacco smoke, and radon (which has a high cancer risk and inextricably interwoven with sources of tobacco smoke) constitute the major sources. Less than 1% of homes in California exceed any applicable standards for radon concentrations.

The medium priority indoor air pollutant source categories requiring mitigation are architectural coatings, consumer products and personal care products, household and office equipment and appliances, and pesticides. Many of these are already under some level of regulation and their emissions are comparatively lower than those in the high source priority ranking.

With regard to indoor air pollution mitigation, CARB has suggested that such measures include the creation of an indoor air quality management system, establishment of emission limits, requiring emissions testing of products as requisites for equipment procurement, making children's health a top priority, development of clearer indoor air quality guidelines, amendment of building codes, funding public outreach and education programs, conducting more research especially on indoor effects of particulate matter and turpines that add fragrance to consumer products, and funding of innovative technologies for indoor air quality management. CARB's clean air technology program for ambient air has been successful in helping companies with new products and ideas by bringing them into commercialization and can be geared to indoor applications as well.

Mitigation measures for indoor air pollution in schools include urging the implementation of all 16 recommendations from the California Portable Classrooms Study. The District might consider partnering with schools on IAQ with a focus on integrating indoor with outdoor air issues as well as augmenting the Tools for Schools program and improving staff training for it. The promotion of “best practices” for design, construction and maintenance for schools could benefit from District input as well. CARB may approach the District for training programs on indoor air quality in its development of training on indoor air.

In assessing the proven benefits of improving IAQ, CARB has reviewed some case studies, including a healthy home program in Seattle with an asthma intervention program that provided informational materials to low income groups. The program significantly reduced asthma medical costs over a four-year period, lowered inhaler use in elementary schools by 50% and improved attendance by 5%.

CARB’s recent IAQ report was approved by the Board of Directors of CARB last month, and should be forwarded to the Governor through the California Environmental Protection Agency. The State Legislature will hold a hearing on IAQ in May of this year.

With regard to “air purifiers” which are really portable ozone generators, studies show that these emit harmful levels of indoor ozone greater than the ambient standard with normal use. These have been marketed aggressively in California, often with inaccurate advertising, suggesting that these devices eliminate indoor pollutants and airborne microbes. The indoor odor mitigation attributed to these is due to the fact that ozone deadens the sense of smell. Purifiers equipped with sensors that limit ozone concentrations to 50 parts per billion cannot guarantee the longevity of such sensors. These devices counter reductions in ambient ozone levels. The Department of Health Services issued a press release in 1997 on these devices, but it had little effect. CARB has published the names of ozone generator brands to alert the public on ozone emissions.

CARB believes that ozone generators pose an unnecessary public health risk and has submitted an ozone generator mitigation plan to the Attorney General’s Office, which is considering options for legal action. Additional measures in the plan include development of public and professional guidance materials, and an outreach program, as well as working with air cleaner manufacturers to develop test protocols for air cleaners and establish emission limits.

The Air District might consider becoming involved with the ozone generator issue as well as with encouraging implementation of mitigation measures for schools. Involvement with public outreach efforts on IAQ is also recommended for the District, given its existing public outreach network and familiarity with residents and institutions in the Bay Area region. The Advisory Council’s own suggestion that an IAQ summit for the Bay Area region be held is excellent. CARB sponsored a Symposium on IAQ in the year 2000. The District might also consider becoming more involved with training on building filtration systems, and loaning measurement devices to schools and homes for the care of the elderly.

In reply to questions and suggestions from Committee members, Ms. Jenkins noted:

- A large bibliography of studies on IAQ is posted on the CARB website, and additional materials will be e-mailed to the Advisory Council through the Deputy Clerk.

- The District could be encouraged to issue correspondence to magazines discouraging advertisement of ozone generating air purifiers, and the Advisory Council might consider adopting such a recommendation for forwarding to the Governing Board.
- Legislation proposed three years ago would have given CARB authority to regulate IAQ but was unsuccessful. The Portable Classroom Study has recently generated two proposed bills.
- CARB staff can make a presentation on its recent IAQ report to such groups as the American Institute of Architects, Pacific Gas & Electric and other building related networks. The presentation can be tailored to focus on certain fields depending upon the audience. For example, for architectural groups there should be some focus on outdoor coatings.
- Most product labeling requirements concern emissions to outdoor air—such as ones governing volatile organic compounds—and are not specific to IAQ. CARB would like to require manufacturers to test their products and publish the data on labels: this would allow for product comparison and subject improvement in procurement selection. At present, such labeling would be purely voluntary as there is no authority to require it. Moreover, manufacturers do not want to pay for the cost of the test and if the product does not meet a given standard they would have to engage in product reformulation, which would pose an additional cost.
- Indoor ozone generators have created an entire market based on vague, and often inaccurate, science. The strength of regulatory agencies in IAQ management is that they can fund research and conduct public education. There are alternatives to ozone generators for indoor air purification: these include HEPA filters, and electrostatic precipitators and ionizers.
- CARB’s Stationary Source Division is handling the issue of the two different resins for indoor and outdoor plywood particle board. The resin used in the indoor plywood emits more formaldehyde than what is used for the outdoor plywood. CARB believes that the resin used in outdoor applications would be acceptable for use in indoor applications as well.

5. Committee Member Comments/Other Business. There was none.

6. Time and Place of Next Meeting. 1:30 p.m., Monday, June 13, 939 Ellis Street, San Francisco, CA 94109.

7. Adjournment. 3:04 p.m.

James N. Corazza

James N. Corazza
Deputy Clerk of the Boards