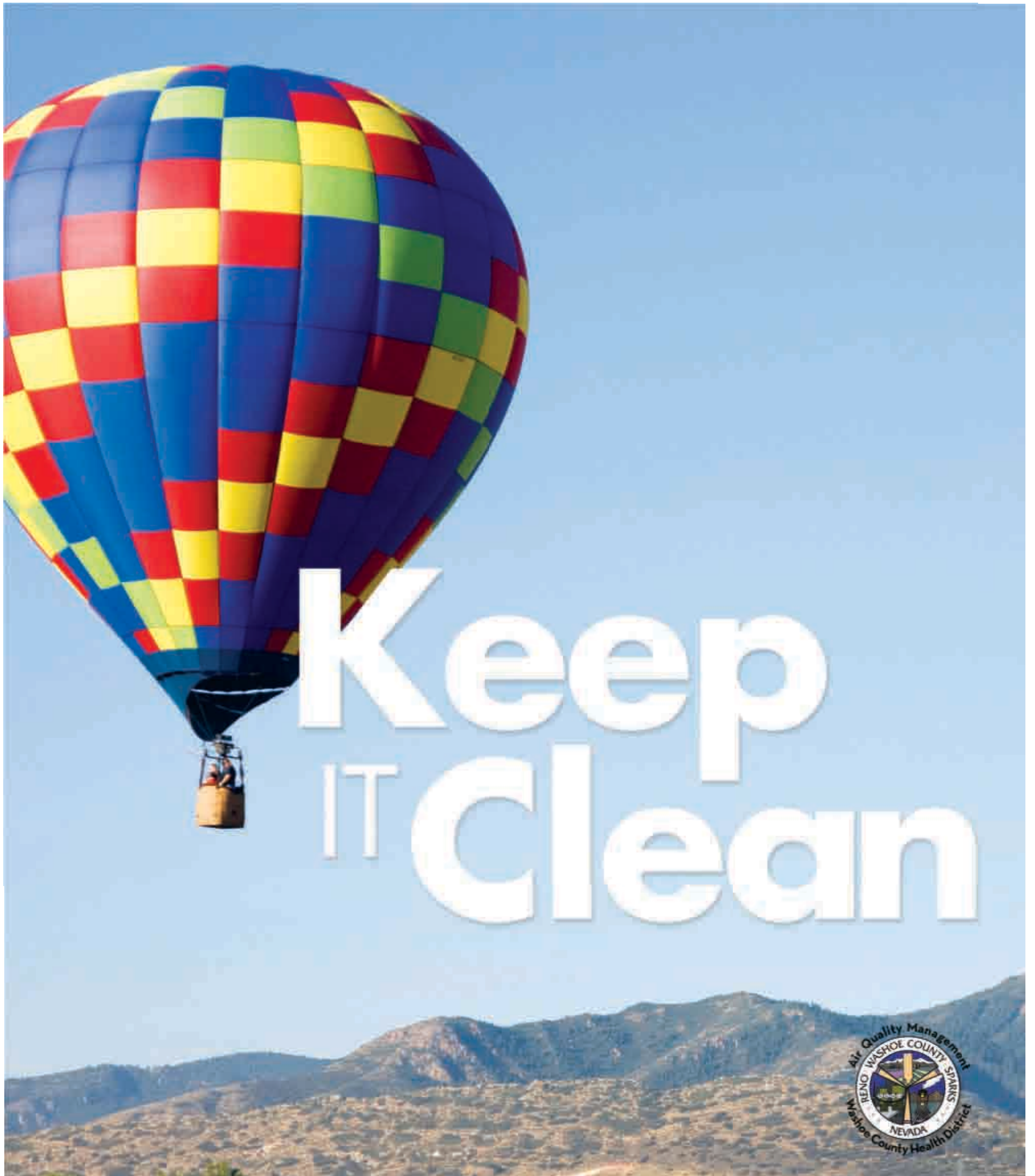




Be Aware of The Air We Share And Help To Keep It Clean



It's important to appreciate a valuable resource we need and share: clean air. Good air quality is vital to good health and to maintaining a healthy active lifestyle.

Air is a fragile resource that we impact in some way with our individual daily activities. From turning on lights to driving down the road, painting our houses, even using hairspray and cleaning products; all of these activities contribute some amount of pollutants into the air we breathe. So, it's important to be conscious of them and understand that each of our contributions are multiplied 400,000 times by all the other people that live in Washoe County. There's no simple solution to clean up the air when it gets dirty. We can filter water to drink, but we can't all walk around wearing respirators. It's important to protect the air that we breathe.

It's important to protect the air that we breathe.

The Air Quality Management Division of the Washoe County Health District requires businesses to control emissions under strict permit conditions. We've done a good job managing emissions from these sources. We also have a program which removes older, dirtier wood stoves from homes when they are sold, and almost everyone in the community is aware of the Green-Yellow-Red burn codes to reduce wood burning during wintertime pollution episodes.

We are embarking on another season of the Green-Yellow-Red program, which runs from November through February each year. During the late fall and winter, the Truckee Meadows experiences temperature inversions which trap air pollutants close to the ground and prevents them from dispersing. During these periods, we experience elevated levels of fine particulates which come primarily from fireplace and



wood stove smoke, but also from vehicle emissions (primarily diesel). The most important thing that you can do to help preserve our air quality is to cease burning fireplaces, wood stoves and pellet stoves when the Health District issues a voluntary yellow burn code. When we issue a red burn code, during which burning is prohibited, air quality has already reached levels that are either unhealthy for sensitive groups, or unhealthy for us all.

We also experience summertime air pollution problems caused by ozone. Ozone is a reactive gas that forms when air pollutants mix in hot and sunny conditions. In the lower atmosphere, ground-level ozone is considered "bad" and is the primary constituent of smog. Elevated levels of particulate matter and ozone cause health impacts to people in our community. You will find more information about our air quality, these pollutants, and their health impacts, from the various articles in this special edition.

The largest man-made source of ozone precursors in Washoe County is exhaust from cars and trucks. Another major source is volatile organic compounds (VOCs) that come from paints, solvents and refueling our cars and lawnmowers. We can all help to keep our summertime ozone levels from reaching unhealthy levels by limiting car trips, refueling during the cooler evening hours, using electric vehicles and landscape equipment, and using low VOC products. Walking or riding a bike can provide multiple benefits of reducing air pollution and providing healthy exercise.

So, remember to be aware of the air we breathe. Breathe deep, enjoy our wonderful fall season, and remember to do your part to protect our air quality. Visit the Air Quality website (www.ourcleanair.com) for more air quality information, and call the Air Quality Hotline (775-785-4110) every day for the current Air Quality Index level. And, thank you for helping to Keep It Clean!

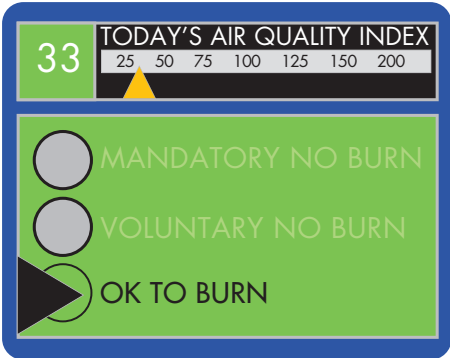


Know The Code

In 1987, the Washoe County Health District, Air Quality Management Division (AQMD) developed the Green-Yellow-Red Burn Code program to reduce the emissions from wood stoves and fireplaces during wintertime air pollution episodes. The Green-Yellow-Red Burn Code informs residents when burning is restricted or prohibited during the months of November through February.

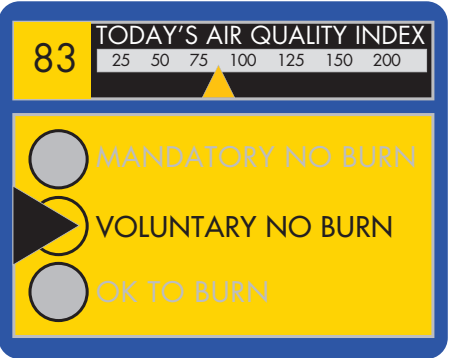
One of three burn code colors is issued each day based on the current and forecasted air quality. The burn code lets you know if you can light your stove or fireplace. The burn code applies to all solid fuels including wood, pellets and fire logs. Burning coal is always prohibited.

Green



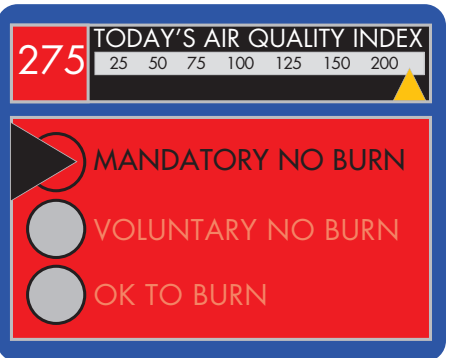
When the Air Quality Index (AQI) is in the good or low to mid moderate range, the burn code is green and that means it's OK to light a fire in your stove or fireplace. But, keep in mind that you should always burn seasoned wood. Burning trash or unseasoned fire wood is never allowed.

Yellow



When the AQI reaches the upper end of the moderate range, the burn code switches to yellow. The Yellow Burn Code requests citizens to voluntarily stop burning wood or other solid fuels, or at least to reduce the amount of fuels being burned. This is a voluntary stage, but if you stop burning wood now, it may be possible to avoid unhealthy air pollution conditions. One of the most important contributions you can make to protect our air quality is to stop burning when a Yellow Burn Code is issued.

Red



When air quality becomes unhealthy for sensitive groups or for all of us, a Red Burn Code is issued. A Red Burn Code means you must stop all burning immediately. Once a Red Burn Code is issued, it remains in effect until conditions improve and a Yellow or Green Burn Code is issued. During Red Burn Codes, it is illegal to burn.



DID YOU KNOW...

Driving your car less when the burn code is yellow or red also helps keep pollution out of the air we breathe. It is your responsibility to Know the Code. The AQMD provides four ways for you to find out the day's burn status:

- Listen to television and radio weather forecasts.
- Call the air quality hotline at (775) 785-4110 for daily recorded burn status information.
- Check the Reno-Gazette Journal's weather page.
- Visit the AQMD website at www.ourcleanair.com.



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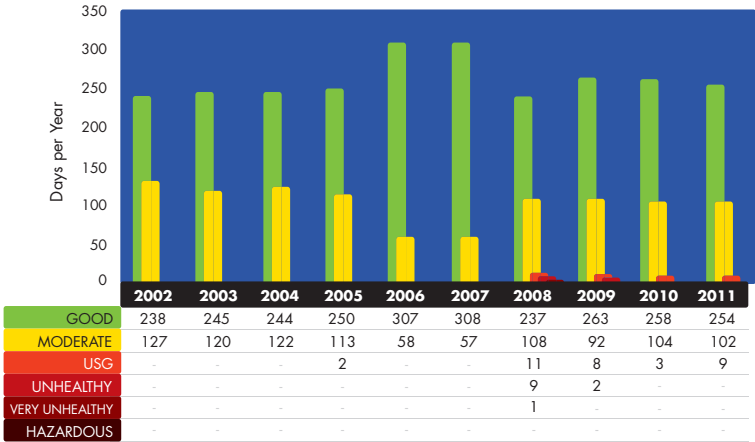


The Air Quality Index (AQI) provides a measure of how healthy or unhealthy the air quality is on a given day. The Air Quality Management Division collects hourly air quality information from a network of eight ambient air monitoring stations. It uses this data to calculate and issue a daily AQI. This is used to inform the public of how clean or polluted the air is, and what the associated health effects might be.

The AQI focuses on health effects that may be experienced within a few hours or days after breathing polluted air. The U.S. Environmental Protection Agency (EPA) developed the AQI equations for five major air pollutants regulated by the Clean Air Act: ground-level ozone,

particle pollution (also known as particulate matter, such as smoke and fine dust), carbon monoxide, sulfur dioxide and nitrogen dioxide. For each of these pollutants, EPA has established National Air Quality Standards (NAAQS) to protect public health. Ground-level ozone and

Air Quality Index Trend (2002-2011)



Air Quality Index Levels of Health Concern	Numerical Value	Meaning
Good	0 to 50	Air quality is considered satisfactory, and air pollution poses little or no risk
Moderate	51 to 100	Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people who are unusually sensitive to air pollution.
Unhealthy for Sensitive Groups	101 to 150	Members of sensitive groups may experience health effects. The general public is not likely to be affected.
Unhealthy	151 to 200	Everyone may begin to experience health effects; members of sensitive groups may experience more serious health effects.
Very Unhealthy	201 to 300	Health warnings of emergency conditions. The entire population is more likely to be affected.
Hazardous	301 to 500	Health alert: everyone may experience more serious health effects

airborne particles are the two air pollutants that pose the greatest direct threat to human health in the United States.

The AQI is based on a calculated numerical score that ranges from 0 to 500. The higher the AQI value, the greater the level of air pollution and the higher concern for the health. The purpose of the AQI is to help the public understand what local air quality means to their health. To make it easier to understand, the AQI is divided into six categories (see page 4)

These categories make it easier for Washoe County residents to understand whether air pollution is reaching elevated levels and what the health implications to them may be.

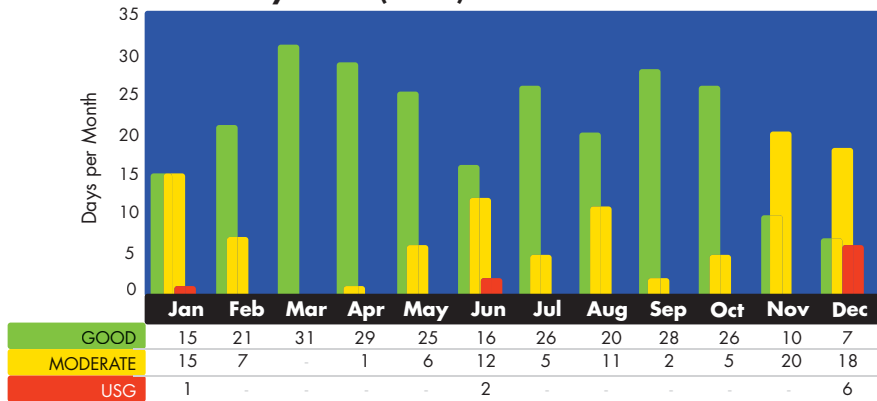
The Truckee Meadows experiences conditions during wintertime temperature inversions that can lead to elevated levels of particulate matter. In the

summertime, high temperatures can lead to elevated ozone concentrations (smog). Wildfires can also cause elevated levels of fine particulate matter and sometimes high ozone levels. In 2011, the Washoe County Health District, Air Quality Management Division (AQMD) reported 254 days in the Good AQI range, 102 days in the Moderate AQI range and 9 days in the Unhealthy for Sensitive Groups AQI range.

The AQMD reports the AQI daily to the public through media as well as the Air Quality Hotline. The public can receive a daily update of the AQI by calling (775) 785-4110. The AQI is updated each day, and more often if there are events or episodes occurring that cause the AQI to reach the higher categories. For more information on the AQI, as well as criteria pollutant information, visit the AQMD page on the Health District website at www.ourcleanair.com.



Air Quality Index (2011)



DID YOU KNOW?

There are several ways the public can help reduce air pollution, as well as protect your family's health when ozone levels are high:

- Conserve energy — home, at work, everywhere. Turn off lights you are not using.
- Carpool or use public transportation.
- When air quality is healthy, bike or walk instead of driving.
- Combine errands to reduce vehicle trips.
- Limit engine idling.
- When refueling: Stop when the pump shuts off. Putting more fuel in is bad for the environment and can damage your vehicle. Avoid spilling fuel. Always tighten your gas cap securely.
- Keep your car, boat and other engines tuned up.
- Inflate your car's tires to the recommended pressure.
- Use environmentally safe paints and cleaning products whenever possible.
- Follow manufacturers' recommendations to use and properly seal cleaners, paints and other chemicals so smog-forming chemicals can't evaporate.
- Refuel cars and trucks after dusk, when emissions are less likely to produce ozone.
- Delay using gasoline-powered lawn and garden equipment or household and garden chemicals when air quality is unhealthy.



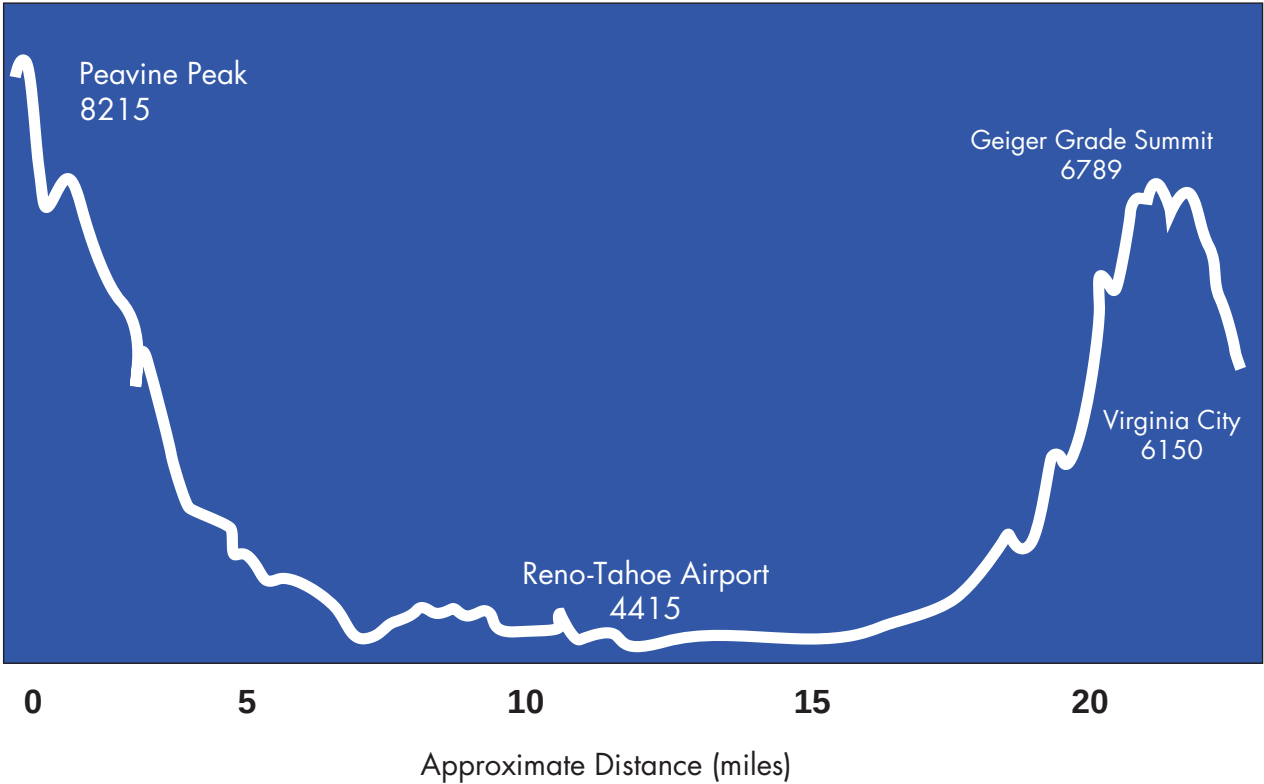
PHOTO BY CINDY HAWKS





Peavine Peak to Virginia City

GRAPH BY DIXIE RUDEBUSCH, WASHOE COUNTY TECHNOLOGY SERVICES-GIS



SEASONAL INVERSION

The natural bowl created by the Sierra Nevada Mountains on the west, and the Pah Rah Mountains and the Virginia Range on the east (as illustrated here) can present serious air quality issues. During winter when the ground is cold and winds are light, temperature inversions can act like a lid in the valley to trap air pollution from fireplaces, woodstoves, and motor vehicles. This photo was taken from the National Weather Service office near Truckee Meadows Community College. On this day, air pollution levels were in the “Unhealthy for Sensitive Groups” range and the burn code was Red. Remember to Keep it Clean and Know the Code.





Words to Know

Definitions in part provided by the National Oceanic and Atmospheric Administration's National Weather Service.

Fog

Fog is water droplets suspended in the air at the Earth's surface. Fog is often hazardous when the visibility is reduced to a quarter-mile or less.

Smog

Air that has restricted visibility due to pollution or pollution formed in the presence of sunlight-photochemical smog.

Haze

An aggregation in the atmosphere of very fine, widely dispersed, solid or liquid particles, or both, giving the air an opalescent appearance that subdues colors.

Temperature Inversion

Air temperatures usually decrease as you go up in elevation. During temperature inversions the opposite occurs - It's warmer at Mount Rose than in downtown Reno. An inversion can lead to pollution such as smog being trapped close to the ground, with possible adverse effects on health.

Stay Safe In The Wake of Wildfires

Wildfire smoke events often catch us off guard. Individuals want to know what they should do to protect themselves. School officials want to know if outdoor events should be canceled. The news media want to know how dangerous the smoke really is. This is all important information for you to know.

Particulate matter is the principal pollutant of concern from wildfire smoke for the relatively short-term exposures typically experienced by the public. Particulate matter is a generic term for particles suspended in the air, typically as a mixture of both solid particles and liquid droplets.

A number of factors, including weather, the stage of the fire and terrain, can all influence fire behavior and the impact of the smoke plume on the ground. In general, windy conditions contribute to lower smoke concentrations because the smoke mixes into a larger volume of air. However, wind can spread fires quickly and result in large fires and even greater impacts. The

intense heat, especially early in a fire, lofts smoke high into the air, where it remains until it cools and begins to descend. As the smoke moves downwind, it becomes more dilute and often more widespread, eventually reaching ground level.

This is all important information for you to know.

Smoke levels in populated areas can be unpredictable: Winds that usually clear out the valley may simply blow more smoke in, causing a worse episode the next day. Smoke concentrations change constantly. Sometimes, by the time public health officials issue a warning or smoke advisory, conditions have changed and the smoke may already be clearing.

The effects of exposure to smoke in the ambient air range from eye and respiratory tract irritation to more serious disorders, including reduced lung function, bronchitis, exacerbation of asthma and premature death. Studies have found that fine particles are linked (alone or with other pollutants) with increased mortality and aggravation of pre-existing respiratory and cardiovascular disease. In addition, particles are respiratory irritants, and exposures to high concentrations of particulate matter can cause persistent cough, phlegm, wheezing and difficulty breathing. Smoke can also affect healthy people, causing respiratory symptoms, reductions in lung function and pulmonary inflammation. Smoke can affect the body's immune system and the physiological mechanisms that remove inhaled foreign materials from the lungs, such as pollen and bacteria.

Most healthy adults and children will recover quickly from smoke exposure and will not suffer long-term consequences. However, the following sensitive populations may experience more severe short-term and chronic symptoms:

- Individuals with asthma and other respiratory diseases.
- Individuals with cardiovascular disease.
- The elderly.
- Children.
- Pregnant women.
- Smokers.

All people in a smoky area (except firefighters or emergency personnel) should avoid strenuous outdoor activities. Avoid being outside and even driving whenever possible. If driving is necessary, run the air conditioner on "re-circulate" mode to avoid drawing smoky air into the car. Closing up a home by shutting windows and doors can give some protection from smoke. Most air conditioners are designed by default to re-circulate indoor air. Once a home is closed, avoid strenuous activity. Drink plenty of fluids to keep hydrated and to keep your respiratory membranes moist. If you must be outside NIOSH approved N95 dust masks can help reduce exposure to smoke particles from the air you are breathing.



Protect Your Family from the Health Effects of Smoke

Pay attention to local air quality reports and stay alert to any news coverage or health warnings related to smoke. Use common sense. If it looks smoky outside, it's probably not a good time to mow the lawn or go for a run. And, it's probably not a good time for your children to play outdoors. Avoid strenuous outdoor activity. If you are advised to stay indoors, take steps to keep indoor air as clean as possible.

Check the Air Quality Index (AQI) forecast for your area. The AQI, based on data from local air quality monitors, tells you about the daily air quality in your area and recommends precautions you can take to protect your health. As smoke gets worse, the concentration of particles in the air changes — and so do the steps you should take to protect yourself. Visit www.ourcleanair.com for local forecast and conditions.

Run your air conditioner if you have one. Keep the fresh air intake closed and the filter clean to prevent bringing additional smoke inside. Note: If you don't have an air conditioner, staying inside with the windows closed may be dangerous in extremely hot weather. In these cases, seek alternative shelter.

Help keep particle levels inside lower. When smoke levels are high, try to avoid using anything that burns, such as wood fireplaces, gas logs, gas stoves — and even candles! Don't vacuum. That stirs up particles already inside your home. And don't smoke. That puts even more pollution in your lungs and in the lungs of people around you. If you have asthma or other lung disease, make sure you follow your doctor's directions about taking your medicines and following your asthma management plan. Call your doctor if your symptoms worsen.

If you have heart or lung disease, if you are an older adult, or if you have children, **talk with your doctor** about whether and when you should leave the area. When smoke is heavy for a prolonged period of time, fine particles can build up indoors even though you may not be able to see them.



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Ozone: The Harmful Effects

Ozone is a summertime pollutant of concern in the Truckee Meadows. Ozone is found in two regions of the Earth's atmosphere — at ground level and in the upper regions of the atmosphere. Both types of ozone have the same chemical composition (O_3). While upper atmospheric ozone protects the earth from the sun's harmful rays, ground-level ozone is harmful and is the main component of smog.

Tropospheric, or ground-level ozone, is not emitted directly into the air, but is created by chemical reactions between oxides of nitrogen (NO_x) and volatile organic compounds (VOC) in the presence of sunlight. Emissions from industrial facilities and electric utilities, motor vehicle exhaust, gasoline vapors and chemical solvents are some of the major sources of NO_x and VOC. VOCs from trees and other vegetation can also contribute to ozone formation. In the Truckee Meadows, motor vehicles are the largest manmade source of ozone precursors. Ozone may reach unhealthy levels on hot sunny days in urban environments. Ozone can also be transported long distances by wind.

For this reason, even rural areas can experience high ozone levels.

Exposure to smog, and the ozone it contains, can harm our health. Even relatively low levels of ozone can cause health effects. People with lung disease, children, older adults and people who are active outdoors may be particularly sensitive to ozone. Children are at the greatest risk from exposure to ozone. Their lungs are still developing and they are more likely to be active outdoors. When ozone levels are high, this increases their exposure. Children are

Exposure to smog, and the ozone it contains, can harm our health.

also more likely than adults to have asthma. Ozone also affects sensitive vegetation and ecosystems because it can harm trees and plants during the growing season.

The annual smog check program is one of the measures in Washoe County to reduce emissions from motor



vehicles. The Air Quality Management Division also permits sources of VOCs and NO_x from business and industrial facilities. Nationally, there are standards for reformulating fuels and consumer/commercial products, such as paints and chemical solvents that contain VOCs. The Regional Transportation Commission of Washoe County has developed a Smart Trips program to assist local businesses to encourage their employees to use alternative modes of transportation, such as public transit, biking, carpooling, vanpooling and walking. The Air Quality Management Division also encourages using electric vehicles and equipment, (rather than gasoline engines), to reduce harmful emissions.

When ground-level ozone is at unhealthy levels, your chances of being affected increase the longer you are active outdoors and the more strenuous your activity. Since exercise is good for health, it's important to stay active and know when to make changes.

When ozone levels are elevated, protect your health by:

- Reducing the time you are active outdoors.
- Scheduling the activity for the morning or evening when ozone levels are usually lower.
- Substituting a less intense activity. For example, go for a walk instead of a jog. For each person, intensity depends on physical fitness, but typically less intense activities include things like walking, climbing stairs and simple garden work. More intense activities include playing basketball or soccer, chopping wood, heavy manual labor, and vigorous running, cycling or hiking.

No matter how fit you are, cutting back on the level or duration of outdoor activity when ozone levels are elevated will help protect you from ozone's harmful effects.



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Solutions

Summertime Tips

For Summertime when ozone is expected to be high:

- Conserve electricity and set your air conditioner at a higher temperature.
- Give your car a rest — share a ride to work or use public transportation. Bicycle or walk to errands when possible.
- Refuel cars and trucks after dusk.
- Combine errands and reduce trips.
- Limit engine idling.
- Avoid strenuous physical activity during the hottest times of the day.
- Use household, workshop and garden chemicals in ways that keep evaporation to a minimum, or try to delay using them when poor air quality is forecast.



Household Tips

- Conserve energy. Consider setting your thermostat a little higher in the summer and lower in winter.
- Take advantage of the rebate program available through EnergyFit Nevada (www.EnergyFitNV.com). Get a home energy audit and implement upgrades and improvements to improve the comfort and efficiency of your home.
- Look for the ENERGY STAR label when buying home or office equipment.
- Know the Code. Follow the Green-Yellow-Red Burn Code.
- Consider using gas logs instead of wood. If you use a wood-burning stove or fireplace insert, make sure it meets EPA emission standards. Burn only dry, seasoned wood.
- Consider a pellet stove rather than a wood stove. They burn cleaner.
- Recycle your Christmas tree at a Keep Truckee Meadows Beautiful drop-off location.
- Use environmentally safe paints and cleaning products.
- Replace your gas-powered lawn and garden equipment with an electric- or battery-powered equipment.

Transportation Tips

- Choose a cleaner commute — Carpool to work. Bike or walk when possible. Try RTC's Smart Trips program at www.rtcwashoe.greenride.com.
- Whether by car, public transit, biking, or walking, plan your trip with the Google Transit Trip Planning tool at www.rtcwashoe.com.
- Telecommute: Avoid a trip to work altogether.
- Don't idle your vehicle, especially around school zones.
- Purchase an electric vehicle with zero tailpipe emissions. Take advantage of the \$7,500 federal tax credit.
- Combine errands to reduce "cold starts" of your car and avoid extended idling.
- Be sure your tires are properly inflated.
- Take your lunch to work and avoid an extra car trip.
- Keep car, boat and other engines properly tuned, and avoid engines that smoke.
- Don't top off your gas tank, be careful not to spill fuel and always tighten your gas cap securely.



Wintertime Tips

For Wintertime when particle pollution is expected to be high:

- Reduce or eliminate fireplace and wood stove use. Know the Code.
- Give your car a rest — share a ride to work or use public transportation. Bicycle or walk to errands when possible.
- Combine errands and reduce trips.
- Limit engine idling, especially around school zones.
- Avoid strenuous physical activity.



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