

On the Air

Living Near Freeways Harms Children's Lungs

Children who live near busy roads experience slower lung development than children who don't—whether they live in Los Angeles, Santa Maria or Santa Barbara. This is one of the key findings from the Children's Health Study, a 15-year University of Southern California (USC) family of studies of more than 11,000 children from sixteen communities.

Researchers found that children who live within 500 meters, or approximately a third of a mile, of a freeway or busy roadway have substantial deficits in lung function and lung development when compared with children living 1,500 meters, or about a mile away from the roadways.

"The interesting thing about this is that the relationship between busy roadways and slower lung growth holds true regardless of

the air quality of the surrounding area, whether it's a community like Los Angeles or Riverside with higher pollution levels, or one like Santa Barbara or Santa Maria where the air is relatively much cleaner," notes Ed Avol, Professor at the Keck School of Medicine at USC. He explains that children who both live near freeways and live in a high-pollution community have a double challenge, because they are affected by both the regional and local pollution.

He comments, "When you think about just how many children in Southern California live near freeways, this is a pretty significant finding." In Santa Barbara and Santa Maria, impacts were primarily related to living near freeways such as Highway 101, he explains, as these communities do not have many high-traffic four-lane roads considered busy roadways.

The Children's Health Study began in 1993 to assess the impacts of air pollution on the growth and development of kids' lungs. Children—primarily fourth graders—were recruited from schools in twelve communities from San Diego to San Luis Obispo counties, ranging from Southern California locations with more polluted air, to Santa Maria and Lompoc. Communities in Santa Barbara and San Luis Obispo counties were selected for their cleaner air, compared to Los Angeles area counties.

The children were studied each year as their lungs developed until high school graduation, and results were compared to air quality measurements in the communities. The research team collected extensive information about each child's home, socioeconomic status and other factors that might affect health.

Then the team visited the schools and measured the children's lungs, assessing how much air could be expelled in one breath and how quickly it could be expelled.

Early findings from the studies showed that the lungs of children in more polluted areas were growing more slowly than the lungs of children in cleaner-air communities. Higher levels of ozone, a key component of smog, were associated with more school absences and more cases of newly diagnosed asthma. The study also showed that when children moved from more polluted to less polluted areas, their lungs began to grow at rates similar to other children in that cleaner community, although they seemed to remain permanently affected by the period of slower growth.

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Wildfire Smoke

In July and August, APCD and the County Public Health Department issued advisories calling on residents to stay indoors and avoid outdoor exercise when smoke from the Zaca Fire was present in the air. The Zaca Fire started July 4, and burned over 240,000 acres, prompting evacuation orders, and creating ash and plumes of smoke.

APCD Public Information Officer Bobbie Bratz remarked, "The

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Smoke plumes from the Zaca Fire

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Children's Lungs (cont'd)

As the studies continued from 2003 to 2007, some of the participating communities have changed—Santa Barbara was added to the study, replacing Lompoc—and researchers began to look at additional issues. They found that children who lived within 500 yards of a freeway had a three percent deficit in how much air they could exhale, and a seven percent deficit in how fast it could be exhaled, compared with children who lived at least 1,500 yards, or nearly a mile, from a freeway—regardless of the air pollution levels in the surrounding community. In addition, with every 20 parts per billion increase in the level of ozone, illness-related school absences increased over 60%—wherever the school was located. To date, 989 children in Santa Maria and 470 children in Santa Barbara have been part of the study.

A University of California at Los Angeles (UCLA) study of ultra-fine particles along freeways found that the airborne levels

of these very tiny particles drop off sharply in the first 100 meters from the road. Says Avol: “Our health findings are more gradual. We see the most effects within the first 400 to 500 meters from a freeway, and it goes down gradually after that.” One possible explanation for this difference could be that the UCLA measurements were made at a consistent time of day (early afternoon) when the winds were well-established and from a certain direction. As winds shift throughout the day and pollution moves around, the sharp gradients in pollution seen in the UCLA study smooth out and extend out a few 100 meters, more in line with the health signal reported.

As the Children's Health Study results have been published, the authors have been contacted by everyone from school district officials to home buyers with questions about buildings and homes that are close to freeways. Answers are not always possible, notes Avol: “Is it better for a kid

to go to school near a freeway, but not to have to spend three to four hours a day on a school bus? Or, people will ask, if they're 800 meters from the freeway, can they go ahead and buy the house? We have to tell them that there's no absolute threshold. And a lot depends on the specific conditions.”

He adds, “Many schools are located near freeways, because that's where the land was cheap enough for school districts to build. While we can't do anything about the decisions of the past, we are going to need to think about the implications of these health results for land use decisions in the future.”

Researchers have not identified exactly which pollutant in vehicle exhaust is responsible for the effects, or whether road dust, including microscopic particles from tires suspended in the air, plays a role.

Researchers will look more closely at these and other issues

as studies continue through 2012. Avol explains that Santa Barbara will play an important role in the next phase of the study, because it has a wide range of variability in traffic density, topography, house distance to the freeway, and other variables of possible interest and health relevance.

Another area of focus as the study continues will be the role of genes in making particular children more susceptible to the effects of air pollution. Researchers will also continue to follow children from the original study phase as they grow older. Says Avol, “We know that reduced lung function can cause health problems later in life. The length of this study allows us to assess the health impacts over time as the children from 1993 mature.”

For more information see <http://hydra.usc.edu/scehsc/default.asp>.

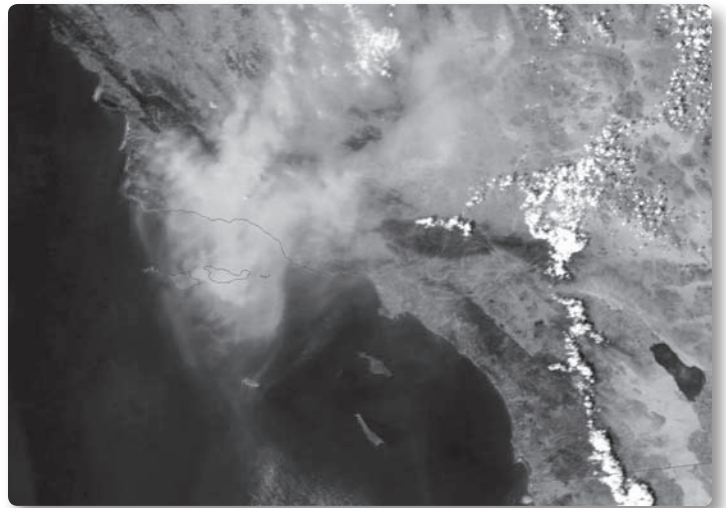
Smoke (cont'd)

main point we communicate is if you smell smoke, then the particles are affecting the air you are breathing. If you see smoke, but don't smell it, then the smoke may be up high. Falling ash particles are mostly too large to stay in our lungs, although they can create dust that is a problem.”

She emphasized, “If you have a heart condition, or lung problems—especially asthma—you need to be particularly careful, and call your doctor if your symptoms worsen, or if you start to have new symptoms.”

Added Bratz, “We work closely with the County Public Health and Fire Departments during incidents like this one, and appreciate this partnership effort to keep the public informed about the fire and the smoke.”

For more information and updates on smoke advisories, see www.OurAir.org.



Satellite photo taken August 14 (courtesy NASA) shows smoke over Santa Barbara County reaching in to the San Joaquin Valley.

County Reaches Air Quality Milestone

APCD Board Roundup

Following are the highlights of the June and August Board meetings.

June

- Approved a raise in the Control Officer's base salary.
- Adopted the Fiscal Year 2007-08 Budget
- Held a public hearing to accept comments on the Draft 2007 Clean Air Plan, and directed staff to exclude the Land Use Strategies Chapter from the Plan.
- Received and filed a briefing on APCD's implementation of the State Air Toxics Control Measure for diesel agricultural engines.

Note: there was no APCD Board meeting in July.

August

- Held a public hearing to receive testimony, adopted the 2007 Clean Air Plan and associated Environmental Impact Report, and approved sending of the Plan to the California Air Resources Board.
- Held a public hearing, and adopted new APCD Rule 1201, Registration of Agricultural Diesel Engines.
- Held a public hearing on proposed new APCD Rule 213, Fees for Registration Programs.
- Adopted a resolution that selects up to three candidates for election to the Special District Risk Management Authority Board of Directors.

In June, APCD announced that county air has met the state one-hour standard for ground-level ozone, a principal component of smog, based on 2004-2006 data. County air does not meet the state eight-hour standard for ozone, a more health-protective standard based on an eight-hour average ozone level, but does meet the federal eight-hour ozone standard.

"This is an important milestone on the road to clean air," said APCD Director Terry Dressler. Ozone levels have been going down over the past decade in the county. Dressler attributed the improvement to: cleaner cars and gasoline; improving air quality in neighboring areas; efforts by businesses to reduce industrial pollution; and favorable weather patterns.

He added, "We can expect some bumps in the road. We have to stay vigilant, and continue the efforts that got us this far."

For more information on county air quality, including ozone levels updated hourly, see www.OurAir.org.

Crushing Old Cars for Cleaner Air

APCD's Old Car Buy Back Program has taken 541 old cars off the road since May of 2006, resulting in the reduction of 59 tons of smog-forming pollutants. The program pays \$800 for 1988 and older gasoline-powered cars, light-duty trucks, or vans that meet certain requirements. Older vehicles pollute much more than newer ones, and the vehicles are crushed after tires and batteries are recycled, and the fluids drained and disposed of properly. The steel from the crushed cars is also recycled.

That factor contributes to the program's popularity, notes APCD project manager Frances Gilliland: "People tell me, 'I really want to sell my car, but I know it pollutes a lot, so I like the idea that I'll be able to sell it, but it won't keep polluting.'" The convenience of the program is another reason for its popularity, she reports. The APCD Board has approved two additional program increases, and currently has funding to retire 105 vehicles. Funds that support the program

come from the state's Carl Moyer Program and motor vehicle registration fees.

County residents can take their older cars for an evaluation to one of three facilities in the county – in Santa Maria, Lompoc, and Goleta. Cars have to have been registered in the county for the previous two years, and must have a current smog certificate and meet additional requirements to qualify for the program.

For people with older cars that have failed smog check the state's

Bureau of Automotive Repair operates a similar program, see their website at www.smogcheck.ca.gov/stdhome.asp.

To participate in the program call 1-800-717-7624. To view all the information on the program, see this page on the APCD website: www.sbcapcd.org/ocbb.htm.



We'll Give You \$800 for Your Old Car!

- ★ Car or light-duty truck
- ★ 1988 or older
- ★ Two years registered in Santa Barbara County
- ★ Some restrictions apply

Call the Car Buyback Program at 800-717-7624 or visit www.sbcapcd.org for program details.

This voluntary program sponsored by Santa Barbara County Air Pollution Control District.

APCD Board Calendar

Board of Directors

Supervisor Salud Carbajal

First District

Santa Barbara County

Supervisor Janet Wolf

Second District

Santa Barbara County

Supervisor Brooks Firestone

Third District

Santa Barbara County

Supervisor Joni Gray

Fourth District

Santa Barbara County

Supervisor Joe Centeno

Fifth District

Santa Barbara County

Mayor Pro Tem Russ Hicks

City of Buellton

Councilmember Al Clark

City of Carpinteria

Mayor Lupe Alvarez, Vice Chair

City of Guadalupe

Mayor Pro Tem Will Schuyler, Chair

City of Lompoc

Mayor Marty Blum

City of Santa Barbara

Mayor Larry Lavagnino

City of Santa Maria

Mayor Pro Tem Jim Richardson

City of Solvang

Councilmember Eric Onnen

City of Goleta

All meetings start at 2 p.m.
For final meeting agendas, call the
APCD Board Clerk, 961-8853.

October 18

Board of Supervisors'
Hearing Room
105 East Anapamu Street
Santa Barbara, California 93101

December 20

Board of Supervisors'
Hearing Room
105 East Anapamu Street
Santa Barbara, California 93101

The calendar for 2008 meetings will
be determined later this year. Check
www.OurAir.org for updates.

Community Advisory Council

The APCD Community Advisory
Council meets the second Wednesday
of every month at the Days Motor Inn
in Buellton. The public is welcome.
For more information, call Linda Beard,
961-8853.

Our Air, Our Earth



John Zavalney (above), Secondary Science Advisor at the Los Angeles Unified School District, and winner of National Science Foundation and Presidential Awards, visits APCD's display at the Service Learning Summer Institute held for teachers at Carpinteria High School in August. Zavalney was the keynote speaker, delivering a talk on "Global Warming: Service Learning and the Future." Zavalney discussed ways to incorporate science and environmental education into community service projects at schools.

APCD's display featured programs for teachers, including: grants through the Santa Barbara County Education Office to develop lessons on our atmosphere, air pollution and global climate change; classroom presentations on air quality and what we can do to make a difference; and a free CD, teachers guide, and web resources.

In August, APCD also attended Marian Medical Center's Environmental Fair providing informational fact sheets and prizes at a booth that featured APCD's Wheel of Change.

For more information on APCD's school and community programs, see our website at www.OurAir.org.

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the Santa Barbara County Air
Pollution Control District.
For further information on items
in this newsletter, or to be added
to our subscription list, please call
Bobbie Bratz, 961-8890 or Email
bratzb@sbcapcd.org.



APCD Board Adopts Agricultural Engine Registration Program

In August, the APCD Board adopted new Rule 1201, which provides for the registration of agricultural engines, and held a public hearing on proposed new Rule 213, which establishes fees for the registration of these engines. These actions are required in order to implement a new state regulation, which requires all existing stationary diesel agricultural engines greater than 50 horsepower to be either registered or permitted with the APCD.

The newly adopted Rule 1201 requires owners and operators purchasing new engines to register these engines with the APCD by the middle of November of 2007. Owners and operators of existing engines must register them with the APCD by March 1st of 2008.

APCD staff has been meeting regularly with farmers and agricultural associations to outline the new state requirements, and has made changes to the language

of Rule 1201 in response to concerns expressed by the agricultural community. APCD staff is also working closely with the San Luis Obispo and Ventura County air districts to develop a registration program that can be consistent across all three counties.

The regulations primarily affect diesel-powered water and well pumps; they do not apply to mobile equipment, such as tractors or trucks.

APCD encourages farmers to apply NOW for grant funds to help purchase cleaner engines. The ability to qualify for grants fund depends on the timing of the equipment purchase; under state rules, the funds will not be available for emissions reductions that are already required by the state law.

For more information, see "Rules for Farm Engines" and "Funds for Cleaner Engines" on the APCD website at www.OurAir.org.

New State Rule for Construction and Other Off-Road Equipment

In July, the California Air Resources Board (ARB) adopted a rule to reduce emissions from an estimated 180,000 off-road vehicles used in the state by the construction, mining, airport ground support and other industries.

Diesel particulate, also known as diesel soot, has been identified by the state as a toxic air contaminant. Regulations affecting a variety of types of equipment, including agricultural engines (see other article), transit buses, trash trucks, cargo-handling equipment, ship auxiliary engines, and more have already been adopted as part of California's Diesel Risk Reduction Plan, which aims to reduce diesel emissions to 85 percent below 2000 levels by 2020. The ARB estimated this

latest rule will reduce emissions of diesel particulate matter by 74 percent and emissions of smog-forming nitrogen oxides by 32 percent by 2020.

Affected vehicles include bulldozers, loaders, backhoes and forklifts, as well as many other self-propelled off-road diesel vehicles. The requirements and deadlines vary depending on fleet size. For small fleets, which include small businesses or municipalities with a combined horsepower of 2500 or less, implementation does not begin until 2015. Medium fleets, with 2501 to 5000 horsepower, have until 2013, while large fleets, with over 5000 horsepower, must begin complying in 2010.

The ARB's action also sets the

stage for efforts next year to develop similar requirements for the hundreds of thousands of on-road trucks that travel on California's roads every day.

For more information on the new rule, see the ARB's website, www.arb.ca.gov. For funds to purchase cleaner equipment, see the "Funding Programs" page on our website, www.OurAir.org.



Business Focus

APCD Data and Monitoring Specialists Present Paper at National Conference



Bob Van Beveren (left) and Joel Cordes in APCD's Monitoring Lab

APCD Information Technologies Supervisor Bob Van Beveren and Principal Monitoring Specialist Joel Cordes presented a paper last November at the 2006 National Air Monitoring Conference held by the U.S. Environmental Protection Agency, and the National Association of Clean Air Agencies.

The paper, titled "Utilizing Broadband service for Air Quality Data Acquisition and Remote Site Access," described how the APCD Monitoring and Information Technologies sections have worked together over the last two years to utilize broadband services for

collecting data, remote diagnostics and remote site operation.

The presentation focused on some of the different types of services (DSL, Wireless, Mobile, and Cable) and how they have been implemented in the APCD's air monitoring network. Utilizing these broadband services, APCD has increased access to data from the sites, reduced trips and downtimes, increased data quality, and reduced costs.

To view data from APCD's monitoring stations, updated hourly, see "Today's Air Quality" on our website www.OurAir.org.



APCD Grants for Local Businesses

Funds for Cleaner Engines

Equipment that may be eligible for grants to repower or retrofit includes:

On-Road and Off-Road Vehicles/ Equipment, Agricultural Water Pumps, School Buses, Marine Engines, and Other.

For applications & more info visit: www.sbapcd.org/itg/itg.htm.

Contact Information:

Anthony Fournier at (805) 961-8874 adf@sbapcd.org.

New APCD Boiler Rule

APCD is developing a new rule, Rule 361, to require nitrogen oxides (NOx) control techniques on mid-sized boilers, as outlined in the APCD 2001, 2004 and 2007 Clean Air Plans. This rule applies to boilers, steam generators and process heaters (with a rated heat input capacity greater than 2 million Btu/hour up to less than 5 million Btu/hour), used in residential,

commercial, institutional, and industrial operations.

Please see "Rules and Regulations" pages on our website at www.OurAir.org for updates, and contact Rebecca Armstrong at 961-8888 or armstrongr@sbapcd.org with any questions, and to be added to the mailing list to receive updates on the rule development process.

Workshops on Rule Affecting Auto Body Shops

APCD's Rule 339 is already undergoing revision to incorporate provisions of the California Air Resources Board's Suggested Control Measure for Automotive Refinish Coatings. APCD is working on additional revisions to the rule to incorporate new control techniques to reduce solvent emissions changes, as identified in APCD's 2001, 2004 and 2007 Clean Air Plans.

Dates and times for Rule 339 workshops are as follows:

September 19th, 1:30-4:00pm
Santa Barbara Air Pollution Control District
260 N. San Antonio Road, Suite A
Santa Barbara, CA

September 20th, 1:30-4:00pm
Board of Supervisors' Hearing Room
511 East Lakeside Parkway
Santa Maria, CA

For more information, see this page: <http://www.sbapcd.org/rules/schedule.htm> on the APCD website, or contact Rebecca Armstrong at 961-8888 or armstrongr@sbapcd.org for more information. The draft rule revisions will be posted on the APCD website when available.

APCD's Business Assistance Program



Our Business Assistance Representatives offer help to businesses over the phone and by email, and we also provide educational site visits to help owners understand and comply with our rules and requirements. The site visits are educational, not regulatory, and are conducted by a business assistance representative, not an APCD inspector. A site visit can help business owners: understand and comply with our permit conditions, rules and record keeping requirements; learn about new regulations that might be coming up; and find out about ways to prevent pollution.

Find out more:

Visit this page on our website: www.sbapcd.org/biz/business.htm

Call the Business Assistance Line at 961-8868, Email business@sbapcd.org.