State of California
AIR RESOURCES BOARD

Summary of Board Meeting
December 9, 2004

California Environmental Protection Agency
Air Resources Board
Byron Sher Auditorium, Second Floor
1001 I Street
Sacramento, California

MEMBERS PRESENT: Hons. Alan C. Lloyd, Ph.D., Chairman
Sandra Berg
Dorene D'Adamo
Mark DeSaulnier
Henry Gong, Jr., M.D.
Ronald Loveridge
Barbara Patrick
Patricia Salas Pineda
Barbara Riordan
Ron Roberts

AGENDA ITEM #

04-11-1: HEALTH UPDATE – Traffic-related Air Pollution near Busy Roads – East Bay Children's Respiratory Health Study

SUMMARY OF AGENDA ITEM:

The East Bay Children's Respiratory Health Study found a modest but significant increase of 5 to 8 percent in asthma exacerbation and bronchitis symptoms for children in neighborhoods with higher concentrations of the traffic-related pollutants black carbon and nitrogen oxide species. The 1100 children participating in this school-based study live in an area of Alameda County that has low levels of regional pollution, which allowed the study to focus on local impacts from traffic exposure at the community scale. The study examined the respiratory health of children in the third to fifth grades at 10 schools of varying distances from major roads. The population of children studied are ethnically diverse and about 31 percent are from families that are at or below the federal poverty level. The results support the need for additional measures that reduce emissions and exposures to traffic air pollution in order to

improve children's health. The study is one of the first in the United States to look at the effects of traffic-related pollutants on children's health and the Air Resources Board is funding further refinement of the traffic estimates used to evaluate the respiratory outcomes.

Chairman Lloyd thanked the staff for presenting this health update and noted the higher black carbon levels along diesel-dominated freeways. Board Member Gong recommended that the relationship between school absences and traffic pollution be investigated. He also asked about the effects of freeway sound barriers on traffic pollution exposures. Staff explained that a previous study had looked at the effects of barriers on carbon monoxide, but that barrier heights have increased since the study and further investigations were being considered as part of the upcoming Annual Research Plan. Board Member Berg asked how many California schools are located within 500 feet of freeways, and staff responded that 173 schools are within 150 meters (492 feet) of a freeway. Board Member Loveridge requested that the study results be distributed to Boards of Supervisors and City Councils making land use decision. Executive Officer Witherspoon informed the Board that the Air Resources Board is developing a land use policy guidance document that will consider these and other health findings. Board Member Pineda asked if there were plans to study areas with higher background levels of pollution to see the compounding effect. Staff responded that they were developing a research project to collaborate with the Los Angeles Family and Neighborhood Survey to determine the effects of traffic on asthma exacerbation and lung function.

ORAL TESTIMONY: None

FORMAL BOARD ACTION: None (Informational Item)

RESPONSIBLE DIVISION: Research Division

STAFF REPORT: No

04-11-2: Report to the Board on the Importance of In-Vehicle Exposures

SUMMARY OF AGENDA ITEM:

This informational item highlighted the key contributions that time spent in vehicles makes to overall exposure to air pollution. Two in-house research projects were described where in-vehicle measurements provided the basis for calculations of in-vehicle

contributions to overall exposures. For diesel particulate matter (PM), in-vehicle exposures were calculated to contribute from 30 to 55 percent of total exposure for California residents. For ultrafine particles, residents of Los Angeles appear to receive more than 50 percent of their total exposure while in vehicles. In-vehicle concentrations of ultrafine particles were also shown to be a strong linear function of diesel truck volumes.

The importance of the location of emissions was illustrated by the two to fivefold increase in contribution to exposure for on-road emissions of diesel PM compared to an equal quantity of off-road emissions. Another example given was the relatively high impacts that occur when following a vehicle with a low, rear-end exhaust pipe location compared to the high, front-end location typical of tractor-trailer trucks.

Overall, these findings indicated that long commute times in urban traffic might be a significant but under-recognized health concern. It also highlighted the dual benefits of reductions in on-road emissions—not only improvements in ambient air quality but significant reductions in human exposures beyond those that would occur due to improving ambient air quality alone.

Board Member D'Adamo asked about the effects of idling and stop-and-go conditions on exposures. Staff described how these conditions, while resulting in relatively high emissions per mile, were often low exposure conditions as vehicle plumes often miss following vehicles, especially if exhaust locations are high or there are crosswinds. Board Member D'Adamo also asked if the 710 freeway was a worst-case for in-vehicle exposure. Staff felt that for diesel-vehicle related pollutants it probably was, as it consistently has some of the highest truck volumes in the state, and did show the highest concentrations measured.

Board Members D'Adamo and Patrick asked what is being done to let other agencies and the public know about these findings. Staff answers included posting in-vehicle exposure information on the Air Resources Board website and presentations to local government and air districts.

Chairman Lloyd and Board Member D'Adamo both asked if in-car filtration is a viable way to reduce in-vehicle exposures. Staff answered that it probably is not very effective because the volume of air filtered would likely be overwhelmed by high air exchange rates in all but the newest and tightest vehicles, even with the ventilation system set to "recirculate." Measurements made by staff

showed that for these tight, new car conditions, some particle removal benefits are possible, but the build-up of carbon dioxide can be a concern for driving safety (i.e., fatigue, dizziness), especially as passenger number increased.

ORAL TESTIMONY: None

FORMAL BOARD ACTION: None (Informational Item)

RESPONSIBLE DIVISION: Research Division

STAFF REPORT: No

04-11-4: Pubic Hearing to Consider Amendments to the California Off-Road Emissions Regulation for Diesel Engines and Equipment

SUMMARY OF AGENDA ITEM:

Staff proposed amendments to the existing off-road diesel regulations and test procedures to require a fourth tier (Tier 4) of more stringent exhaust emission standards and enhanced certification and compliance procedures. The amendments effectively harmonized California's regulations with the federal nonroad requirements. Initial Tier 4 standards are scheduled to begin in 2008 for engines below 56 kilowatts, and more stringent standards will follow beginning in 2011 and later years for the remainder of the off-road category.

The amendments included supplemental requirements to the federal regulation intended to protect California from potential abuses of the Tier 4 compliance facilitating provisions. The supplements provide more descriptive labeling requirements and clarification on the application of Executive Orders.

At the hearing staff proposed, as 15-day changes, clarification to several definitions and to the labeling requirements for rebuilt and remanufactured engines. Staff also clarified the scope of reporting requirements for flexibility allowances and defect warranties, and expanded the applicability of Executive Orders to include flexibility engines. The changes were made based on discussions with the off-road industry and are meant to ensure the realization of the emission benefits estimated in staff's original proposal. The Board requested that staff involve industry when developing the details of the changes and provide them for a 45-day public comment period.

ORAL TESTIMONY:

Jed Mandel, Engine Manufacturers Association
Joseph Kubsh, Manufacturers of Emission Controls Association

FORMAL BOARD ACTION: By unanimous vote the Board approved Resolution 04-43.

RESPONSIBLE DIVISION: Mobile Source Control Division

STAFF REPORT: Yes

04-11-5: Public Meeting to Update the Board on the Heavy-Duty Diesel Engine Voluntary Software Upgrade (Chip Reflash) Program

SUMMARY OF AGENDA ITEM:

The Air Resources Board (ARB or the Board) staff presented the results of the Heavy-Duty Diesel Engine Voluntary Software Upgrade (Chip Reflash) Program. Prior to the start of the voluntary program, the number of vehicles reflashed was only enough to achieve 18 percent of the NOx emission benefits from reflashing the total eligible California-registered vehicle population. Those reflashes occurred either at the time of engine rebuild (as required) or as a result of manufacturer and government incentive projects. At the end of October, enough vehicles had been reflashed to achieve 22 percent of the total NOx emission benefits. The target for this phase of the Voluntary Program was 35 percent.

The Board adopted Resolution 04-46, concluding that overall, the results to date did not meet the initial target of the Voluntary Program. However, the Board determined that Detroit Diesel Corporation (DDC) had met their target. The Board directed the Executive Officer to incorporate clarifying modifications into the approved regulatory text and to make the modified text available for a supplemental comment period.

The clarifying modifications include specifying that dealers authorized to install low NOx software provide the software at no cost to the vehicle owner and perform the installation within a reasonable amount of time. Civil penalties have been added for authorized dealers that refuse to install low NOx software on an eligible engine. Another clarification specifies that engine manufacturers provide the software at no charge to the dealers and reimburse the dealers for the installation of the software. Finally, a

modification to the language specifies that owners of eligible engines manufactured by DDC are not subject to the regulatory requirements (i.e., those engines can continue to be reflashed under the voluntary program unless and until a future target goal is missed.)

ORAL TESTIMONY:

Ms. Stephanie Williams, California Trucking Association
Mr. Richard Smith, San Diego Air Pollution Control District
Mr. Paul Wuebben, South Coast Air Quality Management District
Ms. Bonnie Holmes-Gen, American Lung Association
Mr. Jed Mandel, Engine Manufacturers Association
Mr. Don Keski-Hynnila, Detroit Diesel Corporation
Mr. David Piech, International Truck
Mr. Larry Sherwood, Sacramento Metropolitan Air Quality Management District and California Air Pollution Control Officers Association
Ms. Diane Bailey, Natural Resources Defense Council
Mr. Don Anair, Union of Concerned Scientists

FORMAL BOARD ACTION: By unanimous vote the Board Approved Resolution 04-46.

RESPONSIBLE DIVISION: Mobile Source Control Division

STAFF REPORT: No

04-11-3: Public Hearing to Consider the Adoption of a Proposed Airborne Toxic Control Measure to Reduce Emissions of Hexavalent Chromium and Nickel from Thermal Spraying

SUMMARY OF AGENDA ITEM:

Staff presented a proposed Airborne Toxic Control Measure (ATCM) to Reduce Emissions of Hexavalent Chromium and Nickel from Thermal Spraying. The proposed ATCM requires thermal spraying operations to meet control efficiency standards ranging from 90 to over 99 percent, perform monitoring, and keep records to minimize emissions of hexavalent chromium and nickel. New thermal spraying operations that use materials containing chromium or nickel cannot operate unless they are located outside of and at least 500 feet from the border of a residential or mixed use zone. In addition, new operations are required to meet the

maximum control efficiency (e.g., a HEPA filter) and undergo a site-specific analysis to ensure adequate protection of public health.

The proposed ATCM will reduce emissions of hexavalent chromium by nearly 80 percent and nickel by 51 percent by requiring the use of best available control technology. The reduction in emissions will reduce public exposure and the associated health risks.

As a result of comments received, staff presented and the Board approved modifications to the original proposal released on October 22, 2004. A brief summary of the changes is provided below:

- Clarify that the definition for a "new thermal spraying operation" does not include the modification of an existing operation;
- Clarify the definition of "inward face velocity" to remove language related to cubic feet per minute;
- For new thermal spraying operations, clarify that the 500-foot distance criteria only applies at the time that the authority to construct is issued;
- Modify the monitoring requirements to reduce the monitoring frequency for pressure drop and face velocity; and
- Clarify that remotely located operations don't have to monitor face velocity.

In addition, the Board directed staff to work with the Environmental Health Coalition to address their testimony regarding authority-to-construct permits for new thermal spraying operations.

A representative of the Industrial Environmental Association opposed the fixed buffer zone for new thermal spraying operations, indicating this issue should be addressed by ARB's "Air Quality and Land Use Handbook." Representatives of Plasma Technology Inc. testified that, until additional research is completed, the proposed ATCM should be delayed. Representatives of environmental groups expressed support for the proposed ATCM, particularly the standards for new thermal spraying operations.

ORAL TESTIMONY:

Mr. Clay Hinkle, Industrial Environmental Association
Mr. Steve Norris, Plasma Technology Inc.
Mr. James Unmack, Plasma Technology Inc.
Ms. Barbara Kanegsberg, Plasma Technology Inc.
Ms. Jane Williams, California Communities Against Toxics
Mr. Darryl Mack, University of California, Davis

Ms. Diane Takvorian, Environmental Health Coalition

FORMAL BOARD ACTION:

The Board unanimously approved Resolution 04-44 adopting the proposed ATCM with staff's suggested modifications.

RESPONSIBLE DIVISION: Stationary Source Division

STAFF REPORT: Yes

04-11-6: Public Meeting on the Status of Air Quality in California

SUMMARY OF AGENDA ITEM:

Staff updated the Board on the state of the state's air quality. The emphasis was on the federal 1-hour ozone and PM10 standards, which have been the primary focus of our planning process and the State Implementation Plans. Although air quality has seen considerable improvement over the last twenty years, weather can cause large swings in air quality from one year to the next. The presentation showed several examples of this and compared 2004 with 2003.

For ozone, 2004 was a good year. Both the San Joaquin Valley and the South Coast Air Basin, which have the most severe problems in the state, had the fewest exceedances of the federal 1-hour standard in their history. Also, the exceedances were less widespread and the peaks were lower. Air quality was generally better throughout the state, and the San Francisco Bay Area and other coastal areas continued to meet the federal 1-hour ozone standard.

The weather was more normal in 2004 than in it was in 2003. In 2003, the South Coast had uncommonly severe weather that has the greatest potential to form high ozone; this was the principal factor for the worsening air quality in 2003. The San Joaquin Valley had uncommon weather in 2003 as well. The significant improvement in air quality in 2004 was only partly due to improved weather. The fact that air quality was the best ever in 2004, but that the weather was more average rather than "extremely good", is a testament to the effectiveness of the emission control programs.

Significant strides have also been made toward attainment of the federal PM10 standard. Only a few areas in California continue to

have fugitive dust problems. These include the Mono and Owens Lake areas and Imperial County. Urban areas, including the South Coast and San Joaquin Valley, rarely exceed the 24-hour standard and are limited to stagnation episodes, increased activity on holidays or natural events such as wildfires. Annual average concentrations are continuing to decline. The South Coast and San Joaquin Valley are expected to attain the annual standard by 2006 and 2010, respectively.

We are in the process of transitioning to the new, more health-protective federal 8-hour ozone and PM2.5 standards. U.S. EPA designated nonattainment areas for these standards this year, and State Implementation Plans are due in 2007 and 2008, respectively. In California, there are fifteen 8-hour ozone nonattainment areas, and three PM2.5 nonattainment areas. Because these are more stringent standards than the 1-hour ozone and PM10 standards, additional controls will be required.

Staff concluded the presentation by summarizing the progress made towards State standards, which are the most health-protective standards.

Ms. Deborah Whitman, a private citizen, testified after the staff presentation. She had a neutral position. She expressed concern about poor air quality in Sacramento, and suggested that more monitoring for carbon monoxide be done.

ORAL TESTIMONY:

Ms. Deborah Whitman, Private Citizen

FORMAL BOARD ACTION: None

RESPONSIBLE DIVISION: Planning and Technical Support Division.

STAFF REPORT: No