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

APPROVED MINUTES

Advisory Council
Air Quality Planning Committee Meeting
9:30 a.m., Tuesday, July 22, 2003

1. **Call to Order – Roll Call.** 9:40 a.m. Quorum Present: Kraig Kurucz, Chairperson, Harold M. Brazil, Pamela Chang, Patrick Congdon, Irvin Dawid, John Holtzclaw. Absent: Fred Glueck, Kevin Shanahan.

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

3. **Approval of Minutes of May 27, 2003.** Dr. Holtzclaw moved approval of the minutes; seconded by Mr. Congdon; carried unanimously.

4. **Legislative Update.** Peter Hess, Deputy Air Pollution Control Officer, noted that the State budget dominates the discussions at the Legislature. The District conceptually supports SB 288 (Sher), the New Source Review Restoration (NSR) Act of 2003 and is seeking amendments. Some reform to the NSR program is necessary. The California Association of Air Pollution Control Officers (CAPCOA) and the National Association of State and Local Air Pollution Control Agencies advocate that the NSR program consider the net air quality benefit of a retrofit or plant modification as surpassing the associated emission impacts of a single pollutant. The District and CAPCOA are working with the Environmental Protection Agency (EPA) to develop principles of acceptability that will meet the federal NSR program requirements but not weaken the existing NSR program. The EPA has agreed to several tenets of NSR in California, which declare that NSR should:

    a) minimize emissions from new sources and modifications of existing sources
    b) protect public health
    c) encourage the installation of the cleanest technology and pollution prevention
    d) affirm that the most practical and cost effective time to control a source of air pollution is the time of initial construction and modification
    e) ensure enforceability of provisions through permitting, record keeping and reporting
    f) not provide disincentives to pollution reduction or act as a barrier to environmentally beneficial projects
    g) recognize investments made by companies in state-of-the-art air pollution control
    h) allow sources to respond rapidly to changing markets and plan for future investments in air pollution control and prevention activities

    Air districts in the State advocate these NSR program improvements. EPA Region IX has been informed that there is no conflict between the federal reforms and the foregoing NSR tenets, and that it has the authority to reach an agreement with the State Air Districts regarding them. The EPA will also allow California NSR programs to be more stringent than the federal NSR program—an allowance that is not granted to any other state in the country.

Mr. Dawid requested that at the next Committee meeting staff address (a) SCA 11 (Alarcon) and ACA 14 (Steinberg), which would lower the threshold for transportation sales taxes and thus impact state air quality programs, and (b) the vehicle license fee bills AB 204 (Nation) and AB 1546 (Simitian), which affects only specific counties in the Bay Area. Also, future staff legislative reports should list the sponsors of a bill, as this would provide further insight into its intent.

Chairperson Kurucz inquired as to the status of SB 656 (Sher) on particulate matter (PM) regulation. Mr. Hess replied that it is not presently funded and is moving forward slowly. He added that in the Bay Area nitrates are a major source of PM, along with woodsmoke and diesel fuel. The District is uniquely prohibited by State legislation from using TFCA funds for preparing air quality plans as required by the California Clean Air Act. Therefore, the District is asking Senator Sher to expand the funding mechanism in SB 656 to include planning for ozone and PM.

5. **Status of State and Federal Efforts to Reduce Diesel Emissions.** Michael Murphy, Environmental Planner, stated diesel emissions in the Bay Area derive primarily from trucks, buses, ships, trains, construction, agricultural and other off-road equipment, and small gasoline engines. On-road and off-highway mobile source emissions contribute the majority of nitric oxide (NOx) and reactive organics (ROG) emissions, and a sizeable fraction of PM_{10}. Off-road engines emit significant sulfur dioxide (SO_2) emissions because they do not use ultra low sulfur diesel (ULSD). Forthcoming requirements to use ULSD should greatly reduce emissions from off-road sources.

   Bus transit fleets are the traditional experimental ground for federal and state regulation of heavy-duty engines. The California Air Resources Board (CARB) has adopted a separate rule for transit buses that includes options for compliance paths that use either alternative fuel or diesel. NOx is a large contributor to diesel PM. Most Bay Area transit properties have chosen the diesel path, but they have yet to attain the rule's fleet-wide NOx average. In adopting fleet-specific regulations for other fleets, CARB may choose to consider different types of fleet-wide NOx averages.

   Zero emission (fuel cell) bus demonstration projects will be conducted by AC Transit in partnership with Golden Gate Transit and San Mateo County Transit in partnership with Santa Clara Valley Transit Authority. Through the Transportation Fund for Clean Air (TFCA), the District has contributed $1 million to each of these two demonstration projects.

   The 1998 CARB standard for urban transit bus NOx of four grams per brake-horsepower hour will be lowered nearly to zero in 2007. Presently, PM traps are already reducing PM emissions below this level, and natural gas engines will likely meet these limits by 2007. The CARB retrofit strategy for transit bus diesel PM is based on diesel emissions as a toxic air contaminant. It fixes January 1, 2002 as the baseline and requires that in each succeeding year a higher percentage of the fleet must be retrofitted. CARB is also considering retrofit strategies for other on-road fleets.

   Out of a total of 4.6 million vehicles registered in the Bay Area, approximately 90,000 are heavy-duty trucks. These trucks represent 5-6% of the daily vehicle miles traveled. CARB has regulated heavy-duty truck engines since 1987. Since October of 2002, as a result of litigation filed by CARB and EPA, the engine manufacturers have largely complied with CARB standards for 2004. The 2007 standards will further reduce emissions and are similar to the 2007 transit bus emission standards. CARB is also proposing that, when an engine is rebuilt, its on-board computer controls be reprogrammed to remove off-cycle emissions. The reprogramming is not technically difficult, but the task is labor-intensive. CARB believes that the engine manufacturers rather than the truck owners should bear the cost of the reprogramming. The issue is likely to prove controversial.

CARB has a proposal for 2007 that would require installation of devices that limit vehicle idling. It is also considering a requirement for PM_{10} retrofit requirements for heavy-duty engines similar to what it requires for transit fleets. In September 2003, CARB will consider a PM trap retrofit rule for garbage trucks. This will be the first application of such a rule to private fleets. The requirement to use ULSD will also follow, thereby reducing SO_2 and further enable PM retrofit technologies. On July 31, 2003, CARB will hold a public hearing to adopt fuel specifications for ULSD, which will be similar to EPA's efforts to establish a nation-wide ULSD specification that will become effective in 2006. In California, this would apply to on and off-road components.

EPA and CARB have cooperated to adopt similar off-road diesel engine standards for construction equipment, ground support equipment and portable equipment, which would apply nationwide. EPA recently defined agricultural engines as off-road engines, thereby subjecting them to its off-road standards. There is controversy over whether state or federal rules govern the emissions from this equipment as well as whether it must use CARB diesel fuel, which has lower sulfur content than diesel fuel in the federal program. Federal regulations for this equipment contain three tiers, which become effective with each successive year. While CARB does not employ the terms of federal emission standard designations for this equipment, its emission standards are the same.

EPA regulates emissions from ships and boats, and recently adopted rules will become effective in 2004. It has divided commercial vessels into three categories. The standards are based on a pending international treaty with which manufacturers are trying to comply, possibly because it contains backdated compliance requirements. While EPA has applied these standards to smaller vessels, its application to large ocean-going vessels is still under consideration. CARB and EPA have parallel regulations for in-board and out-board recreational engines. The District is participating with CARB in this regulatory effort. There are two tiers of emission standards for commercial marine engines. These have not yet been applied to large ocean-going vessels. With regard to gasoline powered marine engines, large reductions in NOx and hydrocarbon (HC) have occurred since 1998, and CARB required further major emission reductions in 2001.

EPA adopted three tiers of regulations for railroad locomotive emissions in 1997. Tier 0 requires emission reductions upon engine remanufacture. Tier 1 addresses already manufactured engines, and Tier 2 will apply to new engines in 2005. The standards will be applied differently to various locomotive types and applications ranging from freight and passenger hauls to yard switching.

CARB also regulates emissions of gasoline engines less than 25 horsepower (hp). A single 25 hp engine powering a two-stroke chain saw emits the equivalent of 10 cars driven 250 miles.

Other available control technologies include electronic fuel injection, which improves fuel economy and combustion. New diesel engines use common rail fuel injection: a single fuel line that equalizes the pressure across the cylinders. On-board diagnostics are becoming more common, and may set the stage for smog check programs for heavy-duty diesel engines. Dual fuel or pilot ignition engines employ ignition by compression. This increases fuel economy and engine power. The successful development of fuel cell technology remains on the horizon.

Major after-combustion devices include oxidation catalysts, PM filters, lean NOx catalysts, NOx absorbers, and selective catalytic reduction for NOx from engines to meet the 2007 standards.

Engine idling control devices/systems are coming into vogue, and truck stops are now beginning to offer electronic power for parked trucks to reduce engine idling.

Fuel modifications include Fischer Troppes Diesel (natural gas converted into a stable liquid and blended into diesel fuel), biodiesel, emulsified diesel, ethanol diesel, and hydrogen for fuel cells. CARB and the California Energy Commission will hold a fuel symposium next month.

Apart from regulations, there are government incentive programs to reduce emissions, such as the Carl Moyer and TFCA programs. Some tax credits are available for alternative fuels, along with emission reduction credit programs for mobile sources. The latter is not prevalent in the Bay Area. Local land-use development agreements can include mitigation measures. Government purchase orders could stipulate that equipment to be shipped should be transported by low-emitting trucks.

In reply to questions and comments from Committee members, Mr. Murphy noted:

- It would be ideal if funding for the Carl Moyer program were increased and its funding mechanism corrected so that the District is no longer under-funded. Financial incentive programs should go beyond NOx and ozone and directly include PM_{10}. Air Districts should be allowed to prioritize for PM_{10} reductions. The turnover of older vehicles nets the greatest emission reduction, followed by the accelerated deployment of cleaner engines.
- Most transit districts receive bus transit replacement dollars from the federal government. Both the Santa Clara Valley VTA and San Francisco Municipal Railway (MUNI) have delayed purchase of new buses by previously extending the definition of the useful life of the bus.
- Concern over the lack of lubricity in ULSD has been addressed by adding a small amount of lubricating agent to the fuel. CARB has adopted a lubricity specification for its new fuel. The federal specification for diesel fuel has a higher sulfur content than the CARB specification.
- Biodiesel improves combustion and reduces PM emissions, but it burns hotter and increases NOx. The advantage of reducing the waste stream must be factored into the evaluation.
- The re-circulation of exhaust gases in heavy-duty engines requires a larger cooling system. A costly, customized modification of existing trucks and construction equipment is, therefore, required. Financial incentive programs assist in this work.
- Emissions from two-stroke scooters are comparable to chainsaw engines.
- Bay Area hybrid buses use a diesel engine. CARB recently adopted a certification procedure for hybrid design. On-board engines would have to meet the same requirements that apply to non-hybrid applications. Hybrid buses that use CNG power to generate electricity for the on-board batteries, along with regenerative braking, were proposed for use at the San Francisco International Airport, but the high cost proved prohibitive. MUNI operates two diesel-electric hybrids, and the hybrid design in the South Bay uses a micro-turbine to generate electricity for the battery. The Bay Area company "CalStart" has a long-term contract with the United States Defense Department to evaluate hybrid designs, and could provide further insight into hybrids.
- Construction and other off-road equipment are scheduled for rule-making with regard to PM_{10} retrofit strategies. The possible application of the three tiers of federal standards to the manufacturers of off-road equipment is not presently being considered by either ARB or EPA.
- The prohibition on importing liquid natural gas (LNG) into California, based on concerns over volatility, applies to marine shipping. LNG transport is allowed either by railcar or truck.
- In the Bay Area there is a lack of funding for alternative fuel programs, and the Air District has been the main source of funding for them. Funding from other entities would be desirable.

6. **Committee Member Comments/Other Business.** Mr. Dawid stated that a meeting of the South Bay Clean Cities Coalition would be held on August 6, 2003. He added that recently the Palo Alto City Council announced that TFCA funding was approved for signal retiming. He observed that TFCA funds would be better spent on programs that remove vehicles from the road than on ones that increase the speed at which they travel on them. The Committee should review this matter.

   Ms. Chang summarized the proceedings of a conference on sustainable mobility at which it was noted that vehicle emissions are responsible for over 50% of total emissions. She added that in April of 2002 she attended an environmental design conference in Seattle, at which statistical data were presented that indicates 1.5% of gasoline moves passengers and the remaining 98.5% moves the vehicle; and less than 4% of the American public take transportation. A proposal to address this problem was offered, in which neighborhood sub cars would be used as transportation feeders to mobility centers for transfer to public transit. The Committee may wish to consider this matter in the future.

7. **Time and Place of Next Meeting**. At the call of the Chair.

8. **Adjournment.** 11:54 a.m.

James N. Corazza
Deputy Clerk of the Boards