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

APPROVED 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 absorbed energy is emitted as infrared radiation 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 of 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

James N. Corazza
Deputy Clerk of the Boards

:jc