BAY AREA
AIR QUALITY
MANAGEMENT
DISTRICT

ADVISORY COUNCIL
REGULAR MEETING

WEDNESDAY
NOVEMBER 12, 2003
10:00 A.M.

SEVENTH FLOOR
BOARD ROOM

AGENDA

CALL TO ORDER

Opening Comments — William Hanna, Chairperson
Roll Call — Clerk

PUBLIC COMMENT PERIOD

Public Comment on Non-Agenda Items, Pursuant to Government Code Section 54954.3. *The public has the opportunity to speak on any agenda item. All agendas for Advisory Council 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.*

CONSENT CALENDAR

1. Approval of Minutes of September 10, 2003

COMMITTEE REPORTS

2. Report of the Air Quality Planning Committee Meeting of September 30, 2003 — Chair Kurucz

3. Report of the Public Health Committee Meeting of October 20, 2003 — Chair Zamora

4. Report of the Technical Committee Meeting of October 20, 2003 — Chair Harley

   The Committee will present recommendations on refinery flaring for adoption by the full Council.

5. Report of Executive Committee Meeting of November 12, 2003 — Chair Hanna

   The Committee will propose a slate of Council Officers for 2004 on which the Council will vote.

6. Applicant Selection Working Group Meeting of October 17, 2003 — Stan Hayes

PRESENTATION(S)

7. Status Report on 2004 Ozone Planning Process

District staff will provide a brief update on the 2004 ozone planning process.

OTHER BUSINESS

8. Report of the Executive Officer/APCO — Jack Broadbent / William C. Norton

9. Report of Advisory Council Chair — William Hanna

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, January 14, 2004, location to be announced.

12. Adjournment

BH:jc

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

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

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

939 ELLIS STREET, SAN FRANCISCO, CALIFORNIA 94109
(415) 771-6000

CLERK OF THE BOARDS OFFICE:
MONTHLY CALENDAR OF DISTRICT MEETINGS
N O V E M B E R 2 0 0 3

TYPE OF MEETING	DAY	DATE	TIME	ROOM
Board of Directors **Public Outreach Committee**	**Monday**	**3**	**9:45 a.m.**	**4th Floor** **Conf. Room**
Board of Directors **Regular Meeting** **- CANCELLED -**	**Wednesday**	**5**	**9:45 a.m.**	**Board Room**
Advisory Council **Executive Committee**	**Wednesday**	**12**	**9:00 a.m.**	**Room 716**
Advisory Council **Regular Meeting**	**Wednesday**	**12**	**10:00 a.m.**	**Board Room**
Board of Directors **Mobile Source Committee**	**Thursday**	**13**	**9:30 a.m.**	**4th Floor** **Conf. Room**
Board of Directors **Legislative Committee**	**Monday**	**17**	**9:30 a.m.**	**4th Floor** **Conf. Room**
Board of Directors **Regular Meeting**	**Wednesday**	**19**	**9:45 a.m.**	**Board Room**
Regional Agency Coordinating Committee (RACC)	**Friday**	**21**	**1:30 p.m.**	**MTC** **101 Eighth Street** **Oakland, CA 94607**
Board of Directors **Stationary Source Committee**	**Monday**	**24**	**9:30 a.m.**	**Board Room**
Advisory Council **Air Quality Planning Committee**	**Tuesday**	**25**	**9:30 a.m.**	**Room 716**
Board of Directors **Budget & Finance Committee**	**Wednesday**	**26**	**9:30 a.m.**	**4th Floor** **Conf. Room**

MR:hl
10/29/03 (1:15 p.m.)
P/Library/Calendar/Moncal

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

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CLERK OF THE BOARDS OFFICE:
MONTHLY CALENDAR OF DISTRICT MEETINGS
D E C E M B E R 2 0 0 3

TYPE OF MEETING	DAY	DATE	TIME	ROOM
Board of Directors Regular Meeting	Wednesday	3	9:45 a.m.	Board Room
Advisory Council Public Health Committee	Monday	8	1:30 p.m.	Room 716
Advisory Council Technical Committee	Tuesday	9	9:30 a.m.	Room 716
Board of Directors Mobile Source Committee	Thursday	11	9:30 a.m.	4th Floor Conf. Room
Board of Directors Regular Meeting	Wednesday	17	9:45 a.m.	Board Room
Board of Directors Budget & Finance Committee	Wednesday	24	9:30 a.m.	4th Floor Conf. Room
Board of Directors Executive Committee	Wednesday	31	9:30 a.m.	4th Floor Conf. Room

MR:hl
(10/28/03) 9:40 a.m.

AGENDA NO. 1

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

939 ELLIS STREET - SAN FRANCISCO, CALIFORNIA 94109

Draft Minutes: Advisory Council Regular Meeting – September 10, 2003

Call To Order

Opening Comments: Chairperson Hanna called the meeting to order at 10:05 a.m.

Roll Call: Present: William Hanna, Chair, Sam Altshuler, P.E., Louise Bedsworth, Ph.D., Elinor Blake, Harold M. Brazil, Pamela O'Malley Chang, Irvin Dawid, Ignatius Ding, Stan Hayes, John Holtzclaw, Ph.D., Norman Lapera, Jr., Brian Zamora.

Absent: Patrick Congdon, Rob Harley, Ph.D., Fred Glueck, Kraig Kurucz, Kevin Shanahan, Victor Torreano, Linda Weiner.

Public Comment Period: There were no public comments.

1. Approval of Minutes of July 9, 2003: Mr. Lapera moved approval of the minutes; seconded by Dr. Holtzclaw; carried unanimously.

Committee Reports

2. Report of the Air Quality Planning Committee Meeting of July 22, 2003.

   Dr. Holtzclaw stated that the Committee continued with its review of pending legislation, and focused on the bills that concern new source review and particulate matter (PM). Staff also gave a presentation on state and federal efforts to regulate on- and off-road sources of diesel emissions.

   In response to questions, Thomas Addison, Legislative Analyst, stated that SB 700 (Flores) has passed the Senate Appropriations Committee but has not yet been voted on by the Senate. The Air District supports the bill, and it is expected to pass. Mr. Dawid observed that moderate urban Democrat legislators have joined with the agricultural lobby and recently defeated SB 705 that concerned burning of agricultural waste.

3. Report of the Public Health Committee Meeting of August 28, 2003.

   Ms. Blake stated that the Committee continues to review a staff referral concerning whether optical remote sensing technology in operation at the ConocoPhillips refinery fence line should be applied to other Bay Area refineries. A discussion was held with District staff that explored the past performance of the monitors in relation to refinery incidents, the advantages and disadvantages of the technology, and access to the data generated by the system. The Committee will meet on October 20, 2003 to further discuss this issue with the staff of the five Bay Area refineries. Members of the Technical Committee are invited to attend and listen to the discussion.

4. Report of the Technical Committee Meeting of August 7, 2003.

   Mr. Hayes stated that the Committee received presentations from refinery staff and representatives on flare distribution frequency. A central issue concerns the difference between District and industry estimates of total daily flare emissions, which derives from differences in the respective assumptions made in the emissions calculation methodology. Staff also provided a presentation on the South Coast AQMD Rule 1118 on refinery flare monitoring. At its next meeting, the Committee will consider adopting recommendations on refinery flaring.

5. Minutes of the Public Health and Technical Committee Meeting of June 30, 2003.

   Ms. Blake stated that an oral report on this meeting was given at the last Council Regular meeting, and the minutes are now included in this agenda packet for the Council members' review.

Presentation:

6. Status Reports on Ozone Attainment Planning.

   a) U.S. EPA Action on 2001 Ozone Attainment Plan.

      Jean Roggenkamp, Manager of Planning, stated that the Environmental Protection Agency (EPA) posted notice in the Federal Register of July 15, 2003 of its intention to approve the District's 2001 Ozone Attainment Plan for the federal one-hour standard. It stated that the 2001 plan had corrected the deficiencies in the 1999 Ozone Plan and not only stayed the emissions offsets sanction but also deferred imposition of transportation funding sanctions. The comment period concluded on August 15. EPA will review comments and then take final action by a date yet to be determined. In reply to Chairperson Hanna, Ms. Roggenkamp noted that pending litigation, under State law, on the Plan does not affect the actions undertaken by federal EPA.

   b) 2003/2004 Ozone Planning.

      Ms. Roggenkamp stated that the 2001 Ozone Plan committed the District to issue an updated Plan by April of 2004. The Bay Area has an attainment deadline of 2006 for the federal ozone standard. The Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG) will join in this update. While there is no deadline for attaining the state ozone standard, the District must implement "all feasible measures" to reduce ozone both within, and downwind from, the region.

      The modeling for this plan involves several participants. Data from the Central California Ozone Study (CCOS), which gathered meteorological and emissions data during the summer of 2000, will be reviewed. The California Air Resources Board (CARB) is coordinating a multi-agency group to collect and evaluate these data. Environ Corporation will conduct the emissions, meteorological and photochemical modeling for past ozone episodes. This will form the basis for future planning and setting an emission reduction goal to attain the national standard. District staff are heavily involved in this process as well. Three ozone episodes have been selected for modeling. Two were from the summer of 2000: one in June, and the other in July/August. Both are buttressed with rich data from CCOS. The June 2000 episode had high values only in Livermore. An episode in July of 1999 was also picked as it had high values at a number of Bay Area monitoring stations as well as in downwind regions.

The priority will be to model the July/August 2000, the July 1999 and then the June 2000 episodes. Preliminary modeling results are expected by early October. Modeling runs will help to determine if attainment is projected by 2006 or further emission reductions will be required, and the Council will receive a report on the preliminary results. Staff are presently evaluating a list of 400 potential additional control measures: 300 concern stationary and mobile sources and the remainder concern transportation control. These measures derive from other air districts in the state, the public, community members, the Advisory Council and Board of Directors. Staff also reviewed previous plans for control measure suggestions then thought infeasible but which now may be practical. Criteria for evaluating the potential measures include technical feasibility, cost-effectiveness, the amount of precursor reductions achieved within specific time frames, associated adverse environmental and socio-economic impacts and public acceptability. Approximately two months will be required for this review.

In terms of public involvement, the District is taking a higher profile in the ozone planning process and is starting earlier than in the past. The Modeling Advisory Committee is reviewing the modeling work of the consultant, Environ Corporation. It has met since May of 2002 and will meet again on September 16. The Ozone Working Group meets bi-monthly to review the progress of the planning work and provide input at each stage in the process. It will meet on October 28. Initial community meetings on the Ozone Plan will be held this month and will describe the District's ozone planning process and solicit input on ozone control measures. These meetings were requested by the Environmental Justice Air Quality Coalition, which also helped to determine their location. The first meeting was held in Rodeo and was well attend-ed. Contra Costa County Health Services Department staff presented information on the health effects of ozone and also worked with District staff to organize a community training session prior to the Rodeo community meeting to help the community become more involved in the air quality planning process. Staff hopes that the health officers from the other counties will provide similar assistance. When the draft Plan is issued, more community meetings will be held. The Board of Directors will then hold a public hearing to adopt the final Plan.

In discussion, Ms. Roggenkamp stated that PM is not a focus of discussions on the Plan, but some measures that reduce ozone also reduce PM. MTC and ABAG staff are attending the community meetings to answer questions about the transportation emissions component of ozone formation. Peter Hess, Deputy Air Pollution Control Officer, added that Environmental Audit, Inc., will conduct the California Environmental Quality Act (CEQA) review of the Plan, and the full Council will receive a presentation on the results of this review at a future meeting.

c) Federal 8- hour ozone standard designation process.

Implementation of the national 8-hour ozone standard adopted in 1997 may now take place, following the conclusion of litigation. On July 15, 2003, CARB recommended to EPA that the Bay Area be declared in attainment of this standard based on monitoring data for 2000-2002. EPA will make its final designation in April 2004. It will likely include the data from the 2003 ozone season, which concludes next month, in the evaluation. Mr. Hess added that the 1-hour ozone standard concerns the number of days over 124 parts per billion (ppb) ozone during a three-year period, and it does not matter how high the exceedance is. The 8-hour standard is more stringent and concerns the severity of the fourth highest excess averaged over three years. EPA is conceptually proposing that once EPA makes attainment and non-attainment designations for the 8-hr standard, air districts are excused from having to attain the 1-hour standard as long as there is no backsliding in terms of controls.

The Bay Area has witnessed a steady decline in precursors of ozone and NOx, primarily due to the stringency of District rules and vehicle turnover. The San Martin and Livermore air monitoring stations are the most critical areas for the 8-hour standard. To date, monitoring data indicates that the District may be in attainment of both the 1-hour and 8-hour standards.

In reply to questions, Mr. Hess stated:

- inter-state transport is addressed in the California Clean Air Act and is a matter of State jurisdiction. The District does contribute some ozone to its downwind neighbors, but the quantity will be ascertained by the modeling work conducted by Environ Corporation.

- the possible daily coincidence between excesses of the 1-hour and 8-hour standards is a matter that will have to be referred to the modelers for analysis.

- there may be several reasons why the Central Valley has made progress on the 1-hour standard but has reached a plateau on the 8-hour standard. Firstly, the Sacramento area has severe vehicular congestion, and has only 30 million annual public transit boardings, compared with 500 million in the Bay Area. Secondly, according to a presentation by Dr. Harley to the Council last year, there has been a 200% increase in the use of diesel fuel in the San Joaquin Valley, which renders diesel emissions as a significant contributor to ozone formation in the Central Valley. Thirdly, a study conducted by U.C. Davis shows that all 8-hour non-attainment areas are east of Sacramento, while the westerly region extending to the Bay Area and up to Placer County is in attainment. Both Stockton and Tracy are in attainment, but the region below Modesto is non-attainment. Therefore, pollutant transport impacts, as viewed through both the 1-hour and 8-hour standards, require further review.

Other Business:

7. Report of the Executive Officer/APCO. William C. Norton stated that:

- the tracking of the trailer bills on the State budget adopted last month reveals no adverse impact on the District's budget thus far. However, the District's budget may still be affected by whoever is the State's Governor on October 8, particularly with regard to subvention funds.
- the District will present its Ozone Plan for review and comment to environmental justice communities and the areas in which the greatest ozone impact occurs—namely, Livermore, Concord and either Petaluma or Santa Rosa in the North Bay. The Ozone Plan will also be brought to the Advisory Council for review and comment.

- The District will be updating its website, and the first iteration is due in the next week. The static content will be changed to make it easier to navigate. Interactive capability will follow. Mr. Dawid suggested the website present the Advisory Council's mission statement.

- New data management software for the District's personnel and accounting sections will be implemented in January of next year, and later applied to the more complicated permit system.

- The Board Ad Hoc Selection Committee recommendations for the Executive Officer/APCO will be presented to the Board on September 17, 2003, pending negotiations with the candidate.

8. Report of the Advisory Council Chairperson.

   Chairperson Hanna directed the Applicant Selection Working Group to convene and address the three vacancies that are now on the Advisory Council.

   He requested input on whether the audiotape of the Council Regular meeting should be uploaded to the District's website. Presently, the audiotape of the Board of Directors' Regular meetings is uploaded to the web. In discussion, Council members expressed concerns over the intermittent sound quality that would occur if a speaker did not speak clearly or directly into the microphone, the potential for outside parties to remix and edit digital recordings of Council members' statements, technical feasibility and associated resource requirements, and the absence of a clear mandate to upload the tape. Brian Bunger, District Counsel, observed that there is no legal requirement to upload the tape on the website. After further discussion, consensus was reached that the tape will not be uploaded and that draft minutes will be posted on the website instead, with a clear notation that the minutes are in draft form. Prior to their posting, such draft minutes will have been preliminarily reviewed by the appropriate Council or Committee Chair.

9. Council Member Comments/Other Business.

   Dr. Holtzclaw expressed appreciation to Chairperson Hanna for appointing him to the Advisory Interview Committee for the selection of the Executive Officer/APCO. It was remarkable that a group comprised of such a wide diversity of stakeholders reached unanimity on the exceptional qualifications of two of the candidates.

   Mr. Altshuler noted that recent press reports reveal that air quality data were misreported during the September 11, 2002 crisis in New York City. Since improved quality control and quality assurance on air monitoring data may become the subject of future legislation, the Council may wish to address this now rather than wait to respond to legislation. Professor Tom Cahill from the University of California at Davis could address the Council on this matter. Mr. Hayes noted that this topic was discussed at the 2003 Air & Waste Management Association meeting. He added that speakers with different perspectives might further enrich the discussion, particularly as there are some noteworthy technical disagreements on this issue among air monitoring professionals.

   Mr. Altshuler inquired if the trend in the Transportation Fund for Clean Air (TFCA) project allocations toward bicycle rather than clean air vehicles is reflective either of a change in the types of project applications submitted or the scoring criteria now applied toward their evaluation. Mr. Norton replied that the projects now submitted differ from those in the past. These may differ because projects must come up with matching funds to make them cost-effective, without which they cannot be successfully submitted. Matching fund availability appears to have declined.

10. Time and Place of Next Meeting: 10:00 a.m., Wednesday, November 12, 2003, 939 Ellis Street, San Francisco, California.

11. Adjournment: The meeting was adjourned at 11:35 a.m.

James N. Corazza
Deputy Clerk of the Boards

AGENDA NO. 2

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

DRAFT MINUTES

Advisory Council
Air Quality Planning Committee Meeting
1:00 p.m., Tuesday, September 30, 2003

1. **Call to Order – Roll Call.** 1:19 p.m. Quorum Not Present: Harold M. Brazil, Patrick Congdon, Irvin Dawid, Fred Glueck. Absent: Kraig Kurucz, Chairperson, Pamela Chang, John Holtzclaw, Ph.D., Kevin Shanahan.

2. **Public Comment Period**. There were none.

3. **Approval of Minutes of July 22, 2003**. There being no quorum present, approval of the minutes was deferred to the next meeting.

4. **Update on Networkcar Remote Emissions Demonstration Project.** Peter Hess, Deputy Air Pollution Control Officer, stated that this issue was of interest to this Committee and the Advisory Council about nine months to a year ago. Mr. Hess noted that the Air District moved forward to have discussions with Networkcar and has asked Ryan Glancy of Networkcar to present a report on the progress of Networkcar in the Bay Area.

    - Ryan Glancy, Solutions Manager, Networkcar provided the Committee with an overview of the Networkcar remote emissions project and highlighted the following:

    - Networkcar's wireless device is installed in a car and is equipped with a performance monitoring system. It takes 15 to 20 minutes to install the CAReader.
    - The device sends information to Networkcar's Data Center over a wireless network. About every 40 minutes the device is taking a reading from the car. This information is relayed to Networkcar's data center where the information is disseminated.
    - The CAReader is commercially available and is sold as an aftermarket accessory by automobile dealers.
    - The system enables vehicle owners to monitor the following: mileage, emissions systems components and associated Diagnostic Trouble Codes (DTC), and driving parameters.
    - In 2001, Networkcar was awarded a contract for high mileage fleet vehicles for five years. The system allows the owners to be notified if their vehicles are out of compliance.
    - The purpose of the Remote Emissions Monitoring Program is to dynamically monitor high mileage (over 75,000 miles per year).
    - More devices were installed in 2000 model-year vehicles than any other model-year. The least number of devices were installed on 1994 vehicles.
    - The number of vehicles participating in the study by vehicle manufacturers was reviewed, with Ford having the largest number and Chevrolet a close second. About one-third of the vehicles had DTCs. Although Ford has the highest number of DTCs, the manufacturer with the highest percentage of vehicles with DTCs is Dodge.

- The highest percentage of vehicles with DTCs by model-year participating in the study is for 1997 vehicles and the lowest is for 2003 vehicles.
- There are a variety of problems with the vehicles in the study and they include: problems with a catalytic converter, the transmission control system, mixture control, and the O2 heater circuit.
- As a vehicle accumulates more miles, there is a significantly higher occurrence of problems. The annual smog check would not detect problems in these vehicles, but this program does.
- Vehicles with over 200,000 miles had at least twice the percentage of events.

Mr. Glancy reported that during this quarter, Networkcar would install up to 200 devices into Port of Oakland taxis. In addition, about 120 devices will be installed in taxis operating at the Oakland airport and the taxis will be required to have a Networkcar device to operate at the airport. Mr. Glancy noted that Networkcar is working on a program with the City of Oakland and the police department to monitor the emissions to enforce the repair of any cabs that are out of compliance. The cabs that run through the airport would be required to have the device and they would have to be in compliance.

Some companies that have violated the Health and Safety Code and part of the enforcement regulation have been allowed to come into this program instead of paying penalties. Networkcar is looking for the Port of Oakland to allow Networkcar to make sure the cars get back into compliance and then Networkcar could see how the program is working.

In response to questions from the Committee members, Mr. Glancy provided additional information

- There was not an even distribution of devices across year, make and model of cars.
- Most of the problems identified were with pollution control equipment on the vehicle.
- Other benefits of the continuous monitoring program include detecting fraud and detecting a bad part in a vehicle. Mr. Glancy noted there was a recall because of this type of information being available.
- CARB feels the data is more than adequate and the number of ways the data can be analyzed.
- There was discussion on an incentive for high fleet operators to participate in this program and, with CARB's buy-in, the operators would not have to participate in a program like Smog Check II. Mandatory repairs would still have to be made.
- The data is there to see if the vehicle is in compliance on a day-to-day basis.
- The San Jose airport recently had a ribbon cutting for the new CNG facility for their own fleet of buses, but they are unable to do anything to have the cab companies refuel at the CNG facility. Could there be a mandate, as there will be at the Port of Oakland, that if the cabs want to serve the airport, they have to subscribe to the Networkcar program?
- This is something that can expand to other areas. Southern California does exempt some of the participants from the $1500 fine levied by ARB if they operate with an active MIL.
- There are other programs whereby Networkcar sells a product through a new or used auto dealer and provides a number of functions that allows monitoring of performance, safety and security of the vehicle, and location. Diagnostics are linked to the auto repair shops so if they detect a problem, the shop can notify the owner that there is a problem.
- Through the Bureau of Automotive Repair (BAR) there is a program called the Continuous Pilot Testing Program (CPT) which allows end consumers to come out of the regular Smog Check program and come into the CPT program.

- The contracts are with a variety of taxi and para transit companies. Networkcar did do some things with ATC, but there were issues of who actually owned the cars and other systems that were in the vehicles. It was more of a contractual issue on who owned the vehicles. The remainder of the companies are located in Southern California. The Port of Oakland fleet will be the first in Northern California.
- The use of Networkcar tells the driver that there is a problem at a high mileage (175,000+ miles) sooner than the Smog Check. It is more effective for the high mileage vehicles than Smog Check.
- The unit price to install the system is approximately $1,500.

5. Review of the Metropolitan Transportation Commission Long Range Transportation Plan.
Ellen Griffin, Senior Analyst, Metropolitan Transportation Commission (MTC) Legislation and Public Affairs, presented the report and stated that MTC is beginning a long public involvement process on the update of the Long Range Transportation Plan for the Bay Area (Transportation 2030). Ms. Griffin noted that this is a 25-year long-range plan for the Bay Area and it guides transportation policies and investments in the nine Bay Area counties. The Plan will be updated every three years and projects must be in the Plan to receive state or federal funds.

Ms. Griffin reviewed Phase I, which focused on three major topics:

1) Goals and objectives of the Plan.
2) Prior commitments and what funds are available for new investments.
3) Transportation and land use. Regional agencies in the Bay Area completed a Smart Growth process last year and have adopted Smart Growth principles.

Phase II will focus on 1) local investment priorities; 2) technical analysis of proposed investment packages; and 3) congestion management agencies workshops and meetings. Phase II is the draft Plan that will come out in December 2004 and the target adoption date for the Plan is January 2005. Ms. Griffin added that in addition to the workshops, MTC is doing public opinion polls, telephone polls, there will be an interactive web component, and there will be focus groups.

Chris Brittle, Planning Manager, MTC, stated that one of the distinguishing features of the new Plan is that there will be more funds available to draw from. In the past, the federal planning process required the transportation revenue to be looked at over 25 years and only those projects and programs that met those revenues would be in the Plan.

Mr. Brittle noted that MTC feels there are probable revenue sources that will come into play as the Plan is being prepared. A number of counties are preparing sales tax plans, Senator Perata is talking about a bridge toll bill to raise the toll to $3, and there will be a high-speed rail bond in November 2004. These revenue sources have to be anticipated and the public will need to understand what the implications of these revenue sources are on the Plan.

Mr. Brittle stated that the planning process started out by defining the goals and objectives that drive the programs and projects that are put into the Plan. The previous goals were: 1) mobility – improving the ease and convenience of using the transportation system, 2) safety – improving the safety of the transportation system for users, 3) equity – fairness in the planning, funding and operation of the region's transportation system, 4) environment – plan and develop transportation facilities and services to protect and enhance the environment, 5) economic vitality – support transportation investments that are essential to the economic well-being of the Bay Area, and 6) community vitality – community-based efforts to improve quality of life by providing access to

transportation funding. During the workshops in June, the public felt that these were too large and nebulous and did not have measurable standards and objectives.

Mr. Bittle reviewed the revised proposed goals that are being discussed with the public as follows:

1. Fix-It first – 80% of the funds in the transportation plan have to go to maintain the current system.
2. Making Connections – making transit systems work and having seamless connections, good service and good physical connections between systems.
3. Reliable Travel Choices – provide transit, carpool, biking and walking alternatives that would be attractive enough to be used by the public.
4. Smart Growth – this is a goal to recognize the consensus that has developed around the region on a Smart Growth strategy around transit centers and corridors.
5. Clean Air – is being singled out as the main environmental goal in the Plan.
6. Lifeline Mobility – transportation system improvements that benefit the elderly, low income, school children, and those that have less mobility options.
7. A Safe System – it has been suggested to make this safe and secure because of the current focus on terrorism.

Each goal will have a set of objectives and a set of ways to measure progress towards achieving the goal.

There was discussion on the following:

- The BART to SFO connection is not doing as well as projected because of the recession and the problems that the airlines are having. The CalTrain/Millbrae connection is not being well used at this time, but part of the issue is getting people used to the connection in addition to waiting for the economy to return and people start traveling again.
- One of the missing goals is pricing; i.e. driving and parking might be cheaper than using an alternative. Mr. Brittle indicated this is covered in providing a reliable service that the customer wants to pay for. Pricing is a strategy more than a goal, but it could be worked into a goal.
- The Clean Air goal (#5) is an off-shoot for the accomplishment of goals one through four.
- MTC will have to prioritize the goals.
- A potential goal or objective of cost-effectiveness needs to be kept in mind as the BART to San Jose/Santa Clara is proceeding. Mr. Brittle indicated there is a separate set of performance measures that are being used for this regional transportation Plan that is a result of Senator Perata's legislation (SB 1492) that states any new project coming into the regional Plan should be evaluated.
- Commuters in the Bay Area are looking at what is the most convenient manner to get from point A to point B. How much of the goals and objectives may be directed toward some sort of social investigation, rather than just physical investigations for roads or buses, or more rail and get some sort of idea of where the convenience items are that the residents of the Bay Area are looking for as a means of partaking in other modes of transportation or coming up with viable goals that solve some of the local issues.
- MTC is doing a Regional Transit Connectivity Study that looks at specific connection issues around the system. The hope is that MTC will find some low-cost improvements and that those projects will make it into the Plan.
- What is it that the consumer in the Bay Area identifies as a convenience, i.e. making connections, time, money, smart growth, community planning. That would allow MTC to determine where the funding would be best spent.

- MTC attempts to capture all the variables in a sophisticated travel model, which predicts where the growth patterns are, who takes transit, who is using the carpool lane, etc. Based on the usage, MTC can look at the viability of the investments it is making.
- There was discussion on the Bayshore Freeway corridor, its peak periods, and that all options are being used in that area.
- If the bridge tolls go to $3, those motorists who drive over the bridges will be contributing to public transit needs. The same scenario should be applied to other places by the use of "HOT" lanes and the money would be used to support public transit in that corridor. San Diego did this in 1988 through the use of Transportation Control Measures. MTC has looked at some corridors and the issue of "HOT" lanes will be discussed during the development of the Plan.

The Committee discussed what they see as the two main goals and determined Smart Growth was its first priority and Fixit-It First and Making Connections were second. Mr. Glueck stated that it would be beneficial to have this same presentation made to the full Council in November and a decision could be made as to what the full Council sees as its two main goals.

6. **Committee Member Comments/Other Business.** Mr. Glueck stated it would be helpful to get some feedback from the Bureau of Automotive Repair (BAR) on Smog Check II with respect to how it is working. Mr. Gluick requested staff make a presentation at the next meeting on Smog Check II and how it is working, including any of the Advisory Council's recommendations that the Board of Directors may have taken action on.

   Mr. Glueck stated that it would be interesting to see how the smog check stations are reacting to the extra cost and the extra training, what sort of negative or positive feedback, will they pass the cost through, etc.

   In response to a question from Mr. Dawid on legislation that might enhance the role of the Air District, Mr. Hess stated that there would be a legislative update at the next meeting.

   Mr. Dawid requested updates on the East Palo Alto and San Jose Mayfair meetings on the 2004 Ozone Attainment Strategy and 2003 Clean Air Plan.

7. **Time and Place of Next Meeting.** 9:30 a.m., Tuesday, November 25, 2003, 939 Ellis Street, San Francisco, CA 94109.

8. **Adjournment.** 2:26 p.m.

Mary Romaidis
Clerk of the Boards

AGENDA NO. 3

Bay Area Air Quality Management District
939 Ellis Street
San Francisco, California 94117

DRAFT MINUTES

Advisory Council Public Health Committee Meeting
1:30 p.m., Monday, October 20, 2003

1. **Call to Order – Roll Call.** 1:38 p.m. Quorum Present: Brian Zamora, Chairperson; Elinor Blake, Ignatius Ding, Victor Torreano, Linda Weiner. Also present: William Hanna, Chair, Advisory Council

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

3. **Approval of Minutes of August 28, 2003.** Ms. Blake moved approval of the minutes; seconded by Mr. Torreano; carried unanimously.

4. **Fenceline Monitoring: A Case Study and Industry Perspective.** Phillip Stern, Environmental Superintendent, ConocoPhillips Refinery, Rodeo, stated that the refinery optical monitoring system was installed in 1997 and covers almost 2,000 feet on the north and south fencelines. It includes infrared monitors for detection of 30 hydrocarbon (HC) compounds, ultra-violet monitors for detection of seven compounds, and a tunable diode laser for detection of hydrogen sulfide (H2S) and ammonia. The community, refinery, and the Contra Costa County Health Services (CCCHS) department negotiated which compounds would be monitored.

   A contractor manages the monitoring system, performs daily checks from a remote terminal and several monthly field checks, downloads and validates all the data, and prepares monthly data reports. The refinery Environmental Department submits the monthly data reports to regulatory agencies, such as the District and CCCHS, and replies to letters from the community.

   The refinery is committed to continuing to provide the community with these real-time data, which are presented in detection levels that have been averaged over five-minute intervals. Several community members have on-line access to it, and in the near future the data will be posted on the County's website. The stakeholders to the system agreed to the alarm points on the system. The high alarms are based on the short-term exposure levels set by the Occupational Health & Safety Administration (OSHA), and the low-level alarms are based on one-hour, time-weighted averages. These alarms are wired to a control room at the refinery.

   Data from 2002 show that of the detections of various hydrocarbons above the detection level, the highest detection level were only a few percentage points of the low-alarm threshold. The sole detection of the toxic compound benzene was only 3% of the low-alarm threshold.

   When the refinery knows there is a problem—such as an odor incident—it checks wind direction, ground level monitors (GLMs) and the fenceline monitors. The latter has never provided the refinery with the first-line of emission detection. When there have been major releases at the refinery, no correlation with the fenceline monitoring data could be identified.

Kevin Buchan, Environmental Manager, Western States Petroleum Association (WSPA), noted that WSPA does not represent the ConocoPhillips refinery in this presentation. He stated:

It is questionable that the District has statutory authority under California Health & Safety Code Section 40701(g) to require fenceline monitoring.

Optical fenceline monitoring technology is not as accurate or reliable as other technolo-gies and cannot be used for purposes of enforcing ambient air quality standards.

Much data have been collected from the Rodeo refinery over five years and to date no correlation between events and measurements can be found based on the optical sensing technology. Such data cannot be used for purposes of seeking emission reductions.

Optical monitoring data can conflict with, or even undermine, the Community Warning System in Contra Costa County. If the read-outs that residents observe over the Internet do not support a shelter-in-place warning, when in fact there is a real problem not detect-ed by the optical monitors, this puts residents at risk. Conversely, false readings from the optical monitors may give a sense of fear and concern when none may exist.

Optical monitors redirect critical environmental resources, requiring extensive research to verify or invalidate readings and staff time for monitoring and controlling emissions.

There is a need to fairly evaluate emission levels of toxics from mobile and stationary sources such as dry cleaners, plaiting companies and high tech manufacturers. District monitors have not detected elevated levels of toxics near refineries at or above levels elsewhere in the Bay Area. The application of fenceline monitoring to the broad array of toxic sources would prove costly. Refinery perimeters also differ, and miles of fenceline monitors would be required to apply a monitoring technology with no proven benefit.

Ms. Blake stated that the community wishes to know what comes from refineries and to retro-spectively review emissions data from previous incidents. She inquired as to what value newer optical sensing technology could add to existing optical monitors and GLMs. Mr. Stern replied that GLMs register higher than normal levels of SO2 when there are large episodes. Gary Kendall, Technical Services Division Director, added that GLMs focus on SO2 and H2S. In the siting of a GLM, the District provides input based on meteorology and source knowledge.

Mr. Kendall inquired of Mr. Stern as to the refinery's view of the fenceline monitoring data for the 14 refinery release incidents that the District has identified as having had off-property community impacts. Mr. Stern replied that on July 10, 2002 when there was a total steam loss at the refinery and significant flaring, the fenceline data showed only slight variations. Mr. Kendall noted that slight measurement variation occurred at refinery GLMs, and higher than normal levels of SO2 were registered at the District's meteorological stations in Martinez, Pittsburg and Bethel Island. Staff's analysis of half of the release events that had off-property impacts since 1997 reveals that the optical monitors did not detect higher levels of emissions.

Ms. Weiner noted that the Committee is evaluating fenceline monitoring efficacy rather than legal questions on statutory authority. The California Air Resources Board (CARB) has issued regulations for dry cleaners. Refineries are large and have a bigger impact on public health.

Mr. Buchan replied that the Environmental Protection Agency (EPA) is revising health risk assessments, and the initial results suggest that refineries are not that significant. Ms. Weiner replied that there is impact from refinery flares or accidental releases of toxic emissions into the atmosphere and local residents are subsequently admitted to hospital emergency rooms.

Mr. Kendall observed that motor vehicles are the major source of ambient air toxics. However, the community is thinking about large release events in advocating fenceline optical monitors. Ms. Weiner inquired as to staff's opinion of the optical monitors. Mr. Kendall replied that they do not capture every possible emission scenario. With the right wind direction, the fenceline monitors will more likely capture a non-buoyant plume release than a buoyant release from a high stack. A review of long-term data from all the refineries would be necessary to identify the best monitoring technology. Mr. Stern added that when the monitoring system was installed its aim was to provide a warning of a release event rather than precise emissions measurements.

Chairperson Zamora inquired as to what it would cost to replace the system with newer equipment. Mr. Stern replied that the optical monitoring system cost $2,100,000 to install. Annual data processing and validation, along with maintenance, cost $400,000 per year. The cost to replace the system would be comparable to the original cost. The refinery is presently considering replacing the ultraviolet monitor, which is no longer technically supported.

Ms. Blake noted that the monitoring system was installed after a release event that the refinery did not inform the adjacent community about for several days, and Rodeo residents strongly endorse the system. Mr. Stern replied that the system has improved community relations and trust. Mr. Buchan added that most refineries also have a Community Advisory Panel that provides for and facilitates communication with the members of the local community.

Chairperson Zamora inquired as to the total value of the rest of the refinery monitoring equipment and if the community has been apprised of the limitations of the 1997 optical technology. Mr. Stern replied that the seven GLMs cost $20,000 each, excluding installation, and each of the ten stack monitors for nitric oxide (NOx) cost $400,000. As to the efficacy of the technology installed in 1997, he could not comment at this time because the refinery is presently negotiating with the community on certain components of the monitoring system.

Ms. Blake inquired as to whether data could be provided to the community from the District's flare monitoring rule in a manner similar to the real-time data provided by the fenceline optical monitoring system. Mr. Stern noted that the rule will require continuous flow monitoring of hydrocarbon and sulfur content going to the flare prior to combustion, based on samples taken every 15 minutes. Mr. Buchan observed that these data will also be available retrospectively through the monthly reports that refineries will be submitting, and will indicate that major reductions in flaring have occurred. Mr. Kendall added that if there is a major release the District's refinery inspectors will also be on the scene promptly, and the flow data may become available even earlier through the incident reports that the District would issue.

Chairperson Zamora stated that at its next meeting the Committee will discuss recommendations on the staff referral regarding the application of optical remote sensing technology to other Bay Area refineries. Ms. Blake requested that a member of the Technical Committee, as well as other District staff including Mr. Kendall, attend the next Public Health Committee meeting.

5. **Committee Member Comments/Other Business.** Mr. Hanna briefly summarized the recommendations on refinery flare combustion issues that were adopted earlier today by the Advisory Council Technical Committee.

6. **Time and Place of Next Meeting.** 1:30 p.m., Monday, December 8, 2003, 939 Ellis Street, San Francisco, California 94109.

7. **Adjournment.** 2:55 p.m.

James N. Corazza
Deputy Clerk of the Boards

AGENDA NO. 4

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

DRAFT MINUTES

Advisory Council Technical Committee Meeting
9:30 a.m., Monday, October 20, 2003

1. **Call to Order/Roll Call.** 9:33 a.m.

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

3. **Approval of Minutes of August 7, 2003.** Chairperson Harley and Mr. Lapera requested that the causes of flaring listed on page two be listed in quantitative order of importance. Dr. Holtzclaw moved adoption of the minutes as corrected; seconded by Mr. Hayes; carried unanimously.

4. **Discussion and Adoption of Recommendations on Refinery Flaring.** Chairperson Harley referred to the memorandum entitled "Advisory Council Technical Committee Report on Emissions from Refinery Flares (draft)." Committee member discussion ensued on the "Findings" section. Members of the Air District staff and the public spoke on the "Findings" as follows:

   Jim Karas
   Air Quality Permit Manager
   Bay Area AQMD

   No. 3: the most frequent, but not the largest, source of flaring emissions are shutdowns/start-ups/turnarounds.

   No. 4: it is not likely that the refineries and staff will agree on the historical data.

   No. 5: the 98% combustion efficiency applies to large flow rates but may be lower at very low flow rates.

   No. 7: the recovery compressors eliminate 8 million cubic feet of fuel gas, and this includes all the pollutants mentioned. Improvements in reducing flare emissions are also occurring at the other refineries.

   Kevin Buchan
   Environmental Coordinator
   Western States Petroleum Association (WSPA):

   No. 1: flares also prevent emergency conditions from emerging at a refinery.

   No. 4: the District should be asked to explain its method of calculating HC emissions from refinery flares.

   No. 6: flaring addresses not only emergency situations but also combustion of off-gases from start-ups/shutdowns/turnarounds.

Mike Deleon
Senior Environmental Engineer
Tesoro Refinery

The report presents both a balanced and scientific approach to refinery flaring issues.

Richard Quiroz
Environmental Specialist
Chevron Refinery

Finding No. 6 should describe how the flare emissions figure in the total emission inventory.

The Committee members offered their respective revisions to the "Findings" and added several revisions based on the comments from District staff and the public. The Committee then reached unanimous consensus on the following (tracked) revisions to the "Findings":

Finding No. 1: Flare stacks are an important and necessary safety system at refineries, and are needed to deal with or prevent emergency and process upset conditions. An issue of ~~great~~ concern to the committee is the potential for large ~~releases~~emissions of ~~noxious~~ pollutants from refineries as a result of unpredictable events ~~including~~such as process upsets, equipment breakdowns, earthquakes, fires, electrical power failure, accidents, and other hazards. High hydrocarbon (HC) flows to the flare system and/or loss of the steam and air supply to the flare stacks ~~can~~could cause the HC to burn in an ~~very~~ undesirable fuel-rich mode that leads to emissions of black smoke and other products of incomplete combustion in the exhaust plume. Proper design and operation of plants, including shut-down/start-up and turnarounds, can reduce non-upset emissions to a minimum.

Add a Finding 1.A to read: Air quality concerns about refinery flare emissions include possible effects on regional ozone and particulates, in and downwind of the Bay Area. For perspective, refinery flare HC emissions represent from 2 to 20 tons per day, per current estimates, which is approximately 4/10^{ths} to 4% of total Bay Area anthropogenic HC emissions.

Finding No. 2: Foul odors, visible smoke plumes, and the perception of adverse public health effects that ~~may~~might result from exposure to refinery emissions are the foremost air quality concerns among those living near the refineries.

Finding No. 3: While unit shutdowns, startups, and turnarounds are the most ~~common~~ frequent and necessary cause of flaring events, they may not be the largest ~~they are not the largest~~source of air emissions. Data presented to the Committee indicate that unanticipated process upsets and accidents (the second most frequent cause of flaring events) ~~that~~appear to lead to the highest emissions.

Finding No. 4: District staff and the oil refiners are focusing at present on discussions of HC emissions from flare systems. There are large differences in the estimates of unburned HC emissions from Bay area refinery flares, ranging from ~2 tons/day (industry estimate) to over 20 tons per day (District staff estimate). ~~We do not accept either of these emission estimates at this time~~. Before any emissions estimates can be accepted, ~~Improved~~validated HC emission estimates ~~need~~should ~~to~~ be developed, based on measurements of all relevant parameters that affect flare emissions. Those parameters include the flow rate of gas to the flare stack, the hydrocarbon content of those gases, the hydrocarbon speciation, and the hydrocarbon destruction efficiency within the flare system.

Finding No. 5: The District's recently adopted flare monitoring rule will provide measured data that can be used to improve the estimates of HC emissions. However, the adopted rule does not require ~~address or~~ measurement of hydrocarbon destruction efficiency in the flare system. This is an important concept that needs to be addressed before more accurate estimates can be used for planning. Optical remote sensing techniques show promise for improved measurement of HC destruction efficiency in flares. ~~As a basis for air quality planning and assessment, i~~In the absence of on-site measurements, we agree that 98% is a reasonable assumption for the HC destruction efficiency used in air quality planning and assessment.

Finding No. ~~6~~7: (Renumber this as Finding No. 7 and define in an opening sentence what is meant by 98% "destruction efficiency" and how HCs can convert into compounds other than CO2.) While we have not yet assessed the extent of their effect, we note that ~~F~~flares have the potential to emit numerous other ~~air pollutants~~compounds in addition to unburned hydrocarbons that have the potential to affect the environment. Those ~~pollutants~~compounds include carbon dioxide (a greenhouse gas); and pollutants carbon monoxide, aldehydes, and soot (products of incomplete combustion); as well as nitrogen oxides and sulfur oxides and other sulfur compounds. Emissions from some of these compounds have not yet been quantified.

Finding No. ~~7~~6: Hydrocarbon emissions from flares have been reduced during the last year. This has occurred due to voluntary installation of gas recovery systems at one refinery (hydrocarbons were not recovered from the flare header at this refinery previously as they were at other refineries), improved maintenance and reliability of flare recovery systems at all the refineries, and other significant good faith efforts to reduce emissions by the refineries, and District staff efforts.

Mr. Altshuler suggested adding a finding that indicates the South Coast AQMD and the State of Texas are also studying refinery flares. Chairperson Harley replied that, instead, Recommendation No. 2 should also urge the District to track these studies, and the Committee members concurred.

Chairperson Harley called for discussion on the report's "Recommendations" and brief discussion ensued. The following comments from the Air District staff and the public were received:

Mr. Buchan opined that a flare control should be supported by actual data, without which a rule should not be adopted. The District and the refineries will likely reach greater agreement on the data from the flare-monitoring rule than on the historical data.

Mr. Karas noted that District rules must be based on emissions reductions that are real, quantifiable, and enforceable. Emissions reductions cannot be claimed in the absence of a regulation that requires them.

Mr. Deleon observed that in terms of capturing initial emission reductions there may be options to the more standard practices for claiming them. Recommendation No. 3 pre-sumes that a flare control rule will be needed. Flare monitoring data will determine this.

Chairperson Harley added that he recently received District literature scheduling public meetings to discuss refinery flare control, and this contrasts with his previous impression that this matter was only at a conceptual stage. Mr. Lapera commented that these meetings might rather be intended to solicit public input on flare control. This approach would seem to be parallel to the Technical Committee's current evaluation of flare combustion efficiency and monitoring issues.

Mr. Karas clarified that these public meetings are educational and do not include regulatory language. However, the District is obliged to adopt "all feasible measures," and a first step may be to capture the emission reductions already achieved. Messrs. Hayes and Altshuler suggested that such emission reductions could be incorporated into the baseline of the emissions inventory.

Mr. Altshuler suggested that the Council should not opine on flare control policy *per se* but instead recommend that flare-monitoring data be obtained first and reserve judgment on the appropriate action for the District Board of Directors. Mr. Hanna replied that if the District is pursuing a rule, the Committee may express its opinion that the rule should be based on actual data rather than assumptions. The Committee reached consensus that a flare control rule should be based on data obtained from the flare-monitoring rule and be developed only if there are data supporting it.

The Committee members offered their respective revisions to the "Recommendations" and added several revisions based on the comments from District staff and the public. The Committee then reached unanimous consensus on the following (tracked) revisions to the "Recommendations":

Recommendation No. 1: District staff should work collaboratively with refineries to ~~develop~~ improve~~d~~ estimates of ~~HC~~ emissions from flares at refineries, using new data resulting from the adopted rule on flare monitoring. The refining industry, refinery neighbors and other interested parties should be kept informed and consulted as this effort progresses.

Recommendation No. 2: District staff and refiners should investigate further the use of optical remote sensing or other appropriate plume monitoring techniques to measure the HC destruction efficiency in flare systems. Additional investigation of the issue is warranted and necessary, including review of the results of a study on flare destruction efficiency being conducted by the Texas Council on Environmental Quality on flare destruction efficiency, and the South Coast AQMD flare monitoring and control activities.

Recommendation No. 3: ~~Refiners should be encouraged to install backup systems to insure flares continue to burn in a smokeless condition, with high HC destruction efficiency, whenever possible, and especially during serious emergency situations.~~ Adoption of any control rule directed at refinery flares should incorporate and be based upon data gathered under the recently adopted flare monitoring rule."

5. **Committee Member Comments**. Mr. Altshuler noted that last week the Air Resources Board (ARB) proposed to grant diesel particulate trap manufacturers three more years to meet the 20% nitric oxide (NO_2) emissions cap. Staff will conduct microanalyses of tunnels, street canyons, and garages to ascertain whether there is an acute NO_2 exposure problem. Last Thursday, the ARB issued a report on exposure to toxics from school bus emissions. The ARB is also considering an ambient NO_2 air quality standard. The time line for further actions on this standard is not yet known.

6. **Time and Place of Next Meeting**. 9:30 a.m., Tuesday, December 9, 2003, 939 Ellis Street, San Francisco, California 94109.

7. **Adjournment.** 12:28 p.m.

James N. Corazza
Deputy Clerk of the Boards

AGENDA NO. 4

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

November 3, 2003

To: William Hanna, Chairperson, and Members of the Advisory Council

From: Robert Harley, Ph.D., and Members of the Technical Committee

Re: Advisory Council Technical Committee Report on Emissions from Refinery Flares

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Based on discussions that took place during a Committee meeting on 20 October 2003:

Context

The Advisory Council Technical and Public Health Committees have devoted several committee meetings this year to the issue of refinery flares. We received input in the form of presentations to the committee and extensive discussion and public comments. Presenters and commenters included District staff, oil refinery and WSPA representatives, experts in fence-line monitoring and optical remote sensing, an expert in refinery flare system design and operation, environmental groups, and members of the communities neighboring Bay area refineries.

Earlier this year, the District's Board of Directors adopted a rule requiring flare monitoring at Bay area refineries. A controversial issue still remains: whether to adopt a further rule requiring emission controls from flare systems.

Findings

Flare stacks are an important and necessary safety system at refineries, and are needed to deal with or prevent emergency and process upset conditions. An issue of concern to the committee is the potential for large emissions of pollutants from refineries as a result of unpredictable events such as process upsets, equipment breakdowns, earthquakes, fires, electrical power failure, accidents, and other hazards. High hydrocarbon (HC) flows to the flare system and/or loss of the steam and air supply to the flare stacks could cause the HC to burn in an undesirable fuel-rich mode that leads to emissions of black smoke and other products of incomplete combustion in the exhaust plume.

Air quality concerns about refinery flare emissions include possible effects on regional ozone and particulate matter concentrations, in and downwind of the Bay area. For perspective, refinery flare HC emissions represent from 2 to 20 tons per day, per current estimates, which is approximately 0.4 to 4% of total Bay area anthropogenic HC emissions.

Foul odors, visible smoke plumes, and the perception of adverse public health effects that might result from exposure to refinery emissions are the foremost air quality concerns among those living near the refineries.

While unit shutdowns, startups, and turnarounds are the most frequent and necessary cause of flaring events, they may not be the largest source of air emissions. Data presented to the committee indicate that unanticipated process upsets and accidents (the second most frequent cause of flaring events) appear to lead to the highest emissions.

District staff and the oil refiners are focusing at present on discussions of HC emissions from flare systems. There are large differences in the estimates of unburned HC emissions from Bay area refinery flares, ranging from ~2 tons per day (industry estimate) to over 20 tons per day (District staff estimate). Validated HC emission estimates should be developed, based on measurements of all relevant parameters that affect flare emissions. Those parameters include the flow rate of gas to the flare stack, the hydrocarbon content of those gases, the hydrocarbon speciation, and the hydrocarbon destruction efficiency within the flare system.

The District's recently adopted flare monitoring rule will provide measured data that can be used to improve the estimates of HC emissions. However, the adopted rule does not require measurement of hydrocarbon destruction efficiency in the flare system. This is an important concept that needs to be addressed before more accurate estimates can be used for planning. Optical remote sensing techniques show promise for improved measurement of HC destruction efficiency in flares. In the absence of on-site measurements, we agree that 98% is a reasonable assumption for the HC destruction efficiency for use in air quality planning and assessment.

Hydrocarbon emissions from flares have been reduced during the last year. This has occurred due to voluntary installation of gas recovery systems at one refinery (hydrocarbons were not recovered from the flare header at this refinery previously, as they were at other refineries), other significant good faith efforts to reduce emissions by refineries, and District staff efforts.

The HC destruction efficiency (presently assumed to be 98%) refers only to destruction of the original hydrocarbon molecules sent to the flare – it does not guarantee that these HC are completely burned. While we have not yet assessed the extent of their effect, we note that flares have the potential to emit numerous other compounds in addition to unburned HC that have the potential to affect the environment. Those compounds include carbon dioxide (a greenhouse gas); carbon monoxide, aldehydes, and soot (products of incomplete combustion); as well as nitrogen oxides and sulfur oxides and other sulfur compounds. Emissions of some of these compounds have not yet been quantified.

Recommendations

District staff should work collaboratively with refineries to develop improved estimates of HC emissions from flares at refineries, using new data resulting from the adopted rule on flare monitoring. The refining industry, refinery neighbors, and other interested parties should be kept informed and consulted as this effort progresses.

District staff and refiners should investigate further the use of optical remote sensing or other appropriate plume monitoring techniques to measure the HC destruction efficiency in flare systems. Additional investigation of the issue is warranted and necessary, including review of the results of a study on flare destruction efficiency being conducted by the Texas Council on Environmental Quality, and review of South Coast AQMD flare monitoring and control activities.

Adoption of any control rule directed at refinery flares should incorporate and be based upon data gathered under the recently adopted flare-monitoring rule.