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NORTHERN SIERRA

AIR QUALITY

MANAGEMENT DISTRICT

ANNUAL

AIR MONITORING

REPORT

2005

Prepared by:

Staff of the Northern Sierra Air Quality Management District

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EXECUTIVE SUMMARY

Overall air quality in most areas of the Northern Sierra Air Quality Management District (NSAQMD or District) during 2005 was good. Ozone levels in the Broader Sacramento Area (BSA) were quite high at times and unfavorable winds blew those high ozone levels toward the Grass Valley area for numerous exceedance days. Air pollution transport impacts were, as is typical in the western foothill region of the Sierra Nevada, still significant. The NSAQMD is classified as being impacted by overwhelming transport from upwind areas. The primary source of the District's ozone pollution is from the BSA, and to a small degree the San Francisco Bay area. Due to a cool spring and a unusually warm July and August, Grass Valley experienced a very typical ozone year, albeit a bit on the cleaner side. In Grass Valley, there were only 20 days that exceeded the National 8-hour standard for ozone. Typically, we would expect to see 22 such days in Grass Valley.

On the few hot, stagnant days that did occur during 2005, the BSA was the major and primary contributor to the high ozone levels in Grass Valley. This ozone was transported into the District on the predominant southwest winds. There were only 20 days with exceedances of the 8-Hour National Ambient Air Quality Standards (NAAQS). Additionally, there were only 53 hours on 15 separate days exceeding the California Ambient Air Quality Standard (CAAQS) for ozone. 2005 was a very typical year.

Carbon Monoxide (CO) was not monitored during 2005 within the NSAQMD. However, CO was monitored within the District during the early months of 2004. Specifically, in response to the concerns of some citizens in Loyalton, the District did some short term CO monitoring. Ambient CO in Loyalton was found to be insignificant. This does not preclude the possibility of future CO monitoring studies both there and elsewhere within the District.

PM10 (particulate matter with an aerodynamic diameter of 10 microns or less), once the primary particulate of concern within the District, has been supplanted by PM2.5 (particulate matter with an aerodynamic diameter of 2.5 microns or less) as the pollutant of concern. The District operated 4 sites with PM2.5 samplers and 5 sites with PM10 samplers. Major contributors to both the PM10 and PM2.5 levels are woodstoves, forestry management burns, residential open burning, vehicle traffic and windblown dust. These problems can be relieved or exacerbated by meteorology, e.g. winds dispersing or temperature inversions concentrating air pollutants. The Truckee basin (aka the Martis Valley), Portola, and especially Quincy (located within the American Valley), are subject to strong inversions and stagnant conditions in the wintertime. Those conditions, coupled with intensive residential wood burning, can result in very high episode PM2.5 levels.

PM10 levels in Quincy were their highest in three years, but still well below the all-time high values of the early 1990s. In Quincy, county ordinance requires that when a residence is sold, any non-EPA-certified wood fired appliance must be either removed or rendered inoperable. It is up to the new owner to choose whatever source of heat he/she wants, as long as it is Environmental Protection Agency (EPA) certified and a Building Department-approved device. District staff conducts close-of-escrow Certificate of Compliance inspections. Additionally, residential open burning in the downtown area is completely banned, while burning is greatly curtailed within the outlying areas of the American Valley. The result of such controls has been marked, steady air quality improvement – a real air quality success story.

The Town of Truckee has recently enacted similar controls on woodstoves. The District has seen an increasing drop in particulate levels starting in 2000, unfortunately, those levels flattened out in

2003 and started to rise sharply in the last two years. Possible explanations are the weather and increased growth offsetting the gains of increased controls. The increased PM10 levels are very likely due in part to a more accurate reflection of actual PM10 levels as recorded by the new BAM. Additionally, the longstanding Wedding Hi-Volume sampler was replaced with an Andersen 1200 Hi-Volume sampler. Both the BAM and the Andersen show a dramatic increase in PM10 levels. However, PM2.5 levels continued to drop. A possible explanation for a reduction in fine particles versus an increase in coarse particles could be the reduction in combustion particles versus wind blown dust. Nevertheless, the PM10 levels are still much lower than those levels measured during the previous decade.

Tables 1 through 4 represent PM2.5 data collected utilizing Low-Volume Sampler technology. These samplers operate for one 24-hour period every three days on a schedule predetermined by the EPA. The District began operating 5 separate PM2.5 samplers at 4 locations in 1999. No exceedances of the NAAQS for PM2.5 have been observed, other than one wildfire related exceedance back in 2001 (see Table 2). EPA has discussed the abandonment of the existing PM10 standard in favor of the relatively new PM2.5 standard.

Tables 5 through 11 represent PM10 data collected utilizing High-Volume Sampler (Hi-Vol) technology. These samplers operate for one 24-hour period every six days on a schedule predetermined by the EPA.

Tables 12 through 14 represent PM10 values obtained utilizing TEOM technology. TEOM is an acronym for Tapered Element Oscillating Microbalance. The TEOM allows collection of PM10 data continuously, 24 hours per day, every day. This gives a level of resolution not previously available with the old technology used in Hi-Vol samplers. TEOM data will typically reveal more exceedances of the ambient air quality standards because data is obtained on an hourly basis as opposed to every six days with the Hi-Vol samplers. All three of these samplers were retired from service by August of 2003.

Table 15 represents PM10 values obtained utilizing BAM technology. BAM is an acronym for Beta Attenuation Mass. It is commonly called a BAM Monitor or just a BAM. BAMs can be used to measure either PM10 or PM2.5, depending on how the instrument is configured. Table 16 represents PM2.5 values obtained utilizing BAM technology. BAM data for Grass Valley and Quincy is very incomplete and is therefore not shown herein.

Tables 17 through 19 represent ozone data. Ozone (O_3) is the primary constituent of what is commonly referred to as smog. It is an oxidant that can irritate eyes, nose, throat and lungs and in relatively low concentrations can cause damage to vegetation. Ozone concentrations are typically quite low in the winter months but increase dramatically during the summer season. Ozone is classified as a secondary pollutant. This means that ozone is not directly emitted into the atmosphere by cars or factories but is produced by photochemical reactions between nitrogen oxides (NO_X) and reactive organic gases (ROG), referred to as "precursor pollutants". Ozone levels are influenced by many factors, such as local precursor pollutant levels, ozone transport from metropolitan areas, solar radiation duration and intensity, inversion heights and strengths, vertical mixing, and wind patterns. Obviously, weather plays an important role in ozone formation. Although weather typically doesn't *create* pollution, it certainly can *exacerbate* an existing pollution problem.

In summation there are four key points relevant to the NSAQMD's existing air quality:

1. The District's state and federal non-attainment status for ozone is due to overwhelming air pollution transport from upwind urban areas, i.e. the Sacramento and Bay areas.
2. Improvements in air quality, with respect to ozone, will depend largely on the success of air quality programs in upwind areas.
3. Anticipated growth in local population will add to locally generated pollution levels. Therefore, local mitigations are needed to prevent further long-term air quality degradations. Otherwise, the local contribution may increase to the point where the transport excuse will become less viable and more emphasis will then be placed on mandated local controls.
4. State and Federal Land Managers anticipate a marked increase in prescribed burning within the next 5 years. This may have a tremendous impact on local PM10 & PM2.5 levels, unless appropriate mitigations are employed.

BACKGROUND

The Northern Sierra Air Quality Management District (NSAQMD or District) Annual Air Monitoring Report is produced by the staff of the NSAQMD. This report is intended for use by a wide variety of government agencies, businesses, citizen groups and others. It is hoped that the quantity and detail of information will be sufficient for most persons and applications. If further information is required, please contact Joe Fish at (530) 274-9360, ext 103. A slightly more detailed version of this report can be viewed on our Website at: http://www.myairdistrict.com/

The NSAQMD is comprised of three contiguous, mountainous, rural counties in northeastern California. Those counties are Nevada, Sierra and Plumas. The NSAQMD is located within an air shed referred to as the Mountain Counties Air Basin (MCAB). Data for this report is only from that region under the jurisdiction of the NSAQMD. A brief profile of each county is provided below:

NEVADA COUNTY - Population: 100,227[\1] Area: 978 sq. miles
For further info see: http://www.dot.ca.gov/hq/tpp/offices/ote/forecast2005/Nevada%20Forecast.pdf or http://www.mynevadacounty.com/

SIERRA COUNTY - Population: 3,514[\1] Area: 959 sq. miles
For further info see: http://www.dot.ca.gov/hq/tpp/offices/ote/forecast2005/Sierra%20Forecast.pdf or http://www.sierracounty.ws/

PLUMAS COUNTY - Population: 21,557[\1] Area: 2,618 sq. miles
For further info see: http://www.dot.ca.gov/hq/tpp/offices/ote/forecast2005/Plumas%20Forecast.pdf or http://www.countyofplumas.com/

\1 - Source: California Department of Finance, Demographic Research Unit, Report E-2
www.dof.ca.gov/html/demograp/repndat.htm

AIR QUALITY ATTAINMENT STATUS

NSAQMD COUNTY ATTAINMENT DESIGNATIONS						
	NATIONAL			STATE		
	NEVADA	SIERRA	PLUMAS	NEVADA	SIERRA	PLUMAS
OZONE (1 hour)	A	A	A	N	U	U
OZONE (8 hour)	N\1	A	A	N	U	U
CARBON MONOXIDE	A	A	A	U	U	A
NITROGEN DIOXIDE	A	A	A	A	A	A
SULFUR DIOXIDE	A	A	A	A	A	A
PM10	U	U	U	N	N	N
PM2.5	U	U	U	U	U	N\2
	A - Attainment			N - Non-Attainment		
	U - Unclassified			n/a – not applicable		

\1 – Only *western* Nevada County is non-attainment for the 8 Hour standard.
\2 – Only the Portola Valley area is non-attainment for the State PM2.5 Annual standard.

For further info see: http://www.epa.gov/oar/oaqps/greenbk/
www.arb.ca.gov/desig/adm/adm.htm#state

The U.S. EPA has established the NAAQS as a way to protect the citizens of this country from harmful levels of air pollution. The standards are health based. When ambient air pollution exceeds these standards, regulatory mandates are placed in effect in an attempt to curtail the air pollution exceedances and protect the public health. The California Air Resources Board (CARB) has established the CAAQS for the very same reasons.

1997 saw the EPA promulgate two new air quality standards: the 8-hour average for ozone and the 24-hour average and annual arithmetic mean for PM2.5. The new standard took effect July 17, 1997. At this time EPA has not finalized attainment designations for the PM2.5 standard. 2005 saw the adoption of the 8-hour CAAQS (0.070 ppm).

THE 8-HOUR OZONE STANDARD

There is now both a National and State 8-hour ozone standard. These standards are based on research that shows significant adverse health effects from chronic exposure to relatively low levels of ozone. The long-time 1-hour NAAQS for ozone has been supplanted by the 8-hour standard in those areas already in attainment of the 1-hour standard. The 8-hour standard is a rolling 8-hour average. Any 8-hour average greater than 8.5 pphm is considered harmful to the public health. Since the NSAQMD is a downwind receptor and all of its exceedances are due to transport, it is expected and has been shown that there will be many exceedances of the ozone NAAQS and CAAQS in the years to come. In April of 2004 the EPA designated western Nevada County as “Basic” non-attainment for the 8-hour standard (CAA, Title I, Part D, Subpart 1). The full consequences of this new designation are yet to be determined, but no doubt some additional regulatory mandates will be placed on the regulated community in western Nevada County. 2005 saw the adoption of the 8-hour CAAQS (0.070 ppm).

THE PM2.5 STANDARD

Currently, the NSAQMD operates seven PM2.5 samplers at four different locations. The samplers are located in Grass Valley, Quincy, Portola and Truckee. Two FRM samplers are co-located in Truckee and Portola operates an FRM, a BAM and a SASS sampler. Sampling began in the first quarter of 1999. All wood burning communities could register violations of the NAAQS and CAAQS for PM2.5, but Truckee and Portola appear to be the most vulnerable. The consequences of such violations are yet to be determined. The 24-hour standard is 65 µg/m3 for both the CAAQS and the NAAQS and the annual arithmetic mean standard is 15 µg/m3 for the NAAQS and 12 µg/m3 for the CAAQS.

TRANSPORT -- THE NATURE OF THE PROBLEM

Transport: The movement of pollutants from an upwind area to a downwind area.

The CARB has identified 3 regions as upwind areas contributing pollutants to the Mountain Counties Air Basin (MCAB): the Broader Sacramento Area (BSA), the San Joaquin Valley Air Basin (SJVAB) and the San Francisco Bay Area Air Basin. The SJVAB contributes little if any to the NSAQMD portion of the MCAB. The CARB has classified the MCAB as non-attainment by virtue of overwhelming transport from the BSA and SJVAB for the pollutant ozone. Overwhelming transport means that violations of the CAAQS occurred in the downwind area that would not occur in the absence of transport.

There are three techniques used to assess the transport of air pollutants based upon the available data: photochemical grid modeling, meteorological data analysis, and air quality data analysis.

Photochemical Grid Modeling uses mathematical models to simulate the physical and chemical mechanisms that produce ozone in the atmosphere. Because of the expense and difficulty associated with topography, no model currently exists. Therefore, the NSAQMD does not have this tool.

Meteorological Data Analysis uses 9 different variables to determine and support a transport conclusion. These variables are:

1. Analysis of surface winds - the use of hourly surface wind speed and direction data to establish whether the surface airflow could transport pollutants from upwind to downwind areas;
2. Analysis of winds aloft - the use of winds aloft data to establish whether the surface air flow could transport pollutants from upwind to downwind areas;
3. Calculation of estimated transport time - computed by dividing the distance between the upwind and downwind areas by the mean wind speed;
4. Review of daily streamline analysis - use of wind data to generate lines drawn parallel to plotted wind directions, which depict airflows of differing scales throughout most of California;
5. Review of surface airflow types - analysis of streamline patterns that have been classified into surface airflow patterns by wind direction;
6. Trajectory analysis - a pictorial technique that estimates the path an air parcel took over a specified period of time;
7. Surface pressure gradient analysis - method used to estimate the strength and direction of the wind over an area when wind data is missing. A pressure gradient is the difference in surface atmospheric pressure at two sites divided by the horizontal distance between the two sites;
8. Presence of the marine layer - the marine layer is confined to coastal settings, therefore, this variable is not considered in the MCAB;

9. Review of the daily maximum temperature - this technique is used to estimate how far inland the marine air may have penetrated during the day, again, not applicable in the MCAB.

Air Quality Data Analysis uses 7 different variables to determine and support a transport conclusion. These variables are:

1. Analysis of the geographic extent of exceedances - analysis of the size and shape of the area(s) exceeding the state ozone standard to obtain some information about the source of the ozone and precursors contributing to the exceedances;
2. Analysis of the exceedances as extreme concentrations - analysis of all exceedances in the downwind area to determine if the concentrations were extreme as defined in the CCR, Title 17, §70300. An extreme concentration is a concentration that is statistically expected to recur less frequently than once every year;
3. Estimating the source of emissions based on time of daily maximum ozone concentration - if maximum ozone concentrations occur between 11 A.M. and 2 P.M. transport is less likely, maximum concentrations outside those hours make transport more likely;
4. Similarity of daily maximum ozone concentrations - similar daily maximum concentrations may indicate that the same air mass had affected both upwind and downwind areas;
5. Review of the hour of the daily maximum ozone concentration - a review of the progression of the daily maximum ozone concentration along a potential transport path to identify the potential transport of ozone from an upwind area to a downwind area;
6. Time series analysis - involves plotting the hourly concentrations of ozone for a three day period centered on the exceedance day to determine similarities between the upwind and downwind areas;
7. Comparison of ozone precursor emissions in the upwind and downwind areas - analysis done using the ARB emission inventory to determine the magnitude of ozone precursor emissions in the upwind and downwind areas.

There are many factors that must be considered when trying to make a determination of transport. In summation, meteorology and the amounts of pollutants emitted in the upwind area govern the amounts of pollutants transported to downwind areas.

In an ARB staff report from June, 1993, titled "Assessment and Mitigation of the Impacts of Transported Pollutants on Ozone Concentrations in California", staff determined that the contribution from the BSA emissions to all exceedances of the state ozone standard in the NSAQMD was overwhelming. This conclusion was based on a thorough analysis of 39 exceedance days during the period of 1989 through 1991.

On November 21, 1996, ARB amended its transport mitigation regulation, which has identified the Sacramento area as overwhelmingly causing exceedances of the CAAQS in the NSAQMD. Transport of pollution from the BSA into the NSAQMD portion of the MCAB continues to be the primary reason for exceedances of the CAAQS and NAAQS within the NSAQMD. However, as population, industry, and motor vehicle travel grows in the NSAQMD, the transport excuse becomes less viable if emissions are allowed to grow unmitigated.

ANALYSIS OF OZONE EXCEEDANCES DURING 2005

During 2005 Grass Valley experienced 15 days where ozone values exceeded the CAAQS 1-hour standard and 20 days where ozone values exceeded the NAAQS 8-hour standard. Overall, air quality in western Nevada County was much like in previous years, with only 5.1% of the total sample days being in the Unhealthy for Sensitive Individuals range and a heartening 75.8% of the total sample days being in the Good range.

AIR QUALITY INDEX VALUES FOR GRASS VALLEY, 2005 **HOURS**

Total hours in a 2005: *8760*

	GOOD	MODERATE	Unhealthy for Sensitive Individuals	UNHEALTHY	VERY UNHEALTHY	HOURS SAMPLED
JAN	599	0	0	0	0	599
FEB	594	0	0	0	0	594
MAR	744	0	0	0	0	744
APR	716	4	0	0	0	720
MAY	704	29	11	0	0	744
JUN	642	78	0	0	0	720
JUL	327	319	82	16	0	744
AUG	359	356	29	0	0	744
SEP	542	166	12	0	0	720
OCT	699	45	0	0	0	744
NOV	679	0	0	0	0	679
DEC	744	0	0	0	0	744
Total Sample Hours:	7349	997	134	16	0	8496
% of hours sampled:	86.5%	11.7%	1.6%	0.2%	0.0%	97.0%

AIR QUALITY INDEX VALUES FOR GRASS VALLEY, 2005 **DAYS**

Total days in a 2005: *365*

	GOOD	MODERATE	Unhealthy for Sensitive Individuals	UNHEALTHY	VERY UNHEALTHY	DAYS SAMPLED
JAN	26	0	0	0	0	26
FEB	25	0	0	0	0	25
MAR	31	0	0	0	0	31
APR	29	1	0	0	0	30
MAY	27	2	2	0	0	31
JUN	20	10	0	0	0	30
JUL	5	15	9	2	0	31
AUG	6	21	4	0	0	31
SEP	16	11	3	0	0	30
OCT	25	6	0	0	0	31
NOV	29	0	0	0	0	29
DEC	31	0	0	0	0	31
Total Sample Days:	270	66	18	2	0	356
% of days sampled:	75.8%	18.5%	5.1%	0.6%	0.0%	97.5%

The NSAQMD believes all of the Grass Valley ozone exceedances were due to transport from the Broader Sacramento Area (BSA) and the San Francisco Bay area. Undoubtedly there was some local contribution involved with those exceedances, but based on the NSAQMD emissions inventory, that contribution was less than significant. In the absence of transport, it is unlikely that the Grass Valley area would ever experience an exceedance of the CAAQS 1-hour standard or the NAAQS 8-hour standard.

In 2003 the District fought a protracted battle with the EPA to get them to recognize western Nevada county as a non-attainment area separate from the Sacramento region. EPA's ultimate recognition of western Nevada county's non-attainment status due to overwhelming transport was a major victory for the NSAQMD and local businesses. This finding was made in accordance with CARB's own recommendations and major input from myriad counties and agencies.

TRANSPORT AND PARTICULATES

PM10 and PM2.5 exceedances of the ambient air quality standards appear to be generated locally by woodstoves, open burning, vehicle traffic induced dust entrainment and windblown dust. The exception to this is the transport of smoke from wildfires and agricultural burning in the Sacramento Valley during late summer and fall days. Smoke from the Sacramento Valley has consistently contributed to elevated particulate levels measured on the formerly operated TEOM PM10 sampler located in Grass Valley during the agricultural burning season. It is difficult to quantitatively determine the exact extent of that contribution, but it is believed to be significant. An additional source of particulate is from prescribed fires. Smoke from prescribed fires can travel long distances. For example, on October 19, 1997 smoke from a USFS control burn inundated the western slope of the Sierras from Stanislaus County northward as far as Butte County. One-hour values as high as 105 µg/m3 were recorded in Grass Valley. The NSAQMD received 15 smoke complaints and the California Department of Forestry Command Center received dozens of smoke complaints within an 8-hour period. Local pilots observed smoke at altitudes as high as 8000 feet. An especially egregious incident occurred in Portola in early December of 2005. Smoke from a USFS underburn inundated the city of Portola, resulting in PM2.5 levels so high as to be almost 3 times the National standard. On December 5 the 24-hour average was 180 µg/m3 and the 6 A.M. value was a mind-boggling, lung-clogging 386 µg/m3. *(Note: the USFS has denied culpability in this incident.)* Additionally, smoke from woodstoves in the high mountain communities tends to stay within their various small valleys during stagnant conditions.

AIR QUALITY TREND ANALYSIS

There are many variables that can cause year-to-year variations in monitored pollutant levels, for example: weather, wildland fires, sampling frequency, upwind weather patterns, upwind emissions inventory, etc. Identifying air quality trends can be a difficult matter with a small database of representative years. The accuracy of our trend analysis grows with each year of data.

Ozone - Grass Valley (Table 17)

Analysis of the thirteen years of data allows us to make some solid observations. During the last thirteen years the number of days with violations of the CAAQS and NAAQS has increased during hot summers and decreased somewhat during cooler summers, and the annual hourly mean appears to show some upward movement, although 2004 proved to be an exception to the trend. In 1993 there were only six days with exceedances of the CAAQS and no days with exceedances of the NAAQS, in 1995 there were 2 exceedances of the NAAQS, in 1996 there were 20 days with exceedances of the CAAQS. The El Niño effect may have lowered exceedance days in 1997 and 1998 to 8 and 12, respectively. It is interesting to note that the annual hourly average increased in

1997 despite the reduced exceedance days. The BSA experienced some very hot and stagnant days during the periods of exceedances in Grass Valley and the transported pollutants clearly impacted this area. 1999 set a record for days with exceedances of the 1-hour CAAQS and 8-hour NAAQS, much of it due to the influence of the many wildfires in nearby counties. Overall, the year 2003 shows relatively moderate levels of ozone, very similar to 2001 and 2002.

In 2003 the maximum 8-hour average was less than in 2002, but there was an 8.9% increase in the number of separate 8-hour averages exceeding the NAAQS. This was in all likelihood due to the weather in 2003 more than any increase in precursor pollutants. There were also 20 separate days with exceedances of the State 1-hour standard and of 75 separate hours exceeding 9.5 pphm. Although during 2004 ozone values in Grass Valley were at their lowest in years, this was most likely due to favorable weather conditions. Urban areas throughout California and much of the US also experienced record low ozone levels.

Although July and August in 2005 were slightly warmer than in a typical year, resulting in numerous ozone exceedances, those warm months were offset by the cooler than typical months of April, May, June, September and October. Cooler temperatures typically result in fewer ozone exceedances.

Long Term Outlook: Although efforts are being made to reduce the emissions inventory in the upwind BSA and downwind Grass Valley area, those reductions are largely offset by increases in population and vehicle miles traveled. Until the upwind BSA makes substantial gains in its precursor reduction program and State and Federally implemented control programs come into effect, we expect to see continued violations of both the NAAQS and CAAQS with some variability due to weather from year to year.

Ozone – Truckee (Table 18)

The existing fourteen years of data reveals no exceedances of the NAAQS and only one exceedance of the CAAQS. In 1996 we recorded our highest single one-hour value to date in Truckee. As shown in Table 18, this exceedance was due to a significant and singular incursion of smoke from a wildfire northeast of Truckee. Wildfires create significant amounts of hydrocarbons and oxides of nitrogen. These precursors combined with high temperatures and extended periods of solar radiation have the potential to form high ozone levels in areas that would not normally see such levels.

2005 turned out to be a fairly typical ozone year for Truckee, with the hourly average appearing higher than in previous years because of the absence of data during the low ozone months of November and December. The missing data was the result of an expensive air pump burning out.

Long Term Outlook: Ozone values in Truckee will most likely remain as they have been for the last 9 years, with the possibility of an upward creep as continued growth contributes to the local precursor levels. No doubt we may see the rare exceedance of the NAAQS or CAAQS, most likely due to wildfire smoke incursions or transported pollutants from the BSA or Reno, Nevada.

Ozone – Quincy (Table 19)

2005 showed some of the lowest ozone levels to date in Quincy. For the last 5 years of monitoring Quincy has had an annual hourly average lower than Truckee’s. This is a reversal of an historical trend. Quincy has been creeping down as Truckee has been creeping up. Quincy has not had an exceedance of the State 1-hour standard in 8 years. To date Plumas County has been unclassified in its attainment status for ozone. Based on the last 8 years of data the CARB should officially designate Plumas County attainment for ozone sometime before the year 2050 *(don't hold your breath!)*.

Long Term Outlook: We expect ozone values in Quincy will remain at the previous 6 year historical levels with a slim possibility of one exceedance of the CAAQS per year. If any exceedances are observed in the future, transport from the BSA will most likely play a role. In light of the ozone events in 1994 through 1996, Quincy air quality continues to need the close attention of the NSAQMD.

PM10 - Grass Valley (Tables 5, 12)

There were no PM10 samplers located in western Nevada County between August of 2003 through October of 2004. The one Hi-Volume sampler that operated within the Grass Valley city limits was shutdown permanently in July of 2000. The District did install a BAM in the Grass Valley area in October of 2004. Unfortunately, because of the complex terrain and resulting microclimates, it is very difficult to collected PM10 data that is representative of the Grass Valley area. The 12 years of Hi-Vol data collected at the downtown site showed a steady improvement in the annual geometric mean. This same improvement is not so evident with the twelve years of TEOM data. Numerous days with significant wildfire smoke incursions resulted in some of the highest PM10 values ever-recorded in Grass Valley during 1999. All nine exceedances of the CAAQS in 1999 were directly attributable to smoke transported into the foothill region from wildfires in Northern California. 2003 was one of our cleanest years to date, but because of the regrettable termination of the TEOM 2003 was also a non-representative year. Table 12 tells the story. 2005 was the first representative year of BAM data in Grass Valley. The BAM data shows the PM10 values to be at or near an historical low.

Long Term Outlook: It is expected that with continued, and possibly increased prescribed fire activity, PM10 levels could increase during years when weather is less conducive to good smoke dispersion. The anticipated increases in prescribed burning have the potential to wreak havoc on air quality in the foothill region. Although the much anticipated increases in prescribed burning have been forecasted for some years now, no real increases in prescribed burning have been observed.

PM10 – Truckee (Tables 6, 8, 13)

There are currently two PM10 samplers within the city limits of the Town of Truckee. They are located at the fire station in downtown Truckee. The Town of Truckee is located predominantly within a region known as the Martis Valley. Two PM2.5 samplers, added in late March of 1999, are also located at the same fire station. The PM10 High Volume sampler located in Glenshire was terminated in July of 2000. We do not anticipate reactivating that sampler in the near future.

Glenshire: Eight and a half years of Hi-Vol data shows some improvement in air quality. There has been a slight, gradual decrease in the annual geometric mean, the highest 24-hour concentration, and the number of exceedances of the CAAQS. This may be due to consecutive wet winters and / or the increased use of natural gas as a heating fuel. There were no recorded exceedances of the CAAQS in 2000. Sampler was shutdown in July of 2000.

Fire Station: Fifteen years of Hi-Vol data show some improvement in PM10 levels, specifically during the early part of this century, however, PM10 took a dramatic upward swing in 2004 and 2005. Twelve years of TEOM data showed Truckee air quality has been quite poor but has improved greatly since 2000. The TEOM recorded only 4 exceedances of the CAAQS in 2003, but the data for the year was incomplete. In September the District retired the TEOM and replaced it with a BAM. The BAM recorded 3 exceedances of the CAAQS during the months of October, November and December of 2003. In 2004 the BAM recorded 48 days exceeding the State 24-hour standard, and 32 such days in 2005. There were no recorded exceedances of the PM2.5 NAAQS.

Long Term Outlook: Considering projected population increases coupled with increasing local mitigation efforts, the District expects to see continued poor air quality with some potential for a slowing or even a reversal of the current problem. The anticipated increases in prescribed burning pose a serious threat to an air shed already overburdened with a variety of particulate matter sources. The threat of federal non-attainment is real. Increased effort should be made to mitigate and eliminate particulate sources within the Martis Valley. The anticipated increases in prescribed burning have the potential to overwhelm all existing particulate mitigation efforts currently in place. Expected rising particulate levels from increased open burning may only be offset slightly from the increased use of natural gas as a heating fuel in the Truckee area. It should be noted that the anticipated increase in prescribed burning has yet to materialize, but there is still a chance that such an increase may occur within the next 5 – 10 years.

PM10 – Quincy (Tables 11, 14)

Excluding wildfires, 2005 saw the highest number of exceedances of the CAAQS since 1995 on the continuous PM10 sampler. The Hi-Volume sampler recorded only 1 exceedance of the CAAQS during the same period. There were no continuous PM10 data recorded in Quincy during 2004. The High Volume PM10 sampler in Quincy recorded 0 exceedances of the CAAQS in 2004.

There are now two PM10 samplers located in Quincy. One is a BAM sampler and the other is a CARB - owned, District - operated Hi-Vol sampler. A PM2.5 sampler was added in early 1999. Almost twelve years of TEOM data show air quality has improved dramatically in the Quincy area. The TEOM was retired from service in August of 2003 as it had reached the end of its useful life. The TEOM was replaced with a BAM during the fall of 2004. The highest 24 hour concentration recorded in 2004 was a 49 ug/m3 on the Hi-Volume sampler. Despite the possible aberration 2005 data might represent, it appears that the efforts made by the NSAQMD and Plumas county in Quincy over the last 14 years have really paid off. The NSAQMD considers Quincy to be a real air quality success story.

Long Term Outlook: Since Quincy is making multiple efforts to clean up their local air, through banning open burning and upgrading non-EPA certified woodstoves, it seems very likely that air quality will improve over the next 5 - 10 years, if population growth doesn't negate the current trend. This positive trend could be reversed if the anticipated increases in prescribed burning become a reality. Increased oversight of the U.S. Forest Service prescribed burning program by the NSAQMD will take on a new urgency. The anticipated increases in prescribed burning have the potential to overwhelm all existing particulate mitigation efforts currently in place.

PM10 – Loyalton (Table 9)

There is one Hi-Vol sampler located behind the Loyalton Hospital adjacent to the Loyalton High School Agricultural area. The sampler was turned off in July 2000 and was re-activated in July 2001.

It should remain in service for many years to come. Over the last thirteen years this site has averaged almost 4 exceedances of the CAAQS per year. 2005 was a typical year for Loyalton with only 4 exceedances of the CAAQS. At this point in time no discernible pattern has surfaced for this site, though there is some indication that air quality has improved somewhat, most likely due to wet winters. Some exceedances have occurred in the summer, some in the winter. Some violations were clearly due to nearby wildland fires and local agricultural operations. Loyalton air quality appears to be stabilized.

Long Term Outlook: In January of 2001 the Sierra Pacific Industries lumber mill in Loyalton shut down, most likely forever. The 15 – 20 tons of PM10 no longer emitted by the mill each year will probably not be noticed by the PM10 sampler. If we see any reduction in PM10 levels it will probably come from reduced woodstove use when laid-off workers move away. Other factors remaining constant, the PM10 levels in Loyalton will remain fairly consistent with past years. A recent development that could produce a small increase in ambient PM10 levels is the renewed interest in Loyalton as a bedroom community for Reno and Truckee.

PM10 – Chester (Tables 10, 15)

The one Hi-Vol sampler located near the downtown area of Chester was removed from Chester in January, 2004. Due to the excellent correlation between the Hi-Vol and the BAM we now rely solely on the BAM for our Chester PM10 data. Fourteen years of data show air quality may be improving slightly. The apparent trend toward an improvement in Chester air quality may be the result of recent wet years in Northern California. The Chester BAM recorded six exceedances of the CAAQS during 2005, however, the annual arithmetic mean was close to Chester’s all-time low at 20.4 µg/m3.

Long Term Outlook: It is the District’s best guess that annual PM10 levels in Chester will probably begin to slowly rise as more people move into the Chester area. The greatest increases in PM10 levels will most likely be realized in 1 to 5 years with the anticipated increases in prescribed burning. The NSAQMD stands ready to monitor and document these increases. The anticipated increases in prescribed burning have the potential to overwhelm all existing particulate mitigation efforts currently in place.

PM10 – Portola (Table 7)

In 1995 the NSAQMD began monitoring PM10 in the downtown area of Portola at the request of the city council. Portola was second only to Truckee in its high levels of particulate matter, but has now surpassed Truckee. With only 5 ½ years of data there is no discernible trend, but it is likely that PM10 levels will remain consistently high if no efforts are made to mitigate the existing problem. The sampler was turned off in July of 2000, and will not be re-activated. A PM2.5 sampler was added to this location in early 1999. Additionally, a PM2.5 BAM was added to this site in late 2002.

Long Term Outlook: As far as PM10 goes there is no long-term outlook because we no longer monitor for that pollutant (*see PM2.5*)

ANALYSIS OF PM2.5 DATA (Tables 1 – 4, 16)

PM2.5 is Particulate Matter 2.5 microns in diameter or less. It is the newest pollutant added to the current list of pollutants in the NAAQS. PM2.5 particles are highly respirable and are considered by EPA to play a role in the premature deaths of thousands of individuals each year in the U.S. The sources of PM2.5 are as varied as those for PM10, but are believed to be primarily from combustion sources. There is some discussion at EPA of retiring the NAAQS for PM10, and allowing PM2.5 to be the primary particulate pollutant of concern. If that happens, the Air District will convert all of its PM10 samplers to PM2.5 samplers.

As one can see from Tables 1 - 4, when the wildfire values are excluded only Portola comes close to having the potential to exceed one of the PM2.5 standards. But this is just seven years of data, and somewhat incomplete at that. Another three years of sampling should allow us to draw some solid conclusions about the status of PM2.5 pollution within the District. There was minimal impact from wildfires at all of the PM2.5 sites during 2005. However, there was a significant smoke event in Portola during early December that was the result of a U.S. Forest Service control burn. We continue to watch Portola closely and we have already disbursed tens of thousands of dollars to local Portola residents for woodstove changeouts as part of an ongoing effort to reduce ambient PM2.5 levels.

RECOMMENDATIONS FOR FUTURE MONITORING

It is the intent of the District to make decisions based on reliable, factual information. The more data gathered, the more reliable the interpretation of the data, the more likely a sound, reasonable decision can be made. It is the desire of the NSAQMD to make reasonable decisions based on reliable information collected using an approved, standard methodology. Considering all of the aforementioned, it is the position of the NSAQMD air monitoring staff that the current air monitoring network needs some improvement in quantity and quality of data collected. The recommendations are:

- All sites should be equipped with a full range of meteorological sensors, specifically: wind speed and direction, temperature, relative humidity, precipitation and barometric pressure. This data will help us identify exceedances that are due to transport, identify correlations between particulate levels and precipitation, and what role atmospheric stability plays in pollution concentrations. Meteorological data will also be helpful in predicting the Air Quality Index.

This concludes the text portion of the Annual Air Monitoring Report. The following pages contain the tables and graphs from most of the data collected by the Northern Sierra Air Quality Management District. The final two pages are the National and State Ambient Air Quality Standards for all current criteria pollutants.

PM2.5 SAMPLER DATA

Table 1 Grass Valley – Litton Building

	ANNUAL ARITHMETIC MEAN	MAXIMUM 24 HOUR CONCENTRATION	EXCEEDANCE OF ANNUAL NAAQS?	DAYS EXCEEDING 24 HOUR NAAQS
1999	7.3 / 6 \1	31 / 13 \1	No	0
2000	6.2	26.8	No	0
2001	6.1 / 5.9 \1	24.8 / 15 \1	No	0
2002	6.5	23	No	0
2003	5.7	12	No	0
2004	4.7	17	No	0
2005	4.8	10	No	0
\1 - Value modified to exclude Wildfires and other Exceptional / Natural Events				

Table 2 Truckee – Fire Department

	ANNUAL ARITHMETIC MEAN	MAXIMUM 24 HOUR CONCENTRATION	EXCEEDANCE OF ANNUAL NAAQS?	DAYS EXCEEDING 24 HOUR NAAQS
1999	11.4	50	No	0
2000	8.7	23	No	0
2001	9.2 / 8.3 \1	120 / 30 \1	No	1 / 0 \1
2002	7.7	19	No	0
2003	7.14	20	No	0
2004	6.73	28	No	0
2005	6.74	35	No	0
\1 - Value modified to exclude Wildfires and other Exceptional / Natural Events				

Table 3 Quincy – Pump Station

	ANNUAL ARITHMETIC MEAN	MAXIMUM 24 HOUR CONCENTRATION	EXCEEDANCE OF ANNUAL NAAQS?	DAYS EXCEEDING 24 HOUR NAAQS
1999	14.9 / 10.3 \1	92 / 29 \1	No	1 / 0 \1
2000	10.3	42	No	0
2001	11.1	49	No	0
2002	10.2	56	No	0
2003	7.3	36	No	0
2004	8.4	30	No	0
2005	9.3	34	No	0
\1 - Value modified to exclude Wildfires and other Exceptional / Natural Events				

Table 4 Portola – Nevada St.

	ANNUAL ARITHMETIC MEAN	MAXIMUM 24 HOUR CONCENTRATION	EXCEEDANCE OF ANNUAL NAAQS?	DAYS EXCEEDING 24 HOUR NAAQS
1999	14.8 / 13.7 \1	70 / 46 \1	No	1 / 0 \1
2000	14.5	57	No	0
2001	14.5	58	No	0
2002	13.0	41	No	0
2003	13.4	43	No	0
2004	12.3	44	No	0
2005	10.7	60	No	0
\1 - Value modified to exclude Wildfires and other Exceptional / Natural Events				

AMBIENT AIR QUALITY STANDARDS FOR PM2.5:

NATIONAL: 24 Hour Average: 65 µg/m3
Annual Arithmetic Mean: 15 µg/m3

CALIFORNIA: 24 Hour Average: No separate state standard
Annual Arithmetic Mean: 12 µg/m3

PM10 HI-VOLUME SAMPLER DATA

Table 5 Grass Valley - Henderson St. (Permanently Shutdown)

	ANNUAL GEOMETRIC MEAN	HIGHEST 24 HOUR CONCENTRATION	DAYS EXCEEDING CAAQS	DAYS EXCEEDING NAAQS
1988	26.4	116\1	2	0
1989	21.7	61	2	0
1990	22.9	52	2	0
1991	23.6	43	0	0
1992	23.9	52	1	0
1993	21.1	42	0	0
1994	21.7	54	1	0
1995	18.5	63	1	0
1996	14.8	35	0	0
1997	14.1	35	0	0
1998	12.5	43	0	0
1999\2	16.7	42	0	0

\1 - 49er FIRE, September
\2 - Represents only the months of May, November and December. Sampler was permanently removed in 2000.

Table 6 Glenshire Fire Station (Permanently Shutdown)

	ANNUAL GEOMETRIC MEAN	HIGHEST 24 HOUR CONCENTRATION	DAYS EXCEEDING CAAQS	DAYS EXCEEDING NAAQS
1992	35.3	94	13	0
1993	36.1	119	9	0
1994	31.6	107	9	0
1995	31.0	67	8	0
1996	26.6	79	8	0
1997	24.9	78	7	0
1998	22.0	92	3	0
1999	22.5	84	2	0
2000\1	19.5	57	1	0

\1 – represents 6 months of data, January thru June. Sampler was permanently removed in 2000.

Table 7 Portola (Permanently Shutdown)

	ANNUAL GEOMETRIC MEAN	HIGHEST 24 HOUR CONCENTRATION	DAYS EXCEEDING CAAQS	DAYS EXCEEDING NAAQS
1995	35.1	72	9	0
1996	31.9	101	9	0
1997	30.0	103	9	0
1998	32.4	79	9	0
1999	34.1 / 33.8 \1	100	11 / 10 \1	0
2000\2	33.1	78	4	0

\1 - Value modified to exclude Wildfires and other Exceptional / Natural Events
\2 - represents 6 months of data, January thru June

AMBIENT AIR QUALITY STANDARDS FOR PM10:

NATIONAL: 24 Hour Average: 150 µg/m3
Annual Arithmetic Mean: 50 µg/m3

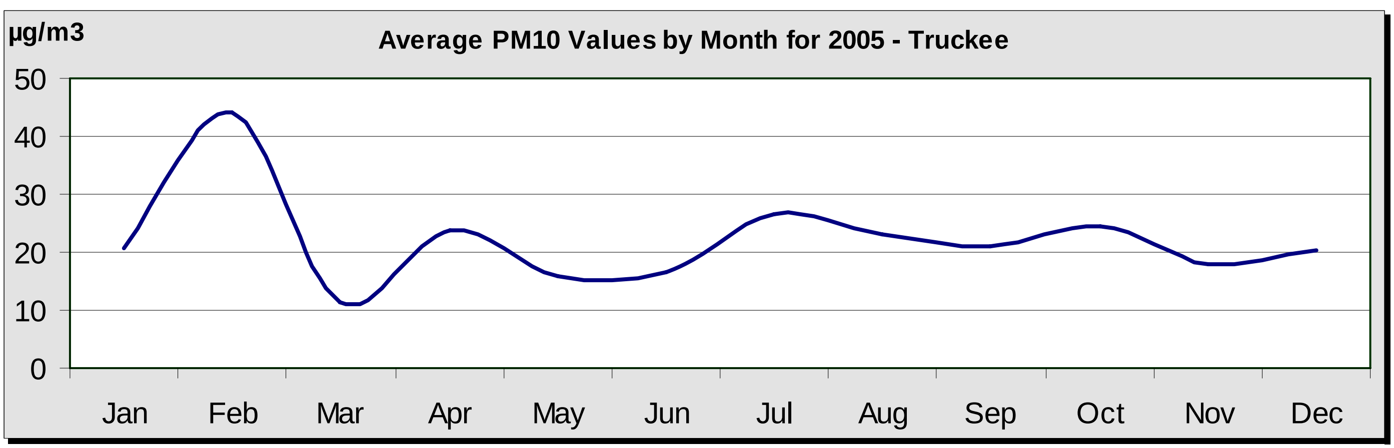
CALIFORNIA: 24 Hour Average: 50 µg/m3
Annual Arithmetic Mean: 20 µg/m3

PM10 HI-VOLUME SAMPLER DATA

Table 8 Truckee Fire Station

	ANNUAL ARITHMETIC MEAN	HIGHEST 24 HOUR CONCENTRATION	DAYS EXCEEDING STATE STANDARD	DAYS EXCEEDING NATIONAL STANDARD
1988	33.8	97	13	0
1989	30.2	91	6	0
1990	32.1	112	14	0
1991	33.4	110	15	0
1992	32.4	138	9	0
1993	40.8	145	9	0
1994	37	119	10	0
1995	34	95	9	0
1996	28	80	7	0
1997	31.7	136	11	0
1998	24.7	71	4	0
1999	27.9	82	6	0
2000\1	22.6	49	0	0
2001	**Sampler was not operated during 2001.**			
2002\2	19.6	35	0	0
2003	20.1	64	1	0
2004\3	28.6	78	10	0
2005	26.5	150	4	0

\1 – Represents 6 months of data, January thru June. Sampler was removed from service in July, 2000.
\2 – Sampler was put back into service May, 2002.
\3 – Wedding sampler was removed and all of 2004 data is from an Andersen 1200 Hi-Volume Volumetric Sampler



AMBIENT AIR QUALITY STANDARDS FOR PM10:

NATIONAL: 24 Hour Average: 150 µg/m3
Annual Arithmetic Mean: 50 µg/m3

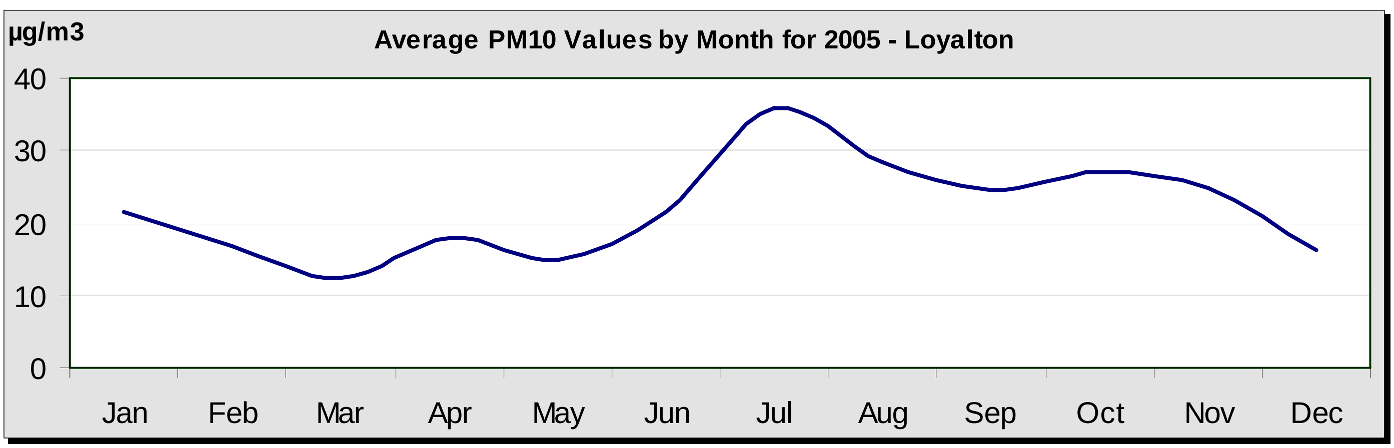
CALIFORNIA: 24 Hour Average: 50 µg/m3
Annual Arithmetic Mean: 20 µg/m3

PM10 HI-VOLUME SAMPLER DATA

Table 9 Loyalton

	ANNUAL ARITHMETIC MEAN	HIGHEST 24 HOUR CONCENTRATION	DAYS EXCEEDING CAAQS	DAYS EXCEEDING NAAQS
1991	23.7	78	3	0
1992	29.3	85	7	0
1993	28.2	79	6	0
1994	31.9	85	9	0
1995	27.7	70	3	0
1996	29.3	116 \2	5	0
1997	31.8	93 \3	5	0
1998	22.8	60 \3	3	0
1999	25	68 \3	2	0
2000\4	19.3	39	0	0
2001\5	34.4	101 / 59\1	4 / 3\1	0
2002	27	167 / 60\1	6 / 3\1	1 / 0\1
2003	22.4	61	1	0
2004	23.9	60	2	0
2005	25.6	71	4	0

\1 - Value modified to exclude Wildfires and other Exceptional / Natural Events
\2 – Due to windblown dust. \3 – Due to nearby agricultural operation.
\4 - represents 6 months of data, January thru June \5 - represents 6 months of data, July thru December



__AMBIENT AIR QUALITY STANDARDS FOR PM10__:

NATIONAL: 24 Hour Average: 150 µg/m3
Annual Arithmetic Mean: 50 µg/m3

CALIFORNIA: 24 Hour Average: 50 µg/m3
Annual Arithmetic Mean: 20 µg/m3

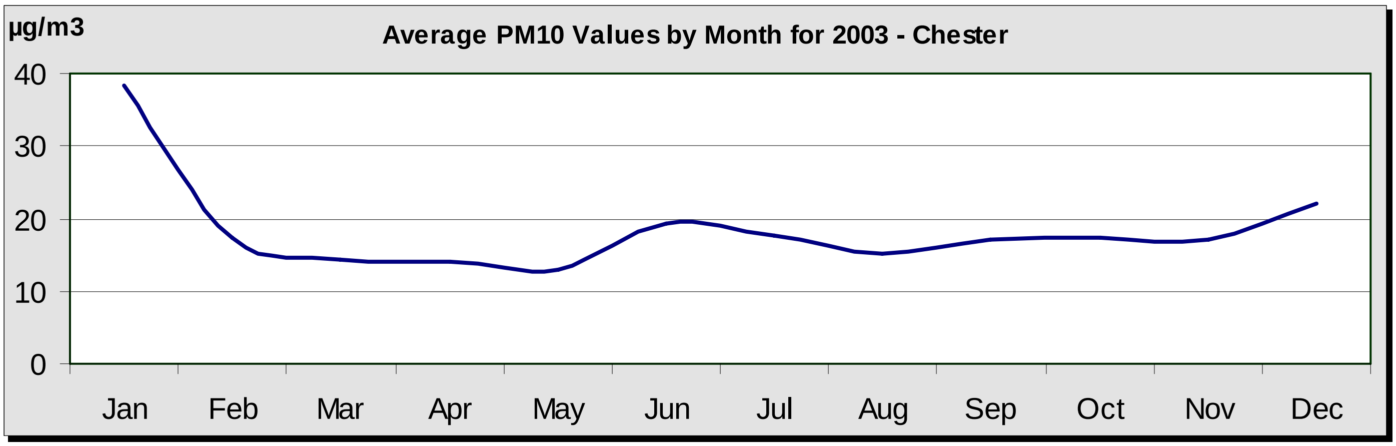
PM10 HI-VOLUME SAMPLER DATA

(See PM10 Continuous Data for recent PM10 data in Chester)

Table 10 Chester

	ANNUAL ARITHMETIC MEAN	HIGHEST 24 HOUR CONCENTRATION	DAYS EXCEEDING CAAQS	DAYS EXCEEDING NAAQS
1993 \2	42.4	82	6	0
1994	32.3	106	13	0
1995	25.3	68	5	0
1996	24.1	76	2	0
1997	24.4	66	6	0
1998	25.1	65	3	0
1999	25.2	70	4 / 3 \1	0
2000\3	22.6	49	0	0
2001\3	21.3	34	0	0
2002	20.9	62	2 / 1 \1	0
2003	19.5	71	2	0

\1 - Value modified to exclude Wildfires and other Exceptional / Natural Events
\2 - Data represents Oct through Dec. \3 - represents 6 months of data



<u>AMBIENT AIR QUALITY STANDARDS FOR PM10</u>:

NATIONAL: 24 Hour Average: 150 µg/m3
Annual Arithmetic Mean: 50 µg/m3

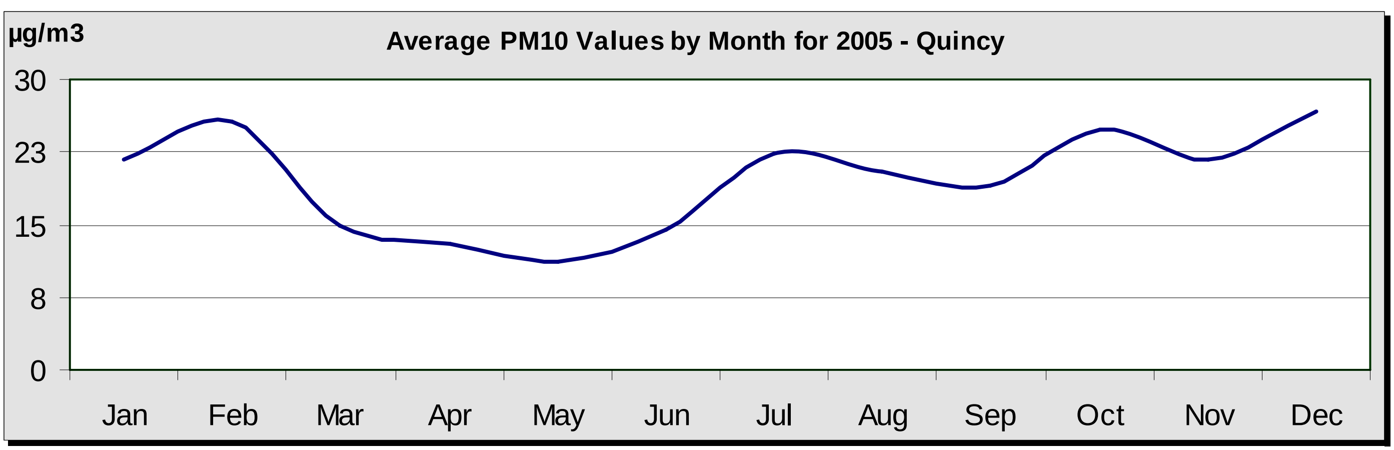
CALIFORNIA: 24 Hour Average: 50 µg/m3
Annual Arithmetic Mean: 20 µg/m3

PM10 HI-VOLUME SAMPLER DATA

Table 11 Quincy

	ANNUAL ARITHMETIC MEAN	HIGHEST 24 HOUR CONCENTRATION	DAYS EXCEEDING CAAQS	DAYS EXCEEDING NAAQS
1987	43	133	9	0
1988	49	132	10	0
1989	32.7	141	12	0
1990	28.7	138	19	0
1991	32.2	162	15	1
1992	29.6	122	12	0
1993	36.8	136	15	0
1994	35.6	126	9	0
1995	22.7	54	2	0
1996	20.1	55	2	0
1997	21.8	67	2	0
1998	19.7	45	0	0
1999	25.7	123 \2 / 98 \1	5 / 2 \1	0
2000	19.8	73 \2 / 58 \1	4 / 3 \1	0
2001	22.4	62	4	0
2002	21.2	54	2	0
2003	18.1	36	0	0
2004	18.3	49	0	0
2005	19.7	56	1	0

\1 - Value modified to exclude Wildfires and other Exceptional / Natural Events
\2 - High concentration due to nearby wildfires



AMBIENT AIR QUALITY STANDARDS FOR PM10:

NATIONAL: 24 Hour Average: 150 µg/m3
Annual Arithmetic Mean: 50 µg/m3

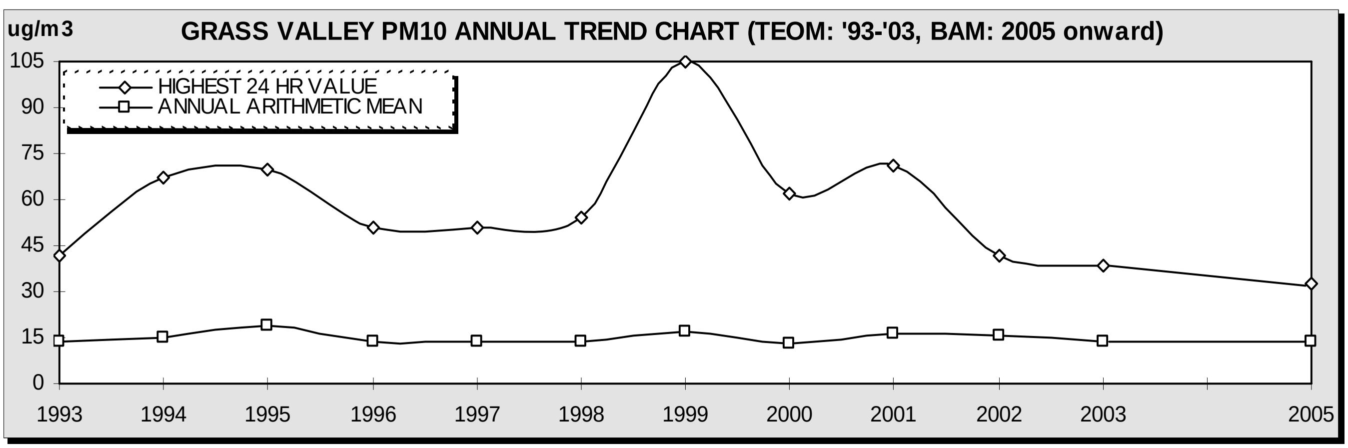
CALIFORNIA: 24 Hour Average: 50 µg/m3
Annual Arithmetic Mean: 20 µg/m3

PM10 CONTINUOUS DATA

Table 12 Grass Valley - Litton Bldg.

	ANNUAL Arithmetic MEAN	HIGHEST 24 HOUR CONCENTRATION	HIGHEST 1 HOUR CONCENTRATIO N	DAYS EXCEEDING CAAQS	DAYS EXCEEDING NAAQS
1992	10.7	39	76	0	0
1993\2	13.7	42	156	0	0
1994	15.3	67	187	5	0
1995	19.2	70	125	10	0
1996	13.6	51	122	1	0
1997	13.6	51	193	1	0
1998	13.4	54	134	1	0
1999	16.8 / 16.5 \1	105\3 / 46 \1	215 / 149 \1	9 / 0 \1	0
2000	13.3 / 13.2 \1	62 \3 / 34 \1	151 \3 / 111 \1	1 / 0 \1	0
2001	16.2 / 16.1	71 / 50	276	3 / 0	0
2002\2	15.4	42	129	0	0
2003\4	13.6	38	100	0	0
TEOM was replaced with a BAM in October of 2004. All data henceforth is BAM data.					
2005	13.7	32.7	89	0	0

\1 - Value modified to exclude Wildfires and other Exceptional / Natural Events.
\2 - Data represents incomplete year.
\3 - High concentration due to significant smoke incursion from wildfires in No. Cal.
\4 – Data collected January through August, TEOM sampler retired due to damage from a thunderstorm in August.



AMBIENT AIR QUALITY STANDARDS FOR PM10:

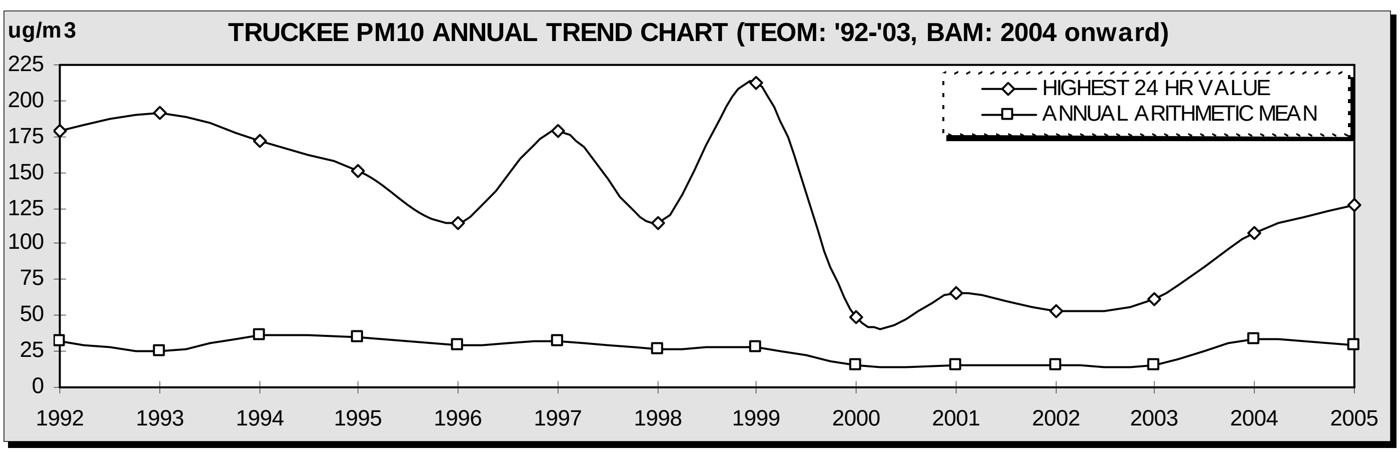
NATIONAL: 24 Hour Average: 150 µg/m3
Annual Arithmetic Mean: 50 µg/m3

CALIFORNIA: 24 Hour Average: 50 µg/m3
Annual Arithmetic Mean: 20 µg/m3

PM10 CONTINUOUS DATA

Table 13 Truckee Fire Station

	ANNUAL Arithmetic MEAN	HIGHEST 24 HOUR CONCENTRATION	HIGHEST 1 HOUR CONCENTRATIO N	DAYS EXCEEDING CAAQS	DAYS EXCEEDING NAAQS
1992	31.7	179	1,017	57	2
1993	25.4	192	1,013	48	3
1994	36.7	172	951	87	1
1995	34.9	151	552	77	1
1996	28.8	115	331	46	0
1997	31.8	179	585	67	2
1998	26.0	114	341	52	0
1999	27.3	212	933	43	1
2000	15.2	49	214	0	0
2001	14.8	66	233	1	0
2002	15.3	53	278	5	0
2003\1	14.7	62	187	4	0
TEOM was replaced with a BAM in September of 2003. All data henceforth is BAM data.					
2004	33.1	107	427	48	0
2005	30.0	127	369	32	0
\1 - Data collected January through July, sampler replaced with a Beta Attenuation Monitor in September.					



AMBIENT AIR QUALITY STANDARDS FOR PM10:

NATIONAL: 24 Hour Average: 150 µg/m3
Annual Arithmetic Mean: 50 µg/m3

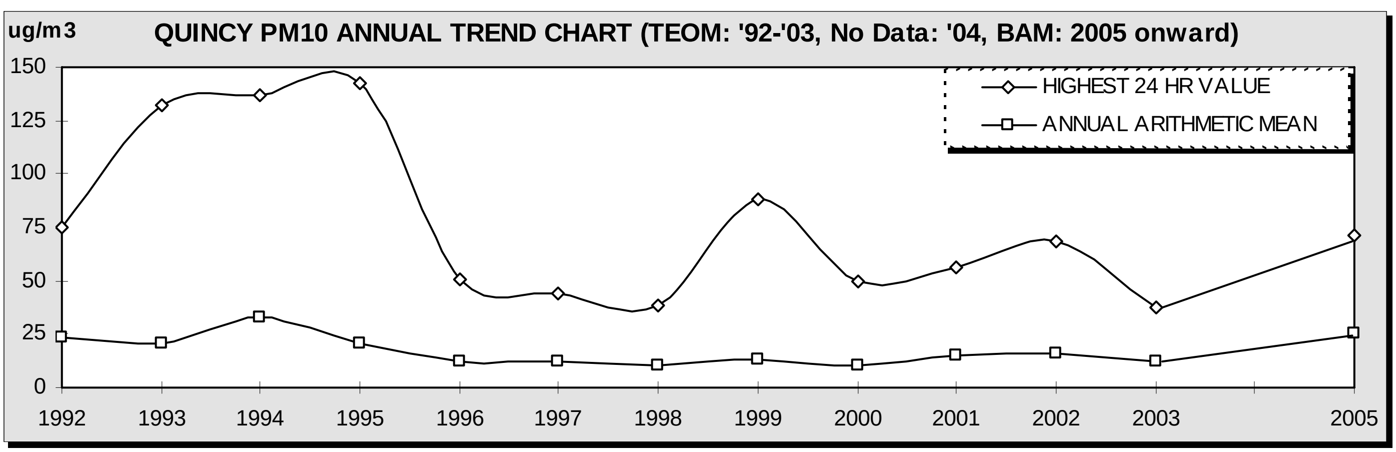
CALIFORNIA: 24 Hour Average: 50 µg/m3
Annual Arithmetic Mean: 20 µg/m3

PM10 CONTINUOUS DATA

Table 14 Quincy

	ANNUAL Arithmetic MEAN	HIGHEST 24 HOUR CONCENTRATION	HIGHEST 1 HOUR CONCENTRATION	DAYS EXCEEDING CAAQS	DAYS EXCEEDING NAAQS
1992\2	23.2	75	314	10	0
1993	20.3	132	946	83	0
1994	32.7	137	473	73	0
1995	20.8	143	680	7	0
1996	12.1	51	203	1	0
1997	12.0	44	155	0	0
1998	10.4	38	138	0	0
1999	14.1 / 12.7\1	207\3 / 88\1	591 / 241\1	19 / 5\1	1 / 0\1
2000	10.5 / 10.4 \1	74 \3 / 50 \1	129	2 / 0 \1	0
2001	14.6	56	143	1	0
2002	15.5	68	143	2	0
2003\4	11.8	37.5	162	0	0
2004	N/A	N/A	N/A	N/A	N/A
2005\5	25.5	71.6	196	6	0

\1 - Value modified to exclude Wildfires and other Exceptional / Natural Events.
\2 - Data represents incomplete year.
\3 - High concentration due to significant smoke incursion from wildfires in No. Cal.
\4 - Data collected January through August, TEOM sampler retired due to damage from a thunderstorm in August.
\5 – First full year of collecting PM10 at this site using the MET ONE BAM1020 sampler.



AMBIENT AIR QUALITY STANDARDS FOR PM10:

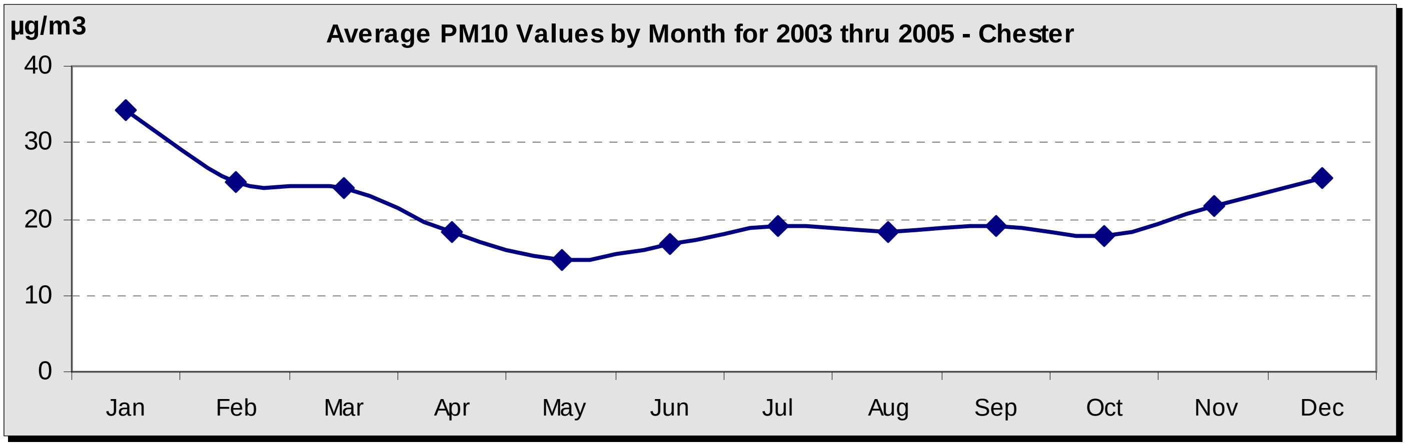
NATIONAL: 24 Hour Average: 150 µg/m3
Annual Arithmetic Mean: 50 µg/m3

CALIFORNIA: 24 Hour Average: 50 µg/m3
Annual Arithmetic Mean: 20 µg/m3

PM10 CONTINUOUS DATA

Table 15 Chester

	ANNUAL ARITHMETIC MEAN	MAX 24 HOUR VALUE	HIGHEST 1 HOUR VALUE	DAYS EXCEEDING CAAQS	DAYS EXCEEDING NAAQS
2003	20.4	72.8	189	4	0
2004	24.0	58.5	199	4	0
2005	20.4	65.0	235	6	0



AMBIENT AIR QUALITY STANDARDS FOR PM10:

NATIONAL: 24 Hour Average: 150 µg/m3
Annual Arithmetic Mean: 50 µg/m3

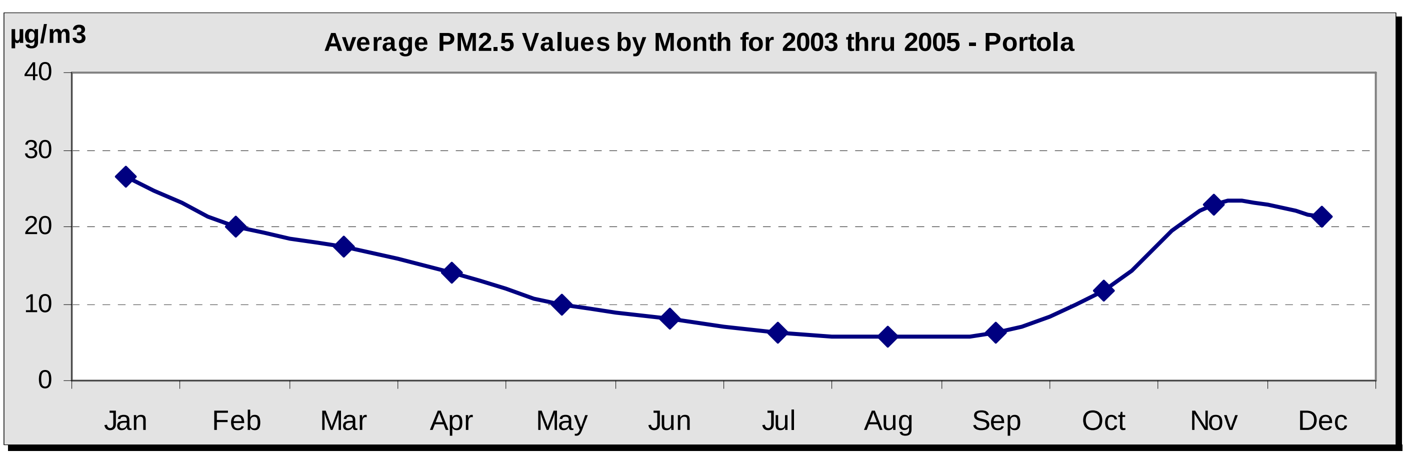
CALIFORNIA: 24 Hour Average: 50 µg/m3
Annual Arithmetic Mean: 20 µg/m3

PM2.5 CONTINUOUS DATA

Table 16 Portola

	ANNUAL ARITHMETIC MEAN	MAX 24 HOUR VALUE	HIGHEST 1 HOUR CONCENTRATION	DAYS EXCEEDING CAAQS	DAYS EXCEEDING NAAQS
2003	15.9	51	164	n/a	0
2004	13.4	54	192	n/a	0
2005	14.7	48.5	135	4 / 0[\1]	4 / 0[\1]

\1 – Value modified to exclude exceedances from USFS control burn , December 3 thru December 6, 2005.



AMBIENT AIR QUALITY STANDARDS FOR PM2.5:

NATIONAL: 24 Hour Average: 65 µg/m3
Annual Arithmetic Mean: 15 µg/m3

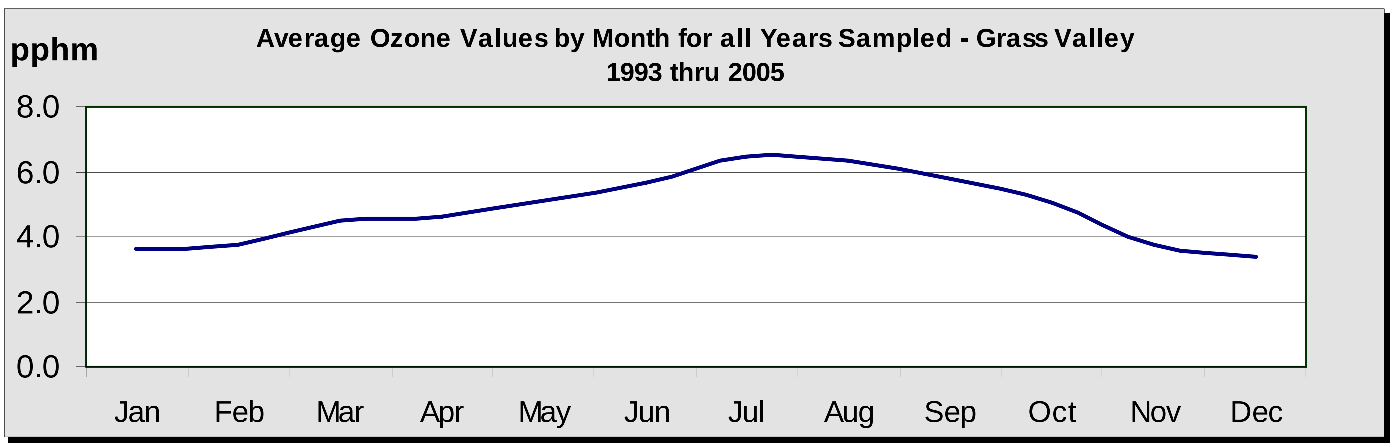
CALIFORNIA: 24 Hour Average: No separate state standard
Annual Arithmetic Mean: 12 µg/m3

OZONE DATA

Table 17 Grass Valley - Litton Bldg.

AVERAGE and MAXIMUM CONCENTRATIONS (pphm)						NATIONAL EXCEEDANCES				STATE EXCEEDANCES	
	Hourly	8 HOUR MAX		1 HOUR MAX		8 HR STD.[\1]		1 HR STD.		1 HR STD.	
YEAR	AVG.	AVG.	HIGH	AVG.	HIGH	DAYS	HOURS	DAYS	HOURS	DAYS	HOURS
1993	4.5	x	x	5.7	11.2	x	x	0	0	6	12
1994	4.4	x	x	5.6	11.1	x	x	0	0	8	26
1995	4.4	x	x	5.5	13.7	x	x	2	6	16	77
1996	4.9	x	x	5.9	11.1	x	x	0	0	20	69
1997[\2]	5.3	6.1	10.1	6.4	10.8	17	123	0	0	8	33
1998	4.9	5.4	9.9	6.0	11.5	19	117	0	0	12	39
1999	5.3	6.1	10.3/10.0[\1]	6.7/6.6[\1]	16.5[\3]/10.8[\1]	28/24[\1]	203/144[\1]	1/0[\1]	3/0[\1]	21/13[\1]	50/33[\1]
2000	5.2	5.8	11.3	6.2	13.0	29/28[\1]	225/213[\1]	1	3	18	80
2001	5.0	5.7	10.6	6.1	11.6	23	190	0	0	17	48
2002	5.0	5.7	11.4	6.1	12.7	22	191	1	1	20	80
2003	5.0	5.7	10.4	6.1	11.7	22	208	0	0	20	75
2004	4.6	5.4	11.2	5.8	12.6	14	88	1	1	11	34
2005	4.5	5.3	12.0	5.7	12.8	20	148	N/A	N/A	15	53

\1 - Value modified to exclude Wildfires and other Exceptional / Natural Events
\2 8 Hour Standard took effect July 1, 1997. Values for 1997 are from May – Dec.
\3 Significant smoke incursions from No. Cal. Wildfires created unprecedented ozone levels in Grass Valley



AMBIENT AIR QUALITY STANDARDS FOR OZONE:

NATIONAL: 1 Hour Average: not applicable
8 Hour Average: 8 pphm

CALIFORNIA: 1 Hour Average: 9 pphm
8 Hour Average: 7 pphm

OZONE DATA

Table 18 Truckee Fire Station

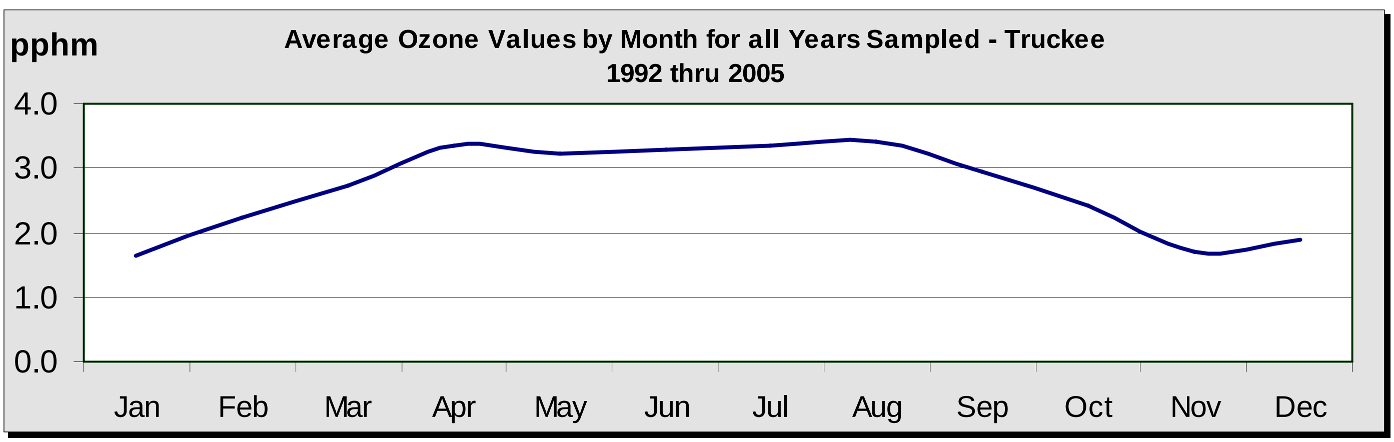
	AVERAGE and MAXIMUM CONCENTRATIONS (pphm)					NATIONAL EXCEEDANCES				STATE EXCEEDANCES	
	HOURLY	8 HOUR MAX		1 HOUR MAX		8 HR STD.\1		1 HR STD.		1 HR STD.	
YEAR	AVG.	AVG.	HIGH	AVG.	HIGH	DAYS	HOURS	DAYS	HOURS	DAYS	HOURS
1992	2.3	x	x	4.1	7.0	x	x	0	0	0	0
1993	2.8	x	x	4.8	7.5	x	x	0	0	0	0
1994	2.5	x	x	4.2	7.1	x	x	0	0	0	0
1995	2.4	x	x	4.2	8.7	x	x	0	0	0	0
1996	2.6	x	x	4.6	9.7\2	x	x	0	0	1	2
1997	2.6	3.4	7.5	4.3	8.0	0	0	0	0	0	0
1998	2.9	3.9	6.8	4.6	7.7	0	0	0	0	0	0
1999	2.9	4.2	6.7	4.9	7.9	0	0	0	0	0	0
2000	2.8	3.9	6.9	4.7	8.1	0	0	0	0	0	0
2001	2.8	4.0	7.7	4.6	9.1\3	0	0	0	0	0	0
2002	2.9	4.0	7.1	4.6	8.5	0	0	0	0	0	0
2003\4	2.7	3.6	5.8	4.2	6.5	0	0	0	0	0	0
2004	3.0	4.0	7.2	4.6	8.6	0	0	0	0	0	0
2005	3.4	4.6	6.9	5.3	8.0	0	0	0	0	0	0

\1 8 Hour Standard took effect July 1, 1997. Values in 1997 are from July – Dec.

\2 This high value was recorded on 8/6/96 at 1700 PST. It occurred during a significant smoke incursion from a nearby wildfire. The 1 Hour PM10 value, as recorded by an on-site TEOM, at that same time was 139 µg/m3.

\3 This high value was recorded on 8/28/01 at 1200 PST. It occurred during a significant smoke incursion from a nearby wildfire. The 1 Hour PM10 value, as recorded by an on-site TEOM, at that same time was 115 µg/m3.

\4 Ozone monitor collected data at this site for the months January through May only.



<u>AMBIENT AIR QUALITY STANDARDS FOR OZONE</u>:

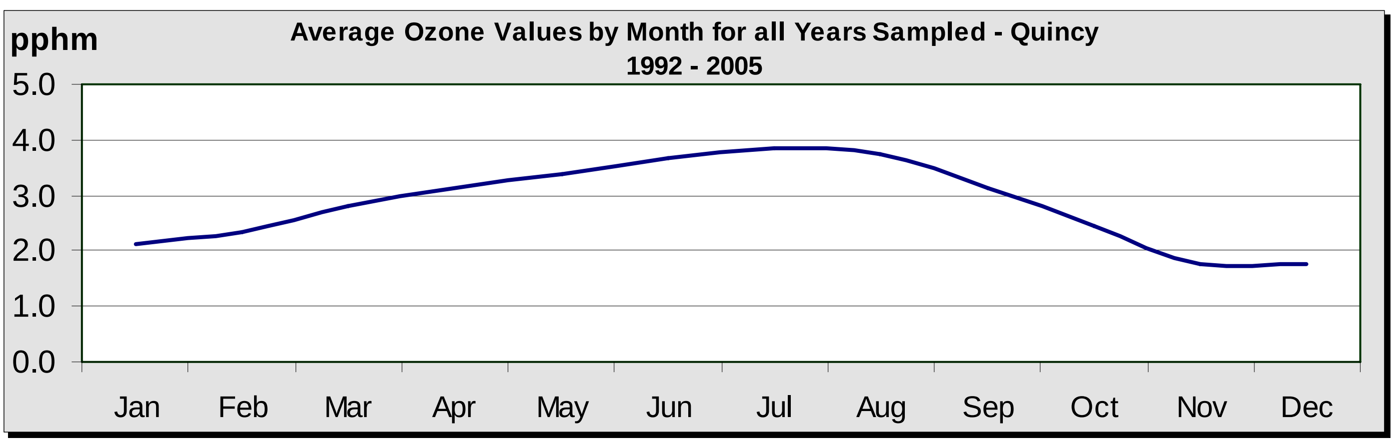
NATIONAL:	1 Hour Average:	not applicable	**CALIFORNIA:**	1 Hour Average:	9 pphm
	8 Hour Average:	8 pphm		8 Hour Average:	7 pphm

OZONE DATA

Table 19 Quincy

AVERAGE and MAXIMUM CONCENTRATIONS (pphm)						NATIONAL EXCEEDANCES				STATE EXCEEDANCES	
	HOURLY	8 HOUR MAX		1 HOUR MAX		8 HR STD.\1		1 HR STD.		1 HR STD.	
YEAR	AVG.	AVG.	HIGH	AVG.	HIGH	DAYS	HOURS	DAYS	HOURS	DAYS	HOURS
1992	3.8	x	x	6.0	8.4	x	x	0	0	0	0
1993	3.5	x	x	5.7	8.7	x	x	0	0	0	0
1994	4.0	x	x	6.1	9.2	x	x	0	0	0	0
1995	3.9	x	x	5.7	10.5	x	x	0	0	1	6
1996	3.2	x	x	5.2	9.1	x	x	0	0	1	1
1997	2.8	3.8	6.7	4.5	7.4	0	0	0	0	0	0
1998	3.0	4.4	7.5	4.9	8.7	0	0	0	0	0	0
1999	2.7	4.6	7.7	5.2	8.6	0	0	0	0	0	0
2000	2.4	4.1	7.7	4.6	8.1	0	0	0	0	0	0
2001	2.4	4.0	7.3	4.5	8.6	0	0	0	0	0	0
2002	2.6	4.3	7.7	4.9	8.4	0	0	0	0	0	0
2003	2.7	4.0	6.5	4.6	7.5	0	0	0	0	0	0
2004	2.7	4.1	6.6	4.6	7.3	0	0	0	0	0	0
2005	2.3	3.6	6.8	4.2	7.6	0	0	0	0	0	0

\1 8 Hour Standard took effect July 1, 1997. Values in this table for 1997 are from July – Dec.



AMBIENT AIR QUALITY STANDARDS FOR OZONE:

NATIONAL: 1 Hour Average: not applicable; 8 Hour Average: 8 pphm

CALIFORNIA: 1 Hour Average: 9 pphm; 8 Hour Average: 7 pphm

BURN DAY STATISTICS

The burn day statistics in the table below are included because many people find them interesting. These statistics apply only to the NSAQMD and are accurate in most instances. There are two agencies responsible for determining the burn day status within the District: CARB and the California Department of Forestry (CDF). CARB calls for No Burn Days when dispersion characteristics in the atmosphere are poor and CDF calls for No Burn Days when fire danger becomes elevated beyond fire agency comfort levels. It should be noted that agricultural burning is separate from residential open burning. Residential open burning is definitely prohibited on No Burn Days, but agricultural burning can sometimes receive exemptions to burn on No Burn Days. In general, open burning is prohibited on those days when atmospheric conditions inhibit good dispersion of smoke plumes. If smoke doesn't disperse, ambient PM10 & PM2.5 levels can easily increase to unhealthful levels.

	CDF Burn Days		CARB Burn Days			NSAQMD Burn Days			Total
	Yes	No	Yes	Marginal	No	Yes	Marginal	No	NBDs
January	31	0	21	3	7	21	0	10	10
February	28	0	24	1	3	24	0	4	4
March	31	0	23	3	5	23	0	8	8
April	30	0	29	1	0	29	0	1	1
May	31	0	25	4	2	24	0	7	7
June	30	0	26	4	0	26	0	4	4
July	0	31	4	13	14	0	0	31	31
August	0	31	10	13	8	0	0	31	31
September	0	30	26	3	1	0	0	30	30
October	6	25	26	4	1	4	0	27	27
November	30	0	17	3	10	17	0	13	13
December	31	0	21	9	1	20	0	11	11
Totals:	248	117	252	61	52	188	0	177	177

Percentage of No Burn Days in 2005: 48.5%

Percentage of No Burn Days in 2005 (not including CDF No Burn Days): 24.2%

The table below reveals that the fears for certain "Yearn to Burn" citizens are unfounded. Yes, sometimes there are more No Burn Days on weekends, and sometimes not. No Burn Days are in the gray columns. The table clearly shows that the most Burn Days occurred on Fridays and Saturdays during 2005.

Burn Day Totals by Day of the Week, NSAQMD, 2005

	M	M	T	T	W	W	Th	Th	F	F	S	S	Su	Su	Total	Total
	y	n	y	n	y	n	y	n	y	n	y	n	y	n	y	n
January	2	3	3	1	3	1	3	1	4	0	3	2	3	2	**21**	**10**
February	4	0	3	1	3	1	3	1	3	1	4	0	4	0	**24**	**4**
March	3	1	4	1	4	1	3	2	3	1	3	1	3	1	**23**	**8**
April	4	0	4	0	3	1	4	0	5	0	5	0	4	0	**29**	**1**
May	4	1	4	1	3	1	3	1	4	0	2	2	4	1	**24**	**7**
June	3	1	4	0	4	1	3	2	4	0	4	0	4	0	**26**	**4**
July	0	4	0	4	0	4	0	4	0	5	0	5	0	5	**0**	**31**
August	0	5	0	5	0	5	0	4	0	4	0	4	0	4	**0**	**31**
September	0	4	0	4	0	4	0	5	0	5	0	4	0	4	**0**	**30**
October	0	5	0	4	1	3	1	3	1	3	1	4	0	5	**4**	**27**
November	2	2	2	3	3	2	2	2	3	1	3	1	2	2	**17**	**13**
December	4	0	3	1	1	3	4	1	3	2	3	2	2	2	**20**	**11**
Totals:	26		27		25		26		30		28		26		**188**	**177**
		26		25		27		26		22		25		26	88 + 177 =	**365**