BAY AREA
AIR QUALITY
MANAGEMENT
DISTRICT

ADVISORY COUNCIL
REGULAR MEETING

WEDNESDAY
MAY 11, 2005
10:00 A.M.

SEVENTH FLOOR
BOARD ROOM

AGENDA

CALL TO ORDER

Opening Comments — Brian Zamora, Chairperson
Roll Call — Clerk

PUBLIC COMMENT PERIOD

Public Comment on Non-Agenda Items, Pursuant to Government Code Section 54954.3. *The public has the opportunity to speak on any agenda item. All agendas for Advisory Council meetings are posted at the District, 939 Ellis Street, San Francisco, at least 72 hours before a meeting. At the beginning of the meeting, an opportunity is also provided for the public to speak on any subject within the Council's purview. Speakers are limited to five minutes each.*

CONSENT CALENDAR

1. Approval of Minutes of March 9, 2005

PRESENTATION

2. Public Outreach at the District

   District staff will provide a presentation on past and current public outreach at the District, and show two Air District videos, one from the 30th anniversary of the District, and the new 8-minute Air District video, "Sparing the Air for a Healthier Future."

3. Resolution on Climate Change

   District staff will present for Advisory Council consideration a resolution on the District's potential role in global climate change issues.

AIR DISTRICT OVERVIEW

4. Report of the Executive Officer/APCO — Jack Broadbent

   Mr. Broadbent will update the Advisory Council on pending and planned District activities, policies and initiatives.

COMMITTEE REPORTS

5. Report of the Air Quality Planning Committee Meeting of April 4, 2005 — Chair Hayes

6. Report of the Technical Committee Meeting of April 13, 2005 — Chair Holtzclaw

7. Report of the Public Health Committee Meeting of April 18, 2005 — Chair Torreano

8. Report of Executive Committee Meeting of May 11, 2005 — Chair Zamora

OTHER BUSINESS

9. Report of Advisory Council Chair — Brian Zamora

10. Council Member Comments/Other Business

    Council or staff members on their own initiative, or in response to questions posed by the public, may: ask a question for clarification, make a brief announcement or report on their own activities, provide a reference to staff about factual information, request staff to report back at a subsequent meeting concerning any matter or take action to direct staff to place a matter of business on a future agenda.

11. Time and Place of Next Meeting

    10:00 a.m., Wednesday, July 13, 2005, 939 Ellis Street, San Francisco, California 94109.

12. Adjournment

BZ:jc

CONTACT CLERK OF THE BOARDS - 939 ELLIS STREET SF, CA 94109 **(415) 749-4965**
FAX: (415) 928-8560
BAAQMD homepage:
www.baaqmd.gov

- To submit written comments on an agenda item in advance of the meeting.
- To request, in advance of the meeting, to be placed on the list to testify on an agenda item.
- To request special accommodations for those persons with disabilities notification to the Clerk's Office should be given in a timely manner so that arrangements can be made accordingly.

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
939 ELLIS STREET, SAN FRANCISCO, CALIFORNIA 94109
(415) 771-6000

CLERK OF THE BOARDS OFFICE:
MONTHLY CALENDAR OF DISTRICT MEETINGS

MAY 2005

TYPE OF MEETING	DAY	DATE	TIME	ROOM
Board of Directors Regular Meeting *(Meets 1st & 3rd Wednesday of each Month)*	**Wednesday**	**4**	**9:45 a.m.**	**Board Room**
Board of Directors Budget & Finance Committee *(Meets 4th Wednesday each Month)*	**Thursday**	**5**	**9:45 a.m.**	**4th Floor Conf. Room**
Advisory Council Executive Committee	**Wednesday**	**11**	**9:00 a.m.**	**Room 716**
Advisory Council Regular Meeting	**Wednesday**	**11**	**10:00 a.m.**	**Board Room**
Board of Directors Mobile Source Committee *(Meets 2nd Thursday each Month)* **- CANCELLED**	**Thursday**	**12**	**9:30 a.m.**	**4th Floor Conf. Room**
Board of Directors Public Outreach Committee *(Meets 4th Monday every other month)*	**Monday**	**16**	**9:30 a.m.**	**4th Floor Conf. Room**
Board of Directors Regular Meeting *(Meets 1st & 3rd Wednesday of each Month)*	**Wednesday**	**18**	**9:45 a.m.**	**Board Room**
Board of Directors Executive Committee *(Meets 5th Wednesday of Months that have 5 Wednesdays))*	**Friday**	**20**	**9:30 a.m.**	**4th Floor Conf. Room**
Board of Directors Stationary Source Committee *(Meets 4th Monday every other Month)*	**Monday**	**23**	**9:30 a.m.**	**Board Room**
Board of Directors Budget & Finance Committee *(Meets 4th Wednesday each Month)*	**Wednesday**	**25**	**9:45 a.m.**	**4th Floor Conf. Room**
Joint Policy Committee	**Friday**	**27**	**10:00 a.m. – Noon**	**BAAQMD - Board Room 939 Ellis Street San Francisco, CA 94109**

JUNE 2005

TYPE OF MEETING	DAY	DATE	TIME	ROOM
Board of Directors Regular Meeting *(Meets 1st & 3rd Wednesday of each Month)*	**Wednesday**	**1**	**9:45a.m.**	**Board Room**
Advisory Council Air Quality Planning Committee	**Wednesday**	**8**	**9:30 a.m.**	**Room 716**
Board of Directors Mobile Source Committee *(Meets 2nd Thursday of each Month)*	**Thursday**	**9**	**9:30 a.m.**	**4th Floor Conf. Room**

June 2005 Calendar continued on next page

JUNE 2005

TYPE OF MEETING	DAY	DATE	TIME	ROOM
Advisory Council Public Health Committee	**Monday**	**13**	**1:30 p.m.**	**Room 716**
Board of Directors Regular Meeting *(Meets 1st & 3rd Wednesday of each Month)*	**Wednesday**	**15**	**9:45 a.m.**	**Board Room**
Joint Policy Committee	**Friday**	**17**	**10:00 a.m. – Noon**	**MetroCenter Auditorium 101 8th Street Oakland, CA 94607**
Advisory Council Public Health Committee - RESCHEDULED TO 6/13/05	**Monday**	**20**	**1:30 p.m.**	**Room 716**
Air District's 50th Anniversary Symposium	**Monday**	**20**	**11:00 a.m. – 4:00 pm.**	**Yerba Buena Center For the Arts San Francisco, CA**
Board of Directors Budget & Finance Committee *(Meets 4th Wednesday each Month)*	**Wednesday**	**22**	**9:45 a.m.**	**4th Floor Conf. Room**
Board of Directors Executive Committee *(Meets 5th Wednesday of Months that have 5 Wednesdays))*	**Wednesday**	**29**	**9:30**	**4th Floor Conf. Room**

JULY 2005

TYPE OF MEETING	DAY	DATE	TIME	ROOM
Board of Directors Regular Meeting *(Meets 1st & 3rd Wednesday of each Month)*	**Wednesday**	**6**	**9:45 a.m.**	**Board Room**
Board of Directors Public Outreach Committee *(Meets 4th Monday every other month)*	**Monday**	**11**	**9:30 a.m.**	**4th Floor Conf. Room**
Advisory Council Executive Committee	**Wednesday**	**13**	**9:00 a.m.**	**Room 716**
Advisory Council Regular Meeting	**Wednesday**	**13**	**10:00 a.m.**	**Board Room**
Board of Directors Mobile Source Committee *(Meets 2nd Thursday each Month)*	**Thursday**	**14**	**9:30 a.m.**	**4th Floor Conf. Room**
Joint Policy Committee	**Friday**	**15**	**10:00 a.m. – Noon**	**MetroCenter Auditorium 101 8th Street Oakland, CA 94607**
Board of Directors Regular Meeting *(Meets 1st & 3rd Wednesday of each Month)*	**Wednesday**	**20**	**9:45 a.m.**	**Board Room**
Board of Directors Stationary Source Committee *(Meets 4th Monday every other Month)*	**Monday**	**25**	**9:30 a.m.**	**Board Room**
Board of Directors Budget & Finance Committee *(Meets 4th Wednesday each Month)*	**Wednesday**	**27**	**9:45 a.m.**	**4th Floor Conf. Room**

MR:mr
4/27/05 (4:57) p.m.
P/Library/Calendar/Moncal

AGENDA NO. 3

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Inter-Office Memorandum

To: Chairperson Zamora and
Members of the Advisory Council

From: Henry Hilken
Director of Planning and Research

Date: May 4, 2005

Re: Climate Change and Protection Resolution

RECOMMENDED ACTION
Adopt a resolution encouraging the District Board of Directors to address climate change.

BACKGROUND
The Advisory Council Technical Committee discussed climate change at the February 7, 2005 and April 13, 2005 meetings. At the April 13, 2005 meeting of the Technical Committee, Committee member Stan Hayes presented information about climate change and the Committee discussed the issue including the impact of climate change on the District's core mission of attaining air quality standards, the co-benefits of reducing criteria pollutants and greenhouse gases, and the current very limited federal or state mandate to regulate emissions of greenhouse gases. The Committee determined that greenhouse gases, while currently not regulated by the District, are significant pollutants that impede our ability to address criteria and toxic air pollutants. The Committee asked staff to develop a resolution for consideration by the Advisory Council to recommend that the District Board of Directors establish a Climate Protection Program.

DISCUSSION
Staff have reviewed scientific evidence about human causes of climate change, and specifically data on the impacts of burning of fossil fuels on the concentration of greenhouse gases in the atmosphere. Overwhelming scientific data indicate that a buildup of greenhouse gases largely resulting from human activities has caused an increase in global surface temperature in the past 100 years and that the next 100 years are anticipated to continue that trend. These conditions threaten to increase ground level ozone and particulate matter concentrations and to potentially erode air quality improvements made in the past 50 years in the Bay Area. In addition, it seems likely there are significant co-benefits of "harmonizing" existing air quality rules, regulations, and programs that address criteria and toxic air pollutants with the goals of reducing greenhouse gas emissions.

Staff have been participating in a number of climate protection programs that are being conducted at the local level in the region. These include programs in Sonoma County, Marin County, and the Silicon Valley, and efforts by individual Bay Area cities to quantify and reduce greenhouse gas emissions through the ICLEI Cities for Climate Protection program. Expanding these efforts should help to build synergies between programs, provide opportunities for the District to create relationships with local stakeholders, and stimulate additional activities with regional impacts. Potential District activities could include public education and outreach about climate protection, energy efficiency, and ways to reduce greenhouse gas emissions at home and in the workplace and provide a meaningful opportunity for public participation and action.

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Resolution No. 89

A Resolution Encouraging the Bay Area Air Quality Management District to Address Climate Change

WHEREAS, there is overwhelming scientific evidence that shows concentrations of greenhouse gases in the atmosphere are increasing steadily, and that the Earth's surface and ocean temperatures are rising; and

WHEREAS, most scientists agree that anthropogenic sources of greenhouse gases largely account for these increases and are causing the earth's climate to change and that conflicting views are more about the rate of change and the ultimate results, rather than questioning the underlying premise of human-caused changes to climate; and

WHEREAS, global climate change could have significant effects on local weather conditions such as increases in temperatures, the extension of warm weather seasons, changes in wind patterns, and other weather variables that have important effects on our local air quality; and

WHEREAS, ground level ozone is formed from photochemical reactions between nitrogen oxides and volatile organic compounds in the presence of sunlight and heat, and as climate change causes temperatures to increase, the emissions of ozone precursors and photochemical reactions will also increase; and

WHEREAS, the Bay Area is a non-attainment area for the national 8-hour ozone standard and the state 1-hour and 8-hour ozone standards, and the Bay Area Air Quality Management District has dedicated significant resources to reducing ground level ozone in the region in order to protect public health, and climate change will impact those efforts; and

WHEREAS, the Bay Area is also a non-attainment area for state particulate matter standards and many sources, specifically fossil fuel combustion, that lead to greenhouse gas emissions also contribute significantly to the region's particulate matter burden; and

WHEREAS, in addition to ozone precursors and particulate matter, fossil fuel combustion also causes emissions of toxic air pollutants and other criteria pollutants that the Bay Area Air Quality Management District regulates in order to protect public health; and

WHEREAS, reducing emissions from fossil fuel combustion has the co-beneficial effect of reducing criteria air pollutants, toxic air contaminants, and greenhouse gas emissions; and

WHEREAS, the transportation sector accounts for the largest source of greenhouse gas emissions in the region, and the Bay Area Air Quality Management District is already promoting efforts to reduce emissions from mobile sources through lower-emission vehicle incentive programs, transportation control measures, and smart growth policies, and these efforts also reduce greenhouse gas emissions; and

WHEREAS, the Bay Area Air Quality Management District also regulates emissions from energy generation in the region, which is also a significant source of both criteria pollutants and greenhouse gases and the District is already promoting energy conservation and efficiency measures that have co-benefits for greenhouse gas reductions; and

WHEREAS, the Bay Area Air Quality Management District is charged with improving public health in the region with respect to air quality and by taking a leadership role in addressing greenhouse gas emissions the District will assist the core goal of achieving health-based air quality standards as well as reduce the regional contribution to global climate change; and

WHEREAS, there are numerous municipal and community- based climate change programs already underway in the region and supporting these efforts will provide additional opportunities to strengthen these programs, stimulate additional activities, and encourage further relationships between the Bay Area Air Quality Management District and its stakeholders.

NOW, THEREFORE, BE IT RESOLVED that the Advisory Council of the Bay Area Air Quality Management District encourages the Bay Area Air Quality Management District Board of Directors to address climate change and climate protection through the District's activities, including outreach and education, technical assistance, and support for local efforts in the Bay Area to reduce greenhouse gas emissions that contribute to climate change.

AGENDA NO. 5

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

DRAFT MINUTES

Air Quality Planning Committee Meeting
1:00 p.m., Monday, April 4, 2005

1. **Call to Order – Roll Call.** 1:10 a.m. Present: John Holtzclaw, Ph.D., Chairperson; Harold Brazil, Irvin Dawid, Emily Drennen, Fred Glueck, Kraig Kurucz, Kevin Shanahan.

2. **Public Comment Period.** There were no public comments.

3. **Approval of Minutes of February 9, 2005.** Mr. Brazil requested that he be listed as "Present." Mr. Glueck moved approval of the minutes as corrected; seconded by Mr. Brazil; carried unanimously.

4. **California Hydrogen Highway Blueprint.** Dr. Shannon Baxter-Clemmons, Special Advisor on Hydrogen and Renewables, California Environmental Protection Agency (Cal-EPA) stated that the draft Blueprint was officially released on March 30, 2005. The first presentation on the Blueprint was given to the National Hydrogen Association last week. This is the second such presentation.

   The Blueprint's inception can be traced to January 6, 2004 when California Governor Arnold Schwarzenegger declared that he intended to promote hydrogen power and a hydrogen highway, and environmental health and economic growth simultaneously. His Executive Order S-7-04 designated 21 interstate freeways in the state as the Hydrogen Highway Network ("H2 CA Net"). He asked Cal-EPA to be the lead agency in developing the Blueprint for its development and implementation. The Governor perceives this approach as having energy security benefits as well. To date, three hydrogen stations have been formally designated as part of the H2 CA Net. There are 16 hydrogen stations in the State, but the other 13 are not yet sufficiently accessible to the public to be declared part of the H2 CA Net.

   For assistance and oversight in developing the Blueprint, Cal-EPA put together an advisory panel of over 200 individuals from interest and stakeholder groups, each participating on a voluntary basis. These were allocated among five topic teams that developed independent reports, detailing an approach to the topic and offering roll-out strategies, assessing the status of technology, how to site the stations throughout the state, assessing societal benefits, economic challenges, implementation issues with regard to standards, codes and risk assessment, and public education.

   The draft Blueprint contains seven reports. Volume I concerns policy documentation. Volume II addresses technical issues. Together, these represent the consensus of the advisory panel and its recommendations to the Governor. Five independently produced topic team reports follow.

   The goal of the H2 CA Net is to diversify the sources of transportation energy used and to provide environmental and economic benefits. A phased approached will make use of existing alternative fuels and emerging technologies to help develop hydrogen use and to bridge the gap between today's alternative fuel technologies and hydrogen technologies of the future.

Its initial Phase I goal is to have 50-100 fueling stations throughout California, 2000 light-duty fuel cell vehicles (FCVs), 10 heavy-duty FCVs and five stationary or off-road applications. Phase II aims to establish 250 hydrogen fueling stations in a lower-usage mode, 10,000 light-duty FCVs, 100 heavy-duty FCVs, and 60 stationary and off-road vehicle applications. Phase III aims to double the number of light duty vehicles on the road to 20,000, achieve a number of at least 300 heavy-duty FCVs on the road as well as 400 stationary and off-road vehicle applications in operation.

Regarding station build up, the Blueprint contains an action plan and a biennial review process. The action plan is identified in Volume I and calls for the Governor to provide funding, while emphasizing public/private partnerships to build stations and procure vehicles. Societal benefit goals include increasing renewable energy sources and minimizing greenhouse gas emissions. Station build up will begin in urban centers and thereafter spread outward into California.

Cal-EPA and the Bush Administration differ on the station mix criteria. The former seek a diversity of hydrogen producing technologies whereas the latter emphasizes production from coal combustion processes. The advisory panel members agree that renewable energy sources for hydrogen production are to be emphasized, and note that renewable energy sources and hydrogen are reciprocally interconnected in a variety of ways. Also, the lowest cost option is not necessarily to be preferred, inasmuch as other technologies that will be available in the not-to-distant future will become increasingly important. Use of existing stations is highly emphasized along with the development of new ones. The advisory panel also recommends making maximum use of the existing natural gas infrastructure and believes that 50 stations can be established in California by the year 2010. Phase II plans for 250 hydrogen fueling stations which, in urban areas, could be accessible within 5 minutes. Bridging stations would be established between the Bay Area and Los Angeles.

The Blueprint calls for $53.5 million in funding from the Governor over the next five years for this program. Cost-sharing schemes and incentives for FCVs have been discussed. A major challenge remains in finding ways to sustain the income needed to support the program beyond this time frame. The advisory panel believes that, if the vehicles can be manufactured the infrastructure can be created to meet the need, investment in infrastructure is manageable.

The conclusions concerning the CA H2 Net are as follows:

- The CA H2 Net is a broad initiative for diversifying transportation energy use and for providing environmental and economic benefits.
- The CA H2 Net should be implemented in Phases.
- CA H2 Net will continue to put California in a world class leadership position and position the State for the successful introduction of hydrogen technologies to meet transportation, power generation, and other energy demands in the future.
- The biennial review of the Blueprint will evaluate the pace with which introduction can occur.
- The State-led public-private partnership should begin work to implement the Action Plan.
- The State needs to initiate a funding source.

In response to questions from the Committee members, Dr. Baxter-Clemmons stated:

The auto manufacturers require no convincing that the fuel cell is the future of the vehicle market. One manufacturer forecasts a global approach to the fuel cell vehicle (FCV), in which the basic structure of the FCV would be the same in terms of the frame and fuel cell location, and only the external body would differ—being tailored to each country in which the FCV is sold. This will enable mass production in the largest possible scale and enhance FCV economic attraction. Auto manufacturers have declared they will build a certain number of FCVs, and there is an increasing demand for them in Japan, Germany, Singapore, etc. The incentives created in California will send a message—in particular, to Japan—and although such incentives will not significantly draw down the cost of the vehicle, they will nevertheless assist as mass production capability increases.

The Department of Energy does not believe there is a shortage of the platinum that will be the primary component of the fuel cell, and the amount of platinum needed for a fuel cell decreases exponentially over time as technology improves. Phase III of the Blueprint will establish a basis for broad commercialization, with 20,000 FCVs planned for operation. This is a small percentage of the 20 million cars now driven in California, and some observers believe it will be three decades before the benefits of the Blueprint become manifest. Nevertheless, if the approach to a hydrogen transportation system is not started now, it will never come to fruition.

The history of alternate fuel and electric vehicles has been variously assessed. Electric vehicles still have a rather limited range, and General Motors recently held a symbolic "funeral" for its electric vehicle. Although hydrogen power requires an additional step in which electricity is used to produce hydrogen, never before have all of the stakeholders—environmentalists, car and fuel companies, and government—agreed on a technology that represents the future. Challenges remain with respect to renewable energy sources that are used to make the hydrogen and whether to use these to support existing infrastructure, the power grid or other applications.

The extent to which funding can be obtained for the Blueprint, and how hydrogen could be taxed, requires further discussion. A revenue bond has been suggested. The free market impact must also be considered where prices vary per kilogram, depending on the source producing the hydrogen. Transportation costs also factor in, along with taxes and possible renewable fuel subsidy.

Hydrogen stations may be variously used for both stationary and mobile source power, depending on whether the fuel cell is low or high temperature through electrolysis. Hydrogen stations in the early years of the Blueprint will be "delivered hydrogen" and will diversify from that point on.

Air Districts can assist with public education about the Blueprint, both in terms of short- and long-term goals regarding environmental and economic benefits, program safety, the various phases of the approach, and related aspects. Advocacy of more hydrogen fuel stations in the local Air District jurisdiction would be important, particularly in collaborating with fuel companies, local, regional and state government, and fire department staff. The Bay Area AQMD could be a major player in the development of the H2 CA Net, and Cal-EPA would welcome working with staff.

Dr. Baxter-Clemmons offered to provide further information to Mr. Shanahan regarding cost comparison of a therm of natural gas in a natural gas vehicle in comparison with the same therm of natural gas delivered down the H2 CA Net in order to produce hydrogen, and get it to a hydrogen fueling station. References and diagrams can be found in the report issued on the Internet (cf. p. 14, Volume I).

The cost of using bio-gas for vehicles, which occurs in Sweden, is decreasing, but it is not at a point at which it is cost-competitive. The H2 CA Net does not want to abandon near-term options for alternative fuels and vehicles. The approach to FCV's is not exclusive, and the societal benefits will increase as 20,000 such cars are on the road by the year 2015. If society wants hydrogen fuel as the basis for its transportation, it will have to start now and plan for the long-term.

5. **Committee Member Comments/Other Business.** Mr. Dawid commended the minutes from February 9, 2005 meeting for their accuracy and detail, and inquired as to a possible referral from the Board of Directors to the Advisory Council on diesel emission at ports. Peter Hess, Deputy Air Pollution Control Officer, clarified for the Committee that this matter had been referred to another Committee of the Governing Board.

6. **Time and Place of Next Meeting.** 9:30 a.m., Wednesday, June 8, 2005, 939 Ellis Street, San Francisco, California 94109.

7. **Adjournment.** 2:20 p.m.

James N. Corazza
Deputy Clerk of the Boards

:jc

AGENDA NO. 6

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

DRAFT MINUTES

Advisory Council Technical Committee Meeting
9:30 a.m., Monday, April 13, 2005

1. **Call to Order – Roll Call.** Chairperson Hayes called the meeting to order at 9:32 a.m. Present: Stan Hayes, Chairperson, Sam Altshuler, P.E., William Hanna, Norman A. Lapera, Jr., Brian Zamora, Advisory Council Chair (ex officio). Absent: Diane Bailey, Louise Bedsworth, Ph.D., Bob Bornstein, Ph.D., John Holtzclaw, Ph.D.

2. **Public Comment Period.** There were no public comments.

3. **Approval of Minutes of February 7, 2005.** Mr. Altshuler requested that in line ten of paragraph one on page four, "heat" be inserted before "islands," and he moved approval of the minutes as amended; seconded by Mr. Hanna; carried unanimously.

4. **Update on the District's Community Air Risk Evaluation (CARE) Program.** Janet Stromberg, CARE Program Manager, stated that the District will contract with Sonoma Technologies, Inc., to develop toxic air contaminant (TAC) emission inventory/emission density maps for the Bay Area. These will include an inventory of annual average TAC emissions from area, point- and on-road motor vehicle sources, and weight TAC emissions according to their toxicity. These maps should be completed within three months of the date the contract is signed. District staff is also receiving training in graphical interface system (GIS) mapping, in order to augment in-house capability.

   The District is also working to better understand exposures to TACs through measurements and monitoring. It will also add two canister samplers in the neighborhood selected for a cumulative risk assessment pilot project and compare the data gathered with data from the broader emission monitoring network. The goal is to improve the ability to identify ambient diesel particulate (PM).

   Attempts to improve the identification of diesel PM are underway. Chemical mass balance analyses show that most anthropogenic PM_{10} and $PM_{2.5}$ derive from burning wood or fossil fuels. Geological dust, and tire and break wear are small contributors to PM_{10} and $PM_{2.5}$. Peak PM concentrations occur in winter due to meteorological conditions conducive to ammonium nitrate production and wood combustion. Carbonaceous PM accounts for about half of peak PM_{10} and $PM_{2.5}$ and also annual $PM_{2.5}$. Ammonium sulfate is a significant contributor to annual $PM_{2.5}$ but only a small contributor to peak concentrations of PM.

   Carbon 14 analysis is being used to distinguish the amount of new and old carbon present in a PM sample. The results from 20 samples taken on five separate days suggest that PM from fossil fuel combustion is much lower than previously thought. New techniques developed by Desert Research Institute (DRI) and CalTech, which speciate hydrocarbons for hopanes and steranes, will be used to distinguish gasoline and diesel PM from other fossil fuel carbon. Certain polyaromatic hydrocarbons (PAHs) are found in greater quantities in gasoline PM than in diesel, while certain polar organics provide markers for wood burning and cooking. These will be identified in the speciation.

In reply to Committee member questions, Ms. Stromberg, Peter Hess, Deputy Air Pollution Control Officer, and Gary Kendall, Technical Division Director, made the following points:

- the CARE program will conduct a cumulative risk analysis for a pilot project neighborhood, and its Task Force will provide input for identifying criteria for a pilot neighborhood. These will be combined with the data from the TAC emission maps and a final selection will be made.
- the best available science will be used in assessing concentrations of diesel PM in ambient air. DRI is confident that new markers have been identified for diesel PM in its hydrocarbon speciation. Staff is in the process of discussing additional research projects with DRI.
- staff has tracked measurements obtained during wildfires to distinguish peak versus annual PM concentration. The field of measurement and analysis is expanding, and next week a major conference on this subject is taking place in San Francisco with many well-known experts. A focus on "nano-particulates" is developing in this field.
- the choice of a pilot neighborhood will include not only potential regulatory action that may be taken on a source to reduce TACs, but also creative approaches beyond regulation, and the availability of grant money will provide for the opportunity. The District will seek legislation to obtain additional regulatory authority. The recommendation on which neighborhood to select will be presented to the Council before a decision is made. It is anticipated that the decision could be made some time in the fall of this year.
- communication and public outreach will be a critical component of the CARE program.
- the staff report, distributed at each Committee member's place, entitled "Sources of Bay Area Fine Particles: A Chemical Mass Balance Analysis," dated April 2005, is preliminary. When it is near completion, staff will present it to the Council with a more detailed technical focus. Mr. Altshuler's observations that lube oil has unique markers, and that referring to the coefficient of haze when a filter contains ammonium nitrate, are useful.

5. **Continuing Review of Climate Change Issues.** Committee Chair Hayes presented "Management of Greenhouse Gases: Recent Developments." He noted that the greenhouse effect is one in which solar radiation passes through the clear atmosphere and is absorbed by the earth's surface and warms it. Some of this infrared radiation is absorbed and re-emitted by the greenhouse gas molecules and the direct effect is the warming of the earth's surface and the troposphere. A temperature plot going back 1,000 years—with estimates prior to 1902 based on tree rings and ice core sampling and instrumental data thereafter—shows significant temperature increases since the 1970s, and particularly since 2000. Thermometer readings from 1860 to 2000 confirm this trend.

   Six greenhouse gases are the subject of the Kyoto protocol: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride, although not all of these are of equal potency as greenhouse gases (GHGs): the latter being 23,900 times as potent as the first. In 2000, 83% of emissions of GHGs in the US were carbon dioxide, with methane at 9%, nitrous oxide at 6% and hydroflurocarbons, perflurocarbons and sulfur hexafluoride at 2%. For carbon dioxide, the energy industry contributes 35%, transportation 26%, manufacturing and construction 12%, commercial, institutional and residential 9%, agriculture 7%, industrial processes 4%, fugitives from fuel production 3% and waste 3%. More than 50% of GHGs in the US were emitted by the electric power production industry. From 1990 to 2000, there is a continual increase in carbon dioxide emissions from the commercial, residential, transportation and industrial sectors.

The Kyoto Protocol establishes binding limits for 38 developed countries to reduce GHGs from 2008 to 2012 by 5% relative to a baseline developed in 1990. To be valid, the Kyoto Protocol required ratification by 55 governments, within which the ratifying governments included developed countries representing at least 55% of that group's 1990 carbon dioxide emissions. This occurred when Russia ratified the Kyoto Protocol in November of last year. The Protocol took effect February 16, 2005, affecting 126 nations. Only four industrialized countries have not ratified the Kyoto Protocol. These are: Australia, Liechtenstein, Monaco and the United States.

The European Union (EU) thought the Kyoto Protocol would be approved and moved forward on its own. Now every one of 30,000 stationary sources in the EU must have an operating permit that limits GHG emissions. This covers about 45% of the carbon dioxide emissions in the EU. Penalties for non-compliance range from 40 to 100 euros per ton of carbon dioxide emitted. National allocation plans were established March 31, 2004 indicating how the reduction in GHG emissions would be allocated. During 2005-2007, 40 euros per tons will be assessed for violating the carbon dioxide emission allowance, and between 2008 and 2012 it will be 100 euros per ton.

In the United States, a Global Climate Change Initiative by the Bush Administration has selected to cut GHG "intensity" by 18% over the next 10 years. Improved GHG registry information is being sought, and will protect transferable GHG emissions reduction credits. Some voluntary initiatives for GHG emissions reporting and reduction include an internal trading program sponsored by BP Amoco and Shell; the Chicago Climate Exchange, with 14 founding members including American Electric Power, DuPont, Ford, International Paper, Motorola and Chicago; a Business Roundtable with members agreeing to measure annual GHG emissions, then publicly report the total and reduce them by a certain amount; and a Climate Group Survey comprised of 22 major corporations, 143 cities, 10 state and 6 countries. Five corporations reduced GHGs by at least 60% and saved a combined $5.5 billion through energy efficiency, fuel switching and reduced waste output.

There are several state and regional programs for voluntary emissions registers and reductions including the California Climate Action Registry. There is also a Regional Greenhouse Gas Initiative in nine northeast states involving development an emission cap and trade program for carbon dioxide from power plants by April 2005. Other programs include California motor vehicle GHG emission standards and their possible adoption by seven other Northeast states; as well as a subsequent lawsuit against six electric utilities regarding regulation of carbon dioxide. Also, the McCain Lieberman bill (S 139) was rejected when first presented by a vote of 97-0. However, it was defeated more recently but by a much closer margin of 53 to 47. Its advocates believe that, with persistence, it will eventually pass.

What is particularly at stake for companies is that they will experience an increase in energy costs as a percentage of operating costs increase with the transition from coal to natural gas, which may consume 10 - 15% of operating profits, with corresponding impacts on stock prices.

There is considerable linkage between GHG emissions and regulated criteria pollutants. Most GHGs derive from fuel combustion, and reductions in fuel combustion reduce emissions of nitrous oxide (NOx) and volatile organic compounds (VOCs), as well as methane. There are measures that aim to reduce ozone, particulates, and air toxics but also results in GHG emission reductions. Air pollution control measures which have broad applicability are energy conservation, increases in energy efficiency, motor vehicle emissions reductions, vehicle emission standards, transportation control measures, land-use planning and zoning, smart growth, air quality elements in general plans, traffic and roadway measures, public transit, congestion relief measures, and carpool lanes.

There are emerging areas in which an Air District's role in GHG emission management may be discerned. Staff is developing a list of 24 areas in which to reduce GHGs, including adoption of a resolution on global warming, development of a GHG emission inventory, various levels of inter-agency cooperation, public education, grants and funding, and development of model global warming language for inclusion in the air quality elements of local general plans.

Under the Kyoto Protocol, emission credits may be created by sponsoring projects that reduce GHGs, and there are a wide variety of opportunities for doing so that also afford contexts for aligning fiscal and self-interest. Emission reductions created in one of the countries that has ratified the Protocol may be banked. The California Climate Action Registry banks and credits emission reductions, and although a mandatory program is not in place in this country, the actions now taken to reduce GHGs might be able to be folded into the baseline.

Deputy Air Pollution Control Officers Peter Hess and Jean Roggenkamp inquired if the Committee might endorse a broad conceptual approach in which staff would draft a resolution on Climate Change for consideration by the full Council at its May 11, 2005 Regular Meeting. The text would identify links between criteria pollutant regulation, public health and reduction in GHG emissions.

Chairperson Hayes called for discussion on concepts that staff might find useful in composing the text. Mr. Altshuler opined that GHG-related criteria could be built into the grant criteria process. Moreover, a stamp of public health protection could be affixed to GHG emissions with the implication that they be treated like criteria pollutants. GHG emissions affect the environment, which also affects health—in particular, the connection between increased emissions of GHGs and increases in ambient temperature, which in turn increase ozone formation and energy demand. In addition, wars are fought over energy sources to which GHG emissions are linked. Mr. Hanna moved that the Committee endorse the proposal that staff draft a resolution on Climate Change for consideration by the Council on May 11; seconded by Mr. Altshuler; carried unanimously.

Chairperson Hayes inquired as to the status of the list of 24 GHG emission reduction measures. Ms. Roggenkamp replied that the list referred to in the February 7 Technical Committee meeting was preliminary, and when it is further edited, it will be presented to the Committee for review.

6. **Committee Member Comments/Other Business.** Mr. Altshuler distributed a brochure entitled "Something Special in Sunnyvale" featuring a natural gas refuse truck with low emissions.

7. **Time and Place of Next Meeting.** The Committee agreed on two possible dates, to be determined after consultation with Air Quality Planning Committee (AQPC) Chair Holtzclaw: (a) Wednesday, June 8, 2005 at 9:30 a.m., joint meeting with the AQPC, or (b) Tuesday, June 7, 2005 at 9:30 a.m., Technical Committee only, 939 Ellis Street, San Francisco, CA 94109.

8. **Adjournment.** 11:00 a.m.

James N. Corazza
Deputy Clerk of the Boards

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AGENDA NO. 7

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

DRAFT 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 sensers. 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
Deputy Clerk of the Boards