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

ADVISORY COUNCIL
AIR QUALITY PLANNING COMMITTEE MEETING
9:30 a.m., Monday, January 6, 2003 – Conference Room 716

AGENDA

Kraig Kurucz, Chairperson, Harold Brazil, Patrick Congdon, Irvin Dawid, Fred Glueck
John Holtzclaw, Ph.D., William A. Nack, Kevin Shanahan, Jill Stoner

1. Call to Order – Roll Call

2. Public Comment Period

The public has the opportunity to speak on any agenda item. All agendas for 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.

3. Approval of Minutes of December 9, 2002

4. Continued Discussion of Vehicle Inspection & Maintenance (I&M)

The Committee will continue to evaluate the information received to date on vehicle I&M from District staff and guest speakers, with the aim of developing recommendations regarding I&M in the Bay Area.

5. Committee Member Comments/Other Business

Committee members, or staff, 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 his or her own activities, provide a reference to staff regarding factual information, request staff to report back at a subsequent meeting on any matter or take action to direct staff to place a matter of business on a future agenda.

6. Time and Place of Next Meeting

At the call of the Chair.

7. Adjournment

FG:MR:jc

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
J A N U A R Y 2 0 0 3

TYPE OF MEETING	DAY	DATE	TIME	ROOM
Advisory Council Air Quality Planning Committee	Monday	6	9:30 a.m.	Room 716
Advisory Council Executive Committee	Wednesday	8	9:00 a.m.	Room 716
Advisory Council Regular Meeting/Retreat	Wednesday	8	9:30 a.m.	Board Room
Board of Directors Mobile Source Committee	Thursday	9	9:30 a.m.	4th Floor Conf. Room
Board of Directors Regular Meeting	Wednesday	15	9:45 a.m.	Board Room
Board of Directors Budget & Finance Committee	Wednesday	22	9:30 a.m.	4th Floor Conf. Room
Board of Directors Personnel Committee - CANCELLED -	Friday	24	9:30 a.m.	4th Floor Conf. Room
Board of Directors Executive Committee	Wednesday	29	9:30 a.m.	4th Floor Conf. Room

MR:mr
12/17/02 (11:20 a.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
F E B R U A R Y 2 0 0 3

TYPE OF MEETING	DAY	DATE	TIME	ROOM
Advisory Council Technical Committee	Tuesday	4	10:00 a.m.	4th Floor Conference Room
Board of Directors Regular Meeting	Wednesday	5	9:45 a.m.	Board Room
Board of Directors Public Outreach Committee	Monday	10	10:00 a.m.	4th Floor Conf. Room
Board of Directors Mobile Source Committee	Thursday	13	9:30 a.m.	4th Floor Conf. Room
Board of Directors Regular Meeting	Wednesday	19	9:45 a.m.	Board Room
Board of Directors Budget & Finance Committee	Wednesday	26	9:30 a.m.	4th Floor Conference Room

MR:mr
12/16/02 (3:07 p.m.)
P/Library/Calendar/Moncal

AGENDA NO. 3

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., Monday, December 9, 2002

1. **Call to Order** – Roll Call. 9:32 a.m. Quorum Present: Kraig Kurucz, Harold M. Brazil, William A. Nack, Jill Stoner. Absent: Fred Glueck, Chairperson, Patrick Congdon, Kevin Shanahan. Also present: William Hanna, Advisory Council Chairperson-Elect for 2003, and Irvin Dawid, Sierra Club, new Council member in the "Conservation Organization" category effective January 1, 2003.

2. **Public Comment Period**. Charlie Peters, Clean Air Performance Professionals, stated District Executive Officer/APCO William C. Norton had invited him to present his comments on I&M at today's meeting. Mr. Kurucz requested that Mr. Peters address the Committee under Item No. 6.

3. **Approval of Minutes of October 31, 2002.** Mr. Nack moved approval of the minutes; seconded by Mr. Brazil; carried unanimously.

4. **TFCA Transportation Fund for Clean Air (TFCA) Policy Regarding Heavy-Duty Diesel Engines.** Liz Berdugo, Manager, TFCA, stated that the District is proposing to revise TFCA Policy No. 27 which allows an applicant with a heavy-duty diesel (HHD) vehicle to either replace the entire vehicle or re-power its engine, but in both cases only in an alternate fuel mode. The revised policy would allow for engine re-powering with diesel, as long as the engine meets California Air Resources Board (CARB) specifications, or retrofitting an existing engine with a particulate trap, if ultra-low sulfur diesel fuel is used. This fuel will not be funded by the TFCA as many fleets are already transitioning toward its use. Fuel substitutes or additives are also allowed.

   The revision considers "clean diesel" feasible and improves the cost-effectiveness of the TFCA. Numerous retrofits on diesel engines can be made for the cost of one new alternative fuel vehicle and reduce emissions from engines otherwise ineligible for TFCA funding. Both the Metropolitan Transportation Commission (MTC) and San Francisco Municipal Railway (MUNI) have advocated for particulate filters and clean fuels. Dr. Alan Lloyd, Chair of the CARB recently endorsed clean diesel as reducing global climate change and US dependence on foreign oil due to greater fuel economy. The District will score all project applications with the same criteria. It will calculate emission reductions of nitric oxide (NOx), reactive organic compounds (ROG), particulate matter (PM) by comparing emissions with and without the retrofit devices over the estimated lifetime of the vehicle. While this new policy increases TFCA program flexibility and robustness by increasing program options, the District will nevertheless continue to pursue the development and use of alternate fuels. Mr. Kurucz called for public comment:

   Irvin Dawid
   Sierra Club

   stated the proposed revisions directly apply TFCA funds to achieve vehicle emission reductions. Ms. Stoner moved the Committee recommend the Council endorse the proposed policy change; seconded by Mr. Nack; carried unanimously. Ms. Stoner departed the meeting at 10:15 a.m.

5. **Presentation on Networkcar System Capabilities.** Donald Brady, Vice President of Sales, Networkcar, stated that in 1999 students from the Massachusetts Institute of Technology founded Networkcar and invented a remote monitoring device for use in 1996 and newer vehicles equipped with on-board diagnostics (OBD II). This commercial "after market" device with global positioning system capabilities was originally developed as a locating device for vehicle safety and security. The device was later modified to transmit vehicle emissions information through a cellular network and in turn to a database that fleet managers can access through the Internet.

   Two years ago the Environmental Protection Agency (EPA), California Bureau of Automotive Repair (BAR) and CARB examined this device's applicability for remote vehicle emissions monitoring. The BAR subsequently authorized its use and exempts from Smog Check the vehicle owners who use it in its Continuous Testing Pilot (CTP) Program. A CARB grant to Networkcar with funds from the Carl Moyer program supports the installation of the Networkcar devices in 1,000 high mileage vehicles in the Los Angeles basin. So far, approximately 700 devices have been installed in taxis and paratransit vehicles in Southern California.

   Every 20 minutes the device collects and transmits OBD II and other data, including "check engine light" or Malfunction Indicator Light (MIL) events, mileage, temperature, engine load and other data. If there is a failure in the emission system, the system automatically sends the owner an e-mail alerting him or her to an emissions system failure. When the codes associated with an emissions failure are cleared by a mechanic they are stored in an Alert History Register that is accessible to the dealer and/or the repair facility. Fleet managers routinely receive one e-mail daily concerning the total fleet, identifying any problem vehicles. Networkcar also conducts third party monitoring for the BAR's Continuous Monitoring Pilot Program. If a car is found non-compliant, repairs must be made within 45 days. If repairs are not made within that time frame the owner is removed from the program.

   Remote emissions monitoring based on OBD II diagnostics provides an "on-line emissions test." The system monitors for various readiness tests that lead to the clearing of a MIL event. The continuous monitoring of the engine computer permits remote detection of any type of fraud or emissions system tampering. In the CARB program, repairs are required on vehicles with an extended MIL event that occurs for 14 continuous days. This criterion allows for important data generation and the identification of the most serious violators. Networkcar pays for before-and-after emissions tests to measure results of a repair. This data is forwarded to the CARB program office in El Monte. Fraud events are also tracked. If a vehicle is repaired and suddenly all of its problems re-emerge, CARB asks the taxi to come in for further evaluation. Conversely, some repair shops have fraudulently claimed to have made repairs, and have in some cases used old, defective, or even incorrect parts in making vehicle repairs.

   Remote monitoring also allows for deeper vehicle operational assessment beyond Smog Check. Recently, paratransit vehicle emission failures reported under the Networkcar system lead to the discovery and repair of faulty hoses and oxygen sensors that had been damaged by previous and improper vehicular modifications. Also, emissions failures recorded from remote monitoring on a model year 2000 Chevy Ventures lead CARB to require that GM recall these vehicles. Therefore, an added side benefit of remote monitoring is its ability to assist fleet managers in assessing and repairing specific vehicle defects, and even in identifying systemic model year problems.

   Vehicles with a MIL continuously on for 14 days must be repaired within 14 days under the CARB program. This eliminates many months of pollution that might otherwise occur under the normal

Smog Check program inspection cycle for those vehicles that fail shortly after inspection. Program benefits were calculated by using empirical CARB data on high mileage fleet vehicles and EMFAC modeling. The cost for measurable emission reductions on high mileage vehicles was $3,000 per ton of NOx over the five-year life of the CARB program. The data also show that Carbon Monoxide (CO) emissions are significantly reduced by early detection and repair using continuous monitoring.

CARB program participants benefit from being exempted from Smog Check and by maximizing the emission system warranty. CARB also provides some funding for vehicle repairs. Remote monitoring is a practical alternative to remote sensing and avoids the latter's drawbacks in equipment siting and fleet capture. High mileage vehicles are ideal candidates for continuous monitoring, and the emission reductions achieved from this program can be quantified. . CARB has expressed a willingness to expand the program to include the Bay Area in the Continuous Monitoring Program. This would entail deploying the devices in a significant portion of the 300 remaining vehicles. The CARB grant for this program will last through March.

In discussion, Mr. Brady noted that larger taxi fleets and Para transit fleets are more receptive to this program than the independent cabs. Southern California exempts participants from the $1,500 fine levied by the ARB on fleet vehicles operating with an activated MIL. As to the relationship between a MIL event and an actual or potential failure, trouble codes appear and the MIL will not activate until the car has completed a specific driving cycle. At this point the car would also fail the Smog Check test. In a MIL event, emissions are at approximately 1.5x the level that would register as an I&M failure.

Mr. Brady stated the results demonstrate that high mileage fleets need to be treated differently from the general fleet because high mileage vehicles have higher failure rates. The South Coast AQMD has a rule requiring annual tests for high mileage vehicle fleets. CARB is responsible for monitoring taxis and paratransit vehicles, while the BAR oversees the general fleet. Mr. Kurucz requested District staff further inquire into the particulars of the South Coast AQMD regulation. Mr. Hess inquired as to how the Networkcar program could be initiated in the Bay Area. Mr. Brady replied that a letter should be sent to CARB program manager Harold Mace in El Monte, California.

Noting the absence of a quorum, Mr. Kurucz inquired as to the remaining members' views on this program. Consensus was reached that such a program should be instituted in the Bay Area for cabs and paratransit vehicles, and possibly government and other public agency vehicles as well.

6. **Continued Discussion of Vehicle Inspection & Maintenance (I&M).** Mr. Kurucz stated that the Committee is developing background data for its recommendations. District staff will determine whether a given recommendation is to be forwarded to the state I&M Review Committee or the District for consideration. Mr. Kurucz called for public comment:

   Charlie Peters
   Clean Air Performance Professionals (CAPP)

   noted that the 1.5x emissions level at which a MIL event occurs is measured with regard to engine certification standards and may indicate an anticipation of a failure rather than a failure *per se*. He requested the Committee consider the CAPP proposal for Smog Check inspection and repair audit, gasoline oxygen cap and elimination of dual fuel credit that could cut vehicular emissions by 50% in a single year. Other specifics of the CAPP proposal include the following measures:

- conduct an audit to improve Smog Check performance and institute a post-test audit flag
- create vehicle-specific emissions standards and tailpipe smoke standards to reduce PM
- evaluate Smog Check ancillary benefits. Cars that are repaired by unlicensed stations, public and repair industry behavior changes preventing a car from becoming non-compliant
- require that all persons performing Smog Checks to be licensed, i.e., government fleets
- catch the cars that manipulate zip codes to slip by Smog Check requirements
- require Smog Checks by providers who do not have an ownership in the car being tested
- evaluate the level of unlicensed Smog Check repairs provided for pay
- develop an audit procedure to improve compliance with the licensing rule
- correct the informational conflict that currently exists between approved manuals required for Smog Check stations and set up a continuous correction procedure.

Mr. Peters distributed copies of (a) *Los Angeles Times* article entitled "A Bumper Crop of Bad Air in San Joaquin Valley," dated December 8, 2002, and (b) *Petitioners' Reply Brief* in the *Gray Davis, Governor of the State of California and the California Air Resources Board, Petitioners v. United States Environmental Protection Agency, and Christine Todd Whitman, its Administrator, Respondents, Case No. 01-71356*.

Mr. Peters inquired as to the impact of the Basic Smog Check program. Mr. Kurucz indicated that District staff has provided data on the emissions differential between the Basic and the Enhanced I&M programs. The University of California at Riverside has recently estimated the emissions impacts associated with Enhanced I&M in both the District and downwind areas. Rather marginal benefits and disbenefits, amounting to no more than one part per billion, were projected.

Mr. Kurucz indicated he would request Chairperson Glueck to submit his background information at the next Committee meeting, at which consideration of I&M will be the lone agenda item. Mr. Nack requested District staff to provide its comments on the recommendations at the next meeting.

7. **Committee Member Comments/Other Business. There were none.**

8. **Time and Place of Next Meeting.** Monday, January 6, 2003, 9:30 a.m., Conference Room 716, 939 Ellis Street, San Francisco, CA 94109.

9. **Adjournment.** 11:03 a.m.

Respectfully submitted by:

James N. Corazza
Deputy Clerk of the Boards

Basis For Recommendations

R-1

Presentations from BAR representatives David Amlin and Patrick Dorais, NREL representative Doug Lawson and CCEEB's Bob Lucas support comments from staff person Tom Perardi that one of the major short comings of the I & M Program is the inability of the I & M repair and maintenance component to guarantee the repairs are sufficiently robust to endure to the next biennial test cycle. BAR data indicate that emissions control components of some cars are repaired during one I&M cycle and are in need of repair again at the next I&M cycle. Key components of an emission control system are the O2 sensor, catalytic converter, and evaporative canister. No data indicate how soon after initial repair the vehicle again needed repair. These vehicles may have been operated from 1 to 23 months out of compliance before the next I&M test identified the problem. This is an area of concern for consumers as well as for air pollution.

Some repair stations and vehicle owners may choose to repair sufficiently to, "pass the test." There is nothing illegal here, however a passing vehicle may fall out of compliance soon after the test.

With these factors in mind, we recommend that BAAQMD and BAR review all measures including increasing the funding available to make more robust repairs. This could include separating the repair location from the testing location for funded repairs which should result in further emissions reductions, the goal of the I&M Program.

R-2, 4 & 13

Remote sensing is recommended by Doug Lawson of NREL and is the intent of the Legislature. It was included in SB 629, the 1994 bill establishing the Inspection and Maintenance Program, as a component of the enhanced I & M program criteria.

Testimony was received that the I & M Program cannot identify all vehicles that are operating out of compliance with emission limits. Reasons include mechanical failures that are not detected or repaired between inspections, and intentional evasion of the test. Remote sensing provides an opportunity to identify gross polluting vehicles in an on-road operating environment. The data gathered can also be used by ARB to modify and update vehicle emissions modeling data.

The BAR and the BAAQMD are discussing including the Bay Area in a 2003 remote sensing pilot program.

BAR representatives David Amlin and Patrick Dorais, NREL representative Doug Lawson, CCEEB representative Bob Lucas as well as BAAQMD staff personnel all stated that all recommendations should be pro-active in the public relations arena. An effective program must educate and inform the public that the components of a hybrid enhanced I&M Program are being implemented to enhance air quality, to reduce emissions, and to protect consumers. This means not only implementing enhanced I & M but also remote sensing and other program enhancements including any consumer protection or assistance with repairs that do not last until the next inspection cycle.

R-3

Vehicle buy-back programs, operated by BAR and BAAQMD and repair assistance programs offered by help reduce emissions from the vehicle fleet. BAR representatives presented July 23, 2002, that the BAR "Buy-Back" program was put on hold due to budget constraints.

The BAAQMD program requires that vehicles be in compliance and operating to be eligible for the $ 500.00 buy back eligibility. The ARB program allows an owner to turn in a non-operating gross polluting vehicle to receive a $1,000.00 program eligibility check. BAAQMD may be aiming at the wrong vehicles by focusing only on those that pass the test.

The programs should work together in order to provide incentives for consumers to remove gross polluting vehicles from operation rather than continue to operate them under a waiver.

R-5, 11, & 12

One of the critical issues with the ARB guidelines toward the I & M Program is that the model (EMFAC) places a large priority on reductions of NOx as an ozone reduction element.

Based on the findings of Doug Lawson of NREL, SB 529 and the UC Riverside Study it appears that HC reduction is the most effective element to reduce ozone levels in the Bay Area.

The Advisory Council Technical Committee is requested to review the ARB modeling components, and as appropriate, recommend further options for collecting data, reducing the effects of the gross polluting vehicles, evaluate the possible impacts of a remote sensing program biased toward hydrocarbon emissions, and identify other components of a Hybrid I & M Program should be included or modified to support the programs goals.

R-6

The goal and efforts directed towards reducing emissions is partially defeated by BAR policies that allow for the gross polluting vehicles to continue to operate for 2-years under waiver without sufficient repair.

ARB has historically stated that 10% to 15% of the vehicles account for 50% of the mobile source emissions inventory (ARB Statistic). Presentations from BAR representatives David Amlin and Patrick Dorais, NREL representative Doug Lawson and CCEEB's Bob Lucas indicate that identification and repair of gross polluting vehicles are a key to effective implementation of an I&M program. Mr. Lawson's data indicate that as few as 5% of all vehicles contribute up to 83% of the NOx, CO and ROG. However, a different 5% of the fleet is responsible for ROG, than for NOx or for CO. Different types of mechanical failures lead to increased NOx emissions than lead to increased ROG or CO emissions.

SB 629 (1994) allows for operation under waiver for one-2 year registration period. The owner can get two types of waivers, but must spend the $450 maximum attempting to repair the car before getting the waiver. The result may be an inadequate repair that does not bring the vehicle into compliance, or does not last very long. After the 2-year waiver, the vehicle must pass the next test without waiver to be registered by DMV.

This two-year period operating with high emissions is counterproductive to the goals of the program. In recognition that repairs costing more than $450.00 may be beyond the means of some vehicle owners, this committee recommends ensuring that need-based repair assistance programs and vehicle buy back programs are available and that waivers should be eliminated.

(CHECK numbers against minutes) The public has largely agreed with the objectives of the program. BAAQMD and BAR data indicated that of the 22 million vehicles operating in the Bay Area, less than 400 vehicle owners requested a waiver from making complete repairs and passing the test.

R-7

Based upon the discussion with BAR, Staff personnel, Doug Lawson and CCEEB representatives the main issue preventing previous implementation of many I&M Program improvements is money.

The committee believes that the emissions reduction benefits derived from the implementation of remote sensing, improving the ARB and BAAQMD buy back program, increasing the quality and quantity of vehicle repairs and improving and enhancing data collection are all worthwhile program benefits. We recommend that a small, $ 1.00 to $ 3.00 per vehicle, registration fee increase be considered to fund these programs.

The development of cost per ton analysis can be performed by ARB, BAR and BAAQMD Staff personnel to analyze the cost and benefits from the recommended programs and the vehicle registration fee increase.

R-8

SB 629 recommends increasing inspection and test frequency of 8 to15-year old vehicles to annual, rather than the biennial program.

Data provided by Doug Lawson and supported by Bob Lucas and reinforced by data collected from Don Brady of Networkcar, indicated that older vehicles and high mileage fleet vehicles have higher emissions and higher tendency for emission control component failures than newer cars and higher mileage than older cars. Therefore these cars should be subjected to more frequent inspections.

We suggest a review of financial hardship imposed by such a program and investigation of funds available so that those vehicle owners subject to annual inspections could receive need-based financial assistance to facilitate the annual inspection schedule for these vehicles.

R-9

Data presented by Networkcar representative Don Brady indicates that taxi fleets, averaging 72,000 miles per year fall out of compliance much quicker than the average fleet and sooner than the 2- year I&M schedule will identify the increased emissions.

Mr. Brady indicated that taxis in the Bay Area may be required to be sold after they are 3 years old. He also stated that the highway patrol sells its high mileage cars. The committee also recommends that BAR or the I&MRC, or other body look into the compliance status of these cars after sale.

Therefore we strongly recommend that high mileage fleets be subject to more frequent inspection schedules and not be eligible for the 4 or 6 year waivers from test and that they receive an annual test.

SB 629 states: (g) Notwithstanding any other provision of this section, fleets consisting of vehicles for hire or vehicles which accumulate high mileage, as defined by the department, shall go to a referee station when a smog check certificate of compliance is required. Initially, high mileage vehicles shall be defined as vehicles which accumulate 50,000 miles or more each year. In addition, fleets that do not operate high mileage vehicles may be required to obtain certificates of compliance from the referee if they fail to comply with this chapter.

R-10

Replacement of the Oxygen sensor, at a specified age or mileage was a recommendation presented by APCO Ellen Garvey at the October 31, 2002 committee meeting.

This philosophy however follows the suggestion towards enhancement as presented in the prior presentations by BAR, Staff, Doug Lawson, CCEEB and others as a further enhancement component of the I & M program to assist in emissions reductions policies. Other recommendations were gas cap program, evaporative canister and catalytic converter inspection programs.

R-1 Note: I left the references as they were. But I do not recall Tom Perardi commenting on the robustness of repairs. I recall this type of comment from the BAR, I was not present for Mr. Lawson, and I don't recall Mr. Lucas speaking specifically about inadequate repairs. Lets check the minutes on this.)

R-2, 4, 13 Committee recommended merging with number 4 and 13. **Draft combined recommendation**: Implement a remote sensing program as a means of identifying gross polluting vehicles, gathering information for the ARB emissions inventory. Remote sensing should include a clean screening program. This program must include a strong public education element that considers human issues and social equality.

R-3 NOTE: Check minutes- Re: BAR buy back program. Will BAR buy vehicles that fail the test? Can they also be non -operating?

R-5, 11, and 12: Committee recommends combining recommendations 5, 11 and 12 and enlisting the assistance of the technical committee to review our recommendation. **Draft recommendation:** Review improved actual emissions data for applicability to improving the ARB EMFAC model, including the possibility of modifying the program to provide greater hydrocarbon emission reductions and greater identification of gross polluting vehicles.

R-9. Fred, was it your intention to make a recommendation regarding in-house certification? To do so, you must use Don Brady's data or some BAR data to indicate test errors. Otherwise, I do not see where this fits in: SB 629 gives consideration to these vehicle group categories by allowing for in-house I & M certified programs to exist. Fred- how does this tie in to the recommendation

General Findings and Notes for discussion at January 6 meeting.

Older cars may be included in the 5% of vehicles that contribute the 83% of a pollutant but are not out of compliance. Emission standards for older cars were not as stringent as for present model years. But BAAQMD data indicate that vehicles older than 30 years contribute up to 18% of the emissions from the entire fleet.

The committee should consider a recommendation regarding these older cars to ensure that they do not become any more of a problem. Removal of waivers helps for cars that are not yet 30 years old. SB 629 stated that model year 1966 and older cars are exempted from the I&M Program. BAAQMD staff has indicated that exemption has since been modified to all model years once they are 30 year old. Therefore 1972 model years are presently exempted. Since these older cars have higher emissions, the committee recommends freezing the exemption to the 1974 model year and earlier. All subsequent model years will be expected to pass a smog test for the duration of their operating life.

The committee recommends that BAAQMD staff take each of the recommendations to the appropriate body for study or implementation. This may include BAR, ARB, the I&M RC, the legislature, or the BAAQMD board or staff.

Answers to Questions Raised by Mr. Kraig Kurucz (Advisory Council Air Quality Planning Committee Meeting 11/03/02)

1) What are the Smog Check requirements for high-use vehicles; e.g. cabs and government fleets?

   These vehicles are not required to have more frequent Smog Checks, such as annual inspections. In fact, vehicles registered as part of a fleet are allowed to have their Smog Checks conducted by the fleet operator. The fleet operators' Smog Check equipment and technicians must be licensed by the Bureau of Automotive Repair (BAR).

2) Quantity % of inventory from 30+ year-old cars

   In 2002, of the vehicles registered in the Bay Area and subject to the Smog Check program, 3% are 30 years old or older. These vehicles account for 18% of ROG and 5% of NOx produced by that entire fleet

3) This question is in regard to the cost effectiveness of different repair subsidy programs.

   In July, 2002 I submitted to the Air Quality Planning Committee estimates of emission reductions and cost effectiveness of a program that pays up to $600 to repair vehicles which qualify for waivers. This program would reduce emissions by 0.025 tons/day of ROG at a cost effectiveness of $6000/ton.

   The state-run repair subsidy program reduces ROG emissions by 0.2 tons/day statewide and has a cost effectiveness of 24000/ton.

   A copy of the original memorandum is attached for information.

4) EMFAC2002. a) Is it accurate and b) does it include [impact of] of higher temperatures on highways than ambient temperatures? (It is believed that due to vehicle activity on freeways, temperatures on freeways may be slightly higher than ambient temperatures)

   a) Newer versions of the EMFAC model are believed to give better estimates of the actual on-road motor vehicle emissions than the older versions. For example, for the Bay Area, based on a fuel based inventory conducted by UC Berkeley, 1991 ROG emissions were believed to be about 60% higher than those estimated by EMFAC7G (released in 1996). In EMFAC2002, the gap has been reduced to 30%.

   b) EMFAC2002 uses county temperatures measured by monitors during high ozone episodes for the "Planning Inventory". It does not assume higher temperatures on freeways than these ambient temperatures.

5) Please bring information and status on ARB programs to require replacement of O2 sensors, evaporative canisters and catalytic converters at a certain age.

   A pilot program is underway to assess the cost effectiveness of replacing catalytic converters on 1984-1992 vehicles. I have had several attempts at obtaining additional information. Paul Hughes, manager of Low Emission Vehicle Implementation Program (626-575-6977) has promised to contact me, but I have not heard from him as yet. I will let you know as soon as I have more details.

Answers to Follow-up Questions Raised by Mr. Kraig Kurucz
(E-mail Correspondence 12/04/02)

1) Regarding the taxi fleets, do they need to have a smog inspection during their second and fourth year in operation, or can they waive those 2nd and 4th year tests like a regular private vehicle owner can? It may not be appropriate for them to skip any biannual tests since they average 72,000 miles per year.

   The 4-year exemption for newer vehicles is also applicable to taxis.

2) Regarding your cost per ton for repair assistance, how were the 0.025 tons per day and 0.2 tpd ROG figures determined? Were these based on EMFAC estimates? Were they based on typical emission rates for all cars in the fleet, or cars that fail an emissions test.

   For the 0.025 tpd, I assumed that these vehicles are among those responsible for 50% of the emissions (about 9 times the average clean car).
   For the state-run figures, I used data from BAR, based on before and after tests conducted by BAR. (Please see attached Memo.)

3) We noted that most vehicle owners maintain their vehicles in good repair, or repair them when they fail an emissions test without financial assistance.

   Can you calculate the cost to all of the affected public of repairing vehicles that fail smog test and the expected emissions reductions achieved if all of those failing vehicles were repaired at the average cost for a good repair.

   In the Bay Area, we spend about $78m/year for testing and $22m/year for repairs. There are no reliable estimates for emission reductions from the existing Basic program in the Bay Area. The latest information we received from ARB, estimate 37 tpd of ROG+NOx reductions for 2006.

4) We saw data that there were 214 tpd of ROG released from vehicles. We also saw that 5% of the vehicles are responsible for 83% of the emissions. Is there a way to estimate what the ROG emissions would be reduced to if all cars were properly repaired and maintained so they emitted ROG at their design rate?

   It is impossible to make an estimate with the available information, because the fleet characteristics are not known. For example it is not certain that all of these vehicles are actually in need of repair. Some vehicles may be operating within the specified limit for the model year and have passed their Smog Check.
   In general, identifying and either repairing or retiring older vehicles are more cost effective than repairing newer vehicles.

Amir Fanai
Senior Air Quality Engineer
12/19/02

Attachment

From: Amir Fanai
To: Mr. Fred Glueck, Chairperson, Advisory Council Air Quality Planning Committee
Cc: Bill Norton; Ellen Garvey; Peter Hess; Thomas Perardi; Tirlochan Mangat; James Corazza; Mary Romaidis
Subject: Advisory Council Request for Smog Check Calculation

Date: July 22, 2002

THE ADVISORY COUNCIL AIR QUALITY PLANNING COMMITTEE ASKED THAT WE PREPARE AN ESTIMATE OF THE EMISSION REDUCTIONS THAT MIGHT BE ACHIEVED THROUGH SUBSIDIZED REPAIRS FOR VEHICLES THAT FAIL SMOG CHECK BUT GET A WAIVER/DELAY FOR ACCOMPLISHING THE NEEDED REPAIRS.

BAR's statistics show that in 2001, 181 vehicles received Repair Cost Waivers in the Bay Area. We assumed for a first estimate that these are among the dirtiest group of vehicles in the fleet- the 10% that are responsible for producing 50% of the on-road emissions. Repairing these 181 vehicles would reduce Bay Area VOC emissions by 0.025 tons/day. Assuming that the repairs would cost an average of $600 per vehicle and last for two years, the program would have a cost effectiveness of $6000/ton. . To put the emission reductions in context, VOC emissions from the on-road fleet subject to the Basic program is estimated at 172 tons/day in 2003. Exhaust emission reductions from the Basic program are estimated at 29 tons/day.

This program would be similar to the existing Consumer Assistance Program, operated by the Bureau of Automotive Repair (BAR). One method to get repair assistance for failing cars is by qualifying as a low-income motorist. In fiscal year 2000/2001, statewide, 8432 low-income motorists qualified and received state-sponsored repairs. More than 50% of these vehicles were Gross Polluters. The repair cost to the state was 3,522,294 ($420/vehicle, excluding administrative costs). Estimated VOC emission reductions quoted by BAR is 0.2 tons. The cost effectiveness for the program is therefore $24,000/ton of ROG, assuming the repairs would last two years.

It is likely that some of the 181 motorists in the Bay Area who operate their vehicles with a waiver had been offered subsidized repairs, but refused to participate in the program. In our discussions with BAR staff, they stated that these vehicles do not contribute significantly to the on-road vehicle emissions. It would impose an inordinately large administrative burden to launch a new program to deal with and repair these vehicles. Furthermore, to change the program so that no motorist is allowed to operate a vehicle with a waiver would require a change in the relevant statutes.