

Looking At The Air We Breathe, Becoming Part of The Cure

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There's a standard question in many environmental education activities that goes something like: What are the four basic needs for all living things? Answer: food, water, shelter and space.

What about air? Does anyone think of air? Usually not. It's taken for granted that we all have air to breathe. However, having clean air to breathe is something many are becoming aware of and concerned about, even in the Seeley-Swan Valley.

So what is polluted air? Air can be contaminated with gases at a high enough level to cause respiratory distress or even death.

Carbon Dioxide, present in all air we breathe, will suffocate a person if there's not enough oxygen to balance out the equation. Nitrogen, similar story. Sulfur, same thing. Arsenic, you guessed it, same thing. Mercury, much worse. Methane, potentially much worse.

But what about dust or other fine particles we find in the air all the time?

Research over the past 15 years has shown that fine particles, measured as 2.5 microns or PM2.5, can affect populations that have respiratory sensitivities such as asthma, emphysema or lung infections. Hospital records validate the amounts and the consequences including increased cardio-pulmonary disease and lung cancer associated with small particulate pollution.

Accumulations are measured in micrograms per cubic meter. Before 2006 the standard was 65 micrograms/cubic meter. In 2006 the level was dropped to 35. At that time Missoula County was considered to be in non-attainment for a 24-hour level of PM2.5. Because of work that Missoula was already doing to correct the levels, the EPA approved the levels that were decreasing.

In Seeley Lake, air monitors have been tracking air quality by measuring the PM2.5. This particle size is especially damaging, because it can move through our bodies and settle in our lungs—similar to the miners who worked for years in coal mines, not realizing what they were doing to their lungs, only to end up with serious “black lung” disease.

Obviously, we're not suggesting that PM2.5 is anywhere close to that dire circumstance. However, statistics relating to respiratory complaints indicate the hazards of breathing small particulate matter.

According to a landmark study done by the American Cancer Society in 1995 and re-analysis done in 2000 and follow-up research published in 2009 reveal, “The epidemiologic results reported are consistent with those from other population-based studies, which collectively have strongly supported the hypothesis that long-term exposure to PM2.5 increases mortality in the general population.”

Missoula County has supported our efforts to promote changes that will improve our air quality. Many in the community have commented that our air is not bad, especially compared to the smog and ozone of big cities. While that is true, the situation here has escalated in recent years.

In winter when we have air inversions, smoke is trapped closer to the ground. In winter, many people heat their homes with woodstoves, which have been shown to be major contributors to increased PM2.5.

In November 2009, Missoula County Health Department began looking at the air quality in the Seeley Lake valley and placed a real-time air quality monitor at the Elementary School. The County is obligated under the federal Clean Air Act to ensure clean air for all to breathe. So, they have been looking at all parts of the County, including Seeley Lake.

Because of the settlement patterns and the mountain and valley patterns, we tend to have strong air inversions that trap smoke in the winter. Unlike other valleys, however, our inversions tend to be shorter lived, but sometimes more drastic.

The numbers for the winter of 2009-2010 were high and actually alarmed the health department.

They also showed up on the state Department of Environmental Quality web site, news stations and newspapers. Bad air is bad news for any community, but for one that encourages visitors, it's especially damaging. Several community members voiced concerns and media and agencies were contacted about the reports. The situation in Seeley would appear drastic if one only listened to media reports. Hopefully, that situation has been corrected.

At the same time, the Missoula County Health Department took an even more serious look at the situation. If any part of the County is found to be "out of attainment" for PM2.5, the County is obligated to take measures to correct the problem.

In November 2010, the County installed six new monitors, scattered throughout Seeley Lake (see attached map). The data so far has shown even higher numbers than last year, but basically, confirm that most of the pollution is concentrated in one or two areas.

Unfortunately, the EPA is also obligated to take measures to correct problems. The EPA solutions usually involve making changes in industrial portions, even though individual wood stoves contribute the most particulate matter.

If the EPA steps in, the community will be subjected to federal standards. That's why it's critical for the community to become involved early and work on solutions.

The Seeley Lake Community Council, with help from the Seeley Lake Community Foundation, Missoula County Health Department and many others, sponsored an open house in October to inform our citizens about the valley's air quality and how we can work together to burn cleaner.

Remember, dry wood burns better than wet wood. A large armload of green wood (40% moisture) contains 2 gallons of water. That's like pouring 2 gallons of water into your stove—with the result of lots of smoke, little heat.

Wood in a shed or other shelter and seasoned for 2 years can get as low as 10% moisture or about a half gallon of water. So, burning dry wood hot produces much less particulate matter than wet wood burning slowly.

In looking at kinds of wood stoves, a non-EPA certified stove puts out 40 grams/hour, or as much particulate as 20 buses idling in your front yard for an hour. A fireplace, 30 buses. A pellet stove, one bus. Natural gas/propane, nearly zero.

So, while food, water and shelter are always a concern to get and keep, clean air to breathe is also essential.

As I write this looking out at our fabulous winter wonderland, it's hard to imagine that we have "bad air". However, on days with strong inversions, as I drive into around Seeley Lake, I can't help but notice that the mountains seem obscured and others might notice a slight cough or labored breathing.

While some have suggested that "you live in the country, get used to the smoke", I have to say, if there's a way to clean up the air while avoiding a government agency telling us how to clean the air, I think we would chose our own way.

For assistance with alternate heat-source funding or weatherization information, contact the Human Resource Council/Low-Income Energy Assistance Program (LIEAP) at 728-1801. For information on Air Quality contact the Missoula City-County Health Department at 258-4755 or come to the Seeley Lake Community Council (SLCC) monthly meetings (first Monday of each month), email info@seeleylakecommunitycouncil.com, write to SLCC, PO Box 30, Seeley Lake, MT 59868 or fill in an SLCC Citizen Input/Inquiry Procedure Form.

Editor's Note: Carol Evans is a member of the Seeley Lake Community Council and co-chair of SLCC's Air Quality Committee.

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