



ON THE AIR

Spr/Sum
2019

A Newsletter about
Clean Air. Provided
by Spokane Regional
Clean Air Agency.

Take Steps to Protect Yourself from Wildfire Smoke

Editor's Note: The following article recently ran as a guest editorial in the Spokesman Review. It was submitted by Dr. Bob Lutz, Spokane County Health Officer; Dr. Sam Joseph, retired pulmonologist and critical care physician; and Julie Oliver, Executive Director of Spokane Clean Air.

With summer's arrival comes the possibility of another season of wildfires in the Northwest. The past few years have seen impacts from as far away as northern Alberta, California, and even Siberia.

While some may argue about the causes of climate change, there is little controversy warmer temperatures, changes in soil moisture because of changing precipitation patterns and a history of fire suppression and prevention have turned our forests into kindling. Wildfire seasons have gotten

longer, and fires are more intense and long-burning, often requiring the first snows before being quenched. And unfortunately, most of these wildfires are human-caused – 84% of the more than 1,700 fires in Washington in 2018 alone!

This is a worldwide problem – the British journal, Lancet, reports 157 million more vulnerable people experienced heat waves and attendant health risks in 2017 than in 2000. Pollution from particulate matter, a key component of wildfire smoke, contributed to 2.9 million premature deaths in 2015 alone.

This has led Lancet's Global Research Team to identify climate change as the most significant public health issue of this century. Regionally, as recently reported in the Spokesman, the 2017 Eagle Creek Fire in the Columbia River Gorge caused an increase in emergency room visits in Vancouver during the days of worst air quality. It's likely similar increases in ER visits have occurred in the region.

Smoke from wildfires is a complex mixture of substances that includes water vapor, heavy metals, hydrocarbons, gases such as carbon monoxide and ozone, and particulates.

While the general effects of smoke often irritate the eyes, nose and throat, the greatest concern is caused by the smallest particles, PM_{2.5}. These can get deep into the lungs, be absorbed into the blood and cause inflammation throughout the body. Their effects can worsen pre-existing conditions, such as asthma, COPD, and heart disease.

Additionally, infants and children, adults over age 65 and pregnant women are at increased risk from exposure. And those who cannot get out of the smoke, such as individuals living homeless, are likewise impacted.

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Gonzaga University Recognized

Spokane Clean Air selected Gonzaga University (GU) as the 2019 Clean Air Award recipient for the exemplary work being done across their campus to increase energy efficiency, promote sustainability and reduce emissions.

Over the last 10 years, GU experienced a 23% increase in the gross square footage of buildings they manage. This means more lighting, heating, cooling, and ventilation is needed. During this 10-year period, they reduced their consumption of natural gas by 27% and held electric consumption growth to just 4%. Several energy efficiency measures were undertaken, including the replacement of large, less efficient

natural gas-fired boilers used for campus heating, with smaller and more efficient units. This alone reduced total emissions of five air pollutants by 24%!

GU has made a difference in the transportation arena too. They offer commute trip reduction options for students and faculty. They employ two shared mobility programs: Zipcar and Lime bikes. To support those making decisions in their personal lives to combat greenhouse gas production, the University installed a set of ChargePoint stations on campus in 2016.

Read more about GU's award-winning efforts and past award recipients at spokanecleanair.org/business-recognition.

50 years of clean air

A Look Back: Air quality challenges & suc

Volcanic Ash Darkens the Skies over Spokane

The 1980s were ushered in with an unprecedented air quality challenge: volcanic ash. The eruption of Mount St. Helens on May 18, 1980, was an air quality event like none other in Spokane's history. Particulate concentrations were estimated to be up to 100 times greater than the national, health-based air quality standard in place at that time. It has been estimated that one to two billion tons of suspended particulate matter was released across our state from the eruption. For comparison, the ash from the volcano was estimated to be 5,000 times greater than the annual emissions from all other air pollution sources in the state combined.



Our agency staff worked tirelessly keeping the air monitoring equipment up and running during the days and weeks that followed the eruption. Accurate measurements were not feasible because the equipment only operated for about 15 minutes before needing servicing.

Tackling Automobile Emissions

Even with unleaded gasoline, emissions from cars and trucks were a continued concern. In 1981, new cars were required to meet emissions standards for the first time under the Clean Air Act amendments. Sophisticated three-way catalysts with on-board computers and oxygen sensors appeared in most new cars, helping to optimize the efficiency of the catalytic converter. To further help reduce pollution from automobiles, the state's emissions inspection and maintenance program began in Spokane County in 1985. The emissions check program is set to expire at the end of 2019.

Spokane on EPA's List of "Dirty Air" Cities

In 1987, the EPA revised the health-based particulate matter standard to be more protective of human health, and directed communities to reduce fine particles in the air, known as PM₁₀—particles 10 microns in diameter and smaller.

Air monitoring data found that Spokane was out of compliance with this new, health-based standard. Windblown dust, debris from traveling on unpaved roads and dirty paved roads, and smoke from woodstoves and fireplaces all contributed to the problem.

In 1988, local regulations were adopted to address smoke from wood burning, including mandatory, temporary restrictions during poor air quality periods. Prior to 1988, the agency encouraged residents to voluntarily cut back on wood burning during periods of poor air quality. Agency staff and volunteers went door-to-door, distributing literature and asking people to curtail wood burning and use their backup heat source. Local news outlets were called upon to help by reporting restrictions during their newscasts.



progress: 1969 - 2019

Accomplishments in the 1980s and 1990s, Part 2 of 3

Conquering Winter Spikes of Carbon Monoxide



The 1990s were a period of major air pollution control accomplishments in Spokane County. The levels of PM₁₀ and CO that plagued our city since the 1970s steadily declined in the 1990s.

Elevated carbon monoxide (CO) pollution during winter continued to be problematic. In 1992, an oxygenated fuel program was federally mandated. Gasoline sold in Spokane County from October through February, was required to contain an oxygenate that enhances fuel combustion efficiencies and thus reduces emissions.

The program was successful in reducing CO levels, and once car technology caught up, the oxygenated fuel program ended in 2005. In the first six years of the wintertime oxygenated fuels program in Spokane, the number of days when carbon monoxide levels exceeded the federal, health-based standard dropped from eight in 1992 to zero in 1997.

Reducing Road Dust

Another, even more significant improvement for air quality came after an especially dusty early spring day in 1993, on the heels of a very harsh winter of record snowfall. Record quantities of traction sand was applied throughout the harsh winter. Then the snow melted and the gravel remained and was turned into a fine powder and kicked up into the air by passing motorists. This resulted in several days of particulate levels above the federal air quality standards. Shortly thereafter, a cooperative program with the city, county, and state road departments was initiated to reduce the dust problem. A combination of improved traction sand along with liquid deicer is now applied to the streets. Additionally, more frequent and timely street sweeping and cleaning is performed.



Phasing-out Grass Seed Field Burning

In March 1996, Washington state required a three year phase-out of grass seed field burning across the state. Prior to the ban, approximately 25,000 acres of grass seed field residue was burned each fall in Spokane County. Residue is the stubble and straw remaining in grass seed fields after harvesting seed. Post-harvest residue burning was a widely used practices for decades for pest control and stimulation of seed yield. Public concern over air quality and the potential for adverse health impacts on the region's residents prompted research into alternative residue management practices and ultimately the phase-out of grass seed field burning.



Addressing Asbestos

In early 1998, a more robust and self-sustaining asbestos program was developed to better serve and protect residents of Spokane County from hazardous asbestos fibers. Agency efforts continue to focus on reducing uncontrolled releases of asbestos from building renovation and demolition activities. Staff conduct on-site inspections and follow-up on complaints received from concerned citizens about potential asbestos-related activities. Staff also provide a variety of asbestos educational materials and outreach in the community.

Wildfire Smoke *...continued from front page*

The reality, however, is that everyone is at risk, because there is no safe level of PM_{2.5}. Studies have shown increased healthcare visits as well as increased hospitalizations and even deaths, both during and soon after periods of poor air quality from wood smoke.

What can you do to lessen the effects of wood smoke? First, stay in the know. There are a number of great resources you should be familiar with. Our local Spokane Regional Clean Air Agency monitors air quality across the county and provides hourly updates to the Air Quality Index (AQI) at SpokaneCleanAir.org/current-air-quality. A good resource for statewide air quality and wildfire smoke is the Washington Smoke Blog at www.wasmoke.blogspot.com.

When air quality enters into the unhealthy ranges (orange and red on the AQI), everyone is affected, even if you are not experiencing symptoms. Consider changing your activity habits and avoid strenuous outdoor exercise or prolonged time spent outdoors. Keep indoor air as clean as possible – close windows, use an indoor air purifier, and do not burn candles, fry food or vacuum. If you have an air conditioner, use the recirculate mode (the same goes for your car). Stay well-hydrated to keep your respira-

tory system working at its best. And if you have medical conditions that could be aggravated, make sure you talk with your provider about your medications and possibly even when you should leave the area if poor air quality persists.







A common question is whether to use a mask if you must go outdoors. Only those labeled “N95” are effective at filtering these concerning particulates. Unfortunately, they will not filter out the other things in wood smoke, will not work as effectively if not fitted for you by a professional, and do not work if you have facial hair or for children. They are also difficult to use correctly and can make the situation worse if you have heart or lung disease. (For more information see srhd.org/health-topics/environmental-health/air-quality, or cdc.gov/air/default.htm).

Based on current research, we know that exposures to high levels of PM_{2.5} are detrimental to everyone’s health and for sensitive individuals, the risks are greater.

Our recurring seasons of poor air quality are providing opportunities to learn more about long-term health effects. In the meantime, it’s important to know what to do to prevent wildfire smoke from affecting your health and those most sensitive to its effects.

IS THE AIR SAFE?

Check current air quality at spokanecleanair.org

	GOOD
	MODERATE
	UNHEALTHY FOR SENSITIVE GROUPS
	UNHEALTHY FOR EVERYONE
	VERY UNHEALTHY FOR EVERYONE
	HAZARDOUS FOR EVERYONE

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