



**Correspondence**

**Jocelyn Brennan** to: cr\_board\_clerk Clerk Recorder

12/08/2014 01:02 PM



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Sincerely,  
Jocelyn Brennan  
Administrative Assistant III  
Board of Supervisors  
San Luis Obispo County  
805 781-5498

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& WEINBERGER LLP

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ELLISON FOLK  
Attorney  
folk@smwlaw.com

Board of Supervisors  
San Luis Obispo County

December 4, 2014

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Via E-Mail and U.S. Mail

San Luis Obispo County Board of Supervisors  
County Government Center  
1055 Monterey Street  
San Luis Obispo, CA 93408

Re: Santa Margarita Ranch Project Off-Site Air Quality Mitigation Fee  
Assessment Addendum

Dear Members of the Board of Supervisors:

This firm represents North County Watch on matters related to the environmental review for the Santa Margarita Ranch project. We submit these comments on the above-referenced addendum on behalf of North County Watch.

North County Watch supports the County's use of the Carl Moyer program to determine an appropriate mitigation fee for the significant air quality impacts of the Santa Margarita Ranch subdivision. However, as set forth in North County Watch's previous comments, the proposed mitigation severely undercount emissions from the Project, and as a result, it does not fully mitigate what the County admits will be significant air quality impacts from the Project.

The original environmental impact report for the Project, like the addendum, determined that the Project would have significant air quality impacts because it exceeds the standard of significance set by the local air pollution control district of 25 lbs/day for emissions of ozone precursors (NOx and ROG). Addendum at p. 8. To mitigate this impact, the County proposes that the project proponent pay a fee that will be used to fund programs to offset these emissions. However, the fee that is actually proposed in the addendum, will offset only a fraction of the Project's emissions of NOx and ROG that exceed the daily significance threshold.

Specifically, the addendum calculated the Project emissions over the daily threshold of 25 pounds per and then converted that number to tons per year. At a

Agenda Item No: 17 • Meeting Date: December 9, 2014  
Presented By: Board Secretary  
Rec'd prior to the meeting & posted on: December 8, 2014

minimum, the County should have imposed mitigation that addresses this number -- 2.47 tons per year.<sup>1</sup> Instead, the County further reduced the required mitigation by dividing the number of tons per year by 5.5. As a result, the County is requiring only partial mitigation for a demonstrated exceedance of the significance threshold.

CEQA requires the County to mitigate the significant impacts of the Project. Pub. Res. Code § 21002. In fact, “the core of an EIR is the mitigation and alternatives sections.” *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 564. The goal of mitigation measures is “to reduce the impact [of a proposed project] to insignificant levels.” *Citizens Opposing a Dangerous Environment v. County of Kern* (2014) 228 Cal. App.4th 360, 383-384. The documents attached to this letter, as well as those submitted by North County Watch in its original comments, demonstrate the significant health risks that result from exposure to ozone, both on a short term and long term basis. The mitigation fee is designed to reduce these risks by funding projects that reduce levels of ozone. By only mitigating for a fraction of the actual exceedance of the daily significance threshold, the County has left an identified significant impact of the Project unmitigated.

The rationale for reducing the required mitigation fee – that the required fee would not be roughly proportional to the impact of the Project – does not hold up. The Carl Moyer program identifies the cost to reduce the emission of a ton of NOx/ROG per year. Once the Project’s daily emissions are converted tons per year, this amount is directly proportional to the amount of the Project’s emissions. By further reducing the amount requiring mitigation, the addendum has disrupted the balance between the amount of emissions and the fee and it has violated CEQA’s requirements that project impacts be mitigated to the extent feasible.

Finally, the County should require mitigation beyond that necessary to address the Project’s emissions over 25 pounds per day. The EIR found that the Project will have a significant and unavoidable cumulative impact to air quality. Addendum at p. 4. CEQA Guidelines section 15130(b)(5) provides that an EIR must discuss reasonable options for

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<sup>1</sup> For the reasons discussed below, the County should have required mitigation to address the Project’s significant and unavoidable cumulative air quality impacts. Because these cumulative impacts remain significant even after requiring mitigation for the Project’s individual air quality impacts, the County is required to impose mitigation that will reduce the Project’s significant contribution to cumulative air quality impacts.

mitigating or avoiding a project's contributions to cumulative impacts when the impact is cumulatively considerable. CEQA requires the adoption of all feasible mitigation measures that would reduce a project's impacts below a level of significance. Pub. Res. Code § 21002.

Here, the EIR has identified a significant cumulative impact from the Project, and the County has a readily identifiable measure that would address this impact. Failure to adopt mitigation to address a project's identified significant cumulative impact constitutes a violation of CEQA. Therefore, North County Watch requests that the County require mitigation for the full amount of the Project's individually significant impacts and that it require additional mitigation to reduce the Project's contribution to a significant cumulative air quality impact.

Very truly yours,

SHUTE, MIHALY & WEINBERGER LLP



Ellison Folk

Attachments

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UC Berkeley &gt;

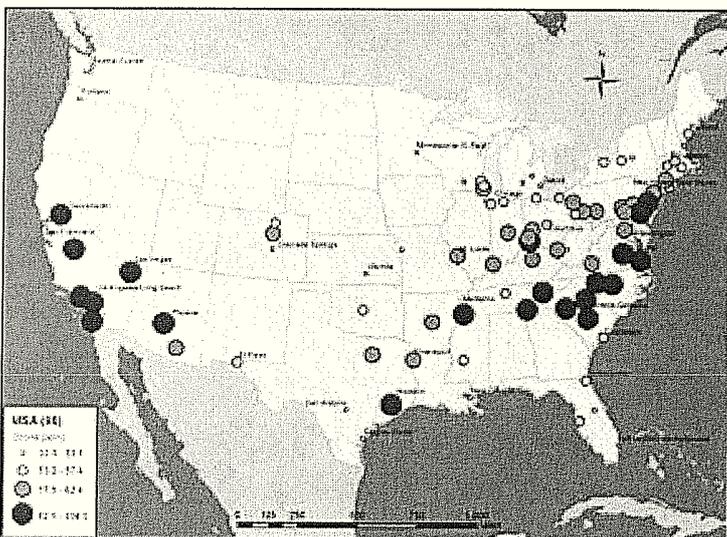
## Press Release

# Long-term ozone exposure linked to higher risk of death, finds nationwide study

By Sarah Yang, Media Relations | 11 March 2009

**BERKELEY** — Long-term exposure to ground-level ozone, a major component of smog, is associated with an increased risk of death from respiratory ailments, according to a new nationwide study led by a researcher at the University of California, Berkeley.

The study, to be published in the March 12 issue of the *New England Journal of Medicine*, analyzed the risk of death for both ozone and fine particulate matter, two of the most prevalent components of air pollution. The study followed nearly 450,000 people for two decades and covered 96 metropolitan regions in the United States.



A new study finds that long-term exposure to ozone is linked to a higher risk of death from respiratory causes. This map shows average ozone concentrations for the years 1977-2000 in the 96 metropolitan regions included in the study. Click map to [view full-size version](#). (Courtesy of Bernie Beckerman/UC Berkeley)

The researchers found that people living in areas with the highest concentrations of ozone, such as the Los Angeles metropolitan area and California's Central Valley, had a 25 to 30 percent greater annual risk of dying from respiratory diseases compared with people from regions with the lowest levels of the pollutant. Those locations included the Great Plains area and regions near San Francisco and Seattle.

"This is the first time we've been able to connect chronic exposure to ozone, one of the most widespread pollutants in the world, with the risk of death, arguably the most important outcome in health impact studies used to justify air quality regulations," said study lead author Michael Jerrett, UC Berkeley associate professor of environmental health sciences. "Previous research has connected short-term or acute ozone exposure to impaired lung function, aggravated asthma symptoms, increased emergency room visits and hospitalizations, but the impact of long-term exposure to ozone on mortality had not been pinned down until now."

The study found that for every 10 parts-per-billion (ppb) increase in ozone level, there is a 4 percent increase in risk of death from respiratory causes, primarily pneumonia and chronic obstructive pulmonary disease.

"World Health Organization data indicate that about 240,000 people die each year from respiratory causes in the United States."

States," said Jerrett. "Even a 4 percent increase can translate into thousands of excess deaths each year. Globally, some 7.7 million people die from respiratory causes, so worldwide the impact of ozone pollution could be very large."

The findings come a year after the U.S. Environmental Protection Agency (EPA) strengthened its National Ambient Air Quality Standards for ground-level ozone from an annual average of 80 ppb to 75 ppb to reflect growing evidence of the harmful health effects of ozone. A group of leading scientists appointed to advise the EPA had actually recommended stricter health standards for ozone levels - from 60 to 70 ppb.

A month after the EPA released its new standards, a National Research Council report concluded that premature deaths related to ozone exposure of less than 24 hours are more likely among those with pre-existing diseases. The report called for more research on the link between mortality and ozone exposure over a period of weeks and years.

Ozone - gas made up of three oxygen atoms - forms a protective layer from the sun's ultraviolet radiation when located in the Earth's upper atmosphere. However, that same gas is toxic at ground level where it can be breathed by humans. Ground level ozone is formed through a complex chemical reaction in sunlight between nitrogen oxides (NOx), commonly spewed from vehicle exhaust, and industrial factory emissions.

The Intergovernmental Panel on Climate Change considers ground-level ozone, along with carbon dioxide and methane, to be one of the primary greenhouse gases in the Earth's atmosphere.

"Ozone levels outdoors are not always highly correlated to ozone levels indoors, making it difficult to fully evaluate associations between ozone and health outcomes using ambient site monitors," said study co-author C. Arden Pope III, professor of economics at Brigham Young University. "The reality is that most of us spend the majority of our time indoors. But this study suggests that repeated exposures to elevated ozone levels over time have cumulative effects on respiratory health."

The new study analyzed data from 448,850 adults ages 30 and older enrolled in 1982 and 1983 in the American Cancer Society Cancer Prevention Study II.

The researchers correlated the information from that study with data from EPA air pollution monitors while controlling for potentially confounding factors such as a participant's age, race, education, occupational exposures, smoking history and diet. The study also factored in other variables such as unemployment rates in the metropolitan and zip code area levels.

Ozone data were obtained from 1977 through 2000 between the months of April and September. Those months were chosen because ozone levels are typically higher when it's warmer and because insufficient data was available during the cooler months.

Researchers included EPA measurements of fine particulate matter – particles equal to or smaller than 2.5 micrometers in diameter and typically found in smoke and haze – when they became available in 1999 and 2000. Because fine particle levels had already been linked to increased risk of premature death in previous studies, the researchers included them in the analysis to distinguish the effects of the two pollutants.

In an 18-year follow-up period, 48,884 of the people in the study died from cardiovascular causes such as heart disease and strokes, and 9,891 died from respiratory causes.

As has been observed in previous studies, the researchers found that fine particulate matter was linked to an increased risk of death from cardiovascular causes when analyzed alone and with ozone. The new finding was that the effects of ozone remained strongly linked to risk of death from respiratory problems, even after fine particle pollution was taken into account.

Not surprisingly, highly populated regions such as the Los Angeles, Riverside and Houston areas, where the climate is sunny for much of the year and the air mass is relatively stable, had the highest average concentrations of ozone, ranging from 62.5 to 104 ppb. The regions with the lowest ozone levels had average concentrations of 33.2 to 53 ppb.

"Places like the Pacific Northwest and the Minneapolis St. Paul region are cooler and see more rain in the summer, which keeps the ozone levels in check," said Jerrett. "Similarly, the San Francisco Bay Area's infamous summertime fog blocks the sun and helps protect the region from high ozone levels."

Because ozone formation depends on a complex interaction of multiple factors, it is challenging to regulate, the study authors said. "Our study for the first time presents evidence suggesting that long-term exposure to ozone and fine particle pollution have separate, independent effects on mortality, and that they seem to impact different parts of the body," said Jerrett. "With this research, we now know that controlling ozone is not only beneficial for mitigating global warming, but that it could also have near-term benefits in the reduction of deaths from respiratory causes."

Other co-authors of the paper are Richard Burnett from Health Canada, the federal health department headquartered in Ottawa; Kaz Ito and George Thurston from the New York University School of Medicine; Daniel Krewski and Dr. Yuanli Shi from the University of Ottawa; and Eugenia Calle and Dr. Michael Thun from the American Cancer Society.

The Health Effects Institute, a non-profit research organization based in Boston, Mass., helped support this research.

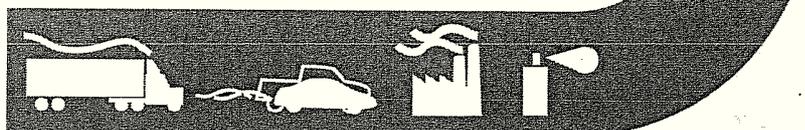
An EPA list of where U.S. counties stand in compliance with the current federal ozone standards is available at: [http://epa.gov/air/ozonepollution/pdfs/2008\\_03\\_design\\_values\\_2004\\_2006.pdf](http://epa.gov/air/ozonepollution/pdfs/2008_03_design_values_2004_2006.pdf).

## FACTS ABOUT

**Ozone and Health***Overview of the harmful health effects of ground level ozone***What is Ozone?**

Ozone, an important component of smog, is a highly reactive and unstable gas capable of damaging living cells, such as those present in the linings of the human lungs. This pollutant forms in the atmosphere through complex reactions between chemicals directly emitted from vehicles, industrial plants, consumer products and many other sources. Ozone is a powerful oxidant – its actions can be compared to household bleach, which can kill living cells (such as germs or human skin cells) upon contact. It forms in greater quantities on hot, sunny, calm days. In metropolitan areas of California, ozone concentrations frequently exceed existing health-protective standards in the summertime.

Ozone is formed in the atmosphere through chemical reactions between pollutants emitted from vehicles, factories and other industrial sources, fossil fuels combustion, consumer products, evaporation of paints, and many other sources.



*Ozone has a very characteristic pungent odor. You can sometimes detect it after lightning strikes or during electrical discharges. Individual humans vary in their ability to smell ozone. Some can smell it at levels as low as 0.05 ppm.*

**What is the Difference between Ground-level Ozone and Stratospheric Ozone?**

The ozone that ARB regulates as an air pollutant is produced close to the ground level, where people live, exercise and breathe. A layer of ozone high up in the atmosphere is called stratospheric ozone. This layer, far away from where people live, reduces the amount of ultraviolet light entering the earth's atmosphere. Without the protection of the stratospheric ozone layer, plant and animal life would be seriously harmed.

**Why is the Air Resources Board Concerned About Ozone?**

The California Air Resources Board (ARB) is concerned about ozone pollution because of its effects on the health of Californians and the environment. Ozone can damage the tissues of the respiratory tract, causing inflammation and irritation, and result in symptoms such as coughing, chest tightness and worsening of asthma symptoms. In addition, ozone causes substantial damage to crops, forests and native plants. Ozone can also damage materials such as rubber and plastics.

### What Kinds of Harmful Effects Can Ozone Cause?

Inhalation of ozone causes inflammation and irritation of the tissues lining human airways, causing and worsening a variety of symptoms. Exposure to ozone can reduce the volume of air that the lungs breathe in and cause shortness of breath. Ozone in sufficient doses increases the permeability of lung cells, rendering them more susceptible to toxins and microorganisms. The occurrence and severity of health effects from ozone exposure vary widely among individuals, even when the dose and the duration of exposure are the same.

### Who is at the Greatest Risk from Exposure to Ozone?

Research shows adults and children who spend more time outdoors participating in vigorous physical activities are at greater risk from the harmful health effects of ozone exposure. While there are relatively few studies of ozone's effects on children, the available studies show that children are no more or less likely to suffer harmful effects than adults. However, there are a number of reasons why children may be more susceptible to ozone and other pollutants. Children and teens spend nearly twice as much time outdoors and engaged in vigorous activities as adults. Children breathe more rapidly than adults and inhale more pollution per pound of their body weight than adults. Also, children are less likely than adults to notice their own symptoms and avoid harmful exposures. Further research may be able to better distinguish between health effects in children and adults.

***Children, adolescents and adults who exercise or work outdoors, where ozone concentrations are the highest, are at the greatest risk of harm from this pollutant.***

### How Does Ozone effect the environment?

#### ***Ozone's Effect on Plant Life***

Ozone exposure reduces the overall productivity of plants, damaging cells and causing destruction of leaf tissue. As a result, ozone exposure reduces the plants' ability to photosynthesize and produce their own food. Plants respond by growing more leaves thereby reducing the amounts of stored carbohydrates in roots and stems. This weakens plants, making them susceptible to disease, pests, cold and drought.

***Ozone reduces crop and timber yields. Millions of dollars in economic losses.***

***Ozone disturbs the stability of ecosystems. Sensitive species die out.***

***Ozone exposure reduces the production of roots, seeds, fruit and other plant constituents, reducing the amount of food available for wildlife.***

#### ***Ozone's Effect on Materials***

Ozone can cause substantial damage to a variety of materials such as rubber, plastics, fabrics, paint and metals. Exposure to ozone progressively damages both the functional and aesthetic qualities of materials and products, and shortens their life spans. Damage from ozone exposure can result in significant economic losses as a result of the increased costs of maintenance, upkeep and replacement of these materials.

### ***Effects of Exposure to Ground-Level Ozone***

- *Cough, chest tightness, pain upon taking a deep breath*
- *Worsening of wheezing and other asthma symptoms*
- *Reduced lung function*
- *Increased hospitalizations for respiratory causes*

### ***Will ozone harm your health? It depends....***

*How long were you exposed?*

*How much ozone did you inhale?*

*How fast were you breathing?*



### Is Ozone a Problem Indoors?

Ozone reacts with surfaces as it penetrates the indoor environment, usually resulting in lower levels indoors than outdoors. However, levels of ozone indoors can approach outdoor levels when windows or doors are open. Moreover, equipment such as photocopiers, laser printers and certain air purifiers can emit ozone indoors as well. Air purifiers that purposely emit ozone, called ozone generators, should not be used in occupied spaces as they can emit unsafe levels of ozone. Once inside, ozone can cause harmful health effects and damage materials, depending on its concentration.

#### **CAUTION REGARDING OZONE GENERATORS**

The Air Resources Board and the California Department of Health Services advise the public not to use ozone generators in homes or offices. These devices are often marketed for the purposes of aiding allergy sufferers, but actually emit harmful ozone gas.

### What are the Ambient Air Quality Standards for Ozone?

In 2005, after an extensive review of the scientific literature, ARB approved an eight-hour standard for ozone of 0.070 ppm and retained the one-hour 0.09 ppm standard previously established in 1987. Evidence from the reviewed studies indicates that significant harmful health effects could occur among both adults and children if exposed to levels above these standards.

#### **AMBIENT AIR QUALITY STANDARDS**

AVERAGING TIME	California ARB standard	National EPA standards
1-Hour Average	0.09 ppm*	-----
8-Hour Average	0.070 ppm*	0.075 ppm*

\* A part per million (ppm) refers to one part of a substance dissolved into a million parts of another substance.

Ambient air quality standards define the maximum amount of pollutant that can be present in outdoor air without harming human health. While both the State of California and the U.S. EPA have established ambient air quality standards for ozone, the California standards are more protective of human health.

As ARB works to attain the national ozone standards in California, the statewide standards create a clean air goal for additional protection of human health. You also can help in the fight against air pollution – click here for further information: <http://www.arb.ca.gov/html/cando.htm>.

#### **For more Information**

Please contact the ARB's Public Information Office at (800) 242-4450 or visit us on the web at: [www.arb.ca.gov](http://www.arb.ca.gov)

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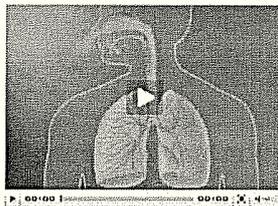
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Ozone Pollution

It may be hard to imagine that pollution could be invisible, but ozone is. The most widespread pollutant in the U.S. is also one of the most dangerous.

Scientists have studied the effects of ozone on health for decades. Hundreds of research studies have confirmed that ozone harms people at levels currently found in the United States. In the last few years, we've learned that it can also be deadly.

- What Is Ozone?**
- Where Does Ozone Come From?**
- Who Is at Risk from Breathing Ozone?**
- How Ozone Pollution Harms Your Health**
- Premature death**
- Immediate breathing problems**
- Cardiovascular effects**
- Long-term exposure risks**
- EPA finds ozone causes harm**



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TRUSTED LINKS

- AirNow
- National Association of Clean Air Agencies

U. S. Environmental Protection Agency sites:

- Clean School Bus USA
- Information for Citizens and Communities
- National Ambient Air Quality Standards
- Protect the Environment: Act Locally
- What You Can Do

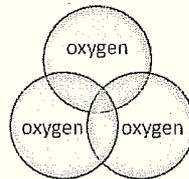
HEALTHY AIR NEWS

- What You Need to Know about the Obama Administration's Ozone Pollution Standards
- New Study: Reducing Power Plant Carbon Emissions Would Reduce Other Pollutants and Save Lives
- Protect Yourself from Lethal Wildfire Smoke
- Making the Connection – Asthma and Air Quality
- "State of the Air" – Half of U.S. Live with Unhealthy Air

What Is Ozone?

Ozone (O3) is a gas molecule composed of three oxygen atoms. Often called "smog," ozone is harmful to breathe. Ozone aggressively attacks lung tissue by reacting chemically with it.

The ozone layer found high in the upper atmosphere (the stratosphere) shields us from much of the sun's ultraviolet radiation. However, ozone air pollution at ground level where we can breathe it (in the troposphere) causes serious health problems.

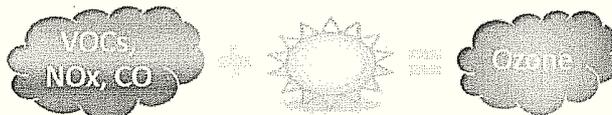


Where Does Ozone Come From?

Ozone develops in the atmosphere from gases that come out of tailpipes, smokestacks and many other sources. When these gases come in contact with sunlight, they react and form ozone smog.

The essential raw ingredients for ozone come from nitrogen oxides (NOx), hydrocarbons, also called volatile organic compounds (VOCs) and carbon monoxide (CO). They are produced primarily when fossil fuels like gasoline, oil or coal are burned or when some chemicals, like solvents, evaporate. NOx is emitted from power plants, motor vehicles and other sources of high-heat combustion. VOCs are emitted from motor vehicles, chemical plants, refineries, factories, gas stations, paint and other sources. CO is also primarily emitted from motor vehicles.<sup>1</sup>

If the ingredients are present under the right conditions, they react to form ozone. And because the reaction takes place in the atmosphere, the ozone often shows up downwind of the sources of the original gases. In addition, winds can carry ozone far from where it began.



You may have wondered why "ozone action day" warnings are sometimes followed by recommendations to avoid activities such as mowing your lawn or driving your car. Lawn mower exhaust and gasoline vapors are VOCs that could turn into ozone in the heat and sun.

Who Is at Risk from Breathing Ozone?

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Anyone who spends time outdoors where ozone pollution levels are high may be at risk. Five groups of people are especially vulnerable to the effects of breathing ozone:

- children and teens;<sup>2</sup>
- anyone 65 and older;<sup>3</sup>
- people who work or exercise outdoors;<sup>4</sup>
- people with existing lung diseases, such as asthma and chronic obstructive pulmonary disease (also known as COPD, which includes emphysema and chronic bronchitis);<sup>5</sup>
- people with cardiovascular disease.<sup>6</sup>

In addition, newer evidence suggests that other groups—including women, people who suffer from obesity and people with low incomes—may also face higher risk from ozone.<sup>7</sup> More research is needed to confirm these findings.

The impact on your health can depend on many factors, however. For example, the risks would be greater if ozone levels are higher, if you are breathing faster because you're working outdoors or if you spend more time outdoors.

Lifeguards in Galveston, Texas, provided evidence of the impact of even short-term exposure to ozone on healthy, active adults in a study published in 2008. Testing the breathing capacity of these outdoor workers several times a day, researchers found that many lifeguards had greater obstruction in their airways when ozone levels were high. Because of this research, Galveston became the first city in the nation to install an air quality warning flag system on the beach.<sup>8</sup>

### How Ozone Pollution Harms Your Health

**Premature death.** Breathing ozone can shorten your life. Strong evidence exists of the deadly impact of ozone in large studies conducted in cities across the U.S., in Europe and in Asia. Researchers repeatedly found that the risk of premature death increased with higher levels of ozone.<sup>9,10,11</sup> Newer research has confirmed that ozone increased the risk of premature death even when other pollutants also exist.<sup>12</sup>

Even low levels of ozone may be deadly. A large study of 48 U.S. cities looked at the association between ozone and all-cause mortality during the summer months. Ozone concentrations by city in the summer months ranged from 16 percent to 80 percent lower than the U.S. Environmental Protection Agency (EPA) currently considers safe. Researchers found that ozone at those lower levels was associated with deaths from cardiovascular disease, strokes, and respiratory causes.<sup>13</sup>

**Immediate breathing problems.** Many areas in the United States produce enough ozone during the summer months to cause health problems that can be felt right away. Immediate problems—in addition to increased risk of premature death—include:

- shortness of breath, wheezing and coughing;
- asthma attacks;
- increased risk of respiratory infections;
- increased susceptibility to pulmonary inflammation; and
- increased need for people with lung diseases, like asthma or chronic obstructive pulmonary disease (COPD), to receive medical treatment and to go to the hospital.<sup>14</sup>

**Cardiovascular effects.** Inhaling ozone may affect the heart as well as the lungs. A 2006 study linked exposures to high ozone levels for as little as one hour to a particular type of cardiac arrhythmia that itself increases the risk of premature death and stroke.<sup>15</sup> A French study found that exposure to elevated ozone levels for one to two days increased the risk of heart attacks for middle-aged adults without heart disease.<sup>16</sup> Several studies around the world have found increased risk of hospital admissions or emergency department visits for cardiovascular disease.<sup>17</sup>

**Long-term exposure risks.** New studies warn of serious effects from breathing ozone over longer periods. With more long-term data, scientists are finding that long-term exposure—that is, for periods longer than eight hours, including days, months or years—may increase the risk of early death.

- Examining the records from a long-term national database, researchers found a higher risk of death from respiratory diseases associated with increases in ozone.<sup>18</sup>
- New York researchers looking at hospital records for children's asthma found that the risk of admission to hospitals for asthma increased with chronic exposure to ozone. Younger children and children from low income families were more likely to need hospital admissions even during the same time periods than other children.<sup>19</sup>

- California researchers analyzing data from their long-term Southern California Children's Health Study found that some children with certain genes were more likely to develop asthma as adolescents in response to the variations in ozone levels in their communities.<sup>20</sup>
- Studies link lower birth weight and decreased lung function in newborns to ozone levels in their community.<sup>21</sup> This research provides increasing evidence that ozone may harm newborns.

Breathing other pollutants in the air may make your lungs more responsive to ozone—and breathing ozone may increase your body's response to other pollutants. For example, research warns that breathing sulfur dioxide and nitrogen oxide—two pollutants common in the eastern U.S.—can make the lungs react more strongly than to just breathing ozone alone. Breathing ozone may also increase the response to allergens in people with allergies. A large study published in 2009 found that children were more likely to suffer from hay fever and respiratory allergies when ozone and PM<sub>2.5</sub> levels were high.<sup>22</sup>

**EPA finds ozone causes harm.** The EPA released their most recent review of the current research on ozone pollution in February 2013.<sup>23</sup> The EPA had engaged a panel of expert scientists, the Clean Air Scientific Advisory Committee, to help them assess the evidence, in particular, research published between 2006 and 2012. The EPA concluded that ozone pollution posed multiple, serious threats to health. Their findings are highlighted in the box below.

#### EPA Concludes Ozone Pollution Poses Serious Health Threats

- Causes respiratory harm (e.g. worsened asthma, worsened COPD, inflammation)
- Likely to cause early death (both short-term and long-term exposure)
- Likely to cause cardiovascular harm (e.g. heart attacks, strokes, heart disease, congestive heart failure)
- May cause harm to the central nervous system
- May cause reproductive and developmental harm

—U.S. Environmental Protection Agency, *Integrated Science Assessment for Ozone and Related Photochemical Oxidants*, 2013. EPA/600/R-10/076F.

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**FACT:** Cleaner air may add 4 months on to the average person's life, according to one study.

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**Key Findings**

Ozone Pollution  
 Year Round Particle  
 Short Term Particle  
 Cleanest Cities  
 People at Risk  
 Protect Yourself  
 Methodology

**City Rankings**

Cleanest Cities  
 Most Polluted Cities  
 View State Map  
 Compare Your Air

**Compare Your Air**

Select Your State

**Health Risks**

Ozone Pollution  
 Particle Pollution  
 Children's Health  
 Disparities & Near  
 Highways  
 Protect Yourself

**Our Fight**

What We Do  
 Our Story  
 Personal Stories  
 Clean Air Timeline  
 Take Action

**Press Materials**

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