



BAY AREA  
AIR QUALITY  
MANAGEMENT  
DISTRICT

## ADVISORY COUNCIL REGULAR MEETING

WEDNESDAY  
MAY 14, 2003  
10:00 A.M.

SEVENTH FLOOR  
BOARD ROOM

### AGENDA

#### CALL TO ORDER

Opening Comments  
Roll Call

William Hanna, Chairperson  
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 Committee 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 Committee's purview. Speakers are limited to five minutes each.*

#### WELCOMING OF NEW ADVISORY COUNCIL MEMBERS

*The Council will welcome Pamela O'Malley Chang in the Architect Category, Victor Torreano in the Organized Labor Category, and Louis Wells Bedsworth in the Public-At-Large Category.*

1. Approval of Minutes of March 12, 2003

#### COMMITTEE REPORTS

2. Report of the Air Quality Planning Committee Meeting of March 25, 2003      Chairperson Kurucz
3. Report of the Public Health Committee Meeting of April 14, 2003      Chairperson Zamora

4. Report of the Technical Committee Meeting of April 1, 2003 Chairperson Harley
5. Report of the Executive Committee Meeting of May 14, 2003 Chairperson Hanna

### **PRESENTATIONS**

6. Staff Presentation: Update on the 2001 Ozone Attainment Plan

*District staff will provide the Council with a briefing on the 2001 Ozone Attainment Plan.*

7. Looking Back and Ahead: Personal Perspectives on Air Quality Regulation

*Robert F. Sawyer, Ph.D., P.E., will provide historical and prospective perspectives on air quality issues.*

### **OTHER BUSINESS**

8. Report of the Executive Officer/APCO William C. Norton
9. Chairperson's Report William Hanna

### **COMMENDATIONS/PROCLAMATIONS**

*The Advisory Council will recognize Robert Sawyer, P.E., Ph.D., who has served on the Advisory Council for seven years and will resign at the conclusion of this meeting.*

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 9, 2003, 939 Ellis Street, San Francisco, CA 94109.*

12. Adjournment

BH:jc

**CONTACT CLERK OF THE BOARDS - 939 ELLIS STREET SF, CA 94109**

**(415) 749-4965**  
**FAX: (415) 928-8560**  
**BAAQMD homepage:**  
[www.baaqmd.gov](http://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 2003**

TYPE OF MEETING	DAY	DATE	TIME	ROOM
Board of Directors Regular Meeting	Wednesday	7	9:45 a.m.	Board Room
Board of Directors Budget & Finance Committee	Wednesday	7	Immediately following the Regular Board Meeting	Board Room
Board of Directors Mobile Source Committee - CANCELLED -	Thursday	8	9:30 a.m.	4 <sup>th</sup> Floor Conf. Room
Advisory Council Executive Committee	Wednesday	14	9:00 a.m.	Room 716
Advisory Council Regular Meeting	Wednesday	14	10:00 a.m.	Board Room
Advisory Council Public Health Committee	Monday	19	1:30 p.m.	Rodeo Senior Center 189 Parker Street Rodeo, CA
Board of Directors Regular Meeting	Wednesday	21	9:45 a.m.	Board Room
Board of Directors Stationary Source Committee	Wednesday	21	10:30 a.m.; or immediately following the Regular Board Meeting	Board Room
Advisory Council Air Quality Planning Committee	Tuesday	27	9:30 a.m.	Room 716
Board of Directors Budget & Finance Committee - CHANGED TO MAY 7 <sup>TH</sup> -	Wednesday	28	9:30 a.m.	4 <sup>th</sup> Floor Conf. Room
Advisory Council Technical Committee	Thursday	29	9:30 a.m.	4 <sup>th</sup> Floor Conf. Room

MR:mr  
5/2/03 (9:51 a.m.)  
P/Library/Calendar/Moncal

**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**  
**JUNE 2003**

<b>TYPE OF MEETING</b>	<b>DAY</b>	<b>DATE</b>	<b>TIME</b>	<b>ROOM</b>
<b>Board of Directors Regular Meeting</b>	<b>Wednesday</b>	<b>4</b>	<b>9:45 a.m.</b>	<b>Board Room</b>
<b>Advisory Council Public Health Committee</b>	<b>Monday</b>	<b>9</b>	<b>1:30 p.m.</b>	<b>Room 716</b>
<b>Board of Directors Mobile Source Committee</b>	<b>Thursday</b>	<b>12</b>	<b>9:30 a.m.</b>	<b>4<sup>th</sup> Floor Conf. Room</b>
<b>Board of Directors Public Outreach Committee</b>	<b>Monday</b>	<b>16</b>	<b>9:45 a.m.</b>	<b>4<sup>th</sup> Floor Conf. Room</b>
<b>Board of Directors Regular Meeting</b>	<b>Wednesday</b>	<b>18</b>	<b>9:45 a.m.</b>	<b>Board Room</b>
<b>Board of Directors Stationary Source Committee</b>	<b>Wednesday</b>	<b>18</b>	<b>10:30 a.m.; or immediately following the Regular Board Meeting</b>	<b>Board Room</b>
<b>Board of Directors Budget &amp; Finance Committee</b>	<b>Wednesday</b>	<b>25</b>	<b>9:30 a.m.</b>	<b>4<sup>th</sup> Floor Conf. Room</b>

MR:hl  
4/29/03 (3:35 p.m.)  
P/Library/Calendar/Moncal

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

**DRAFT MINUTES**

Advisory Council Regular Meeting  
10:00 a.m., Wednesday, March 12, 2003

- 1. Call to Order – Roll Call.** 10:05 a.m. Quorum Present: William Hanna, Chairperson, Sam Altshuler, P.E., Elinor Blake, Harold M. Brazil, Irvin Dawid, Fred Glueck, Rob Harley, Ph.D., Stan Hayes, John Holtzclaw, Ph.D., Kraig Kurucz, Norman A. Lapera, Jr., William A. Nack, Robert F. Sawyer, Ph.D., P.E., Kevin Shanahan, Linda Weiner, Brian Zamora. Absent: Patrick Congdon, P.E., Ignatius Ding, Jane Kelly.
- 2. Public Comment Period.** There were no public comments.
- 3. Approval of Minutes of January 8, 2003.** Mr. Altshuler requested “brief” be changed to “briefed” on page nine and moved approval of the minutes; seconded by Ms. Blake; carried unanimously.
- 4. Reports of Standing Committees**
  - (A) Public Health Committee Meetings of February 10 and March 10, 2003.** Mr. Zamora stated the Committee continues to monitor the progress of the adoption of the model woodsmoke ordinance. It also received two presentations on the optical remote sensing equipment at the ConocoPhillips refinery in Rodeo. The first was from the company that installed the equipment. The second was from the Contra Costa County Health Services department which is developing a website for posting the monitoring data that will soon be operational. The Committee will devote another meeting to receive input from community groups and District staff regarding their impressions of this equipment and the data that it generates.
  - (B) Technical Committee Meeting of February 4, 2003.** Dr. Harley stated that the Committee:
    - developed a list of intermittent ozone control strategies for the summer Spare the Air Program.
    - reviewed a proposal from the Sonoma County Climate Protection Campaign (SCCPC) that the District allocate \$25,000 to support development of a regional greenhouse gas emission inventory. While it supports local initiative it felt the proposal was inadequately linked to air quality management and was not coordinated with the state’s climate protection registry.
    - reviewed the Air Quality Planning Committee (AQPC) recommendations on improving the enhanced vehicle inspection and maintenance (I&M) program. It felt that special program features such as remote sensing Smart Signs should be located upwind of Livermore and focus on hydrocarbon (HC) emissions. High emitting vehicles would receive a letter from the District encouraging repair. The data generated would help to accurately characterize the vehicle emissions across the fleet. The state’s Emission Factor (EMFAC) model should not be used to evaluate the I&M program because it merely outputs its own built-in I&M assumptions.

- reviewed the Public Health Committee’s recommendations on the abatement of particulate matter (PM). It endorsed the inclusion in the model woodsmoke ordinance of the provision on fireplace change-out upon change of home ownership. It opposes lowering the trigger for the wintertime Don’t Light Tonight (DLT) program as this would cause the issuance of too many advisories. On PM emission credit trading, it noted that PM toxicity differs among sources. It did not adopt a formal position on retrofitting PM traps on heavy-duty diesel engines.

**(C) Air Quality Planning Committee Meeting of February 25, 2003. Mr. Kurucz stated the Committee:**

- added to the Technical Committee’s list of intermittent ozone control strategies. It believes it would be more effective to provide the general public with free transit on Spare the Air (STA) days rather than only the STA employer network participants. The District should ascertain if legislation is required to increase bridge tolls and impose a parking surcharge on STA days to compensate for fare box revenue losses. Owners of cars manufactured prior to 1981 should not drive them but instead take the free transit. Freeway signage should also advertise a special (i.e., lower) STA speed limit. Telecommuting should be encouraged on STA days and any new advances in telecommuting technology identified and researched.
- concluded that the SCCPC duplicates the state climate protection registry and is already well-funded with \$67,000 in city and county funding. It has not described how the District’s funds would be used, as its inventory work will be completed with existing funds. The District would also set a precedent on a county-by-county basis if it allocated the requested \$25,000. Staff can also identify where some of the \$4 million from the Transportation Fund for Clean Air received by Sonoma County could be used as seed money to leverage other funds for the Campaign.
- completed its development of recommendations on improving the enhanced vehicle I&M.
- was apprised that another air district has adopted a land-use measure that takes into account employer trip generation. This will be an item for future Committee discussion.

**(D) ACTION ITEMS.**

- 1. The Sonoma County Climate Protection Campaign proposal that the District allocate \$25,000 to support the Campaign.** Mr. Kurucz moved adoption of the AQPC’s recommendation of February 25, 2003, as follows: (a) that District staff work with the Campaign to identify TFCA projects containing funding that could be used as seed money to leverage further contributions to the Campaign; (b) the Campaign should coordinate with the state Registry and thereby improve its efficiency; and (c) that the District not allocate the requested \$25,000 but instead provide staff assistance; seconded by Dr. Harley.

Ms. Blake offered a friendly amendment to delete Item (b) and instead ask staff to send a letter to the Campaign advising it of the Council’s action and urging its coordination with the Registry; seconded by Ms. Weiner; the amendment carried unanimously by acclamation.

In discussion, Mr. Dawid opined that the District as a regional agency should support a sub-regional effort and match the \$4,000 given by the Sonoma County cities. He explained he would vote against the original motion on this basis. The original motion as amended carried by acclamation, with one no vote by Mr. Dawid.

2. **Lists of Suggested Intermittent Ozone Control Measures proposed by the Technical and Air Quality Planning Committees at their February meetings.** Dr. Harley moved adoption of the list of intermittent control measures, Items A-K on pp. 15-17 of the packet, for forwarding to staff; seconded by Dr. Holtzclaw. Mr. Kurucz offered a friendly amendment to include the AQPC suggestions, set forth on pp. 22-23, seconded by Ms. Blake; the amendment carried unanimously by acclamation. Chairperson Hanna called for the question on the original motion as amended, and the motion carried unanimously by acclamation.
  
2. **Advisory Council Public Health Committee recommendations entitled “Particulate Matter Abatement,” dated January 8, 2003.** Mr. Zamora stated that on January 8 the Council referred these recommendations to the Technical Committee, which has opined that lowering the threshold for the DLT program will initiate too many advisories. This is a matter of program delivery rather than of public health. The recommendation is flexible and merely asks staff to develop a multi-year plan for future evaluation by the Council.

The Technical Committee supports the inclusion of fireplace change-out upon change of home ownership, and when the model ordinance is revised this can be included. While the Technical Committee notes PM emissions vary in toxicity, the Public Health Committee was chiefly concerned about particle size. Ms. Blake added that federal and state regulations on PM emissions trading do not recognize distinctions in PM type based on toxicity.

The Technical Committee has stated that further work needs to be conducted on PM trap emissions, and therefore Item No. 10 may be deleted from the report. Mr. Zamora moved adoption of Item Nos. 1-9; seconded by Ms. Blake. In discussion, Ms. Weiner noted that the CARB resolution on school buses has been passed, and so the text regarding support for its adoption should be deleted. Mr. Hayes added that in setting the threshold for short-term PM health effects, the Environmental Protection Agency (EPA) factored in the annual PM standard of  $15 \mu\text{g}/\text{m}^3$  with the 24-hour standard of  $65 \mu\text{g}/\text{m}^3$  and arrived at  $40 \mu\text{g}/\text{m}^3$ . This is the average between the annual and 24-hour standards and as such is an administrative convenience. He added that lowering the standard to a level at which so many alerts will be issued will cause the effect of the DLT program to be diminished or lost. Changing behavior of the public on days with high particulate levels is the goal of the DLT program.

Mr. Hayes offered a friendly amendment to the language of Item No. 1: insert “strongly consider” after “the District”; replace “develop and implement” with “development and implementation of”; correct the typograph on line “4 of 40 u/m3” to “ $40 \mu\text{g}/\text{m}^3$ ”; and after the last sentence add the following: “We request that District staff report back to the Council within a reasonable period.” Mr. Altshuler seconded the motion, and stated that a recent California Trucking Association meeting it was indicated that there are major statistical errors in health-based analysis for PM, leading to the reporting of PM health effects at twice the level at which they are now estimated.

Dr. Sawyer inquired if the District must also meet the state PM standard of  $25 \mu\text{g}/\text{m}^3$ . Mr. Hess replied that presently there are no planning requirements for the state PM standard. Ms. Blake requested the motion maker and seconder to modify the final sentence of Mr. Hayes’ language by replacing “a reasonable period” with “six months.” Messrs. Hayes and Altshuler agreed with this suggestion. Chairperson Hanna called for the question on the friendly amendment as modified, and it carried unanimously by acclamation.

Mr. Nack inquired if Item No. 6 accurately states that the model ordinance only addresses new sources of woodsmoke. Teresa Lee, Director of Public Information, stated the ordinance includes a new housing provision and renovation provision. Some localities in adopting the ordinance have included both, depending on the growth projection for the locality and whether new housing or renovation predominates. Mr. Nack requested the report be corrected to reflect that the model ordinance is not limited to new sources. Mr. Zamora and Ms. Blake agreed to modify the phraseology accordingly. Mr. Altshuler moved the addition of “non-EPA woodstove and fireplace insert” after “fireplace” on line one; seconded by Mr. Dawid; carried unanimously by acclamation.

Mr. Nack inquired as to the rationale in Item No. 9 for not using PM emission reduction credits. Ms. Blake replied that PM is a local rather than a regional program, and to conduct PM emissions trading regionally offers only a potential harm to a local community. Mr. Altshuler replied that PM<sub>2.5</sub> may be more of a basin-wide rather than a localized issue. By contrast, larger size fractions such as PM<sub>10</sub> may be more localized than basin-wide. He added that at a recent trucking conference on Monterey, the issue of diesel truck idling at major terminals was raised, and perhaps the report could reference truck idling at major port terminals. Mr. Norton replied that the recently passed Lowenthal bill, which the District will implement, restricts truck idling at ports in the state. Mr. Shanahan stated that it is unclear how truck idling time limits are to be enforced. Transport refrigeration units are also sources of emissions that could be included in the recommendations.

Mr. Altshuler noted that the role of emissions from lubricating oil in reciprocating engine is an issue that is acquiring increasing importance. He moved that the Advisory Council urge staff to follow this issue; seconded by Dr. Holtzclaw; carried unanimously by acclamation.

Ms. Weiner moved that the previously deleted Item No. 10 be retained so that the Council may further investigate the trade-off between PM and NO<sub>2</sub> emissions in heavy-duty diesel retrofits; seconded by Mr. Shanahan. Mr. Zamora suggested that the PM trap issue be reviewed separately rather than tied to the report. Ms. Weiner and Mr. Shanahan agreed and withdrew the motion. Mr. Brazil added that the Metropolitan Transportation Commission (MTC) is the funding agency for transit agencies in this region and that Bay Area transit authorities submit their applications for funds for PM trap retrofits to MTC. This process is part of a state-mandated program to retrofit heavy-duty diesel units with PM traps.

Mr. Kurucz opined that Item No. 9 fails to establish a correlation between the problem and solution. The report states PM is a seasonal problem. Also, emissions from woodsmoke, cooking, and mobile sources are not involved in emission credit trading. Further data is needed. He moved the deletion of Item No. 9 from the report; seconded by Mr. Nack.

Mr. Dawid stated he would oppose the motion because the District should not reduce its emission reduction options. Mr. Shanahan replied that there is significant potential for trading mobile source emissions against stationary source emissions, through retrofitting heavy-duty over the road trucks that operate in an area near a given stationary source.

Mr. Hayes opined that PM emission credit trading could be reconsidered with regard to its net effect on public health. For example, a project that produces fine PM could offer to reduce diesel exhaust PM elsewhere. This is a beneficial result. Health-based guidelines could also be developed regarding the relative PM toxicities that would help to identify those circumstances in which PM emission credit trading could be conducted safely.



Mr. Zamora stated the motion simply asks staff to reconsider emission trading and report back to the Council. Dr. Harley added that emission trading requires further evaluation because the admixture of point and area sources (motor vehicle exhaust, woodsmoke, and NOx conversion from secondary particles) create local and regional scale PM issues. Mr. Nack opined that further discussions on emissions trading should take place at the Council level before any recommendations are adopted and forwarded to the staff or Board.

Chairperson Hanna called for a vote on the motion to strike No. 9. It failed on roll call:

Ayes: Altshuler, Kurucz, Nack.

Noes: Blake, Brazil, Dawid, Glueck, Harley, Hayes, Holtzclaw, Lapera, Sawyer, Shanahan, Weiner, Zamora, Hanna.

Mr. Hayes offered a friendly amendment to add at the end of Item No. 9 “so as to ensure that a net improvement in public health occurs through such emission trades, and that we further refer this issue back to the relevant Advisory Council committees for further consideration.”; seconded by Mr. Altshuler. Ms. Blake stated that “net improvement in public health” is somewhat vague. Mr. Hayes offered substitute language “to adequately account for public health issues by the public”; to which the seconder agreed. The friendly amendment carried unanimously by acclamation. Chairperson Hanna called for the question on the original motion to adopt the “Particulate Matter Abatement” recommendations, with all amendments, and it carried unanimously by acclamation.

Noting that there are public health studies that reach different conclusions from those cited at the recent trucking conference, Ms. Weiner suggested the Public Health Committee collect and review them. Dr. Sawyer added that with regard to the studies earlier cited by Mr. Altshuler, there was an error in the software used to calculate health effects. The corrected result reduced the potency for mortality for PM2.5 by half. The exposure level remains significant, and the EPA has not indicated it will modify its standards as a result.

4. **Air Quality Planning Committee recommendations entitled “Improvements to Enhanced Inspection and Maintenance Program,” dated February 25, 2003.** Mr. Kurucz moved adoption of the AQPC’s recommendations on pp. 27-33; seconded by Mr. Dawid. Dr. Harley offered a friendly amendment to add the Technical Committee recommendations from pp. 17-18, and allow the AQPC Chair to insert them in the text; seconded by Mr. Hayes; carried unanimously by acclamation. Chairperson Hanna called for the question on the original motion as amended. The motion carried unanimously by acclamation.

**(E) Executive Committee Meeting of March 12, 2003.** Chairperson Hanna stated the Committee met earlier today and discussed the presentation of action items at this meeting, as well as the status of the advertisements underway for applications for the “Organized Labor” and “Architect” categories. The “Organized Labor” category will become vacant at the end of today’s meeting with the resignation of member William Nack from the Advisory Council. He read into the record Resolution No. 87, “In the Matter of Expressing Esteem and Appreciation to William A. Nack for his Outstanding Service on the Advisory Council from October of 1994 to March of 2003.” Mr. Nack reviewed the issues that were addressed during his years of service. He thanked the Council members for their commitment to air quality and the District staff for their dedication.

Chairperson Hanna took Items 6 and 8 out of order:

6. **Report of Executive Officer/APCO.** William C. Norton stated the Annual Air & Waste Management Association Conference will convene in June, and six Council members are budgeted to attend. Chairperson Hanna added that priority will be given to those who have not previously attended.
  8. **Council Members Comments/Other Business.** Ms. Weiner suggested that in the screening of new Advisory Council members, attention be paid to ethnic and gender diversity. Messrs. Hayes, Holtzclaw and Glueck thanked Mr. Nack for his tremendous contribution to the Advisory Council over the years. Mr. Glueck added that today's agenda packet was thorough and self-contained. Dr. Holtzclaw requested that future packets reference any action items by agenda item number. He added that a computerized tool for evaluating urban land-use characteristics and densities is on the website of the San Francisco League of Conservation Voters at [www.sflcv.org/density](http://www.sflcv.org/density).
5. **The 2004 Ozone Plan**

**(A) Status Report on Modeling.** David Souten, Principal, ENVIRON International Corporation, stated that Alpine Geophysics LLC, ATMET LLC, and Dr. Robert Bornstein of San Jose State University are working with ENVIRON on the photochemical modeling to support the 2004 Bay Area Ozone State Implementation Plan (SIP) submittal. The model infrastructure will contain meteorological, emissions and photochemical models, which will provide the basis for the subsequent analysis of emissions reductions and control measures. Three separate ozone episodes are now being selected and evaluated for modeling. With input from the Modeling Advisory Committee, a modeling protocol has been recently developed. It addresses episode selection, mathematical modeling and other components for three different models within the project. It also addresses model domain size and grid size, emissions, meteorology, and base-year performance, and future year attainment projections.

Chris Emery, Senior Consultant, ENVIRON International Corporation, stated the modeling protocol is posted on the ENVIRON website at [www.environ.org/basip2004](http://www.environ.org/basip2004) (user: basip2004, password: goldengate). The episode selection process ascertains whether an episode is representative of the broader population of episodes over recent years with regard to peak ozone levels, their number, distribution and timing, meteorological conditions such as wind/temperature patterns and mixing heights, and the regional transport potential of each. Three episodes were chosen: Jul. 31 - Aug. 2, 2000, June 14-15, 2000 (from the Central California Ozone Study (CCOS)); and July 11-15, 1999 (which was a widespread ozone episode in the Bay Area and throughout northern California). Mr. Emery displayed a map of the domain, indicating 12 kilometer (km) grids in the outer boundaries, 4 km grids in the center and 1 km grids over the Bay Area. The broad domain covers most of the state and will account for contributing sources and regional transport. Meteorology and chemistry will be balanced over the larger domain with the more intense efficiencies within the smaller grids and nested sub-domains in the areas of primary focus.

Federal criteria for model selection require industry-accepted algorithms, demonstration of established performance with past and current SIP applications, and staff familiarity with the selected photochemical and meteorological platforms. These include the "Emissions Processing System 95" (EMS-95) which takes state estimates of county level daily emissions of criteria pollutants and generates speciated, gridded, and hourly data specific to modeling on the three grids. The "Regional Atmospheric Modeling System" (RAMS) is used to develop meteorological fields to

accurately characterize episode history. The “Comprehensive Air Quality Model with extensions” (CAMx) is a widely accepted model for ozone and PM photochemistry. The Carbon Bond IV chemical mechanism will be used first, followed by the chemistry more recently developed by the Statewide Air Pollution Research Center (SAPRC) at UC Riverside.

Mr. Emery displayed the following items:

- A gridded map of NO<sub>x</sub> emissions in the state, identifying high concentrations along offshore shipping lanes, major freeways, and urban areas; as well as point source emissions.
- The emission inventory of criteria pollutants in tons per day from electrical generating units, point and area sources, and on- and off-road sources.
- A map showing various sensitivities of the meteorological model in domain grid resolutions of 4 km and 1 km.
- A comparison of qualitative and statistical evaluations of the model for wind speeds, temperatures and humidity, to ascertain if projections match observational data.
- Preliminary photochemical model results for July 31, 2000 showing that daily maximum ozone levels occurred in Contra Costa and Alameda counties where District monitors also registered the highest ozone levels. Statistical outputs are compared with monitoring data to develop the base case, which will be used for projections to the attainment year of 2006. These projections are based on expected growth and controls presently in force. This process will be conducted for all three episodes. Cost-effectiveness will be included in control strategy evaluation.
- Diurnal profiles of both observational data and modeling projections for San Jose, Fairfield, Pittsburg and Livermore on July 31, 2000. The initial results are promising, except for the latter, where actual levels registered at 126 ppb while the model predicted 100ppb. Given this underestimation, some meteorological and/or emission adjustments to the model will likely be necessary.
- Identification of statistical ranges of uncertainty, to meet state and federal criteria. Uncertainty exists in monitoring, model assumptions, grid cells, emissions estimates and other inputs.

The technical analyses are scheduled for completion by September 2003. Some delays have occurred in receipt of data from different agencies. The model base case will be developed by early summer, and future year analyses will take place during this spring and summer.

Mr. Emery added that all sources in modeling domain must be modeled. The model will be run several times to check the NO<sub>x</sub>/VOC sensitivity. EMFAC 2002 will be used for mobile source projections for the 2006 attainment year. If the model does not achieve adequate base case performance in replicating the historical episode, technical efforts must be employed to remedy the disparity or the episode must be dismissed. This is why multiple episodes are chosen. Greater grid resolution may help to reduce under prediction to some extent. Episodes with a very high, localized ozone reading are somewhat difficult for mathematical models to replicate.

Although Carbon Bond IV is somewhat dated, it has been used in the preliminary modeling runs because it runs faster than SAPRC. However, SAPRAC will be used in the final modeling runs because it is more robust and is also consistent with CARB modeling protocols.

- (B) Update on Development of the Plan.** Jean Roggenkamp, Manager, Transportation Section, presented a memorandum entitled “Ozone Strategy Development – Draft Schedule” setting forth the planning process through April 2004. It includes technical analysis, ozone modeling, control measure review, public outreach, California Environmental Quality Act (CEQA) review, ozone working group activity, and public hearings at the regional and state level. Staff can provide updates to the Council on this process upon request. The 2004 Plan will use data from CCOS and will initiate increased and early public outreach. The District has committed to complete the plan for federal review by April of 2004. The modeling will provide an estimate of the emission reductions needed to attain the national standard and thus guidance for the type of and scope of any additional control measures. By the fall, a draft ozone strategy will be developed. Mr. Hess added that this model will enable the District to examine interactions of emission reductions in the Bay Area on downwind districts. The model will be turned over to the District for future use in a wide variety of state and federal planning efforts.

Mr. Hess thanked Messrs. Altshuler, Brazil and Holtzclaw for their participation on the Modeling Advisory Committee, and he invited the Council members to contribute their suggestions to this process and also to assist with the public outreach. Ms. Blake encouraged staff to include local health department directors in its public outreach on the ozone plan.

- 7. Report of Advisory Council Chairperson.** Chairperson Hanna requested that members wishing to attend the AWMA meeting promptly submit their requests to him or the Deputy Clerk.
- 9. Time and Place of Next Meeting.** 10:00 a.m., Wednesday, May 14, 2003, 939 Ellis Street, San Francisco, California 94109.
- 10. Adjournment.** 12:35 p.m.

James N. Corazza  
Deputy Clerk of the Boards

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

DRAFT MINUTES

Advisory Council  
Air Quality Planning Committee Meeting  
9:30 a.m., Tuesday, March 25, 2003

1. **Call to Order – Roll Call. 9:40 a.m. Quorum present:** Kraig Kurucz, Chairperson, Irvin Dawid, Fred Glueck, John Holtzclaw, Ph.D., Kevin Shanahan. Absent: Harold Brazil, Patrick Congdon.
2. **Public Comment Period.** There were no public comments.
3. **Approval of Minutes of February 25, 2003.** Dr. Holtzclaw moved approval of the minutes; seconded by Mr. Shanahan; carried unanimously by acclamation.

Chairperson Kurucz took Item Nos. 4 and 5 out of order:

5. **Air Quality Legislation.** Thomas Addison, Advanced Projects Advisor, stated the following:

Proposition 40 will allocate \$50 million to clean air programs: 20% to low emission school buses, 80% to the Carl Moyer program, and a small portion to the California Air Resources Board (CARB) for administrative overhead. While Proposition 40 also allows air districts to recover their Moyer program administrative costs, no provision for this has thus far been made. In the first year, CARB will allocate \$25 million. The remaining \$25 million may be allocated over several years. This will depend on the outcome of other bills that contribute funding to the Carl Moyer program.

AB 114 (Nakano) would allow hybrid cars in High Occupancy Vehicle (HOV) lanes. This would lead to the congestion of HOV lanes and adversely impact air quality. Staff will recommend that the Board oppose the bill. Staff has also presented its concerns to the author of the bill.

AB 720 (Matthews) is a reaction against city, county and regional district wood smoke abatement rules. It would require CARB to adopt clean-burning standards for hearth products. These would supersede local and regional measures. Staff will recommend that the Board oppose the bill.

AB 729 (Lieber) appears to authorize the District to adopt indirect source rules in a manner similar to the South Coast AQMD. The South Coast AQMD adds a fifth dollar to its vehicle registration fees, the funds from which are allocated to clean fuels technology advancement and demonstration programs. It can also impose emission rules for specific types of fleets. This bill will provide an opportunity to bring new tools to reduce vehicular emissions in the Bay Area. It would also require the District to adopt a refinery fugitive emissions rule and a refinery flare rule by mid-2004. The District already has the toughest refinery fugitive emissions rule in the state and will make it more stringent this year. Staff will work with the author to modify the bill into something more appropriate.

AB 1468 (Pavley) requires testing of negative air machines at asbestos abatement sites. Staff has concerns with the overall cost of the bill, but believes it will be hard to oppose. Staff will recommend that the Board support the bill with amendments.

AB 875 (Wyland) would allow gas tax receipts to be spent only on freeway construction. Staff will recommend that the Board oppose the bill.

AB 740 (Pavley) is known as the Clean Air, Clean Water & Coastal Protection Bond Act of 2004 and would generate \$3.4 billion. CARB would receive \$900 million for distribution to clean air programs, of which \$200 million would be allocated to the Carl Moyer program, \$100 million to low emission school buses, \$100 million for agricultural equipment clean-up and \$500 million for hydrogen fuel cell infrastructure. Staff believes that the latter allocation is premature given the state of the technology. The role of air districts in the overall scheme is unclear. They have previously been responsible for allocating funds to the Carl Moyer program, and school bus and agricultural equipment programs. Staff will recommend that the Board support and seek amendments to this bill.

AB 788 (Chavez) would prohibit CARB from regulating VOC content in disinfectants. Staff will recommend that the Board oppose this bill. The Board has opposed similar legislation in the past.

AB 854 (Koretz) would eliminate the use of perchlorethylene (PERC) in dry cleaning operations. It would establish a grant program to facilitate the transition to non-toxic alternatives, with funds obtained from a fee of \$3.00 per gallon of PERC used. There are four alternative technologies: CO<sub>2</sub> – based, water-based cleaners (both are non-toxic and non-smog forming), hydrocarbon-based and silicon-based cleaning. Concern has recently been voiced over possible toxic emissions in the latter technology. Staff will recommend that the Board support the bill with amendments.

AB 998 (Lowenthal) is similar to AB 854, but it lacks a phase-out component and allows only for water-based and CO<sub>2</sub>-based dry cleaning. Staff will recommend that the Board support the bill and seek amendments.

AB 698 (Lieber) concerns water contamination by PERC. It would impose a \$10 per gallon fee on PERC, which will reduce PERC use. Staff will recommend that the Board support this bill.

AB 925 (Richman) would require expansion of the expedited process that air districts used for permitting power plants during the recent state energy crisis. However, staff believes that the reason that new plants are not being brought on line at the present time is due to market climate and not to regulatory red tape. The author of the bill incorrectly believes that this legislation would accelerate the turnover of older power plants. Staff will recommend that the Board oppose the bill.

SB 170 (Torlakson) would merge the Metropolitan Transportation Commission (MTC) with the Association of Bay Area Governments (ABAG), with the aim of improving administrative efficiency and regional government. Staff will recommend that the Board adopt a “watch” position on the bill. Senator Torlakson has also publicly spoken of expanding this merger to include not only the Bay Area AQMD, but also the Bay Conservation and Development Commission and the Regional Water Quality Control Board. Staff believes that the public health would not be served if the Air District were merged with MTC and ABAG, because air quality and mobility goals are not always compatible. Mr. Dawid noted that in California there is no precedent for merging an air district with transportation and land-use agencies, although elsewhere the land-use and mobility regulation functions are contained in a single agency. In San Diego, former Senator Steve Peace merged the two transit agencies with the land-use and transportation agency. One result of this merger was a well-integrated Regional Comprehensive Plan.

AB 1500 (Diaz and Pavley) is known as the Petroleum Pollution Cleanup and Prevention Act. It would assess a fee of \$1.00 per barrel on crude petroleum and allocate these funds to Carl Moyer style programs. CARB would allocate the air quality portion of the funds to air districts for distribution. This is intended as a permanent source of funding. Mr. Shanahan inquired if the bill prohibits the oil companies from passing this cost through to consumers. Mr. Addison replied that on a practical level this would be hard to achieve. A \$1.00 per barrel fee would amount to a pass through cost of \$0.025 per gallon. Staff will recommend that the Board support this bill.

AB 1316 (Parra) would implement the Enhanced Smog Check in coastal areas between the Bay Area and South Coast AQMD. Staff will recommend that the Board watch the bill.

AB 1624 (Benoit) limits percentage of vehicles that will can be sent to “test-only” Smog Check stations. Staff will recommend that the Board oppose the bill.

AB 1624 (Benoit) and AB 1637 (La Suer) are both anti-regulatory. The latter would delete CARB’s administrative penalty authority and place all disputes in the courts. Staff will recommend that the Board oppose these bills.

SB 207 (Ackerman) would turn Air District vapor recovery inspection staff into maintenance technicians for local gas stations and would prevent air districts from issuing violation notices. Staff will recommend that the Board oppose this bill.

SB 656 (Sher) will establish a new major control program for particulate matter (PM) reduction. CARB and local air districts will be required to adopt PM emission reduction rules. Mr. Shanahan noted that this would place PM regulation on par with NOx and ozone. Mr. Hess replied that planning provisions similar to those for the state ozone plan would result. In the absence of planning by a district, CARB may intervene and mandate such planning because of its oversight authority. Chairperson Kurucz inquired if this bill recognizes distinctions in the toxicity of various PM sources. Mr. Addison replied that this issue would likely be discussed during the rule-making process. Staff will recommend that the Board support this bill.

Mr. Addison added that this bill does not establish a funding mechanism to support rule-making. Mr. Shanahan suggested that the bill be amended to connect PM and NOx reductions for purposes of generating funding. This would avoid the problem in the Carl Moyer legislation that disallows credit for NOx reductions that are associated with PM reductions. Mr. Addison replied that today he is going to Sacramento to discuss the fact that the Bay Area, with 20% of the state’s population, receives only 10% of the Carl Moyer funds, while Sacramento, with 3.5% of the state’s population, receives the same amount. Such an allocation formula makes no public health sense, especially as the best metric for public exposure to diesel PM is population density. Staff will ask Senator Sher to also address in this bill the transport of PM between air districts because Bay Area citizens are exposed to PM transport from regions to its east on cold winter nights. Staff will recommend that the Board support and seek amendments to the bill.

SB 700 (Florez and Sher) would eliminate the exemption of agricultural equipment from air quality regulation. However, EPA has recently suggested that this exemption apply only to major agriculture sources. Staff will recommend that the Board support the bill in concept.

SB 702 (Florez) would eliminate certain farm equipment from the cost-effectiveness requirements in the Carl Moyer program. Staff will recommend that the Board oppose this bill.

SB 706 (Florez) is very similar to AB 720 (Matthews) and staff will recommend that the Board oppose the bill.

SB 705 (Florez) would eliminate agricultural burning in California. Staff is concerned that state landfills and bio-mass composting facilities lack the capacity to handle the unburned product. Nonetheless, from a public health perspective, agricultural burning must be addressed. Staff will recommend that the Board support and seek amendments to the bill.

AB 219 (Reyes) concerns air quality improvements through diesel emission control in the San Joaquin Valley. Staff will recommend that the Board adopt a “watch” position on this bill.

AB 291 (Aghazarian) provides tax credits to clean technologies but is not well developed at the present time. Staff will recommend the Board adopt a “watch” position on this bill.

AB 204 (Nation) would establish the Transportation Fund for Clean Water, which will use vehicle registration fees to support the promulgation of water quality rules. Staff will recommend that the Board adopt a neutral position on this bill.

Chairperson Kurucz requested that staff update the Committee with legislative reports at its future meetings. Mr. Addison requested the Council members also obtain support from their respective constituencies for the bills that the District supports, and oppose those bills that threaten air quality.

4. **Transport Mitigation.** Peter Hess, Deputy APCO, stated CARB is proposing to change pollutant transport regulations by lowering the facility emission offset thresholds for the No Net Increase Permit Program. These modifications appear to concern notions of equity more than transport. CARB also proposes to modify the “all feasible measures” requirement by deleting older language concerning Best Available Retrofit Control Technology (BARCT) and requiring that upwind districts expeditiously implement all feasible measures. BARCT will be required for all stationary sources rather than for sources that represent 75% of the 1987 actual reactive hydrocarbon (HC) and NO<sub>x</sub> emissions inventory for permitted stationary sources by 1994. The District believes that NO<sub>x</sub> scavenging in “HC-limited areas” will complicate whether or not such measures would benefit downwind areas. BARCT may not be required if no impacts can be shown in downwind areas, but it may be required if there are downwind benefits that can be demonstrated.

The District is encouraging CARB to not only include PM transport in these regulatory modifications but also require use of the best available science in quantifying the emission reductions in the region and impacts downwind. The District is presently conducting state-of-the-art modeling to evaluate the impact of Bay Area emissions on ozone formation in downwind areas, which will be completed in April of 2004. However, CARB’s public hearing on the proposed modifications will be held this May. Chairperson Kurucz opined that it is unfortunate that CARB will move forward on these amendments in advance of the completion of the District’s modeling. Mr. Hess replied that CARB is fulfilling a commitment it made in 2001 to address pollutant transport in the state.

6. **Committee Member Comments/Other Business.** Mr. Dawid inquired if the District could look into a new rule recently adopted in one air district in the state that incorporates trip generation into land-use planning considerations. Chairperson Kurucz requested Mr. Dawid to obtain information on this regulation for Committee review in the future.

Mr. Dawid suggested that the Council create a Legislative Committee to advise the Board on pending legislation. Dr. Holtzclaw replied that the Council’s meeting schedule is not compatible with the pace of the Legislature. Chairperson Kurucz stated that if the Council were to opine on major bills, it should do so only toward the end of the Legislative session. He added that the Board should first be consulted on whether it is seeking the Advisory Council’s comments on pending legislation.

7. **Time and Place of Next Meeting.** 9:30 a.m., Tuesday, May 27, 2003, 939 Ellis Street, San Francisco, California 94109.
8. **Adjournment.** 11:44 a.m.

James N. Corazza  
Deputy Clerk of the Boards



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., Monday, April 14, 2003

1. **Call to Order – Roll Call. 1:30 p.m. Quorum Present:** Brian Zamora, Chairperson, Elinor Blake, Linda Weiner. Absent: Ignatius Ding, Jane Kelly.
2. **Public Comment Period.** There were no public comments.
3. **Approval of Minutes of March 10, 2003.** Ms. Blake moved approval of the minutes with the following three corrections: (a) insert “what is now” before “the” on line four of Item No. 4 on page four; (b) replace “Little” with “No” in the second sentence of paragraph three on page two; (c) delete “full” from line two of paragraph three on page three. Ms. Weiner seconded the motion, which carried unanimously.
4. **Maritime Emission Sources and Controls.** Jim McGrath, Environmental Planning Manager, Port of Oakland, presented (a) “Ships, Trucks and Trains: Control of Emissions of Shipping at the Port of Oakland,” which outlines the emission mitigation program in the Vision 2000 Port Expansion Project for the Fleet Industrial Supply Center in Oakland; and (b) a “Background Information” paper dated 1999. Displaying aerial photographs of the Port, he indicated that the marine area was dredged to a depth of 40 feet and the channel edge was moved back 700 feet. Five new berths and a joint inter-modal terminal were constructed. Other Port modifications included habitat restoration, improved public access and the installation of air quality monitors.

Emissions at the Port derive primarily from the following sources: *ships* (44% of the nitric oxide (NO<sub>x</sub>); 65% of the particulate matter (PM)); *trucks* (19% of the NO<sub>x</sub>; 10% of the PM), *cargo equipment* (22% of the NO<sub>x</sub>; 19% of the PM) and *trains* (11% of the NO<sub>x</sub>; 5% of the PM). The Port has focused on reducing PM since it is the major health concern of the community. The West Oakland Neighbors community group had earlier sued the Port over a programmatic document that concluded the Port lacked the regulatory authority to effectively mitigate emissions. The Court ruled that the Port must implement mitigations to the extent possible. Subsequently, the Port met with community groups to discuss mitigation measures. The dialogue was constructive.

Sound emission projections depend upon accurate emission inventories. The most recent Port inventories date from 1995 and are contained in the Clean Air Plan adopted during the last State Implementation Plan. These are dated and require some correction. The Port will improve its emission inventories through the Environmental Impact Report (EIR) and State Implementation Plan (SIP) processes. However, emission inventories should not project emission increases over time like interest on a bank account. For example, sports utility vehicles—which have truck level emissions—were first categorized as “off-road vehicles” and comprised 8% of the vehicle fleet. They now comprise 47%. The Port will therefore adopt a more logistically robust understanding of emission inventories by taking into account the impacts of market factors such as the trucking, air transportation and air cargo industries, all of which distinctly influence emissions.

The Port and West Oakland Neighbors agreed on a group of feasible emission mitigation measures. A separate “Good Neighbor Agreement” was reached regarding the allocation of \$1.5 million to mitigate emissions from local trucks. Retrofits of PM traps and oxidation catalysts were initially estimated at \$2,300 each but ultimately cost \$5,000. Another and now completed mitigation is the cost-effective reduction of emissions from 85% of the Port’s cargo equipment through retrofits, costing less than the \$5.2 million budgeted for it. The \$245,000 assigned to miscellaneous cargo exhaust scrubbing will likely be spent elsewhere. The \$500,000 allocated for changing-out a tugboat engine has proven very cost-effective. The \$700,000 allocated for bus re-powering and retrofits has been enhanced by AC Transit’s hiring of 97 West Oakland residents to work on the bus project and other jobs. A fund of \$10,000 will be applied to cleaner railroad switch engines. Other modifications include electric dredges, the construction controls of which cost \$4.5 million. There is also \$525,000 available from the recently closed Red Star Yeast facility and another \$30,000 from Precision Cast Controls. PM monitors have also been installed at two sites at the Port.

Feasibility was determined by a cost-per-ton formula using such criteria as the cost of emission offsets at \$8,000/ton and a broader regulatory cost-effectiveness of \$10,000/ton. Local truck emission mitigations were not subject to these criteria but were implemented separately. Except for two shipping firms, the Port could not mandate the implementation of these measures. It therefore created a grant program with a total of 44 implementation incentives. To almost every incentive a cost-effectiveness conclusion was attached.

Technology availability is another key to assessing feasibility. The debate continues over how well PM filters work or whether oxidation catalysts should be used instead. The application of such retrofits from truck to ship engines has not yet been tested. The next EIR will address these issues.

Institutional feasibility is another issue. Until a tenant’s lease expires, no changes in operating conditions can occur. This raises questions about regulatory jurisdiction over interstate and international commerce, the authority of the California Air Resources Board (CARB), the Environmental Protection Agency (EPA), international treaties and the European Union (EU).

Economic feasibility addresses competitive trade-offs. Some might adversely affect the position of the Port viz-a-viz other ports. Others are positive and motivate owners to embrace air quality measures that improve fuel economy or performance, thereby reducing greenhouse gas emissions and operating costs. Some shipping firms are now considering a more accelerated phase-in of lower sulfur fuels. The dynamics of the various trade-offs should be better understood.

The Port will expand again in five years and will relocate the rail terminal nearer to the community. This will trigger more health risk assessments. The Port will re-examine ship emission controls at that time. CARB intends to propose emission controls on local maritime vessels at a future date.

The practice of “cold ironing”—that is, the use of an auxiliary diesel engine instead of the main engine to power a ship docked at the Port—would reduce emissions by only 4%. Until the next generation of marine engines arrives, existing diesels will have to be used. However, they must be made to run as cleanly as possible. New marine engines are available, but there is no regulatory incentive to install them. The challenge is to make their purchase fiscally attractive. The ultimate cost impacts of low sulfur diesel fuel are not yet known.

Railroad locomotives are routinely re-built about every five years. Emission reductions from these engines are an inherent feature of the successive rebuilds.

Initial Port meetings with terminal operators regarding subsidies to re-power their equipment were followed by CARB's issuance of its diesel strategy with a mandated retrofit schedule. Heightened interest in retrofits resulted at the Port. To effectively understand how subsidies work best with regulation on the horizon, the Port, the industry and regulators must work together.

In reaching agreement with the West Oakland Neighbors, the Port became part of the broader environmental solution. Re-powering transport trucks at the Port will affect only a tiny fraction of the total fleet, but the Port can help evaluate emission reduction technology. Ultimately, however, the reduction of diesel PM risk will require that all sources of diesel PM emissions be addressed.

Mr. McGrath displayed several slides of Port emission trends from 1990-2015 in Alameda County with and without the Port mitigation measures. Additional viewgraphs showed projected emission reductions for the Port baseline plus new berths for various funding increments ranging from \$7.5 to \$10-\$12-\$13.5 million. Reactive organic (ROG) emissions have been reduced below the threshold through the mitigation measures funded at \$7.5 million. But there are only diminishing returns for funds invested beyond \$7.5 million for both PM and NOx reduction strategies, and even the maximum allocation will not place these below the District's thresholds. Major NOx reduction from trucks will occur only with new engines. However, transport truck engine replacement is costly, with NOx reductions at \$74,000/ton, PM reductions at \$185,000/ton and ROG reductions at \$123,000/ton. Exhaust retrofits have little NOx benefit but reduce PM at \$95,000/ton and ROG at \$30,000/ton. Trends show that while container throughput is increasing, PM will be significantly reduced through the CARB diesel retrofit strategy that will take effect in 2006. The result will be a doubling in throughput capacity and a halving of the overall emissions.

In reply to Committee member questions, Mr. McGrath stated:

- The Port will continue to receive community input and believes it will improve as a result of it.
- The operators received newer or upgraded equipment as a result of the mitigation measures. The Longshoremen also desire to work in a cleaner environment. PM filters work best with low sulfur fuel, while oxidation catalysts achieve greater NOx benefits regardless of the fuel sulfur content. Port operators now use and will continue to use low sulfur diesel fuel.
- With the assistance of the Brookings Institute, the Port examined the use of compressed and liquid natural gas but found that neither generated enough horsepower for Port equipment. However, biodiesel has greater horsepower potential and the refuse hauling industry is now experimenting with it. When the Port is expanded, alternative fuels will be re-considered.
- There is insufficient cooperation between West Coast shipping ports and the European Union.
- Other major West Coast ports reacted unfavorably when the Port implemented its mitigation measures. However, the Port believes that proactively solving environmental problems helps to retain a competitive edge. Competition between West Coast ports is over inter-modal shipping rather than local markets, which in turn depends on rail system characteristics and capacity.
- The Port is the smallest California container port but is similar to the Seattle and Tacoma ports.
- PM and NOx emission reductions at the Port will incrementally be slowed by the mitigations.
- Some tenants at the Port own their ships, while others use them through contract.
- There is a registration service at the Port that keeps track of the age and ownership of the ships.
- Inter-modal cargo constitutes from 8-12% of the total cargo throughput at the Port.
- In November, shipping levels are only at slightly higher levels than during the rest of the year.
- Operational costs, as well as vehicular pollution, are reduced with shorter truck idling time.

- PM emissions from trucks from nearby freeways have a far greater impact on the community than do emissions from trucks at the Port. However, the \$1.5 million spent to reduce PM emissions from local trucks helped to establish and facilitate good community relations.
- New maritime engines are becoming available and may dramatically reduce emissions. In response to litigation from the Bluewater Network, EPA has issued rule making for maritime engines. However, it does not address exhaust scrubbing, perhaps because the technology is not yet available. Shipping ports in Europe are concerned about air quality. The Port will keep apprised of developments in pollution abatement technology and strategies at European ports.

- 5. Presentation on Truck Idling Legislation.** Victor Douglas, Air Quality Specialist II, Compliance & Enforcement Division, stated that AB 2650 (Lowenthal) addresses truck idling in loading and unloading queues at three shipping ports in California (Oakland, Long Beach and Los Angeles). It requires terminals to operate in a way that limits truck idling time to 30 minutes. Appointment systems may be established to stagger arrivals and departures and reduce queues, or alternatively a terminal may opt to remain open longer. The bill will be funded through penalties issued for its circumvention or violation. The District has formed an AB 2650 work group comprised of marine terminal operators, truckers, community groups, and the Port of Oakland to develop an implementation program. It has met three times. A subgroup has been formed to develop an appointment system. Claiming that their operations are efficient enough, two terminals have opted not to use an appointment system. Staff is also participating in the AB 2650 work group in the South Coast AQMD. Through July 1, 2003 operators are exempted from penalties if an appointment system has begun to be implemented. Thereafter, an appointment system must be in place; idling time must not exceed 30 minutes; or a terminal's operating time must be extended.

Enforcement of the bill poses a challenge. If drivers telephone in complaints about queues of over 30 minutes long this could overload the District's complaint and dispatch system. Moreover, the District has only one inspector for that area in Oakland. Inspector safety is of concern given the highways with heavy truck traffic at the Port. At present there is no obvious vantage point from which to monitor transport truck queues. Also, further evaluation will be required of queues that include trucks arriving with and without an appointment. During the transition period, the District will issue Notices of Compliance rather than Notices of Violation. Estimates of the emissions reductions that will follow the bill's implementation have not yet been made. Chairperson Zamora stated that the Committee would like an update on this rule when it meets in June.

- 6. Committee Member Comments/Other Business.** Ms. Blake stated that the San Joaquin Valley AQMD will update its woodsmoke abatement regulation. New housing with fireplace features may contain only natural gas fueled fireplaces. Upon the sale of home, a wood burning stove or insert must meet current EPA regulations or be removed. Chairperson Zamora requested staff to track this rule development and provide a report when the Committee meets in June.
- 7. Time and Place of Next Meeting.** Monday, May 19<sup>th</sup>, 2003, 1:30 p.m., location to be determined.
- 8. Adjournment.** 3:00 p.m.

James N. Corazza  
Deputy Clerk of the Boards

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

**DRAFT MINUTES**

Advisory Council Technical Committee  
10:00 a.m., Tuesday, April 1, 2003

- 1. Call to Order – Roll Call.** Quorum present: 10:02 a.m. Robert Harley, Ph.D., Chairperson, Sam Altshuler, P.E., William Hanna, Stan Hayes, John Holtzclaw, Ph.D., Norman Lopera, Jr., Robert Sawyer, Ph.D.
- 2. Public Comment Period.** There were no public comments.
- 3. Approval of Minutes of February 4, 2003.** Mr. Altshuler moved approval of the minutes; seconded by Dr. Holtzclaw; carried unanimously.
- 4. Refinery Flares.**

**(A) Staff Presentation on Bay Area Refinery Flares.** Jim Karas, Air Quality Engineering Manager, stated that as part of the 2001 Ozone Attainment Plan staff is reviewing refinery flare data for potential emission reductions, control measure application and use in photochemical modeling. Noting that flares combust the excess fuel gases from a variety of refinery activities, he displayed a diagram of a refinery flare system with the purge and pilot gas systems, water seal and flare tip. The composition of waste gases varies with inflow components. Presently there are 28 flares at Bay Area refineries, of which 25-26 are operational and differ in height and priority of use.

Staff has evaluated the flare system at each refinery for gas recovery capability, pilots and purges, and monitoring devices. It also tried to obtain daily data for large flaring events of one million cubic feet a day but found that threshold was too small because one refinery routinely flared six to eight million cubic feet daily. Staff reviewed initial submittals of refinery flare gas sampling data and used estimates where data gaps occurred. Staff arrived at a baseline assumption of 75% total hydrocarbon (HC) content, including methane. Some of these submittals have since been revised.

Given the difficulty of making field samples of flare emissions, the District formed a work group to discuss flare efficiency. It arrived at an estimate of 98%. Flare efficiency is measured by the difference in the amount of carbon entering and exiting the system. The major factors that effect efficiency are exit velocity, crosswinds and gas composition. Numerous flare studies were also reviewed. The 1983 Environmental Protection Agency (EPA) study took samples from a model flare and found that better than 98% efficiency is achievable under low wind conditions. The 1999 Alberta Research Council (ARC) study sampled a model oil and gas field flare and arrived at a combustion efficiency of 62%. However, the lower efficiency was likely due to the crosswind speeds from wind tunnels used to measure downstream emission composition. Several other studies have attempted but failed to accurately predict flare efficiency. In December of last year, the District published its Technical Assessment Document (TAD) on refinery flare monitoring.

Staff initially found that flows and flaring frequency were higher than expected, but it appears that the District's flare study has led both to reduced flow to the flares and the recovery of eight million additional cubic feet of flare gas at one refinery. The flare-monitoring rule will be expedited to obtain better data earlier. Staff believes that some of the initial and revised flare-monitoring data sets are unreliable. NOx was estimated with original refinery data in the range of two tons per day (tpd) for all refineries. Estimates of SO2 emissions were based on sample data at 10-13 tpd. Staff found that the samples taken of fuel inputs prior to the water seal stage could not be correlated with a specific refinery activity even after the samples were speciated.

Staff intends to further evaluate and assess the revised refinery data, respond to the comments from the public and the Council and post this response on the District's website. The Council is being asked to provide input on flow measurement, data characterization, molecular weight and HC content assumptions, flare combustion efficiency, correction factors for flare emissions, the applicability of studies of model flares to refinery flares, emission calculation parameters, the estimation of flare emissions on an hourly basis for the ozone episodes that will be modeled for the attainment plan update, as well as on a daily, monthly and annual basis for emission inventory purposes.

Peter Hess, Deputy Air Pollution Control Officer, noted that the impact of flare emissions on ozone formation depends on reactivity. Staff will measure total organic gas emissions and then speciate them to assess how the content of refinery flare emissions differ. The 2001 Ozone Attainment Plan contained requirements to submit a flare-monitoring rule and to evaluate potential emission reductions from flares. The TAD will lay the groundwork for flare monitoring which will in turn create the basis for viable control mechanisms.

Mr. Hess added that on high ozone days wind speeds are low or stagnant, rendering flare emission transport to adjacent air basins unlikely. However, this could be more accurately evaluated if the flare emission characterizations were made on an hourly basis, with meteorological conditions taken into account. While the flare-monitoring rule will obtain more reliable data over the long-term, the ozone plan must be updated within the more immediate future.

In response to Committee member questions, Messrs. Karas and Hess noted the following:

- The fact that the emission calculation formula as a function of flow rates is distinct from a frequency distribution of emissions from flare events per se, renders the characterization of flare emissions difficult. Emissions were large when a power outage occurred. Staff identified such events in the TAD and estimated flare emissions. On other days the ranges were not as high. The issue is whether to present these data on a worst day, a typical day, or as an average.
- The validation of historical episodes through modeling is more difficult than projecting future emissions, but some of the larger refinery events occurred within the episode periods modeled.
- Texas is looking into the spectral analysis of flares, and some spectral measurements have been conducted in Sweden and Belgium. Staff seeking to obtain this data.
- Lake County's exclusion from the record of attainment data of an episodic release of hydrogen sulfide at a geothermal facility, affecting the attainment of ambient air quality standards, is permitted under federal law. Staff will examine its applicability to refinery flare episodes.
- Flare emissions have rarely varied by the heat of day, although the reason for this is unknown.
- Data are not available on the formaldehyde content of flare emissions.

**(B) Industry Perspectives on Refinery Flares.** Kevin Buchan, Bay Area Coordinator, Western States Petroleum Association (WSPA), presented his report entitled “Historic Flaring for Bay Area Refineries,” dated January 2001-May 2002, containing the voluntary monitoring data provided by the refineries to the District. He stated that this data should form the basis of a flaring emission inventory, because it encapsulates flare activity at all five refineries prior to and during their voluntarily collection of monthly flare monitoring data. Where data gaps were found, the refineries made professional estimates based on source tests, process knowledge and engineering principles.

Flare gas composition data reveals a significant amount of hydrogen and nitrogen, and that the non-methane HCs (NMHCs) are relatively low. The District’s assumption of 75% HC content is arbitrary and should have excluded NMHC’s. Purge and pilot lights are fueled by natural gas, which is primarily methane. Methane is not an ozone precursor and should therefore be excluded from flow estimates or emission calculations. Because purge and pilot occur upstream of the water seal, purge and pilot gases are not included in WSPA’s data flow charts. Mr. Hanna noted that oxygen added after the water seal would impact the combustion efficiency that is based on flow measurement at or before the seal. Mr. Buchan replied that flare efficiency is estimated to be the destruction of HCs going into the flame. Dr. Sawyer opined that the pilot and purge gas would be negligible in a major upset at a refinery.

Mr. Buchan stated that with revised refinery data WSPA could not duplicate the District’s estimate of 22 tons of HC from flares. The TAD does describe the District’s calculation methodology. It is unlikely that flares contribute 22 of the 26 tons of HC that the District estimates are emitted in total by the refineries. The data baseline provided by the refineries is more reliable than calculations that backcast data and retroactively estimate emissions. Mr. Hanna suggested that the explanation for the order of magnitude difference between the 22 versus two tons lies in the difference in calculating with and without a baseline that includes NMHCs. Mr. Karas clarified that WSPA’s estimates are based on revised flow data, which is significantly less than the original refinery flow data on which the District based its estimates.

Dr. Sawyer opined that uncertainties in flow rates and gas composition can be resolved but the accurate assessment of flare efficiency at 60%, 98% or 99% is much more complex. Mr. Buchan replied that two decades of flare combustion studies show efficiency at 98% or greater. This was confirmed by recent tests conducted by WSPA’s consultant, The Washington Group International. The ARC studied solution gas flares with a 4-inch pipe lacking a flare tip, in a wind tunnel. These are very different from refinery flares. The University of Alberta could not reproduce the ARC’s 62% efficiency estimate and concluded the results could not be applied to refinery flares. If the Council concludes similarly, the ARC study should be removed from the District’s website.

Mr. Buchan added that the installation of the two flare vapor recovery compressors at one of the refineries predates by two years the monitoring issue now under discussion. These compressors have only recently come on line. Chairperson Harley suggested that as flare emission reductions have already occurred due to recent changes in refinery practices, it might be helpful to develop a base case prior to these emission reductions to document any large emission reductions to date.

Dr. Holtzclaw inquired if a statistical analysis of the daily variations in the WSPA estimate of two tons per day could be conducted. Mr. Buchan stated he would prepare this analysis for review by the Committee. Dr. Sawyer urged the Committee to review flare studies and the associated laws of scaling in evaluating if oil production flares can be applied to refinery flaring systems. Mr. Buchan

offered to arrange for WSPA's consultant to make a presentation on flares at the Committee's next meeting. The Committee accepted this offer.

Chairperson Harley stated that for the evaluation of inter-basin transport, it is important to evaluate if refinery flares influence ozone formation at Livermore. Mr. Hayes added that in assessing the impact of flare emissions on ozone formation, professional judgments will have to be made not only about the composition of input gases but also of the combustion products. Mr. Buchan replied that some attempts have been made in Texas to obtain data on combustion output, but these were not successful. A large flare tip with an effluent of 60 feet per second (fps) at full capacity creates significant radiation zones, thus rendering field sampling difficult.

Mr. Altshuler suggested that SO<sub>2</sub> be used as a tracer for flare emissions and formaldehyde as a means of evaluating flare efficiency because as a combustion product it reacts with methane feedstock. Gary Kendall, Technical Division Director, replied that sulfur was detected at several downwind stations after the July 10, 2002 incident at what is now the ConocoPhillips refinery. However, it is unclear how the sulfur from vehicle fuel would be distinguished from the sulfur that is contained in flare emissions.

Mr. Altshuler suggested that optical infrared sensing could be used to measure the energy release during a flare and also as a monitoring tool. Mr. Kendall replied that literature from the American Petroleum Institute provides a method for estimating the heat release rate from a flare based on flame size and length. Mr. Altshuler suggested this method could be combined with fuel composition data to retroactively calculate efficiency or measure emissions in real-time. Mr. Kendall replied that this could help to validate the quantity of material entering the flare. Mr. Buchan offered to obtain additional data from each refinery on purge gas for the Committee.

Chairperson Harley called for public comment, and the following individuals came forward:

Dave Souten  
Principal  
ENVIRON International Corporation

stated that source data for the ozone model must be well documented and derived either from monitoring data or sound estimates. In the future, the model will include PM data, and NO<sub>x</sub> emission estimates will be important for evaluating aerosol nitrate formation. Methane has a low reactivity and is consequential. Default speciation profiles for refinery flare emissions include formaldehyde, and its measurement will help assess the accuracy of the speciation profiles.

Bob Chamberlain  
Environmental and Safety Manager  
Chevron Richmond Refinery

presented a detailed diagram on a refinery flare tip, and described its components and operations. He stated that smoke is an indicator of hydrocarbon destruction rather than of poor combustion. A system operator observes the flame via video camera and adjusts steam input to maximize combustion. Efforts have been made to measure the radiant energy off of the flare by automatically controlling the steam input, but these proved unsuccessful.

In response to questions from the Committee members, Mr. Chamberlain replied as follows:



- Some interest has been expressed by community groups in posting the flare operator's video recording on a website, and retaining the tapes for a fixed time for purposes of review and research. This practice will not improve flare management. It may also be a source of distraction to the refinery and the District, and cause undue concern in community.
- It takes one or two minutes from stand-by status for a flare to reach peak efficiency.
- There is an efficiency design value for each of the 28 refinery flares. There remains some uncertainty in assessing flare efficiency in light of operator manual control and variance in flaring events. Downstream sampling might better assess the relationship of flare efficiency to operator control, but to date no method has been successfully developed.
- The ARC study found that the profile of non-combusted gases is similar to the profile of the fuel. At a recent flare stakeholder workshop, a CARB staff member noted that there is a similar relationship between internal combustion engine fuel composition and emissions.
- In September of this year a paper will be submitted at a combustion symposium in Vancouver that will update all of the studies on refinery flaring. The authors of these studies will attend to discuss the technical issues and assumptions. Chevron will share this study with the Council.
- Chevron schedules refinery equipment maintenance as far as possible out of the ozone season.

Eric Hengst  
 Staff Environmental Engineer  
 Valero Refinery

stated that flares are used as safety devices to combust excess gases within a refinery in the event of (a) emergency or malfunction situations, (b) start-ups and shutdowns of units within the refinery, and (c) routine operations which experience a slight but persistent fuel imbalance. There are limits on the extent to which refineries can recover these gases. Large process units contain complex equipment relating to reaction, fractionation and separation. Changing the operational pace of a unit affects fuel gas disposition to furnaces, boilers, and gas turbines. The recovered fuel may be degraded by a high percentage of hydrogen or nitrogen that had been contained in the process vessels. These gases must be purged before the unit is started up to avoid a major upset. Flare gas recovery must ensure quality so that the refinery fuel gas system is not jeopardized.

Dennis Bolt  
 Senior Bay Area Coordinator  
 WSPA

stated that WSPA's data should be used as the baseline for emission characterization. The assumptions used in filling in data gaps are based on years of refinery experience and professional judgment. In late 2001, in response to the District's concerns on flaring frequency, the refineries began to make process improvements that have reduced flaring events and voluntarily collect fuel flow data. The Tesoro Refinery had already started the process of installing compressors that recover some flare gases. While neither District staff nor the refineries were given sufficient time and data to prepare the TAD, collaboration between the operating community and the regulatory agency has led to discernable reductions in refinery emissions to a fraction of one ton a day. Only a flare-monitoring rule can suggest the next responsible regulatory steps, taking into account the broader context of refinery safety, operator judgment and associated societal costs.

WSPA is concerned over the District's overestimation of flare emissions, the persistent media problem concerning flaring, and the posting of the ARC study on the District's website. Issues of ozone attainment, pollutant transport and emission profiles must be accurately assessed and presented. The Advisory Council provides an ideal learning environment for all interested parties and its technical expertise is both welcome appreciated.

Chairperson Harley read a letter from Julia May, Staff Scientist, Citizens for a Better Environment (CBE), who could not attend today's meeting. She expressed concern over the following issues:

- the possible modification to the data contained in the TAD made at the urging of the refineries
- the possible modification of emission estimates without public review of raw flow rate data
- the proposal in the flare monitoring rule of daily rather than semi-continuous or continuous sampling, and use of calculations to estimate rather than trace gas methods to measure fuel flow
- the lack of an expeditious approach to the regulation and control of refinery flare emissions

Referring to the successful work of the Modeling Advisory Committee to the 2004 Ozone Plan, Mr. Altshuler suggested that a refinery flare advisory committee comprised of representatives of the District, industry and the public, be created for the discussion of the issues and resolution of misconceptions. Chairperson Harley stated that this suggestion and the broader issue of refinery flares would be discussed at the next Committee meeting because further information is needed. He requested staff to work with WSPA to arrange for a presentation from The Washington Group International. Mr. Souten requested the Council's input on flares at the earliest practical moment.

5. **Committee Member Comments/Other Business.** There were none.
6. **Time and Place of Next Meeting.** 9:30 a.m., Thursday , May 29, 2003, 939 Ellis Street, San Francisco, CA 94109.
7. **Adjournment.** 12:45 p.m.

James N. Corazza  
Deputy Clerk of the Boards