

## No Burn Day Campaign

### What's the issue?

Fine particulate matter (known as PM<sub>2.5</sub>) poses serious health risks because the particles are so small (finer than a grain of flour) that they lodge deeply in the lungs when inhaled, where they are then absorbed by the bloodstream. Studies have linked long-term exposure to PM<sub>2.5</sub> to loss of lung function, bronchitis, asthma, lung disease, heart attacks and increased death rates. Children, older adults and people with existing heart and lung problems are especially sensitive to fine particulate exposure.

Maricopa County currently is in attainment with the federal health standard for PM<sub>2.5</sub>, but this status may change if the county experiences successive exceedances of the annual average health-based standard of 12.0 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) at any air quality monitor in the Valley. This year and next will be critical because three monitors are close to exceeding this standard and have been trending upward over the past three years. Two are in residential areas and the other is in an industrial area, and all are around Central Phoenix. Due to air flow, wood burning throughout the valley adds to the problem in these areas.

If Maricopa County violates the standard, EPA will require development of a plan and implementation of pollution control measures. Additional controls on PM<sub>2.5</sub> emissions will most likely be costly and potentially burdensome but will be necessary to ensure a return to clean, healthful air.

To avoid a violation of the standard and designation as a problem area for fine particulate pollution, we need the support of all Maricopa County residents and businesses. The best way you can help is by not burning wood on designated No Burn days throughout the winter and especially when they are called around the Christmas and New Year's holidays. Light a candle or use a natural gas fireplace instead. Postpone wood burning for another day.

### Why wood?

Scientists at Maricopa County Air Quality Department and the Arizona Department of Environmental Quality have performed detailed analyses of air pollution data and have found very strong evidence that emissions other than those typically found coming from industrial sources and vehicles cause the highest concentrations in winter. The chemicals found in the particulate samples collected from the air are dominated by the constituents found in wood smoke.

### What about cars—don't they emit fine particles, too? What percentage of the PM<sub>2.5</sub> problem is from residential wood burning?

Tailpipe emissions do contain PM<sub>2.5</sub>, especially those from diesel engines. Motor vehicle emissions would be expected to be the highest on work days, which is when traffic is at its peak. The highest concentrations, however, tend to occur on weekends and holidays. Monitoring data indicate that, when the health standard is exceeded, at least half and as much as 80% of the problem is wood burning. Also, motor vehicles, including diesels, have been subject to the Vehicle Emissions Inspection (VEI) Program in Maricopa County upon license plate renewal for almost three decades.

### **Why the holidays?**

The county and state scientific analyses also show that the pollution levels are significantly higher on weekends and holidays than during work days. Historically, PM<sub>2.5</sub> concentrations have been elevated over the holiday season (roughly December 15 through January 2), with monitors at several Valley locations, from Glendale to Tempe, recording concentrations on Christmas Eve, Christmas Day, New Year's Eve and New Year's Day in excess of the EPA's 24-hour health-based standard. Data analysis shows the elevated readings are attributed to residential and commercial wood burning.

### **Is it just holiday burning that is the problem?**

No, wood burning throughout the winter causes elevated concentrations of PM<sub>2.5</sub>. November through January is when PM<sub>2.5</sub> concentrations rise the most in the Valley. Though the highest concentrations of PM<sub>2.5</sub> are most often recorded Christmas Eve and Day, and New Year's Eve and Day, wood burning can be a problem any time temperature inversions occur.

### **What are No Burn days?**

ADEQ meteorologists produce a daily air quality forecast for a variety of pollutants, including PM<sub>2.5</sub>. On days when their forecasts estimate that 24-hour concentrations of PM<sub>2.5</sub> will approach or exceed the 24-hour health based standard, ADEQ will issue either a health watch or high pollution advisory (HPA) alerting county residents to take precaution in an effort to prevent exceeding the federal health standard and to avoid exposure to elevated air pollution. When a health watch or HPA is called, MCAQD declares a "No Burn Day," which restricts the use of fireplaces, woodstoves, outdoor chimineas and fire pits, as well as open burning.

### **What makes it OK to burn some days and illegal to burn on other days?**

ADEQ prepares daily pollution forecasts based on a variety of indicators, the most important of which are weather conditions. If it is expected to be breezy or rain is forecast, then pollution will disperse quickly and will not cause unhealthful conditions. Strong temperature inversions, however, allow pollution to stay trapped close to the ground. The Maricopa County Air Quality Department declares a No Burn Day each time ADEQ issues either a health watch or high pollution advisory (HPA) for Fine Particles (PM<sub>2.5</sub>). <http://cleanairmakemore.com/our-air/the-offenders/woodburning/>. ADEQ issues HPAs when its forecasters predict that the highest concentration of PM<sub>2.5</sub> is likely to exceed the national public health standards. ADEQ issues Health Watches when its forecasters predict that the highest concentration of PM<sub>2.5</sub> will approach those standards.

### **How do I know if it's a No Burn day?**

Many television and radio newscasts run frequent public service announcements when a No Burn day is called. You can also sign up to receive the daily air quality forecast at <https://public.govdelivery.com/accounts/AZDEQ/subscriber/new>, or sign up to receive No Burn day alerts at <http://cleanairmakemore.com/make-the-commitment/>.

### **What do you want the public to do when a No Burn day is called?**

The most important thing for Maricopa County residents and businesses to do on No Burn days is to not burn wood or wax logs in their fireplaces, woodstoves, outdoor chimineas and fire pits. You can also help by encouraging your neighbors and businesses you frequent to do the right thing, too. They may be unaware that a No Burn day has been called, and you can direct them to the forecasts so they can be better informed in the future. You may also consider filing a complaint at <http://cleanairmakemore.com/our-air/the-offenders/woodburning/>.

### **Why does Maricopa County have to call No Burn days during the holidays?**

#### **Are they trying to spoil Christmas?**

No Burn Days are called because of the potential for the air to become unhealthful. Pollution levels get so high on the holidays that even people relatively insensitive to pollution may suffer. People who are sensitive to pollution will likely need to seek medical attention. While eliminating wood burning on No Burn Days poses a minor inconvenience for holiday revelers, smoke inhalation by asthmatics and other lung ailment sufferers becomes a serious, and in some cases, dire health concern. Their holidays do get spoiled, and the effects of exposure may linger for a day or two after the pollution levels return to the healthful range. Light a candle or use a natural gas fireplace instead.

### **What should I do if I observe neighbors using their fireplaces on No Burn days?**

You can help by making sure your neighbors are aware that it is a No Burn Day and advising them how they can stay informed. Ask them to put out their fires and in the future limit the wood burning to days when burning won't compromise public health. You may also consider filing a complaint by calling the Maricopa County Complaint Line at (602) 372-2703, online at [http://www.maricopa.gov/aq/contact\\_us/ReportViolation.aspx](http://www.maricopa.gov/aq/contact_us/ReportViolation.aspx), or using the County's Clean Air app, available at [www.CleanAirMakeMore.com](http://www.CleanAirMakeMore.com).

### **How does the county respond to complaints of wood burning on No Burn days? What are the penalties?**

The MCAQD is responsible for enforcing No Burn days. Air quality inspectors respond to residential, commercial and open burn complaints when a No Burn day is in effect. Anyone using a non-approved wood burning device during a No Burn day and who has not been issued an exemption will receive a warning and educational material for the first violation. Thereafter, violators will be fined \$50 for the second violation, \$100 for the third and \$250 for the fourth and subsequent violations in the same one year period.

### **How can I get an exemption?**

Maricopa County rules provide an exception if wood burning is *the only source of heat* for a home. You can apply for a temporary exemption at (602) 506-6400.

### **Why doesn't the smoke just blow away?**

In the wintertime, Phoenix and many other cities have periods of stagnant air, known as a temperature inversion, which traps smoke and other pollution close to ground level. The morning after a night with stagnant air, the neighborhood often smells smoky and the particulate pollution will cause a noticeable haze. We can see the "inversion layer" against the backdrop of the mountains. PM<sub>2.5</sub> particles are trapped below that layer and that is what we are all breathing.

### **Are there certain neighborhoods where the problem is worse?**

During the winter holiday periods if we have inversion conditions monitors throughout the Valley exceed the 24-hour PM<sub>2.5</sub> standard. This is primarily due to local neighborhood wood burning. On an annual basis the problem is worse at three monitors in South and West Phoenix.

### **How can burning just a few nights a year cause metropolitan Phoenix to "violate" the standard?**

To measure compliance with the federal health standard, air quality agencies measure air quality daily at each monitor for 3 years. The 3 year average is then compared with the federal standard. Extremely high values in the winter can significantly raise the annual average. Annual averages from 2011 and 2012 at 3 monitors were very close to the federal standard and high values in 2013 could cause a violation. When an area violates the standard, EPA designates it a nonattainment area because it has not attained the national public health standards.

**Why does EPA have to set the standard so low and make it hard for communities to comply?**

The goal is not to make it difficult for communities to comply, but to ensure air quality is maintained at levels that are scientifically proven to be healthful for most citizens.

**So we go to nonattainment. What's the big deal?**

EPA could issue a federal air pollution control plan, or Arizona would have to submit a new, more stringent control plan by a new deadline. The area would also be subject to sanctions that require offset emissions for business development and sanctions on highway funding that could involve millions of dollars.

Moreover, nonattainment by definition means our local air quality does not protect public health, so people will continue to get sick. Health problems caused or worsened by air pollution impose large and immediate costs for people and businesses. Students lose time from school, employees lose time from work, thus reducing productivity and everyone has a reduced quality of life.

**The third leading cause of death in Arizona is Chronic Lower Respiratory Disease (CLRD),** including asthma, emphysema, chronic bronchitis, Chronic Obstructive Pulmonary Disease (COPD) and others. For more information about asthma, visit:

- [www.epa.gov/asthma](http://www.epa.gov/asthma);
- <http://azdhs.gov/tobaccofreeaz/resources/pdf/btcd/Asthma%20Fact%20Sheet.pdf>;
- [www.azasthma.org](http://www.azasthma.org).