

AIR QUALITY IN NEVADA COUNTY CUTTING THROUGH THE HAZE

REASON FOR INVESTIGATION

Measurements of air pollution in the foothills of Nevada County over the past several years confirm a steady decrease in air quality caused by rising levels of ozone¹ and particulate matter². The current body of research provides compelling findings that increased levels of pollutants in the air present a significant health hazard. Federal and State air quality agencies have focused on Nevada County and require that we take remedial action. The number of days and hours when ozone levels exceeded the State standard has increased in recent years.

The Environmental Protection Agency (EPA), seeking to restructure air quality boundaries, is planning to fold Western Nevada County into the Sacramento region's non-attainment area. The EPA's desire to fold Nevada County into the current six-county Sacramento area stems from the adoption of a more restrictive ozone standard. Instead of using the previous one-hour standard, attainment would be determined by using an eight-hour average because the latest research suggests that prolonged exposure has more detrimental health consequences than brief periods of exposure.

The Grand Jury, as an advocate for the public, is concerned about air quality in Nevada County and the role our County Government leaders can take to improve it.

A portion of a July 16, 1997 Presidential proclamation reads:

“Implementation of the air quality standards is to be carried out to maximize common sense, flexibility, and cost effectiveness.”

BACKGROUND

Air pollution in Nevada County is monitored by the Northern Sierra Air Quality Management District (Air Quality District) which was formed in 1986 in accordance with the California Health and Safety Code Section 40150, et seq. The primary goal of the Air Quality District is to achieve and maintain the Federal and State Ambient Air Quality Standards, which are standards set at levels that will protect the public health. The California Health and Safety Code mandates the Air Quality District to adopt and enforce rules and regulations to achieve and maintain health-based ambient air quality standards in addition to enforcing all applicable provisions of federal and state law. The following list of regulatory acts affects the Air Quality District:

¹ Ozone is the main ingredient of smog. It is produced by the action of solar radiation (sunlight) on nitrogen oxides and reactive organic gases. The primary ozone precursor is motor vehicle exhaust.

² Particulate matter is composed of airborne particles of specific size. Standard measurements include particulates less than 10 microns in size (PM10), and particulates less than 2.5 microns in size (PM2.5).

Federal Clean Air Act of 1992
California Clean Air Act of 1988
California Health and Safety Code

California Code of Regulations, Titles 13, 17, 26
District Rules and Regulations
Local City and County Ordinances

The Air Quality District staff consists of the Air Pollution Control Officer (who serves as the Air Quality District executive director) and subordinate technical personnel. The Air Quality District is governed by a six member Board of Directors consisting of two members from the Nevada County Board of Supervisors (BOS) and two Supervisors each from Plumas County and Sierra County. The Board of Directors meets monthly in open public meetings.

METHOD OF INVESTIGATION

The Grand Jury interviewed the Executive Director of the Air Quality District, Air Quality District technical staff, and members of the BOS. The Grand Jury also reviewed Air Quality District documents and reports, newspaper articles in the local and regional media, and Air Quality-related programs developed by the Air Quality District.

Sources:

1. Northern Sierra Air Quality Management District Program Overview and Air Quality Facts, July 2003
2. Northern Sierra Air Quality Management District Annual Air Monitoring Report 2002 (May 1, 2003)
3. Air Quality Index table from Sacramento Metropolitan Air Quality Management District
4. *The Union* newspaper (01/06/2004, 01/29/2004)
5. *The Sacramento Bee* newspaper (09/7/2003, 01/30/2004)
6. Letter from Northern Sierra Air Quality Management District to US EPA, Region IX, 02/03/2004
7. Presidential Proclamation: Memorandum for the Administrator of the Environmental Protection Agency: Implementation of Revised Air Quality Standards for Ozone and Particulate Matter 07/16/1997
8. Conversations with the technical staff of Northern Sierra Air Quality Management District
9. Sacramento Metropolitan Air Quality Management Districts website at: www.sparetheair.com

FINDINGS

1. Pollution monitoring data show that levels for ozone have increased in Western Nevada County. Since 1997, there has been a steady increase of the number of days and hours when ozone levels have exceeded the State air quality standard. The exceedances³ usually occur in the late afternoon and evening, which indicates ozone and its precursors are transported from upwind (source) area⁴. (See sources numbers 1 and 2.)
2. Ozone and PM10 & PM2.5 particulates are the primary contributors to air pollution in Nevada County. Ozone concentrations are typically low in the winter months but rise

³ The term "exceedance" means the ambient levels of ozone or particulate matter have risen above the applicable Air Quality Standards.

⁴ "Transport" is the movement of pollutants from an upwind (source) area (Sacramento Valley and Bay Area) to a downwind (destination) area (Nevada County), due to the prevailing Southwest winds. (See source no. 2).

dramatically during the summer season. Concentrations of particulates typically increase during the winter months.

3. Ozone levels above the Federal air quality standard aggravate the health of people with sensitive and /or compromised pulmonary systems. Ozone is a powerful oxidant that can damage the respiratory tract causing inflammation and irritation, and induces symptoms such as coughing, shortness of breath and worsening of asthma symptoms.
4. PM10 & PM2.5 particulates are contained in smoke from wood stoves and open burning of all types: residential burning; prescribed fire (forest management, wild-lands vegetation management); land development clearing; hazard reduction; agriculture; and road maintenance. These small size particulates get by the natural filtration systems of the nose and throat and lodge deep in the lungs. People most sensitive are those with chronic lung or cardiovascular disease, those with influenza, asthmatics, the elderly and children.

Air Quality Index (AQI) vs. Health Hazard

(This table used courtesy of Sacramento Metropolitan Air Quality Management District)

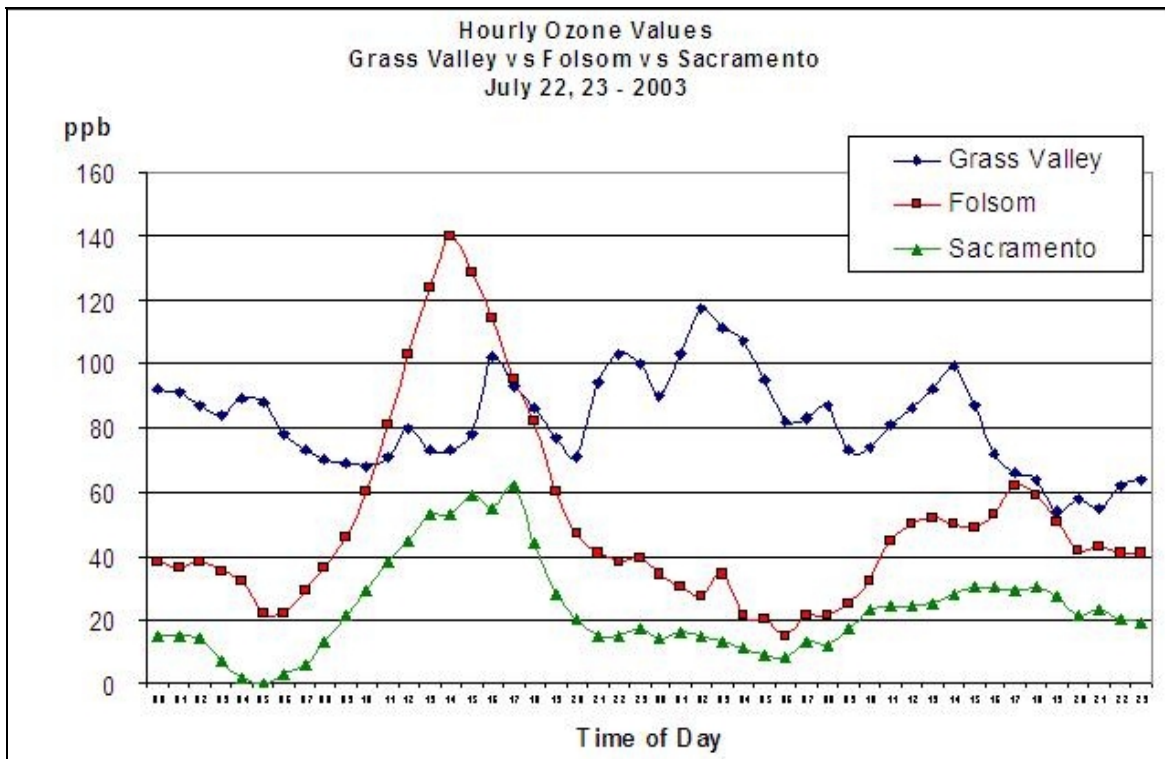
AQI	Health Categories	Ozone	Fine Particles PM2.5	Particles PM10
300	Very Unhealthy 201-300	Active children and adults, and people with respiratory disease, such as asthma, should avoid all outdoor exertion; everyone else, especially children, should limit outdoor exertion	People with respiratory or heart disease, the elderly and children should avoid any outdoor activity; everyone else should avoid prolonged exertion	People with respiratory disease, such as asthma, should avoid any outdoor activity; everyone else, especially the elderly and children, should limit outdoor exertion
200	Unhealthy 151-200	Active children and adults, and people with respiratory disease, such as asthma, should avoid prolonged outdoor exertion; everyone else, especially children should limit prolonged outdoor exertion (106 ppb - NAAQS)*	People with respiratory or heart disease, the elderly and children should avoid prolonged exertion; everyone else should limit prolonged exertion	People with respiratory disease, such as asthma, should avoid outdoor exertion; everyone else, especially the elderly and children, should limit prolonged outdoor exertion
150	Unhealthy for Sensitive Groups 101-150	Active children and adults, and people with respiratory disease, such as asthma, should limit prolonged outdoor exertion (85 ppb - NAAQS)*	People with respiratory or heart disease, the elderly and children should limit prolonged exertion	People with respiratory disease, such as asthma, should limit outdoor exertion
100	Moderate 51-100	Unusually sensitive people should consider limiting prolonged outdoor exertion	None	None
50	Good 0-50	None	None	None

* Measurements are in parts per billion (ppb). 85 ppb is the National Ambient Air Quality Standard (NAAQS) for “Unhealthy for Sensitive Groups.” 106 ppb is the NAAQS for “Unhealthy” category. Any 8-hour average greater than 85 ppb is considered harmful to the public health. Measurement information provided by Northern Sierra Air Quality Management District.

5. Pollution monitoring sites continuously record the levels of pollutants (ozone, PM10, PM2.5) at various locations within the Air Quality District as well as to the south and west of Nevada County. During 2002 at the Grass Valley monitoring site, there were 22 days with

exceedances of the 8-hour Federal Air Quality Standard for ozone. There were 80 hours on 20 separate days exceeding the State 1 hour Air Quality Standard for ozone.

6. The hot, stagnant days during July 2002 in the Broader Sacramento Area contributed to record high ozone levels as measured at the Grass Valley monitoring site. This ozone was later transported into the Air Quality District on the prevailing southwest winds.
7. According to the State Air Quality Board, Western Nevada County's impending designation as a Federal non-attainment area for ozone is a result of overwhelming air pollution transport from upwind (source) urban areas that include the Sacramento Valley and Bay areas.



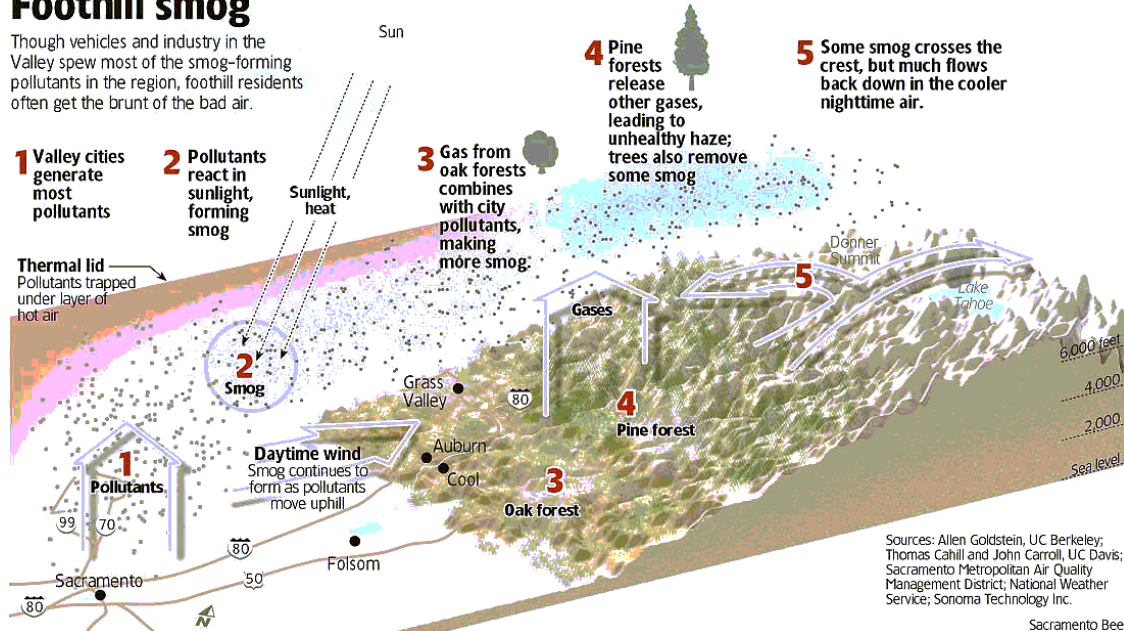
This graph shows ozone concentration over a two-day period, measured at three locations. The graph shows the transport of ozone from the upwind (source) areas of Sacramento and Folsom into the foothills of Nevada County. As the peak values decrease in the upwind (source) areas, the ozone level rises in the foothills blown in on the prevailing winds. Graph provided by Northern Sierra Air Quality Management District.

8. The State Air Resources Board opposes the EPA plan to make Western Nevada County part of the Sacramento ozone area. Nevada County and other downwind (destination) counties have their own pollution control agencies and have "air basins" distinct from their more urban counterparts.
9. Improvements in Western Nevada County air quality, with respect to ozone, will depend largely on the success of air quality programs in upwind (source) areas such as the Sacramento Valley and the Bay Area. (See source no. 2.)
10. Until the upwind (source) Broader Sacramento Area makes substantial gains in its ozone

precursor reduction program and State and Federal implemented control programs come into effect, the Air Quality District expects to see continued violations of both Federal and State air quality standards in Western Nevada County.

Foothill smog

Though vehicles and industry in the Valley spew most of the smog-forming pollutants in the region, foothill residents often get the brunt of the bad air.



Ozone transport - Air Pollutants generated in the Sacramento Valley are transported to the Nevada County foothills by the prevailing southwest winds causing ozone levels in Western Nevada County to exceed the national 8 hour air quality standard.

11. The Air Quality District reports that The Town of Truckee and Quincy currently exceed the State air quality standard for PM10 particulate matter. Wood stoves, open burning of all types, and windblown road sand/dust are the main sources of particulate matter causing violations within the district.
12. PM2.5 particulates are found in smoke from woodstoves and open burning within the county and from agricultural burning in the Sacramento Valley.
13. The Air Quality District has programs in place to mitigate vehicle exhausts, industrial/equipment emissions, particulate pollution, etc. The Air Quality District has supported the leaf-burning ordinance, green waste pickup, and has done educational outreach programs to residents and schools.
14. A small sampling of community programs supported and/or sponsored by the Air Quality District include the curbside greenwaste pickup, woodchipping, free compost bins, Master Composter program, the ban on leaf burning, woodstove change-out, purchase of Compressed Natural Gas (CNG) buses and low emission (Hybrid) vehicles, public air quality alerts, and a public "hot line." As an example, since the ban on leaf burning went into effect, the Air Quality District reports a 75% decrease in smoke-related health complaints.
15. The EPA is seeking to restructure air quality boundaries by folding Western Nevada County

into the six county Sacramento region non-attainment area, despite opposition by the State Air Resources Board.

16. The State Air Resources Board recognizes that portions of the Air Quality District exceed State Air Quality Standards due to transport of pollutants from upwind (source) areas. As a result, the state has designated Nevada County as non-attainment due to overwhelming transport of ozone from upwind (source) areas. As such, the Air Quality District is required to develop an Attainment Plan to maintain emissions from within the Air Quality District to levels below which violations would occur in the absence of the transport contribution.

CONCLUSIONS

1. The geography and topography of Western Nevada County, coupled with the prevailing winds, all work to cause Western Nevada County to periodically exceed the 8 hour air quality standard for ozone levels. Our high ozone levels are the result of transport from the Sacramento Valley and Bay areas by the prevailing southwest winds. The California Air Resources Board acknowledges this fact. Regardless of where the ozone originates, it ends up in the foothills of Western Nevada County and poses a real health hazard for County residents.
2. If nothing is done by the upwind (source) communities to mitigate ozone precursors in their areas, Nevada County can expect to experience more days in the future of unhealthy levels of ozone. Also, PM2.5 & PM10 particulate levels will increase over time due to our own production of smoke from wood stoves, widespread open burning, and agricultural burning in upwind (source) areas out of the County.
3. If Western Nevada County is folded into the Sacramento non-attainment area for ozone, the county will lose local control over existing air quality programs and will be subject to the penalties and sanctions levied on the Sacramento non-attainment area for exceeding air quality standards. It is preferable for Western Nevada County to be designated as a separate non-attainment area.
4. Designation as a Federal non-attainment area could result in loss of Federal highway funds and the imposition of other Federal sanctions.
5. Nevada County is on the horns of a dilemma. The Air Quality District is doing an admirable job to mitigate the levels of ozone and particulates that are generated from within the County. However, the County pollution levels periodically exceed the air quality standards for ozone and particulates due to transport from upwind (source) areas. As such, the County stands to be penalized for a situation over which it has no control, and County residents remain exposed to the health hazards of air pollution blown in on the winds. As noted previously in the presidential proclamation, common sense should prevail.

RECOMMENDATIONS

1. The Board of Supervisors (BOS) must continue to enlist the support of the California Air Resources Board and state and federal legislators to create Nevada County's own air pollution non-attainment district. Western Nevada County should be designated as its own non-attainment district with recognition by the EPA and California Air Resources Board that Western Nevada County is subjected to overwhelming transport ozone pollution from upwind sources in the Sacramento Valley area.
2. The BOS and legislators should oppose reduction in funds for the improvement of local district air quality.
3. The BOS should seek to establish additional ozone and continuous particulate monitoring sites, equipped with a full range of meteorological sensors, on the Western edge of Nevada County (Penn Valley or Lake Wildwood area). These monitoring sites would provide information about transport ozone and particulates blowing from the Sacramento Valley into Penn Valley, North San Juan, and areas North of the Yuba River.
4. The BOS and legislators must urge the EPA to limit any sanctions imposed on Nevada County to those addressing only the causative factors over which the county has some control or that actually improve air quality in our County.
5. The Air Quality District should continue their community programs that reduce pollutants, encourage vehicle trip reductions, reduce the need for open burning, and encourage woodstove change-outs.
6. The Air Quality District should continue the public awareness programs that illuminate the health risks due to long-term exposure to pollutants such as ozone and PM10, PM2.5 particulates.
7. The County Department of Transportation and Sanitation should continue working with the Air Quality District and CalTrans and The Town of Truckee to focus on transportation solutions for reducing vehicle generated emissions and road dust created by winter sanding.

REQUIRED RESPONSES

Board of Supervisors: June 24, 2004

Truckee Town Council: June 24, 2004

Northern Sierra Air Quality Management District: May 25, 2004