Juneau Air Quality Monitoring Report

Floyd Dryden Middle School Sampling Site

(Mendenhall Valley)

Data Summary

January 1993 – December 2009

Air Monitoring and Quality Assurance

Division of Air Quality

Department of Environmental Conservation

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ABSTRACT

The State of Alaska Department of Environmental Conservation (ADEC) has been monitoring particulate matter (PM) in Juneau since the mid-1980s. This report discusses the PM monitoring at the Floyd Dryden Middle School site for the past 16 years. Monitoring at Floyd Dryden includes PM_{10} and $PM_{2.5}$; but in earlier years total suspended particulate [TSP (PM_{50})] was monitored at other places in the Juneau area. Federal EPA standards for PM_{10} were established in 1987 while it took until 1997 for $PM_{2.5}$ standards to be established. ADEC efforts were in part a response to public concerns about wood smoke and road dust during winter. The City and Borough of Juneau paved most roads as well as instituted aggressive wood smoke controls during the 1990s which allowed them to decrease PM levels below the state and federal standards. PM_{10} highs dropped from approximately 80 $\mu g/m^3$ to 30 $\mu g/m^3$ between the early 1990s and the late 2000s. $PM_{2.5}$ which is the smoke fraction of PM, has specifically only been monitored since 1999 and it currently shows winters with highs hovering around 30 $\mu g/m^3$ and summer values hovering around 8 $\mu g/m^3$ except for times when wildfire smoke bought to Juneau by long distance transport from interior Alaska or Canada. The following report contains a more detailed discussion of the Floyd Dryden monitoring site, data collected, and the EPA standards for the years 1993 through 2009

INTRODUCTION

The State of Alaska Department of Environmental Conservation (ADEC), in an effort to protect the public health and the environment, is mandated by the legislature to assess, evaluate, and mediate environmental issues that may affect the health and welfare of residents within the state. To further these objectives, a statewide air monitoring network has been established by the Air Quality Division of the Department of Environmental Quality. The network currently consists of sites in Juneau, Anchorage, Fairbanks, and the Mat-Su Valley. In the spring of 2011, an additional site is to be established on the Kenai Peninsula near Soldotna. This report provides information about air monitoring in Juneau, specifically the Floyd Dryden Middle School monitoring site located in the Mendenhall Valley.

In consideration of the financial resources required to operate a single air monitoring station, a great deal of effort is invested initially to select a monitoring location for which the collected data will represent a larger geographic area of pollutant exposure. This means that data collected at the monitoring site in the Mendenhall Valley are generally considered to represent air quality conditions at other locations throughout the Mendenhall Valley and Juneau. This does not necessarily mean that these concentrations are homogeneous throughout the valley, but that similar daily concentrations are expected to occur at other locations at differing time periods when compared with levels measured at the site.

Usually, pollutant exposures of short duration are one of the greatest concerns to the Department. This is because short-term meteorological conditions can result in air pollutants being trapped in a specific area or transported to an area in a relatively concentrated form. Consequently, the probability of observing pollutant concentrations that exceed the health standards is more likely for short-term averaging periods than for standards established for annual average exposures. Since the worst-case, short-term conditions are irregular events, a monitoring project may need to span several months, or even years, in order to succeed in assessing the maximum pollution levels.

Background

The City and Borough of Juneau is located in northern Southeast Alaska and encompasses 2,594 square miles of land and 488 square miles of water.

Juneau has a mild, maritime climate with average winter temperatures ranging from 25°F to 35°F and summer temperatures ranging from 44°F to 65°F. Annual precipitation varies throughout the region with 92 inches in downtown Juneau and 54 inches at the airport ten

miles to the west. Snowfall averages 101 inches at the airport. The population[1] of the Juneau-Douglas area is 30,987.

ADEC established several monitoring sites in the Lemon Creek and Mendenhall Valleys in the late twentieth century. These sites were established to determine whether the concentration of airborne pollutants in the valleys have the potential to impair the health of local residents. Periodic winter inversions, coupled with pollution-emitting activities, have resulted in noticeable ground based pollution. Citizen complaints have primarily centered on woodstove smoke and road dust. These particular pollutants are trapped within a specific locale of origin or transported to neighboring areas depending upon the localized meteorology.

Public Health and Air Quality Standards

The main air pollutant of concern in the Juneau area is particulate matter. Particulate matter is frequently classified by size and is described by using a aerodynamic diameter[2] measured in micrometers or millionths of a meter (μm). Human hair has a diameter of about 50 to 200 μm. Health reviews have shown that particles greater than 10 μm primarily lodge in the oral and nasal passages. These particles are largely eliminated by natural body processes and do not penetrate farther into the respiratory tract. On the other hand, particles smaller than 10 μm, referred to as PM_{10}, can travel deep into the respiratory tract and may lodge in the lungs. Respirable particulates, some of the smallest particles under 2.5 μm in diameter, can be deposited in the alveoli (the lungs' very small air sacs). The particulate inhibit lung function by making the transfer of oxygen and carbon dioxide slower causing the heart to work harder to achieve the same rate of transfer. This is most noticeable in children and the elderly as well as people with respiratory diseases like bronchitis, asthma, emphysema, or heart problems. However, all people may be affected by particulate inhalation with adverse effects that may only appear with repeated exposure. $PM_{2.5}$ particulates may contain carcinogens and other poisonous substances harmful to the body.

Fine particulates smaller than 2.5 μm (i.e., $PM_{2.5}$) in the Juneau area are most often from wood smoke from the Juneau area in winter and from forest fires in Interior Alaska, the Yukon Territory and northwest British Columbia in summer. Airborne particles having a diameter between 2.5 μm and 10 μm are considered coarse and tend to come from crustal sources such as unpaved roadways, glacial silt, agricultural activities, construction sites, exposed riverbeds and surface mining. Particles smaller than 2.5 μm are considered fine and generally come from combustion processes, like industrial facility emissions, motor vehicles, wood smoke, and

[1] Population data 2005 U.S. Census.

[2] Aerodynamic diameter refers to a spherical particle with the density equal to the actual particle. It has the same gravitational settling velocity as the actual particle.

chemical processes that emit gases, such as sulfur dioxide and volatile organic compounds which transform to liquid or solid particles in the atmosphere. Natural sources of suspended particulate include glacial silt, windblown dust, volcanoes, and forest and grass fires. These natural sources contribute both fine and coarse particles to ambient air.

Originally, particulate matter was measured as total suspended particulate (TSP) (less than 50 μm) and then later as inhalable particulate (PM_{10}). Both measurements rely on the use of a high volume filter based particulate sampler like the Anderson High Volume sampler. $PM_{2.5}$ particulates are also sampled using the filter-based method, albeit with more modern technology like the Federal Reference Method (FRM) Thermo Scientific Partisol 2000. In recent years, new continuous analysis methods have been developed to provide real time data on an hourly basis.

The U. S. Environmental Protection Agency (EPA) establishes national ambient air quality standards (NAAQS) for select pollutants. National primary standards are set to protect human health, with an adequate margin of safety to protect even the most sensitive portion of the population (those individuals that suffer from respiratory ailments like allergies and asthma). The national and Alaska ambient air quality standard for PM_{10}, established in 1987, was an annual average of 50 $\mu g/m^3$ until it was vacated in 2006. The PM_{10} NAAQ standard, 150 $\mu g/m^3$ for a 24-hour average, was also established in 1987. The NAAQ standard for $PM_{2.5}$ particles, established in 1997, was 65 $\mu g/m^3$ for the 24-hour average until December 6, 2006, when it was reduced further to 35 $\mu g/m^3$. The national annual standard for $PM_{2.5}$, established in 1997, is currently 15 $\mu g/m^3$.

Floyd Dryden Middle School Monitoring

In response to a variety of public concerns over degradation of air quality in Juneau during the early 1980s, the Department established several monitoring sites in the Mendenhall Valley. These sites were established to determine whether the concentration of airborne pollutants in these glacier valleys could be impairing the health of local residents. The Mendenhall Valley is located northwest of Juneau and is separated from the Lemon Creek Valley by the 1000+ meter, north-south oriented Heintzelman Ridge. These valleys are susceptible to wintertime inversions which trap locally polluted air, particularly during extreme cold-weather events combined with minimal winds. Current efforts are focused on the long-term monitoring site established at Floyd Dryden Middle School in the Mendenhall Valley. Citizen complaints have primarily centered on woodstove emissions and road dust. With the exception of forest fire smoke from NW Canada or Interior Alaska, pollution sources outside the valley are not expected to impact the monitoring site at Floyd Dryden Middle School. The sources of particulate matter within the Mendenhall Valley include: residential heating wood smoke; automobile exhaust; dust from ball fields, playgrounds, construction/land clearing sites; dust from vehicular tracking; and smoke from open burns. On occasion wildfire smoke from Western

Canada and mainland Alaska has been known to impact the Mendenhall Valley, carried by long range transport.

The monitoring site is located on the roof of the Floyd Dryden Middle School in the Mendenhall Valley east of the Mendenhall Loop Road between Tongass and Valley Streets at 58º 23’30” N., -134 º33’30” W., and 45 meters (143 feet) above sea level. Figure 1 shows a street and satellite image of the site and map of the surrounding area. The site is located in the middle of a residential area. Floyd Dryden is a neighborhood-scale, population-oriented site. A view of the site looking toward the southeast is shown in Figure 2.

Figure 1. Map and satellite view of Floyd Dryden Middle School Site.

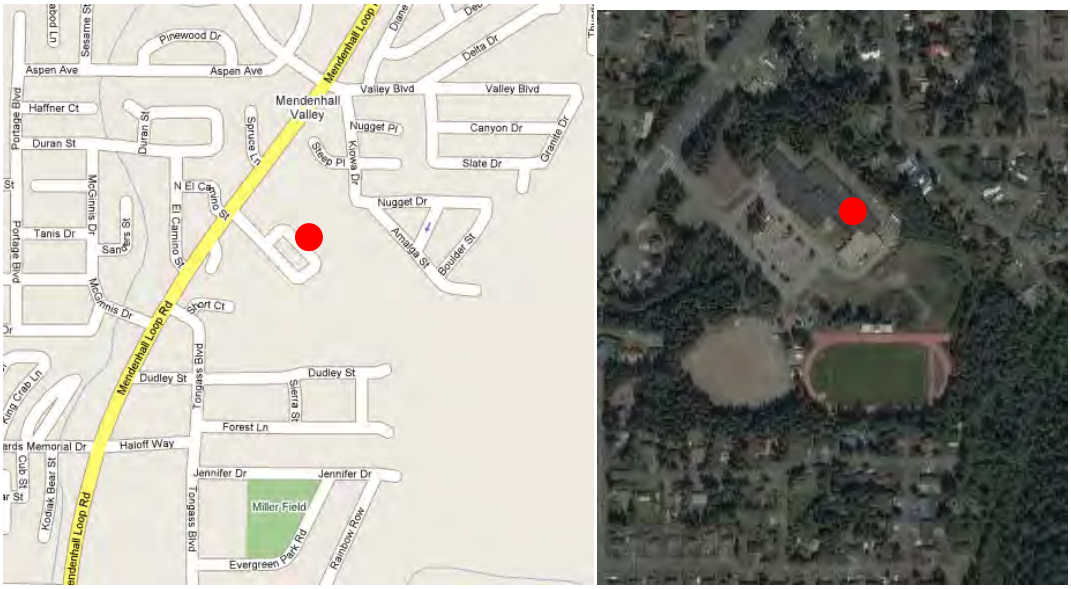

Figure 2. View looking southeast towards the Floyd Dryden monitoring site on the roof of the school.

Monitoring Requirements

Juneau was designated non-attainment for PM_{10} on November 15, 1990. The two primary sources of PM_{10} required the community to develop two separate action plans to minimize exceedance of the standard. The first was to start paving roads to minimize the impact of fugitive dust and the second was to issue alert notices for people to curtail use of their woodstoves to reduce the impact from smoke. The City and Borough of Juneau and the Alaska Department of Environmental Conservation re-designated Juneau as a limited maintenance area with the US Environmental Protection Agency in February, 2009[3].

Site Description

Currently, there is one particulate matter monitoring site in Juneau which is operated by Alaska Department of Environmental Conservation staff. The site is located on top of Floyd Dryden Middle School in the Mendenhall Valley in Juneau, Alaska. The following samplers are located about 10 meters east of the doorway to the roof. The EPA Air Quality System (AQS) database ID number for the site is 02-110-0004, Floyd Dryden Middle School (PM_{10} and $PM_{2.5}$). Figure 1, above, indicates the site's location. Between 1993 and 2009, the Floyd Dryden Site was equipped with:

- $PM_{2.5}$ (SPM, SLAMS) – Four Thermo Electron (formerly Rupprecht and Patashnick) FRM Partisol 2000 samplers. On April 1, 2008 the sampling schedule changed from 1-in-3 day to a 1-in-1 day schedule. The FRM Partisol was designated the $PM_{2.5}$ primary monitor up until October 21, 2009.
- PM_{10} (SPM) – One General Metal Works High-Volume sampler. Running on a 1-in-6 day sampling schedule.
- $PM_{2.5}$ (SPM) – A single Thermo Electron TEOM 1400a continuous monitor was installed to provide information in real time for evaluating the Air Quality Index.
- $PM_{2.5}$ (SLAMS, SPM) – A single Beta Attenuation Monitor continuous monitor was installed to provide information in real time for evaluating the Air Quality Index but was designated as the $PM_{2.5}$ primary monitor on October 21, 2009.

Working on different principles, the TEOM (Tapered Element Oscillation Microbalance) and BAM (Beta Attenuation Monitor) both measure the particulate in a near real time measurement. The TEOM runs on an oscillating pendulum principle; it measures the change in mass every 200 seconds and then computes an average from the accumulated masses. The BAM measures the beta attenuation of a C^{14} source every 5 minutes and averages 45 minutes out of every hour (using the remaining time to calibrate itself).

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[3] 2009 City and Borough of Juneau Limited Maintenance Plan
http://www.dec.state.ak.us/AIR/anpms/doc-anpms/CBJ_PM10_LMP_20FEB09.pdf

The samplers are installed on a platform on the roof of Floyd Dryden Middle School, approximately 6 meters (19 feet) above ground level. There is a furnace flue approximately 20 meters (64 feet) to the east of the sample platform. There is also a nearby dryer vent exiting the building's north wall on the ground level below the current sampler location. The school has a penthouse which is approximately 4 meters above the roof and 6 meters (19 feet) to the south of the sample platform.

The Floyd Dryden site is approximately 65 meters east of Mendenhall Loop Road (12,770 vehicles per day) which is the access road to the site. The roads are paved and, in the winter, sanded for traction. The sample platform is sited on the north side of the school away from the parking lot.

A row of trees approximately 25 meters (80 feet), at the closest point, skirts the northern exposure of the site. The trees are approximately 15 meters (48 feet) tall, and come nearest to the monitoring site to the north at a distance of 25 meters. Airflow is generally uninterrupted with the exception of the trees to the north-northeast. These trees are not considered to be a barrier because most elevated PM concentrations occur during winter inversions and/or during times when the wind is less than 5 mph. Under these conditions the particulate concentrations are thought to have near homogeneous dispersion.

RESULTS

This report summarizes data collected at the Floyd Dryden Middle School from January 1993 through December 2009. The discussion that follows provides a summary statistical analysis and a brief discussion of the data. Complete data tables and annual graphs can be found in Appendices A and B.

PM_{10} Summary

Since 1993 the monitoring sampler recorded no exceedances of the NAAQS. The highest value recorded was 86 $\mu g/m^3$ in 1995, which is about 57% of the standard. Annual means were well below 50 $\mu g/m^3$, the standard, from 1993 until 2006 when the annual standard was vacated.

Annual means and medians for PM_{10} are summarized in Table 1. The three year average, or annual design value, is calculated using the previous years; for example, for 1996 the average includes 1994, 1995, and 1996. The three year average make the data smoother by averaging out high and low years, allowing the trend to be more visible. The means, medians and annual average design value decrease from the teens in the 1990s to below 10 $\mu g/m^3$ in the 2000s. The annual median falls lower than the mean because the means incorporate the highest values whereas the medians just count the higher values. Since the statistical population of concentrations is not normally distributed, the higher values have a disproportionate affect on the value of the mean. In essence, the populations are skewed to the left or there is a tail of high values that does not make a normal distribution of values.

Although the annual maxima are considerably higher than the means or medians, they do not exceed the federally imposed limits of PM_{10} of 150 $\mu g/m^3$ for a 24-hour period (Table 1). The annual limit, 50 $\mu g/m^3$, is not even exceeded during the winter. Note that the annual standard was vacated in December 2006; thus, that annual mean is not relevant for 2007 and more recent years. As with the annual means and the medians, maxima decrease systematically from 1993 to 2008. The first maximum in 1993 was 81 $\mu g/m^3$ and by 2009 it had progressively decreased to 33 $\mu g/m^3$. So, though the maxima never exceeded the standard, they improve with time.

In general, the PM_{10} increases in the winter due to fugitive dust from the roads and sanding and decreases during the summer. A typical chart shows the trend for the year 2001 with higher values appearing in the fall and spring (Figure 3). As the grounds freezes in the fall before it snows, dust is blown off nearby unpaved roads. A similar process occurs in the spring when roads are sanded for traction and uncovered by melting. Thus, as more and more roads have been paved in Juneau, the overall dust, measured as PM_{10}, should have decreased throughout the years of monitoring—1993 to 2008. In fact, the data show that winter PM_{10} did decrease with time. Winter highs in the 1990s were around 70-80 $\mu g/m^3$ and have progressively dropped to less than 30 $\mu g/m^3$ in the late 2000s. So the winter trend from the 1990s to the

2000s is generally downward to lower and lower values. Summer PM_{10} values show a lesser rate of decrease to values of about 15 $\mu g/m^3$ in the 2000s.

All PM_{10} data and graphs for each individual year are included in Appendix A. A typical yearly graph for PM_{10} is presented in Figure 3 below. Higher values are measured in the winter and lower values in the summer which is attributed to increased use of wood fires for heating and increased road dust cause by sanding in the winter. Ubiquitous rain in the summer prevents dust from rising and so the PM_{10} values remain at a minimum.

Table 1. PM_{10}: Means, Media and Maxima

PM_{10} Means, medians and maxima								
	quarterly annual mean	annual mean	annual median	annual design value	1st max	2nd max	3rd max	4th max
1993	19	19	14	*19**	81	79	78	69
1994	17	17	13	*18**	61	59	58	56
1995	16	17	13	18	86	76	71	68
1996	16	17	10	16	86	79	75	75
1997	11	12	9	14	70	63	60	52
1998	11	12	10	12	48	40	34	30
1999	11	7	6	11	28	27	24	18
2000	7	8	6	9	33	27	26	23
2001	7	7	5	8	28	28	25	24
2002	8	8	7	7	29	29	20	19
2003	10	10	7	8	26	22	22	21
2004	9	10	8	9	34	31	31	28
2005	11	11	8	10	42	35	35	34
2006	9	9	7	10	33	27	26	25
2007	7	7	5	--	21	20	16	16
2008	8	5	8	--	30	28	24	24
2009	10	10	8	--	33	24	21	20

* number of years in the average or design value < 3
-- indicates years after the annual design value was vacated. It was not used for regulatory purposes and thus ADEC did not calculate it.

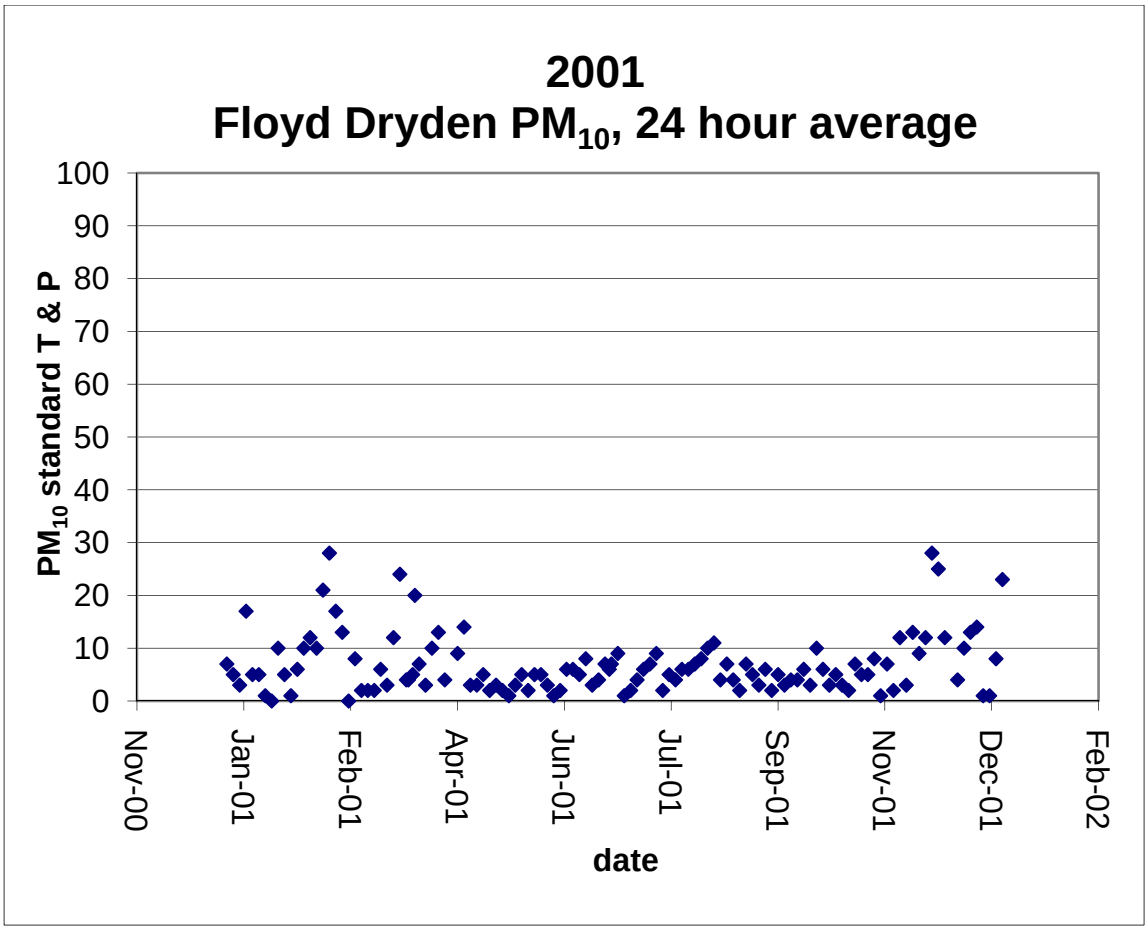

Figure 3. A typical yearly PM_{10} distribution of concentration for the 24 hour averages. PM_{10} is highest in the fall and spring when there are high winds blowing across the glaciers, outwash plains and unpaved roads.

EPA designated the Mendenhall Valley area of Juneau, Alaska as a moderate non-attainment area for the National Ambient Air Quality Standard (NAAQS) for particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM_{10}), upon enactment of the federal Clean Air Act Amendments of 1990 (56 FR 56694, November 6, 1991). The non-attainment classification was based on violations of the 24-hour standard that occurred throughout the 1980s. Juneau is currently in limited maintenance status and Floyd Dryden Middle School is in compliance for PM_{10}. The EPA fully approved Alaska's moderate PM_{10} non-attainment area plan as a State Implementation Plan (SIP) revision for the Mendenhall Valley PM_{10} non-attainment area in 1994 (Federal Register: March 24, 1994). Juneau has had no measured violation of EPA's PM_{10} standard since 1993. In 1993, the three violations were located at the Trio Street site not the Floyd Dryden site. ADEC has produced a Limited

Maintenance Plan (LMP) for the Mendenhall Valley area of Juneau. [4] The LMP provides contingency plans should Juneau ever experience a PM_{10} problem in the future and allows for Juneau to be designated as attainment for PM_{10}.

24-Hour and Annual Design Values for PM_{10}

The annual design value and the 24-hour average design value are measures of compliance with the national ambient air quality standards. The annual design value is calculated based on the three year average of the annual mean concentration of PM_{10}. Each year is listed in Table 1; note that the years 1993 and 1994 have only 1 and 2 year(s) of average and are uncertified design values (indicated by *italics* in Table 1). The annual design values are all far below the standard set at 50 $\mu g/m^3$. The 24-hour design value is the integer averaging the concentrations of 99th percentile of the three consecutive years leading up to and including the year of the design value. The values are summarized below in Table 2. The 24-hour design values for 1993-2009 are all far below 150 $\mu g/m^3$.

Table 2. 24-Hour Design Values PM_{10}

24-Hour Design Values: 1993-2009					
	99th percentile value	24-hour design value		99th percentile value	24-hour design value
1993	69	*69**	2002	29	30
1994	56	*63**	2003	22	26
1995	68	64	2004	34	28
1996	*75*†	na†	2005	42	33
1997	63	*66**	2006	33	36
1998	48	*56**	2007	21	32
1999	27	46	2008	30	28
2000	33	36	2009	33	28
2001	28	29			
* number of years in the average < 3 † did not meet the minimum capture rate for the year (74% recovery)					

[4] City and Borough of Juneau PM_{10} Limited Maintenance Plan
http://www.dec.state.ak.us/AIR/anpms/doc-anpms/CBJ_PM10_LMP_20FEB09.pdf

$PM_{2.5}$ Summary

The $PM_{2.5}$ standard was revised in 1997 and ADEC $PM_{2.5}$ sampling started in 1999. Between 1999 and 2009 the maximum concentration did not exceed 50 $\mu g/m^3$. In December 2006 the 24-hour standard was decreased from 65 $\mu g/m^3$ to 35 $\mu g/m^3$. Under the old standard there were no exceedances for $PM_{2.5}$. For an unknown reason, $PM_{2.5}$ jumped from maximums of around 30 $\mu g/m^3$ from prior to 2005 to over 40 $\mu g/m^3$ after 2005. Perhaps increases in the cost of heating prompted more home wood stove heating. Under the new standard of 35 $\mu g/m^3$, promulgated December 16, 2006, the two highest values for 2006 were exceedances. In 2006 the two high values of 36.7 $\mu g/m^3$ and 48.5 $\mu g/m^3$ exceeded the 24 hour NAAQ standard of 35 $\mu g/m^3$. In 2007, the three highest values of 46.2 $\mu g/m^3$, 45.9 $\mu g/m^3$ and 39.6 $\mu g/m^3$ exceeded the 24 hour NAAQS. In 2007 ADEC installed a continuous analyzer at the site. To correlate the new instrument to the FRM sampler, the site operator collected additional samples during time frames when inversion caused elevated $PM_{2.5}$ levels. These additional samples were biased toward higher concentrations and are not representative of the sampling year. In 2008 the two high values of 40.1 $\mu g/m^3$ and 35.8 $\mu g/m^3$ exceeded the NAAQS. In 2009 only the first day of the year exceeded the NAAQS at 37.5 $\mu g/m^3$. The exceedances are highlighted red, underlined and in bold in the table below. Numbers that would have been exceedances, had the standard been 35 $\mu g/m^3$ earlier than the promulgation of the rule in 2006, are bold black numbers. This includes the two high values for 2005 and the highest value for 2000.

At its inception in 1997, the $PM_{2.5}$ federal standard for the annual mean was set at 15 $\mu g/m^3$. The $PM_{2.5}$ annual means for 1999 through 2007 are well below the $PM_{2.5}$ standard (Table 3). All of the values for the means and medians are in the single digits. The values of the medians are consistently lower than the values of the means. This is due to the non-normal distributions of the higher values of $PM_{2.5}$. The higher values are distributed farther to the right, or higher, than would be expected in a normally distributed population. Thus they affect the value of the mean, pulling it higher than would be otherwise expected. The calculation of the median does not rely on the values of the measurements just the order of the measurements. In this case it does a better job of estimating the central tendency of the data than the mean.

$PM_{2.5}$ data are summarized in the section below and all data tables are in Appendix B. In general, the $PM_{2.5}$ shows a significant elevation in winter when wood heating is common and is lower in summer. This is similar to the PM_{10} data discussed above. Unlike PM_{10} which can be due to fugitive dust, $PM_{2.5}$ is mostly due to smoke from wood burning and wildfires, vehicle exhaust, and power plant emissions. In the winter the Mendenhall Valley occasionally develops very stable air masses that tend to lead to inversion conditions lasting 2 to 5 days usually. These dry stable air masses trap smoke, vehicle exhaust and power plant emissions. Generally during the summer months a combination of little to no wood smoke from home heating and enough precipitation keeps the $PM_{2.5}$ concentration in the air to a minimum. However during wildfire season, May through August, spikes in the $PM_{2.5}$ mirror the smoke from local slash burning and/or distant wildfires.

Table 3. $PM_{2.5}$: Means, Media and Maxima

$PM_{2.5}$ Means, media and maxima						
year	annual mean	annual median	1st max	2nd max	3rd max	4th max
1999	4.7	3.5	27.1	15.0	10.0	9.7
2000	6.4	4.0	**37.8**	28.3	24.1	23.6
2001	5.7	3.8	29.7	26.5	25.9	23.4
2002	6.7	5.2	32.2	32.2	19.8	19.4
2003	8.5	6.0	28.7	22.9	22.2	22.0
2004	6.6	5.3	29.8	27.5	26.1	24.5
2005	7.7	4.9	**45.1**	**39.9**	35.4	34.2
2006	8.0	5.3	**48.5**	**36.7**	33.0	27.9
2007	6.9	4.0	**46.2**	**45.9**	**39.6**	25.8
2008	6.9	4.9	**40.7**	**35.8**	31.1	30.9
2009	7.5	5.5	**37.5**	33.0	32.6	32.2

indicate numbers exceeding the $PM_{2.5}$ standard of 35 $\mu g/m^3$

indicate numbers exceeding the $PM_{2.5}$ standard of 35 $\mu g/m^3$ if it had been implemented earlier

All annual graphs of $PM_{2.5}$ data are attached in Appendix B. A typical graph of $PM_{2.5}$ data is shown in Figure 4, below. Again, higher values are measured in the winter and lower values in the summer. The higher wintertime values are caused primarily by wood smoke, vehicle emissions combined with stable weather and development of an inversion. Precipitation combined with unstable weather and less wood based heating (less wood smoke) results in extremely low $PM_{2.5}$ levels in the summer. This holds true unless there are ubiquitous wildfires in British Columbia, the Yukon Territory or Alaska and the winds carry it to Juneau where the smoke can cause a spike in $PM_{2.5}$ (Figure 5). These excursions from the normal low levels of below 10 $\mu g/m^3$ can reach concentrations near winter values. For example, in 2005, the forest fire smoke caused $PM_{2.5}$ to peak at 27.5 $\mu g/m^3$ while the remainder of the summer months, both before and after the event, averaged about 5 $\mu g/m^3$.

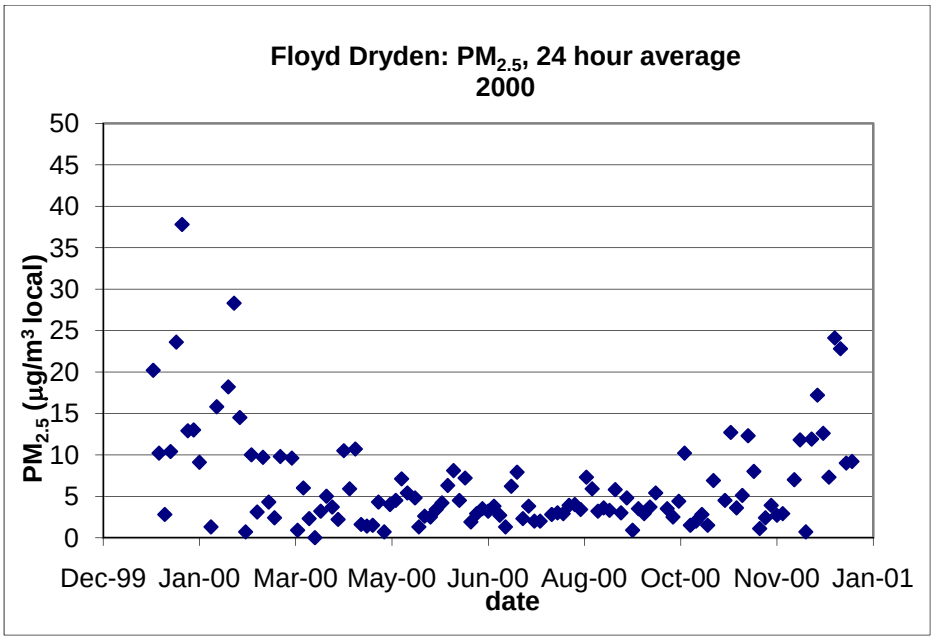

Figure 4. Floyd Dryden distribution of $PM_{2.5}$ concentrations over the year 2000. All points are 24 hour averages.

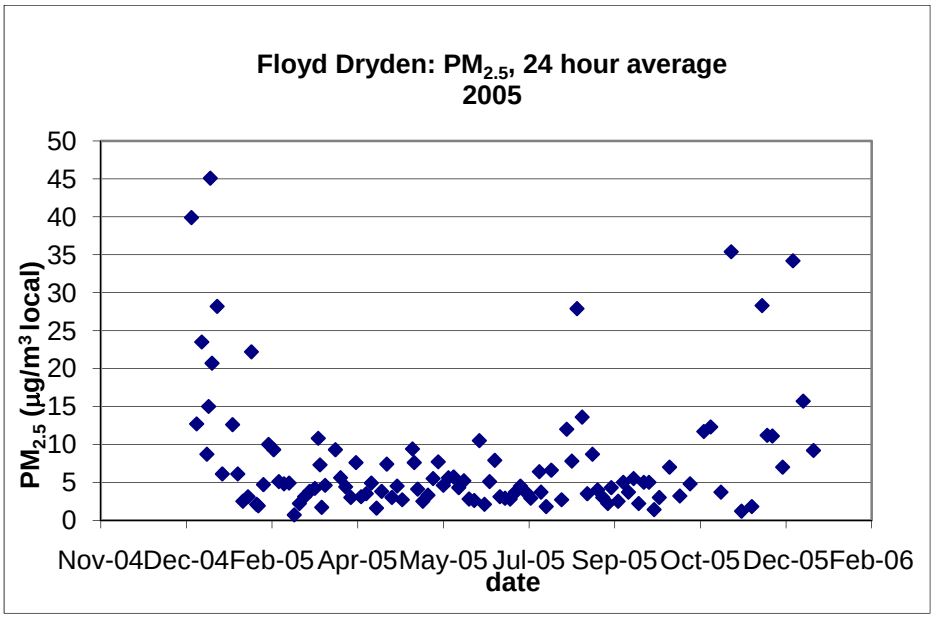

Figure 5. $PM_{2.5}$ concentrations over the year 2005. Note the spike in late summer. All points are 24 hour averages.

24-Hour and Annual Design Values for $PM_{2.5}$

The 24-hour average design value is a measure of compliance with the national ambient air quality standards. The design value is calculated based on the 98th percentile of the yearly data for three years running. The 24-hour design value is the integer calculated by averaging the 98th percentile of the three consecutive years leading up to and including the year of the design value. The values are summarized below in Table 3. The 24-hour design values for 2001-2009 are all below 35 μg/m^3 except for 2007 when it was 36 μg/m^3. For the year 2007, all the data are used despite sampling above and beyond the scheduled sampling days. Usually only the creditable number of samples is applied for the 98th percentile calculation. However due to a miscommunication with the EPA, ADEC was required to use the actual number of samples collected which included "extra" high values. The extra samples collected for a separate correlation study on $PM_{2.5}$ methods where days with high values were targeted to obtain a reliable correlation between the two instruments. So the 2007 value is higher than it would normally be given an unbiased sampling schedule. The EPA did not designate Juneau as nonattainment; however, in 2008 they mandated daily sampling at Floyd Dryden because Juneau is just on the cusp of having a design value above the standard.

Table 4. The $PM_{2.5}$ design value is calculated from the average of the year of interest and the two previous years. It is based on the 98th percentile of the creditable values in the sample year.

24-hour $PM_{2.5}$ Design Values		Design Value: 3 year average of 98th percentile										
Year	98th percentile	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
1999	15.0	15.0										
2000	24.1		20.0									
2001	25.9			22								
2002	19.4				23							
2003	28.7					25						
2004	26.1						25					
2005	35.4							30				
2006	33.0								32			
2007	39.6									**36**		
2008	30.2										34	
2009	29.0											33

indicate numbers exceeding the 24-hour $PM_{2.5}$ design value level of 35 μg/L

The annual $PM_{2.5}$ design values are summarized in the table below (Table 5). They are calculated using the annual mean averaged with the two previous annual means. All the annual design values hover around 7 μg/m^3 and fall well below the national design value standard of 15 μg/m^3. Note that three years, 1999, 2002 and 2003, did not meet the minimum number of

samples (11) collected for one or more quarters of the year. In Table 5 these values are not valid as annual means and not used in the calculation of the design value. ADEC started sampling April 10, 1999, and thus had a zero capture rate for first quarter. In 2002 ADEC stopped sampling on June 5, 2002 and resumed on November 16, 2002. The sampling appears to continue in our internal ADEC records but no data were reported to AQS for that time period. Monitoring was formally suspended for the second and third quarters of 2003 while ADEC rebuilt the platform on the top of the school.

Table 5. $PM_{2.5}$ Annual Design Values. Please note that *na* means insufficient data for calculating the annual mean (in other words, 1 or more quarters had less than 11 data points). See text for a complete discussion of the data.

$PM_{2.5}$ Annual Design Value, average of 3 years												
year	annual mean	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
1999	*na (4.6)*	*4.6*										
2000	6.5		5.6									
2001	5.7			6.1								
2002	*na (7.3)*				*6.1*							
2003	*na (8.7)*					*6.8*						
2004	6.6						*7.2*					
2005	8.1							*7.8*				
2006	8.5								7.8			
2007	6.6									7.8		
2008	7.1										7.4	
2009	7.0											6.9

Data Capture

The data capture values for 1993 to 2009 are summarized in Table 5. ADEC met and exceeded minimum recovery rates for PM_{10} for all years except for 1996. The recovery for that year was 74% which almost met the 75% cutoff for acceptable data capture. ADEC started sampling for $PM_{2.5}$ on April 10, 1999. Therefore in 1999 ADEC failed to meet the federally mandated minimum data capture rate of 75% for $PM_{2.5}$. Note that 2001, 2004 and 2005 have recovery rates for PM_{10} that are greater than 100%. In 2007 the recovery rate for $PM_{2.5}$ is 108%. These recovery rates are due to extra samples collected beyond the specified sample dates collected during the relevant year for any number of reasons. The year 2007 is discussed in detail in the $PM_{2.5}$ Design Value section. Please see Appendices A and B for the data tables.

Table 6. Data Capture (Bold type indicates less than acceptable, < 75%, recovery.)

Data Capture Rates (Recovery Rates)									
	1993	1994	1995	1996	1997	1998	1999	2000	2001
PM_{10}	100%	100%	100%	**74%**	88%	83%	94%	80%	103%
$PM_{2.5}$	--	--	--	--	--	--	**51%***	80%	95%
* For 1999 if the 1st quarter is omitted the data capture rate would be **68**%									
	2002	2003	2004	2005	2006	2007	2008	2009	
PM_{10}	92%	80%	113%	105%	85%	85%	98%	80%	
$PM_{2.5}$	**51%†**	**39%‡**	96%	92%	88%	108%	75%	82%	
† 2002 capture rates: 1st & 2nd quarter 93%, 3rd quarter **17**% & 4th quarter **0**%									
‡2003 capture rates: 2nd & 3rd quarters **0**%, 1st & 4th quarter 78%									

Comparison of PM_{10} to $PM_{2.5}$

Airborne particles having a diameter between 2.5 µm and 10 µm are considered the coarse fraction and tend to come from crustal sources such as unpaved roadways, construction and agricultural activities, and surface mines. Particles smaller than 2.5 µm are considered fine and generally are generated by combustion processes in forest fires or in motor vehicles, and chemical processes that emit gases, such as sulfur dioxide and volatile organic compounds which transform to liquid or solid particles in the atmosphere. Natural sources of suspended particulate include windblown dust (coarse), volcanoes (coarse and fine), and forest and grass fires (fine). These natural sources can contribute both fine ($PM_{2.5}$) and coarse (PM_{10}-$PM_{2.5}$) particles to ambient air.

The graph below, Figure 6, shows the relationship between values of PM_{10} and $PM_{2.5}$ measured simultaneously. The $PM_{2.5}$ values were obtained under local conditions by a FRM Partisol 2000 for 1999 through third quarter 2008 and a FRM BAM for the fourth quarter of 2008 and all of 2009. The PM_{10} values were measured under standard conditions using a FRM high volume sampler. However, ADEC did all of the comparisons for this section of the report using local conditions for both parameters in a concerted effort to make the data as comparable as possible. Aside from several obvious outliers, colored red on Figure 6, the data show what one might expect. Most of the particulate is fine (<2.5 µm in aerodynamic diameter). This is to be expected in Juneau as almost all of the roads are paved and fugitive dust was reduced dramatically in the 1990s.

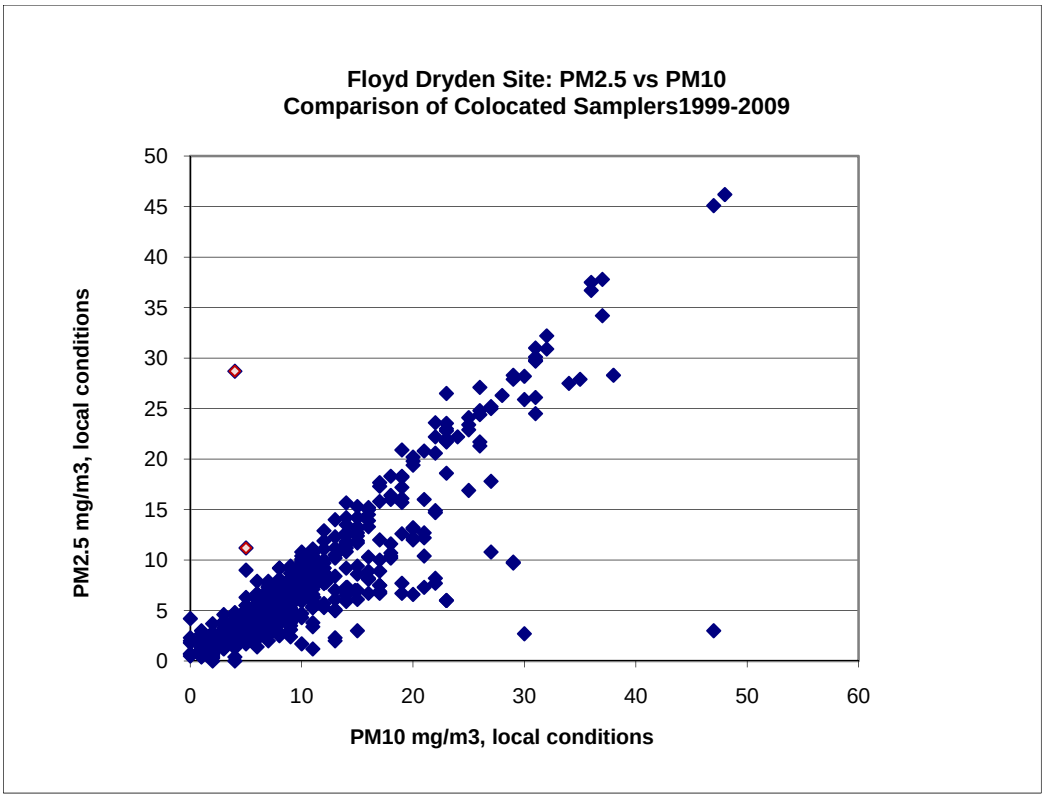

Figure 6. Comparison of $PM_{2.5}$ to PM_{10} for the years 1999 to 2009. Red points designate the outliers. They are impossible occurrences given the definition of PM_{10}.

Figure 7 distinguishes between fine particulate and coarse particulate. Points with high $PM_{2.5}$ and low PM_{10} are assumed to be outliers as this is impossible due to the inclusive definition of PM_{10}. They are indicated on both Figures 6 and 7 by red diamonds. Coarse particulate is calculated as $PM_{10} - PM_{2.5}$ when both are represented in terms of local conditions. In general the $PM_{2.5}$ is some fraction of PM_{10}. When $PM_{2.5}$ concentrations are high, the particulate matter contains almost all fine particulate. However, when the particulate load is small (PM_{10} is low) the particulate ranges from mostly fine particulate to even proportions for fine and coarse particulate. There is considerable error included when the weight of particulate on the filter is low. In this the calculated coarse particulate can turn negative due to significant uncertainty in the measurement of the weights of the filters (both $PM_{2.5}$ and PM_{10}). Because $PM_{2.5}$ is considered to be fine particulate, all of the error in the measurements of both weights is shown by the coarse particulate calculation. In addition, the comparison is between two different methods, high volume and low volume sampling. The high volume method samples 1.13 m^3/min while the low volume sampler samples at 16 L/min or 0.016 m^3/min which is about 70 fold difference in flow.

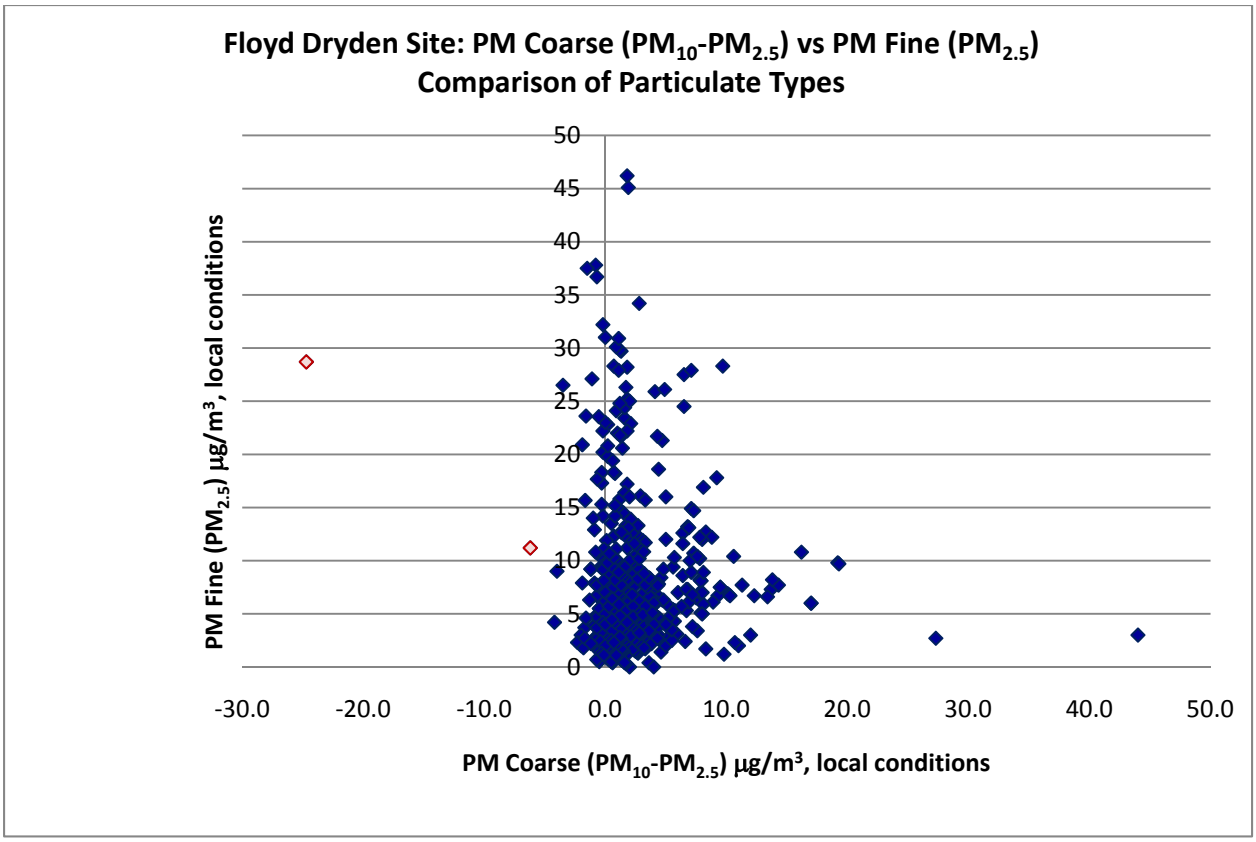

Figure 7. Fine particulate ($PM_{2.5}$) plotted against coarse particulate (PM_{10}-$PM_{2.5}$). Units in $\mu g/m^3$ at local conditions.

There are a few values which are primarily coarse particulate. The two days that particularly stand out both occurred in spring of 2005. The PM_{10} particulate value for April 28, 2005 was $47\mu g/m^3$ while the $PM_{2.5}$ was a minimal 3.0 $\mu g/m^3$. The next sample day May 4, 2005, the samples measured 30 $\mu g/m^3$ and 2.7 $\mu g/m^3$ respectively. These measurements from these two days provide strong evidence for a local source of fugitive dust either from the few unpaved roads left in the Mendenhall Valley or more likely glacial dust blown off of the Mendenhall Glacier at the head of the valley.

CONCLUSIONS

The Department's monitoring efforts in the Juneau at the Floyd Dryden site to date indicate that the NAAQ 24-hour primary standard for PM_{10} is rarely exceeded. There have been no concentrations in excess of the standard observed at the site since November 1988. Since the City and Borough of Juneau had paved many of the streets by 1991; particulate concentrations due to dust have significantly decreased. In fact, as the comparison of collocated $PM_{2.5}$ and PM_{10} monitors in this study, show most of the PM_{10} measured is actually in the size range of $PM_{2.5}$. Between 2007 and 2009, the State of Alaska and the City and Borough of Juneau worked

together to produce a Limited Maintenance Plan for the Mendenhall Valley which is now in attainment for PM_{10}[5].

Winter $PM_{2.5}$ concentrations are not generally above the new NAAQ standard but they occasionally exceed the standard. Although not designated as nonattainment, the City and Borough of Juneau (CBJ) has recently (2007 and later) started enforcing wood burning bans when an inversion is likely and a large amount of wood burning is occurring. The bans are implemented when the weather forecast is for inversion conditions and when the $PM_{2.5}$ concentrations reach a threshold level of 30 $\mu g/m^3$ and are expected to remain above 30 $\mu g/m^3$ for 24 hours if an Air Emergency is not called.[6] The CBJ requires all wood burning to cease until further notice. The ban does not include pellet stoves. The CBJ has been fining those who do not comply with the bans.

In conclusion, the CBJ is still required by the EPA to monitor for PM_{10} for its maintenance plan and to monitor for $PM_{2.5}$ to show attainment of the NAAQS. The LMP for Juneau calls for an additional ten years of PM_{10} monitoring at the Floyd Dryden site. In the future, wood burning and traffic causing emissions of $PM_{2.5}$ will still be of concern in winter. However, past data (1999 to 2009) indicate that the PM_{10} problem has been solved by paving of streets in Juneau and that the occasional winds that bring coarse particulate off of the Mendenhall Glacier will rarely, if ever, cause exceedances of the PM_{10} NAAQS.

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[5] 2009 City and Borough of Juneau PM_{10} Limited Maintenance Plan
http://www.dec.state.ak.us/AIR/anpms/doc-anpms/CBJ_PM10_LMP_20FEB09.pdf

[6] City and Borough of Juneau Woodsmoke Information
http://juneau.org/lands/woodsmoke.php

Appendix A: PM_{10} Data & Charts

Sample date	day of year	Value µg/m³ stp	Sample date	day of year	Value µg/m³ stp	Sample date	day of year	Value µg/m³ stp
1/1/1993	1	53	2/19/1993	50	62	4/15/1993	105	21
1/2/1993	2	29	2/20/1993	51	79	4/17/1993	107	14
1/3/1993	3	12	2/21/1993	52	52	4/19/1993	109	0
1/4/1993	4	59	2/22/1993	53	38	4/21/1993	111	28
1/5/1993	5	59	2/23/1993	54	39	4/23/1993	113	22
1/6/1993	6	35	2/24/1993	55	19	4/25/1993	115	22
1/7/1993	7	50	2/25/1993	56	4	4/27/1993	117	11
1/8/1993	8	78	2/26/1993	57	2	4/29/1993	119	8
1/9/1993	9	62	2/27/1993	58	4	5/1/1993	121	3
1/10/1993	10	27	2/28/1993	59	7	5/3/1993	123	15
1/11/1993	11	66	3/1/1993	60	11	5/7/1993	127	10
1/12/1993	12	81	3/2/1993	61	12	5/9/1993	129	8
1/13/1993	13	69	3/3/1993	62	13	5/11/1993	131	14
1/14/1993	14	47	3/4/1993	63	9	5/13/1993	133	27
1/15/1993	15	39	3/5/1993	64	3	5/15/1993	135	44
1/16/1993	16	19	3/6/1993	65	3	5/17/1993	137	7
1/17/1993	17	6	3/7/1993	66	9	5/19/1993	139	30
1/19/1993	19	28	3/8/1993	67	9	5/21/1993	141	7
1/20/1993	20	6	3/9/1993	68	13	5/23/1993	143	12
1/21/1993	21	6	3/10/1993	69	28	5/27/1993	147	28
1/22/1993	22	6	3/11/1993	70	35	5/29/1993	149	31
1/23/1993	23	14	3/12/1993	71	21	6/2/1993	153	17
1/24/1993	24	48	3/13/1993	72	13	6/4/1993	155	34
1/25/1993	25	58	3/14/1993	73	14	6/6/1993	157	6
1/26/1993	26	36	3/15/1993	74	49	6/8/1993	159	5
1/27/1993	27	65	3/16/1993	75	60	6/10/1993	161	10
1/28/1993	28	15	3/17/1993	76	45	6/12/1993	163	21
1/29/1993	29	5	3/18/1993	77	50	6/14/1993	165	27
1/30/1993	30	17	3/19/1993	78	39	6/16/1993	167	20
1/31/1993	31	4	3/20/1993	79	12	6/18/1993	169	6
2/1/1993	32	5	3/21/1993	80	5	6/20/1993	171	11
2/2/1993	33	7	3/22/1993	81	6	6/22/1993	173	25
2/3/1993	34	6	3/23/1993	82	4	6/24/1993	175	9
2/4/1993	35	15	3/24/1993	83	7	6/26/1993	177	36
2/5/1993	36	6	3/25/1993	84	10	6/28/1993	179	29
2/6/1993	37	2	3/26/1993	85	32	6/30/1993	181	14
2/7/1993	38	15	3/27/1993	86	31	7/2/1993	183	19
2/8/1993	39	22	3/28/1993	87	40	7/4/1993	185	9
2/9/1993	40	59	3/29/1993	88	43	7/6/1993	187	12
2/10/1993	41	42	3/30/1993	89	31	7/8/1993	189	22
2/11/1993	42	25	3/31/1993	90	17	7/10/1993	191	20
2/12/1993	43	27	4/1/1993	91	24	7/12/1993	193	35
2/13/1993	44	27	4/3/1993	93	32	7/14/1993	195	28
2/14/1993	45	22	4/5/1993	95	35	7/16/1993	197	24
2/15/1993	46	30	4/7/1993	97	13	7/18/1993	199	10
2/16/1993	47	31	4/9/1993	99	15	7/20/1993	201	21
2/17/1993	48	40	4/11/1993	101	4	7/22/1993	203	17
2/18/1993	49	48	4/13/1993	103	5	7/24/1993	205	17

Sample date	day of year	Value $\mu g/m^3$ stp	Sample date	day of year	Value $\mu g/m^3$ stp	Sample date	day of year	Value $\mu g/m^3$ stp
7/26/1993	207	6	10/16/1993	289	8	12/5/1993	339	1
7/28/1993	209	14	10/17/1993	290	10	12/6/1993	340	3
7/30/1993	211	6	10/18/1993	291	16	12/7/1993	341	6
8/1/1993	213	13	10/19/1993	292	5	12/8/1993	342	18
8/3/1993	215	15	10/20/1993	293	5	12/9/1993	343	26
8/5/1993	217	14	10/21/1993	294	13	12/10/1993	344	14
8/7/1993	219	17	10/22/1993	295	7	12/11/1993	345	23
8/9/1993	221	15	10/23/1993	296	12	12/12/1993	346	52
8/11/1993	223	12	10/24/1993	297	19	12/13/1993	347	24
8/13/1993	225	12	10/25/1993	298	7	12/14/1993	348	25
8/15/1993	227	7	10/26/1993	299	14	12/15/1993	349	5
8/17/1993	229	9	10/27/1993	300	15	12/16/1993	350	6
8/19/1993	231	16	10/28/1993	301	6	12/17/1993	351	4
8/21/1993	233	11	10/29/1993	302	7	12/18/1993	352	5
8/23/1993	235	13	10/30/1993	303	6	12/19/1993	353	9
8/25/1993	237	16	10/31/1993	304	4	12/20/1993	354	14
8/27/1993	239	12	11/1/1993	305	3	12/21/1993	355	10
8/29/1993	241	17	11/2/1993	306	9	12/22/1993	356	6
8/31/1993	243	8	11/3/1993	307	23	12/23/1993	357	5
9/2/1993	245	10	11/4/1993	308	34	12/24/1993	358	2
9/4/1993	247	22	11/5/1993	309	9	12/25/1993	359	19
9/6/1993	249	20	11/6/1993	310	13	12/26/1993	360	43
9/8/1993	251	11	11/7/1993	311	14	12/27/1993	361	20
9/10/1993	253	12	11/8/1993	312	11	12/28/1993	362	12
9/12/1993	255	9	11/9/1993	313	12	12/29/1993	363	16
9/14/1993	257	17	11/10/1993	314	6	12/30/1993	364	25
9/16/1993	259	14	11/11/1993	315	13	12/31/1993	365	11
9/18/1993	261	9	11/12/1993	316	10			
9/20/1993	263	9	11/13/1993	317	5			
9/22/1993	265	4	11/14/1993	318	6			
9/24/1993	267	12	11/15/1993	319	10			
9/26/1993	269	10	11/16/1993	320	13			
9/28/1993	271	10	11/17/1993	321	21			
9/30/1993	273	11	11/18/1993	322	6			
10/1/1993	274	8	11/19/1993	323	6			
10/2/1993	275	7	11/21/1993	325	31			
10/3/1993	276	9	11/22/1993	326	56			
10/4/1993	277	11	11/23/1993	327	13			
10/5/1993	278	13	11/24/1993	328	1			
10/6/1993	279	25	11/25/1993	329	3			
10/7/1993	280	38	11/26/1993	330	12			
10/8/1993	281	30	11/27/1993	331	6			
10/9/1993	282	20	11/28/1993	332	5			
10/10/1993	283	18	11/29/1993	333	13			
10/11/1993	284	23	11/30/1993	334	20			
10/12/1993	285	25	12/1/1993	335	11			
10/13/1993	286	18	12/2/1993	336	5			
10/14/1993	287	21	12/3/1993	337	8			
10/15/1993	288	15	12/4/1993	338	12			

Sample date	day of year	Value $\mu g/m^3$ stp	Sample date	day of year	Value $\mu g/m^3$ stp	Sample date	day of year	Value $\mu g/m^3$ stp
1/1/1994	1	16	2/19/1994	50	10	4/18/1994	108	22
1/2/1994	2	44	2/20/1994	51	13	4/20/1994	110	15
1/3/1994	3	46	2/21/1994	52	16	4/22/1994	112	20
1/4/1994	4	55	2/22/1994	53	18	4/24/1994	114	59
1/5/1994	5	31	2/23/1994	54	41	4/26/1994	116	49
1/6/1994	6	7	2/24/1994	55	33	4/28/1994	118	6
1/7/1994	7	7	2/25/1994	56	36	4/30/1994	120	9
1/8/1994	8	10	2/26/1994	57	26	5/2/1994	122	9
1/9/1994	9	15	2/27/1994	58	16	5/4/1994	124	15
1/10/1994	10	19	2/28/1994	59	7	5/6/1994	126	7
1/11/1994	11	20	3/1/1994	60	5	5/8/1994	128	11
1/12/1994	12	27	3/2/1994	61	9	5/10/1994	130	13
1/13/1994	13	30	3/3/1994	62	2	5/12/1994	132	5
1/14/1994	14	11	3/4/1994	63	5	5/14/1994	134	9
1/15/1994	15	21	3/5/1994	64	8	5/16/1994	136	35
1/16/1994	16	17	3/6/1994	65	7	5/18/1994	138	32
1/17/1994	17	20	3/7/1994	66	5	5/20/1994	140	13
1/18/1994	18	16	3/8/1994	67	4	5/22/1994	142	11
1/19/1994	19	27	3/9/1994	68	5	5/24/1994	144	7
1/20/1994	20	58	3/10/1994	69	7	5/26/1994	146	10
1/21/1994	21	25	3/11/1994	70	7	5/28/1994	148	10
1/22/1994	22	18	3/12/1994	71	4	5/30/1994	150	7
1/23/1994	23	27	3/13/1994	72	6	6/1/1994	152	8
1/24/1994	24	27	3/14/1994	73	6	6/3/1994	154	14
1/25/1994	25	12	3/15/1994	74	6	6/5/1994	156	11
1/26/1994	26	3	3/16/1994	75	6	6/7/1994	158	14
1/27/1994	27	5	3/17/1994	76	9	6/9/1994	160	24
1/28/1994	28	21	3/18/1994	77	15	6/11/1994	162	12
1/29/1994	29	15	3/19/1994	78	12	6/13/1994	164	15
1/30/1994	30	7	3/20/1994	79	10	6/15/1994	166	41
1/31/1994	31	7	3/21/1994	80	20	6/17/1994	168	8
2/1/1994	32	6	3/22/1994	81	28	6/19/1994	170	7
2/2/1994	33	11	3/23/1994	82	28	6/21/1994	172	9
2/3/1994	34	16	3/24/1994	83	4	6/23/1994	174	10
2/4/1994	35	14	3/25/1994	84	6	6/25/1994	176	9
2/5/1994	36	17	3/26/1994	85	6	6/27/1994	178	9
2/6/1994	37	21	3/27/1994	86	13	6/29/1994	180	8
2/7/1994	38	31	3/28/1994	87	30	7/1/1994	182	14
2/8/1994	39	21	3/29/1994	88	45	7/3/1994	184	7
2/9/1994	40	24	3/30/1994	89	6	7/5/1994	186	6
2/10/1994	41	16	3/31/1994	90	23	7/7/1994	188	8
2/11/1994	42	10	4/2/1994	92	9	7/9/1994	190	25
2/12/1994	43	10	4/4/1994	94	21	7/11/1994	192	13
2/13/1994	44	18	4/6/1994	96	30	7/13/1994	194	18
2/14/1994	45	25	4/8/1994	98	33	7/15/1994	196	23
2/15/1994	46	23	4/10/1994	100	5	7/17/1994	198	6
2/16/1994	47	32	4/12/1994	102	5	7/19/1994	200	5
2/17/1994	48	53	4/14/1994	104	3	7/21/1994	202	16
2/18/1994	49	25	4/16/1994	106	11	7/23/1994	204	18

Sample date	day of year	Value $\mu g/m^3$ stp	Sample date	day of year	Value $\mu g/m^3$ stp	Sample date	day of year	Value $\mu g/m^3$ stp
7/25/1994	206	23	10/17/1994	290	9	12/6/1994	340	36
7/27/1994	208	16	10/18/1994	291	12	12/7/1994	341	25
7/29/1994	210	10	10/19/1994	292	5	12/8/1994	342	38
7/31/1994	212	31	10/21/1994	294	6	12/9/1994	343	31
8/2/1994	214	28	10/22/1994	295	6	12/10/1994	344	31
8/4/1994	216	36	10/23/1994	296	10	12/11/1994	345	33
8/6/1994	218	30	10/24/1994	297	5	12/12/1994	346	6
8/8/1994	220	47	10/25/1994	298	8	12/13/1994	347	3
8/10/1994	222	42	10/26/1994	299	5	12/14/1994	348	20
8/12/1994	224	37	10/27/1994	300	5	12/15/1994	349	35
8/14/1994	226	44	10/28/1994	301	6	12/16/1994	350	32
8/16/1994	228	15	10/29/1994	302	4	12/17/1994	351	32
8/18/1994	230	21	10/30/1994	303	6	12/18/1994	352	6
8/20/1994	232	55	10/31/1994	304	20	12/19/1994	353	6
8/22/1994	234	7	11/1/1994	305	25	12/20/1994	354	3
8/24/1994	236	10	11/2/1994	306	5	12/21/1994	355	4
8/26/1994	238	15	11/3/1994	307	2	12/22/1994	356	19
8/28/1994	240	14	11/4/1994	308	5	12/23/1994	357	37
8/30/1994	242	11	11/5/1994	309	15	12/24/1994	358	49
9/1/1994	244	10	11/6/1994	310	11	12/25/1994	359	39
9/3/1994	246	11	11/7/1994	311	6	12/26/1994	360	17
9/5/1994	248	5	11/8/1994	312	19	12/27/1994	361	13
9/7/1994	250	9	11/9/1994	313	24	12/28/1994	362	36
9/9/1994	252	16	11/10/1994	314	4	12/29/1994	363	15
9/11/1994	254	6	11/11/1994	315	11	12/30/1994	364	17
9/15/1994	258	6	11/12/1994	316	8	12/31/1994	365	61
9/17/1994	260	6	11/13/1994	317	14			
9/19/1994	262	10	11/14/1994	318	29			
9/21/1994	264	5	11/15/1994	319	10			
9/23/1994	266	13	11/16/1994	320	31			
9/25/1994	268	8	11/17/1994	321	23			
9/27/1994	270	12	11/18/1994	322	10			
9/29/1994	272	19	11/19/1994	323	19			
10/1/1994	274	26	11/20/1994	324	18			
10/2/1994	275	16	11/21/1994	325	4			
10/3/1994	276	4	11/22/1994	326	8			
10/4/1994	277	6	11/23/1994	327	5			
10/5/1994	278	6	11/24/1994	328	8			
10/6/1994	279	5	11/25/1994	329	16			
10/7/1994	280	6	11/26/1994	330	17			
10/8/1994	281	6	11/27/1994	331	29			
10/9/1994	282	7	11/28/1994	332	3			
10/10/1994	283	10	11/29/1994	333	34			
10/11/1994	284	11	11/30/1994	334	8			
10/12/1994	285	4	12/1/1994	335	15			
10/13/1994	286	11	12/2/1994	336	56			
10/14/1994	287	23	12/3/1994	337	38			
10/15/1994	288	23	12/4/1994	338	4			
10/16/1994	289	4	12/5/1994	339	30			

Sample date	day of year	Value $\mu g/m^3$ stp	Sample date	day of year	Value $\mu g/m^3$ stp	Sample date	day of year	Value $\mu g/m^3$ stp
1/1/1995	1	71	2/19/1995	50	7	4/17/1995	107	6
1/2/1995	2	76	2/20/1995	51	5	4/19/1995	109	18
1/3/1995	3	57	2/21/1995	52	4	4/21/1995	111	25
1/4/1995	4	43	2/22/1995	53	7	4/23/1995	113	7
1/5/1995	5	29	2/23/1995	54	15	4/25/1995	115	18
1/6/1995	6	37	2/24/1995	55	16	4/27/1995	117	21
1/7/1995	7	57	2/25/1995	56	22	4/29/1995	119	24
1/8/1995	8	64	2/26/1995	57	28	5/1/1995	121	23
1/9/1995	9	35	2/27/1995	58	24	5/3/1995	123	20
1/10/1995	10	68	2/28/1995	59	33	5/5/1995	125	18
1/11/1995	11	64	3/1/1995	60	31	5/7/1995	127	30
1/12/1995	12	40	3/2/1995	61	25	5/9/1995	129	26
1/13/1995	13	30	3/3/1995	62	9	5/11/1995	131	13
1/14/1995	14	30	3/4/1995	63	30	5/13/1995	133	17
1/15/1995	15	16	3/5/1995	64	25	5/15/1995	135	8
1/16/1995	16	27	3/6/1995	65	13	5/17/1995	137	6
1/17/1995	17	22	3/7/1995	66	23	5/19/1995	139	6
1/18/1995	18	14	3/8/1995	67	15	5/21/1995	141	10
1/19/1995	19	5	3/9/1995	68	23	5/23/1995	143	12
1/20/1995	20	16	3/10/1995	69	9	5/25/1995	145	22
1/21/1995	21	12	3/11/1995	70	9	5/27/1995	147	9
1/22/1995	22	19	3/12/1995	71	16	5/29/1995	149	5
1/23/1995	23	28	3/13/1995	72	10	5/31/1995	151	6
1/24/1995	24	44	3/14/1995	73	17	6/2/1995	153	4
1/25/1995	25	30	3/15/1995	74	15	6/4/1995	155	7
1/26/1995	26	27	3/16/1995	75	4	6/6/1995	157	6
1/27/1995	27	22	3/17/1995	76	1	6/8/1995	159	14
1/28/1995	28	10	3/18/1995	77	4	6/10/1995	161	20
1/29/1995	29	4	3/19/1995	78	9	6/12/1995	163	5
1/30/1995	30	8	3/20/1995	79	19	6/14/1995	165	10
1/31/1995	31	17	3/21/1995	80	17	6/16/1995	167	6
2/1/1995	32	21	3/22/1995	81	15	6/18/1995	169	10
2/2/1995	33	16	3/23/1995	82	8	6/20/1995	171	14
2/3/1995	34	5	3/24/1995	83	11	6/22/1995	173	7
2/4/1995	35	9	3/25/1995	84	9	6/24/1995	175	4
2/5/1995	36	9	3/26/1995	85	14	6/26/1995	177	7
2/6/1995	37	3	3/27/1995	86	17	6/28/1995	179	15
2/7/1995	38	8	3/28/1995	87	13	6/30/1995	181	12
2/8/1995	39	10	3/29/1995	88	14	7/2/1995	183	10
2/9/1995	40	12	3/30/1995	89	24	7/4/1995	185	8
2/10/1995	41	15	3/31/1995	90	9	7/6/1995	187	9
2/11/1995	42	18	4/1/1995	91	5	7/8/1995	189	9
2/12/1995	43	54	4/3/1995	93	9	7/10/1995	191	17
2/13/1995	44	59	4/5/1995	95	12	7/12/1995	193	6
2/14/1995	45	39	4/7/1995	97	28	7/14/1995	195	6
2/15/1995	46	15	4/9/1995	99	6	7/16/1995	197	5
2/16/1995	47	62	4/11/1995	101	5	7/18/1995	199	9
2/17/1995	48	67	4/13/1995	103	27	7/20/1995	201	8
2/18/1995	49	21	4/15/1995	105	18	7/22/1995	203	4

Sample date	day of year	Value $\mu g/m^3$ stp	Sample date	day of year	Value $\mu g/m^3$ stp	Sample date	day of year	Value $\mu g/m^3$ stp
7/24/1995	205	4	10/16/1995	289	18	12/5/1995	339	17
7/26/1995	207	4	10/17/1995	290	6	12/7/1995	341	86
7/28/1995	209	6	10/18/1995	291	4	12/8/1995	342	55
7/30/1995	211	4	10/19/1995	292	2	12/9/1995	343	50
8/1/1995	213	9	10/20/1995	293	11	12/10/1995	344	14
8/3/1995	215	2	10/21/1995	294	9	12/11/1995	345	19
8/5/1995	217	6	10/22/1995	295	4	12/12/1995	346	36
8/7/1995	219	11	10/23/1995	296	13	12/13/1995	347	48
8/9/1995	221	14	10/24/1995	297	4	12/14/1995	348	31
8/11/1995	223	7	10/25/1995	298	4	12/15/1995	349	46
8/13/1995	225	3	10/26/1995	299	10	12/16/1995	350	28
8/15/1995	227	8	10/27/1995	300	12	12/17/1995	351	29
8/17/1995	229	41	10/28/1995	301	17	12/18/1995	352	23
8/19/1995	231	18	10/29/1995	302	26	12/19/1995	353	4
8/21/1995	233	13	10/30/1995	303	36	12/20/1995	354	6
8/23/1995	235	10	10/31/1995	304	46	12/21/1995	355	6
8/25/1995	237	8	11/1/1995	305	34	12/22/1995	356	4
8/27/1995	239	9	11/2/1995	306	8	12/23/1995	357	6
8/29/1995	241	10	11/3/1995	307	8	12/24/1995	358	7
8/31/1995	243	3	11/4/1995	308	8	12/25/1995	359	3
9/2/1995	245	8	11/5/1995	309	13	12/26/1995	360	2
9/4/1995	247	15	11/6/1995	310	16	12/27/1995	361	6
9/6/1995	249	12	11/7/1995	311	7	12/28/1995	362	18
9/8/1995	251	4	11/8/1995	312	10	12/29/1995	363	14
9/10/1995	253	2	11/9/1995	313	30	12/30/1995	364	13
9/12/1995	255	6	11/10/1995	314	24	12/31/1995	365	18
9/14/1995	257	7	11/11/1995	315	19			
9/16/1995	259	24	11/12/1995	316	14			
9/18/1995	261	19	11/13/1995	317	6			
9/22/1995	265	15	11/14/1995	318	13			
9/24/1995	267	23	11/15/1995	319	14			
9/26/1995	269	16	11/16/1995	320	3			
9/28/1995	271	11	11/17/1995	321	11			
9/30/1995	273	7	11/18/1995	322	14			
10/1/1995	274	3	11/19/1995	323	10			
10/2/1995	276	5	11/20/1995	324	10			
10/3/1995	275	6	11/21/1995	325	17			
10/4/1995	277	4	11/22/1995	326	13			
10/5/1995	278	6	11/23/1995	327	12			
10/6/1995	279	6	11/24/1995	328	11			
10/7/1995	280	3	11/25/1995	329	13			
10/8/1995	281	2	11/26/1995	330	19			
10/9/1995	282	4	11/27/1995	331	23			
10/10/1995	283	5	11/28/1995	332	35			
10/11/1995	284	3	11/29/1995	333	52			
10/12/1995	285	4	11/30/1995	334	45			
10/13/1995	286	5	12/1/1995	335	10			
10/14/1995	287	12	12/2/1995	336	12			
10/15/1995	288	18	12/3/1995	337	36			

Sample date	day of year	Value $\mu g/m^3$ stp	Sample date	day of year	Value $\mu g/m^3$ stp	Sample date	day of year	Value $\mu g/m^3$ stp
1/1/1996	1	18	2/20/1996	51	5	4/17/1996	108	17
1/2/1996	2	18	2/21/1996	52	16	4/19/1996	110	7
1/3/1996	3	22	2/22/1996	53	9	4/21/1996	112	9
1/4/1996	4	51	2/23/1996	54	8	4/23/1996	114	8
1/5/1996	5	28	2/24/1996	55	28	4/25/1996	116	15
1/6/1996	6	17	2/25/1996	56	26	4/27/1996	118	3
1/7/1996	7	4	2/26/1996	57	19	4/29/1996	120	6
1/8/1996	8	4	2/27/1996	58	33	5/1/1996	122	10
1/9/1996	9	2	2/28/1996	59	35	5/3/1996	124	17
1/10/1996	10	5	2/29/1996	60	35	5/5/1996	126	18
1/11/1996	11	6	3/1/1996	61	19	5/7/1996	128	15
1/12/1996	12	8	3/2/1996	63	11	5/9/1996	130	12
1/13/1996	13	47	3/3/1996	64	13	5/11/1996	132	23
1/14/1996	14	75	3/4/1996	65	33	5/13/1996	134	12
1/15/1996	15	59	3/5/1996	66	7	5/15/1996	136	8
1/16/1996	16	79	3/6/1996	67	7	5/17/1996	138	8
1/17/1996	17	74	3/7/1996	68	27	5/19/1996	140	12
1/18/1996	18	74	3/8/1996	69	29	5/21/1996	142	10
1/19/1996	19	68	3/9/1996	70	7	5/23/1996	144	10
1/20/1996	20	86	3/10/1996	71	2	5/25/1996	146	5
1/21/1996	21	65	3/11/1996	72	3	5/27/1996	148	7
1/22/1996	22	55	3/12/1996	73	6	5/29/1996	150	12
1/23/1996	23	40	3/13/1996	74	5	5/31/1996	152	12
1/24/1996	24	52	3/14/1996	75	12	6/2/1996	154	10
1/25/1996	25	56	3/15/1996	76	8	6/4/1996	156	13
1/26/1996	26	59	3/16/1996	77	4	6/6/1996	158	9
1/27/1996	27	40	3/17/1996	76	5	6/8/1996	160	4
1/28/1996	28	75	3/18/1996	78	10	6/10/1996	162	7
1/29/1996	29	66	3/19/1996	79	10	6/12/1996	164	3
1/30/1996	30	71	3/20/1996	80	20	6/14/1996	166	11
1/31/1996	31	64	3/21/1996	81	20	6/16/1996	168	5
2/1/1996	32	63	3/22/1996	82	33	6/18/1996	170	8
2/2/1996	33	47	3/23/1996	83	28	6/20/1996	172	8
2/3/1996	34	25	3/24/1996	84	29	6/22/1996	174	13
2/5/1996	36	7	3/25/1996	85	19	6/24/1996	176	13
2/6/1996	37	3	3/26/1996	86	29	6/26/1996	178	5
2/7/1996	38	2	3/27/1996	87	32	6/28/1996	180	2
2/8/1996	39	6	3/28/1996	88	29	6/30/1996	182	3
2/9/1996	40	1	3/29/1996	89	21	7/2/1996	184	4
2/10/1996	41	2	3/30/1996	90	13	7/4/1996	186	9
2/11/1996	42	3	3/31/1996	91	13	7/6/1996	188	7
2/12/1996	43	8	4/1/1996	92	14	7/8/1996	190	8
2/13/1996	44	9	4/3/1996	94	20	7/10/1996	192	6
2/14/1996	45	7	4/5/1996	96	10	7/12/1996	194	7
2/15/1996	46	6	4/7/1996	98	16	7/14/1996	196	5
2/16/1996	47	13	4/9/1996	100	53	7/16/1996	198	9
2/17/1996	48	7	4/11/1996	102	13	7/18/1996	200	11
2/18/1996	49	9	4/13/1996	104	20	7/20/1996	202	9
2/19/1996	50	5	4/15/1996	106	10	7/22/1996	204	6

Sample date	day of year	Value $\mu g/m^3$ stp	Sample date	day of year	Value $\mu g/m^3$ stp	Sample date	day of year	Value $\mu g/m^3$ stp
7/24/1996	206	10	10/15/1996	289	6	12/3/1996	338	1
7/26/1996	208	10	10/16/1996	290	6	12/4/1996	339	2
7/28/1996	210	12	10/17/1996	291	10	12/5/1996	340	2
7/30/1996	212	10	10/18/1996	292	18	12/6/1996	341	12
8/1/1996	214	8	10/19/1996	293	14	12/7/1996	342	17
8/3/1996	216	4	10/20/1996	294	16	12/8/1996	343	12
8/5/1996	218	11	10/21/1996	295	18	12/9/1996	344	12
8/7/1996	220	9	10/22/1996	296	10	12/10/1996	345	10
8/9/1996	222	5	10/23/1996	297	8	12/11/1996	346	11
8/11/1996	224	5	10/24/1996	298	7	12/12/1996	347	10
8/13/1996	226	5	10/25/1996	299	6	12/13/1996	348	12
8/15/1996	228	12	10/26/1996	300	2	12/14/1996	349	14
8/17/1996	230	10	10/27/1996	301	5	12/15/1996	350	43
8/19/1996	232	9	10/28/1996	302	11	12/16/1996	351	33
8/21/1996	234	3	10/29/1996	303	19	12/17/1996	352	3
8/23/1996	236	5	10/30/1996	304	25	12/18/1996	353	8
8/25/1996	238	8	10/31/1996	305	16	12/19/1996	354	7
8/27/1996	240	8	11/1/1996	306	9	12/20/1996	355	5
8/29/1996	242	8	11/2/1996	307	20	12/22/1996	357	8
8/31/1996	244	10	11/3/1996	308	19	12/23/1996	358	25
9/2/1996	246	9	11/4/1996	309	4	12/24/1996	359	33
9/4/1996	248	13	11/5/1996	310	3	12/25/1996	360	54
9/6/1996	250	8	11/6/1996	311	4	12/26/1996	361	49
9/8/1996	252	12	11/7/1996	312	6	12/27/1996	362	13
9/10/1996	254	5	11/8/1996	313	11	12/28/1996	363	48
9/12/1996	256	7	11/9/1996	314	20	12/29/1996	364	57
9/14/1996	258	10	11/10/1996	315	21	12/30/1996	365	46
9/16/1996	260	15	11/11/1996	316	16	12/31/1996	366	57
9/18/1996	262	4	11/12/1996	317	14			
9/20/1996	264	6	11/13/1996	318	19			
9/22/1996	266	2	11/14/1996	319	10			
9/24/1996	268	5	11/15/1996	320	24			
9/26/1996	270	8	11/16/1996	321	17			
9/28/1996	272	18	11/17/1996	322	14			
9/30/1996	274	12	11/18/1996	323	17			
10/1/1996	275	23	11/19/1996	324	14			
10/2/1996	276	11	11/20/1996	325	25			
10/3/1996	277	6	11/21/1996	326	52			
10/4/1996	278	4	11/22/1996	327	52			
10/5/1996	279	7	11/23/1996	328	57			
10/6/1996	280	8	11/24/1996	329	27			
10/7/1996	281	5	11/25/1996	330	12			
10/8/1996	282	5	11/26/1996	331	12			
10/9/1996	283	6	11/27/1996	332	4			
10/10/1996	284	7	11/28/1996	333	3			
10/11/1996	285	7	11/29/1996	334	3			
10/12/1996	286	17	11/30/1996	335	11			
10/13/1996	287	4	12/1/1996	336	6			
10/14/1996	288	10	12/2/1996	337	6			

Sample date	day of year	Value $\mu g/m^3$ stp	Sample date	day of year	Value $\mu g/m^3$ stp	Sample date	day of year	Value $\mu g/m^3$ stp
1/1/1997	1	60	2/21/1997	52	2	4/22/1997	112	11
1/2/1997	2	70	2/22/1997	53	1	4/24/1997	114	18
1/3/1997	3	63	2/23/1997	54	2	4/26/1997	116	11
1/4/1997	4	18	2/24/1997	55	10	4/28/1997	118	6
1/7/1997	7	6	2/25/1997	56	17	4/30/1997	120	7
1/8/1997	8	9	2/26/1997	57	8	5/2/1997	122	16
1/9/1997	9	10	2/27/1997	58	8	5/4/1997	124	12
1/10/1997	10	10	2/28/1997	59	8	5/6/1997	126	9
1/11/1997	11	9	3/1/1997	60	6	5/8/1997	128	6
1/12/1997	12	3	3/2/1997	61	16	5/10/1997	130	7
1/13/1997	13	7	3/3/1997	62	27	5/12/1997	132	11
1/14/1997	14	20	3/4/1997	63	24	5/14/1997	134	8
1/15/1997	15	34	3/5/1997	64	17	5/16/1997	136	7
1/16/1997	16	28	3/6/1997	65	9	5/18/1997	138	9
1/17/1997	17	8	3/7/1997	66	8	5/20/1997	140	9
1/18/1997	18	3	3/8/1997	67	7	5/22/1997	142	14
1/19/1997	19	10	3/9/1997	68	11	5/24/1997	144	13
1/20/1997	20	17	3/10/1997	69	11	5/26/1997	146	7
1/21/1997	21	15	3/11/1997	70	7	5/28/1997	148	8
1/22/1997	22	20	3/12/1997	71	12	5/30/1997	150	7
1/23/1997	23	28	3/13/1997	72	27	6/1/1997	152	5
1/24/1997	24	38	3/14/1997	73	30	6/3/1997	154	8
1/25/1997	25	52	3/15/1997	74	24	6/5/1997	156	10
1/26/1997	26	30	3/16/1997	75	8	6/7/1997	158	6
1/27/1997	27	10	3/17/1997	76	13	6/9/1997	160	6
1/28/1997	28	8	3/18/1997	77	11	6/11/1997	162	11
1/29/1997	29	10	3/19/1997	78	9	6/13/1997	164	5
1/30/1997	30	14	3/20/1997	79	3	6/15/1997	166	8
1/31/1997	31	10	3/21/1997	80	8	6/17/1997	168	10
2/1/1997	32	13	3/22/1997	81	11	6/19/1997	170	6
2/2/1997	33	5	3/23/1997	82	11	6/21/1997	172	11
2/3/1997	34	6	3/24/1997	83	3	6/23/1997	174	11
2/4/1997	35	5	3/25/1997	84	4	6/25/1997	176	9
2/5/1997	36	5	3/26/1997	85	8	6/27/1997	178	8
2/6/1997	37	2	3/27/1997	86	5	6/29/1997	180	10
2/7/1997	38	7	3/28/1997	87	4	7/1/1997	182	10
2/8/1997	39	13	3/29/1997	88	3	7/3/1997	184	9
2/9/1997	40	23	3/30/1997	89	6	7/9/1997	190	6
2/10/1997	41	17	3/31/1997	90	16	7/11/1997	192	6
2/11/1997	42	12	4/2/1997	92	9	7/13/1997	194	5
2/12/1997	43	9	4/4/1997	94	25	7/15/1997	196	5
2/13/1997	44	11	4/6/1997	96	22	7/17/1997	198	8
2/14/1997	45	14	4/8/1997	98	10	7/19/1997	200	8
2/15/1997	46	18	4/10/1997	100	21	7/22/1997	203	6
2/16/1997	47	18	4/12/1997	102	12	7/25/1997	206	9
2/17/1997	48	18	4/14/1997	104	5	7/29/1997	210	9
2/18/1997	49	8	4/16/1997	106	2	7/31/1997	212	5
2/19/1997	50	11	4/18/1997	108	10	8/2/1997	214	9
2/20/1997	51	7	4/20/1997	110	15	8/4/1997	216	9

Sample date	day of year	Value $\mu g/m^3$ stp	Sample date	day of year	Value $\mu g/m^3$ stp	Sample date	day of year	Value $\mu g/m^3$ stp
8/6/1997	218	9	12/21/1997	355	3			
8/8/1997	220	9	12/24/1997	358	6			
8/12/1997	224	4	12/27/1997	361	5			
8/14/1997	226	10						
8/16/1997	228	13						
8/18/1997	230	10						
8/20/1997	232	7						
8/22/1997	234	3						
8/24/1997	236	7						
8/26/1997	238	7						
8/28/1997	240	9						
8/30/1997	242	11						
9/1/1997	244	12						
9/3/1997	246	4						
9/7/1997	248	2						
9/9/1997	250	6						
9/11/1997	252	10						
9/13/1997	254	8						
9/15/1997	258	8						
9/17/1997	260	9						
9/19/1997	262	4						
9/21/1997	264	7						
9/23/1997	266	3						
9/25/1997	268	4						
9/27/1997	270	5						
9/29/1997	272	12						
10/1/1997	274	11						
10/4/1997	277	19						
10/7/1997	280	5						
10/10/1997	283	14						
10/13/1997	286	26						
10/16/1997	289	3						
10/22/1997	295	6						
10/25/1997	298	5						
10/28/1997	301	9						
10/31/1997	304	5						
11/3/1997	307	15						
11/6/1997	310	10						
11/12/1997	316	24						
11/15/1997	319	27						
11/18/1997	322	34						
11/21/1997	325	11						
11/24/1997	328	5						
11/27/1997	331	3						
11/30/1997	334	11						
12/3/1997	337	9						
12/6/1997	340	18						
12/12/1997	346	5						
12/18/1997	352	3						

Sample date	day of year	Value $\mu g/m^3$ stp	Sample date	day of year	Value $\mu g/m^3$ stp	Sample date	day of year	Value $\mu g/m^3$ stp
1/5/1998	5	7	10/8/1998	281	5			
1/8/1998	8	27	10/11/1998	284	14			
1/11/1998	11	24	10/14/1998	287	8			
1/14/1998	14	14	10/17/1998	290	3			
1/17/1998	17	10	10/20/1998	293	3			
1/26/1998	26	13	10/23/1998	296	10			
1/29/1998	9	12	10/26/1998	299	9			
2/1/1998	32	12	10/29/1998	302	34			
2/4/1998	35	21	11/1/1998	305	10			
2/7/1998	38	22	11/4/1998	308	11			
2/10/1998	41	8	11/7/1998	311	26			
2/13/1998	44	3	11/13/1998	317	13			
2/16/1998	47	8	11/16/1998	320	17			
2/19/1998	50	4	11/19/1998	323	6			
2/22/1998	53	2	11/22/1998	326	9			
2/25/1998	56	4	11/25/1998	329	15			
2/28/1998	59	25	11/28/1998	332	13			
3/3/1998	62	21	12/1/1998	335	10			
3/6/1998	65	40	12/4/1998	338	5			
3/12/1998	71	10	12/7/1998	341	8			
3/15/1998	74	4	12/10/1998	344	2			
3/18/1998	77	6	12/13/1998	347	11			
3/21/1998	80	26	12/19/1998	353	30			
3/24/1998	83	14	12/25/1998	359	48			
3/27/1998	86	10	12/28/1998	362	28			
3/30/1998	89	5	12/31/1998	365	17			
4/2/1998	92	9						
4/5/1998	95	10						
4/8/1998	98	8						
4/11/1998	101	9						
4/14/1998	104	14						
4/17/1998	107	5						
4/23/1998	113	9						
4/26/1998	116	5						
4/29/1998	119	12						
5/2/1998	122	8						
5/5/1998	125	10						
5/8/1998	128	9						
5/11/1998	131	6						
5/14/1998	134	12						
5/17/1998	137	12						
5/20/1998	140	6						
5/23/1998	143	16						
9/20/1998	263	6						
9/23/1998	266	4						
9/26/1998	269	7						
9/29/1998	272	7						
10/2/1998	275	11						
10/5/1998	278	5						

Sample date	day of year	Value $\mu g/m^3$ stp	Sample date	day of year	Value $\mu g/m^3$ stp	Sample date	day of year	Value $\mu g/m^3$ stp
1/6/1999	6	18	6/14/1999	165	10	11/17/1999	321	7
1/9/1999	9	12	6/17/1999	168	5	11/20/1999	324	3
1/12/1999	12	4	6/20/1999	171	4	11/23/1999	327	1
1/18/1999	18	27	6/23/1999	174	7	11/26/1999	330	14
1/21/1999	21	28	6/26/1999	177	6	11/29/1999	333	24
1/24/1999	24	9	6/29/1999	180	3	12/2/1999	336	2
1/27/1999	27	2	7/5/1999	186	11	12/5/1999	339	6
2/2/1999	33	7	7/8/1999	189	9	12/8/1999	342	8
2/5/1999	36	3	7/11/1999	192	2	12/11/1999	345	3
2/8/1999	39	7	7/14/1999	195	10	12/14/1999	348	8
2/11/1999	42	6	7/17/1999	198	7	12/17/1999	351	8
2/14/1999	45	6	7/20/1999	201	5	12/20/1999	354	4
2/17/1999	48	7	7/23/1999	204	8	12/23/1999	357	7
2/20/1999	51	9	7/26/1999	207	3	12/26/1999	360	1
2/23/1999	54	3	7/29/1999	210	5	12/29/1999	363	5
2/26/1999	57	9	8/1/1999	213	11			
3/1/1999	60	8	8/4/1999	216	14			
3/4/1999	63	10	8/7/1999	219	11			
3/7/1999	66	5	8/10/1999	222	4			
3/10/1999	69	3	8/13/1999	225	2			
3/13/1999	72	3	8/16/1999	228	10			
3/16/1999	75	6	8/19/1999	231	7			
3/19/1999	78	5	8/22/1999	234	4			
3/21/1999	3	6	8/28/1999	240	3			
3/25/1999	84	11	8/31/1999	243	6			
3/28/1999	87	13	9/3/1999	246	3			
3/31/1999	90	13	9/6/1999	249	8			
4/3/1999	93	8	9/9/1999	252	3			
4/6/1999	96	6	9/15/1999	258	1			
4/9/1999	99	12	9/18/1999	261	8			
4/12/1999	102	6	9/21/1999	264	5			
4/15/1999	105	2	9/24/1999	267	3			
4/18/1999	108	9	9/27/1999	270	4			
4/21/1999	111	8	9/30/1999	273	3			
4/24/1999	114	3	10/3/1999	276	2			
4/27/1999	117	10	10/6/1999	279	2			
4/30/1999	120	9	10/9/1999	282	3			
5/3/1999	123	5	10/12/1999	285	2			
5/6/1999	126	6	10/15/1999	288	3			
5/9/1999	129	7	10/18/1999	291	1			
5/12/1999	132	6	10/21/1999	294	3			
5/15/1999	135	12	10/24/1999	297	2			
5/18/1999	138	4	10/27/1999	300	5			
5/21/1999	141	2	10/30/1999	303	4			
5/24/1999	144	2	11/2/1999	306	8			
5/30/1999	150	2	11/5/1999	309	6			
6/5/1999	156	10	11/8/1999	312	6			
6/9/1999	160	12	11/11/1999	315	5			
6/11/1999	162	8	11/14/1999	318	6			

Sample date	day of year	Value $\mu g/m^3$ stp	Sample date	day of year	Value $\mu g/m^3$ stp	Sample date	day of year	Value $\mu g/m^3$ stp
1/1/2000	1	18	6/20/2000	171	4			
1/7/2000	7	7	6/23/2000	174	7			
1/10/2000	10	9	6/26/2000	177	9			
1/13/2000	13	20	6/29/2000	180	4			
1/16/2000	16	33	7/2/2000	183	4			
1/19/2000	19	11	7/5/2000	186	9			
1/25/2000	25	8	7/11/2000	192	3			
1/28/2000	28	5	7/17/2000	198	3			
1/31/2000	31	3	7/23/2000	204	2			
2/3/2000	34	16	7/29/2000	210	3			
2/9/2000	40	17	8/4/2000	216	5			
2/12/2000	43	27	8/10/2000	222	4			
2/15/2000	46	15	8/16/2000	228	5			
2/18/2000	49	0	8/22/2000	229	4			
2/24/2000	55	3	8/28/2000	240	7			
3/1/2000	60	5	9/3/2000	246	6			
3/4/2000	63	4	9/9/2000	252	5			
3/7/2000	66	26	9/15/2000	258	5			
3/13/2000	72	9	9/21/2000	264	11			
3/19/2000	78	6	10/6/2000	279	1			
3/22/2000	81	3	10/9/2000	282	0			
3/25/2000	84	2	10/12/2000	285	2			
3/29/2000	88	1	10/15/2000	288	2			
3/31/2000	90	6	10/18/2000	291	8			
4/3/2000	93	4	10/21/2000	294	2			
4/6/2000	96	2	10/24/2000	297	6			
4/9/2000	99	12	10/27/2000	300	19			
4/12/2000	102	9	10/28/2000	301	14			
4/15/2000	105	17	11/2/2000	306	6			
4/18/2000	108	1	11/5/2000	309	12			
4/24/2000	114	3	11/8/2000	312	9			
4/27/2000	117	9	11/11/2000	315	2			
4/30/2000	120	1	11/14/2000	318	2			
5/3/2000	123	8	11/17/2000	321	5			
5/6/2000	126	7	11/20/2000	324	4			
5/9/2000	129	10	11/23/2000	327	4			
5/12/2000	132	11	11/26/2000	330	1			
5/15/2000	135	5	11/29/2000	333	8			
5/18/2000	138	3	12/2/2000	336	13			
5/21/2000	141	5	12/5/2000	339	2			
5/24/2000	144	4	12/8/2000	342	11			
5/27/2000	147	11	12/14/2000	340	17			
5/30/2000	150	5	12/17/2000	351	6			
6/2/2000	153	11	12/20/2000	354	23			
6/5/2000	156	15	12/23/2000	357	21			
6/8/2000	159	5	12/26/2000	360	9			
6/11/2000	162	9	12/29/2000	363	8			
6/14/2000	165	3						
6/17/2000	168	4						

Sample date	day of year	Value $\mu g/m^3$ stp	Sample date	day of year	Value $\mu g/m^3$ stp	Sample date	day of year	Value $\mu g/m^3$ stp
1/1/2001	1	7	5/25/2001	145	5	10/16/2001	289	3
1/4/2001	4	5	5/28/2001	148	5	10/19/2001	292	2
1/7/2001	7	3	5/31/2001	151	3	10/22/2001	295	7
1/10/2001	10	17	6/3/2001	154	1	10/25/2001	298	5
1/13/2001	13	5	6/6/2001	157	2	10/28/2001	301	5
1/16/2001	16	5	6/9/2001	160	6	10/31/2001	304	8
1/19/2001	19	1	6/12/2001	163	6	11/3/2001	307	1
1/22/2001	22	0	6/15/2001	166	5	11/6/2001	310	7
1/25/2001	25	10	6/18/2001	169	8	11/9/2001	313	2
1/28/2001	28	5	6/21/2001	172	3	11/12/2001	316	12
1/31/2001	31	1	6/24/2001	175	4	11/15/2001	319	3
2/3/2001	34	6	6/27/2001	178	7	11/18/2001	322	13
2/6/2001	37	10	6/29/2001	180	6	11/21/2001	325	9
2/9/2001	40	12	6/30/2001	181	7	11/24/2001	328	12
2/12/2001	43	10	7/3/2001	184	9	11/27/2001	331	28
2/15/2001	46	21	7/6/2001	187	1	11/30/2001	334	25
2/18/2001	49	28	7/9/2001	190	2	12/3/2001	337	12
2/21/2001	52	17	7/12/2001	193	4	12/9/2001	343	4
2/24/2001	55	13	7/15/2001	196	6	12/12/2001	346	10
2/27/2001	58	0	7/18/2001	199	7	12/15/2001	349	13
3/2/2001	61	8	7/21/2001	202	9	12/18/2001	352	14
3/5/2001	64	2	7/24/2001	205	2	12/21/2001	355	1
3/8/2001	67	2	7/27/2001	208	5	12/24/2001	358	1
3/11/2001	70	2	7/30/2001	211	4	12/27/2001	361	8
3/14/2001	73	6	8/2/2001	214	6	12/30/2001	364	23
3/17/2001	76	3	8/5/2001	217	6			
3/20/2001	79	12	8/8/2001	220	7			
3/23/2001	82	24	8/11/2001	223	8			
3/26/2001	85	4	8/14/2001	226	10			
3/27/2001	86	4	8/17/2001	229	11			
3/29/2001	88	5	8/20/2001	232	4			
3/30/2001	89	20	8/23/2001	235	7			
4/1/2001	91	7	8/26/2001	238	4			
4/4/2001	94	3	8/29/2001	241	2			
4/7/2001	97	10	9/1/2001	244	7			
4/10/2001	100	13	9/4/2001	247	5			
4/13/2001	103	4	9/7/2001	250	3			
4/19/2001	109	9	9/10/2001	253	6			
4/22/2001	112	14	9/13/2001	256	2			
4/25/2001	115	3	9/16/2001	259	5			
4/28/2001	118	3	9/19/2001	262	3			
5/1/2001	121	5	9/22/2001	265	4			
5/4/2001	124	2	9/25/2001	268	4			
5/7/2001	127	3	9/28/2001	271	6			
5/10/2001	130	2	10/1/2001	274	3			
5/13/2001	133	1	10/4/2001	277	10			
5/16/2001	136	3	10/7/2001	280	6			
5/19/2001	139	5	10/10/2001	283	3			
5/22/2001	142	2	10/13/2001	286	5			

Sample date	day of year	Value $\mu g/m^3$ stp	Sample date	day of year	Value $\mu g/m^3$ stp	Sample date	day of year	Value $\mu g/m^3$ stp
1/2/2002	2	14	6/16/2002	167	11	11/16/2002	320	14
1/5/2002	5	7	6/19/2002	170	3	11/19/2002	323	2
1/8/2002	8	3	6/22/2002	173	10	11/22/2002	326	8
1/11/2002	11	6	6/25/2002	176	4	11/25/2002	329	1
1/14/2002	14	6	6/28/2002	179	8	12/1/2002	335	9
1/17/2002	17	9	7/1/2002	182	3	12/4/2002	338	18
1/20/2002	20	7	7/4/2002	185	4	12/7/2002	341	6
1/23/2002	23	4	7/7/2002	188	9	12/10/2002	344	4
1/26/2002	26	29	7/10/2002	191	5	12/13/2002	347	8
1/29/2002	29	8	7/13/2002	194	5	12/19/2002	353	18
2/1/2002	32	3	7/16/2002	197	8	12/22/2002	356	7
2/4/2002	35	5	7/19/2002	200	7	12/28/2002	362	8
2/7/2002	38	17	7/22/2002	203	6			
2/13/2002	44	2	7/25/2002	206	4			
2/16/2002	47	4	7/28/2002	209	5			
2/19/2002	50	5	7/31/2002	212	11			
2/22/2002	53	20	8/3/2002	215	11			
2/25/2002	56	7	8/6/2002	218	6			
2/28/2002	59	3	8/9/2002	221	5			
3/3/2002	62	3	8/12/2002	224	2			
3/6/2002	65	14	8/15/2002	227	12			
3/9/2002	68	14	8/18/2002	230	10			
3/12/2002	71	10	8/21/2002	233	2			
3/15/2002	74	12	8/24/2002	236	10			
3/18/2002	77	8	8/30/2002	242	3			
3/21/2002	80	10	9/5/2002	248	14			
3/24/2002	83	10	9/8/2002	251	3			
4/2/2002	92	16	9/11/2002	254	3			
4/5/2002	95	12	9/14/2002	257	8			
4/8/2002	98	10	9/17/2002	260	4			
4/11/2002	101	9	9/20/2002	263	5			
4/14/2002	104	11	9/23/2002	266	4			
4/17/2002	107	18	9/26/2002	269	6			
4/26/2002	116	14	9/29/2002	272	9			
4/29/2002	119	16	10/2/2002	275	7			
5/2/2002	122	6	10/5/2002	278	6			
5/5/2002	125	7	10/8/2002	281	4			
5/8/2002	128	19	10/11/2002	284	6			
5/11/2002	131	2	10/14/2002	287	5			
5/14/2002	134	3	10/17/2002	290	4			
5/20/2002	140	13	10/20/2002	293	2			
5/23/2002	143	4	10/23/2002	296	6			
5/26/2002	146	7	10/26/2002	299	3			
5/29/2002	149	2	10/29/2002	302	29			
6/1/2002	152	3	11/1/2002	305	16			
6/4/2002	155	2	11/4/2002	308	10			
6/7/2002	158	7	11/7/2002	311	7			
6/10/2002	161	2	11/10/2002	314	10			
6/13/2002	164	8	11/13/2002	317	3			

Sample date	day of year	Value $\mu g/m^3$ stp	Sample date	day of year	Value $\mu g/m^3$ stp	Sample date	day of year	Value $\mu g/m^3$ stp
1/3/2003	3	8						
1/6/2003	6	2						
1/9/2003	9	21						
1/12/2003	12	22						
1/15/2003	15	9						
1/18/2003	18	3						
1/22/2003	22	17						
1/24/2003	24	7						
1/27/2003	27	9						
1/30/2003	30	7						
2/2/2003	33	5						
2/5/2003	36	9						
2/8/2003	39	5						
2/11/2003	42	9						
2/14/2003	45	11						
2/17/2003	48	6						
2/20/2003	51	13						
2/23/2003	54	17						
2/26/2003	57	9						
3/1/2003	60	5						
3/4/2003	63	4						
3/7/2003	66	8						
3/8/2003	67	17						
3/10/2003	69	16						
3/13/2003	72	8						
3/16/2003	75	5						
3/19/2003	78	5						
3/22/2003	81	5						
3/25/2003	84	14						
3/28/2003	87	7						
3/31/2003	90	5						
10/6/2003	279	4						
10/12/2003	285	20						
10/18/2003	291	4						
10/24/2003	297	4						
10/30/2003	303	22						
11/2/2003	306	26						
11/5/2003	309	21						
11/11/2003	315	4						
11/17/2003	321	5						
11/19/2003	323	21						
11/23/2003	327	10						
11/27/2003	331	6						
11/29/2003	333	7						
12/5/2003	339	10						
12/11/2003	345	7						
12/17/2003	351	2						
12/23/2003	357	5						
12/29/2003	363	6						

Sample date	day of year	Value $\mu g/m^3$ stp	Sample date	day of year	Value $\mu g/m^3$ stp	Sample date	day of year	Value $\mu g/m^3$ stp
1/4/2004	4	28	9/18/2004	261	16			
1/10/2004	10	9	9/24/2004	267	4			
1/16/2004	16	5	9/27/2004	270	5			
1/22/2004	22	8	9/30/2004	273	7			
1/28/2004	28	12	10/6/2004	279	8			
2/3/2004	34	6	10/12/2004	285	14			
2/9/2004	40	7	10/18/2004	291	7			
2/15/2004	46	14	10/24/2004	297	9			
2/21/2004	52	1	10/30/2004	303	4			
2/27/2004	58	18	11/5/2004	309	4			
3/4/2004	63	4	11/11/2004	315	7			
3/10/2004	69	4	11/17/2004	321	2			
3/19/2004	78	17	11/23/2004	327	4			
3/22/2004	81	13	11/29/2004	333	5			
3/25/2004	84	6	12/5/2004	339	14			
3/28/2004	87	11	12/11/2004	345	5			
3/31/2004	90	3	12/17/2004	351	3			
4/3/2004	93	3	12/23/2004	357	2			
4/9/2004	99	8	12/29/2004	363	5			
4/15/2004	105	13						
4/21/2004	111	17						
4/27/2004	117	5						
5/3/2004	123	6						
5/9/2004	129	3						
5/15/2004	135	17						
5/21/2004	141	12						
5/27/2004	147	5						
6/2/2004	153	3						
6/8/2004	159	3						
6/14/2004	165	3						
6/20/2004	171	14						
6/26/2004	177	17						
7/2/2004	183	8						
7/8/2004	189	34						
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7/14/2004	195	31						
7/20/2004	201	9						
7/26/2004	207	5						
8/1/2004	213	9						
8/7/2004	219	8						
8/13/2004	225	13						
8/16/2004	228	31						
8/19/2004	231	10						
8/21/2004	233	9						
8/25/2004	237	21						
8/31/2004	243	11						
9/10/2004	253	13						
9/12/2004	255	3						
9/15/2004	258	5						

Sample date	day of year	Value $\mu g/m^3$ stp	Sample date	day of year	Value $\mu g/m^3$ stp	Sample date	day of year	Value $\mu g/m^3$ stp
1/4/2005	4	14	10/19/2005	292	6			
1/10/2005	10	10	10/25/2005	298	9			
1/12/2005	12	42	10/27/2005	300	14			
1/16/2005	16	27	10/31/2005	304	14			
1/22/2005	22	10	11/6/2005	310	8			
1/28/2005	28	7	11/12/2005	316	35			
2/3/2005	34	4	11/18/2005	322	1			
2/5/2005	36	20	11/24/2005	328	0			
2/9/2005	40	3	11/30/2005	334	35			
2/15/2005	46	11	12/3/2005	337	12			
2/21/2005	52	6	12/6/2005	340	11			
2/27/2005	58	6	12/12/2005	346	6			
3/5/2005	64	4	12/18/2005	352	34			
3/11/2005	70	5	12/24/2005	358	17			
3/17/2005	76	19	12/30/2005	364	11			
3/20/2005	79	8						
3/23/2005	82	15						
3/29/2005	88	7						
4/4/2005	94	5						
4/22/2005	112	7						
4/28/2005	118	7						
5/4/2005	124	5						
5/10/2005	130	23						
5/16/2005	136	5						
5/22/2005	142	11						
5/25/2005	145	14						
5/28/2005	148	8						
6/3/2005	154	10						
6/9/2005	160	10						
6/15/2005	166	4						
6/21/2005	172	3						
6/27/2005	178	13						
7/3/2005	184	4						
7/24/2005	205	6						
7/27/2005	208	4						
8/2/2005	214	8						
8/8/2005	220	17						
8/14/2005	226	34						
8/20/2005	232	5						
8/26/2005	238	5						
9/1/2005	244	4						
9/7/2005	250	4						
9/13/2005	256	6						
9/19/2005	262	6						
9/25/2005	268	8						
10/1/2005	274	5						
10/3/2005	276	19						
10/7/2005	280	11						
10/13/2005	286	5						

Sample date	day of year	Value $\mu g/m^3$ stp	Sample date	day of year	Value $\mu g/m^3$ stp	Sample date	day of year	Value $\mu g/m^3$ stp
1/5/2006	5	8	11/1/2006	305	14			
1/11/2006	11	11	11/7/2006	311	24			
1/17/2006	17	9	11/13/2006	317	5			
1/23/2006	23	8	11/19/2006	323	11			
1/29/2006	29	11	11/23/2006	327	33			
2/4/2006	35	26	11/25/2006	329	27			
2/10/2006	41	9	12/1/2006	335	15			
2/16/2006	47	25	12/7/2006	341	2			
2/22/2006	53	8	12/13/2006	347	8			
2/28/2006	59	23	12/19/2006	353	1			
3/6/2006	65	13	12/25/2006	359	1			
3/12/2006	71	20	12/31/2006	365	0			
3/18/2006	77	20						
3/31/2006	90	19						
4/5/2006	95	16						
4/11/2006	101	19						
4/17/2006	107	3						
4/23/2006	113	5						
4/29/2006	119	1						
5/5/2006	125	1						
5/11/2006	131	3						
5/17/2006	137	5						
5/23/2006	143	10						
5/29/2006	146	5						
6/4/2006	155	2						
6/10/2006	161	11						
6/16/2006	167	6						
6/28/2006	179	3						
6/30/2006	181	5						
7/7/2006	188	3						
7/10/2006	191	5						
7/16/2006	197	4						
7/22/2006	203	7						
7/28/2006	209	7						
8/3/2006	215	4						
8/9/2006	221	4						
8/15/2006	227	3						
8/21/2006	233	9						
8/27/2006	239	4						
9/2/2006	245	10						
9/8/2006	251	13						
9/14/2006	257	8						
9/20/2006	263	2						
9/26/2006	269	3						
10/2/2006	275	7						
10/8/2006	281	12						
10/14/2006	287	5						
10/20/2006	293	3						
10/26/2006	299	3						

Sample date	day of year	Value $\mu g/m^3$ stp	Sample date	day of year	Value $\mu g/m^3$ stp	Sample date	day of year	Value $\mu g/m^3$ stp
1/6/2007	6	4	9/15/2007	258	2			
1/9/2007	9	9	9/21/2007	264	3			
1/11/2007	11	14	9/27/2007	270	4			
1/15/2007	15	0	10/3/2007	276	7			
1/18/2007	18	3	10/9/2007	282	4			
1/24/2007	24	6	10/15/2007	288	3			
1/30/2007	30	5	10/21/2007	294	5			
2/1/2007	32	20	10/27/2007	300	8			
2/5/2007	36	9	11/2/2007	306	2			
2/8/2007	39	5	11/8/2007	312	12			
2/11/2007	42	21	11/14/2007	318	8			
2/17/2007	48	9	11/20/2007	324	7			
2/20/2007	51	3	11/26/2007	330	4			
2/23/2007	54	3	11/29/2007	333	21			
3/1/2007	60	15	12/2/2007	336	6			
3/7/2007	66	4	12/5/2007	339	45			
3/13/2007	72	5	12/7/2007	341	14			
3/19/2007	78	8	12/14/2007	348	9			
3/25/2007	84	6	12/20/2007	354	12			
3/31/2007	90	9	12/26/2007	360	3			
4/6/2007	96	6						
4/12/2007	102	3						
4/18/2007	108	15						
4/21/2007	111	16						
4/24/2007	114	0						
4/30/2007	120	6						
5/6/2007	126	1						
5/12/2007	132	3						
5/18/2007	138	10						
5/24/2007	144	13						
5/30/2007	150	2						
6/5/2007	156	5						
6/11/2007	162	3						
6/17/2007	168	5						
6/23/2007	174	4						
6/29/2007	180	7						
7/5/2007	186	3						
7/11/2007	192	2						
7/17/2007	198	4						
7/23/2007	204	2						
7/29/2007	210	5						
8/4/2007	216	9						
8/10/2007	222	12						
8/16/2007	228	16						
8/22/2007	234	9						
8/28/2007	240	14						
9/3/2007	246	11						
9/9/2007	252	4						

Sample date	day of year	Value $\mu g/m^3$ stp	Sample date	day of year	Value $\mu g/m^3$ stp	Sample date	day of year	Value $\mu g/m^3$ stp
1/1/2008	1	8	9/15/2008	259	4			
1/7/2008	7	8	9/21/2008	265	8			
1/13/2008	13	4	9/27/2008	271	4			
1/19/2008	19	12	10/3/2008	277	6			
1/25/2008	25	4	10/10/2008	284	1			
1/31/2008	31	28	10/15/2008	289	1			
2/6/2008	37	7	10/21/2008	295	1			
2/8/2008	39	24	10/27/2008	301	4			
2/12/2008	43	6	11/2/2008	307	9			
2/18/2008	49	3	11/8/2008	313	21			
2/24/2008	55	10	11/14/2008	319	2			
3/1/2008	61	5	11/20/2008	325	14			
3/7/2008	67	1	11/26/2008	331	2			
3/21/2008	81	2	12/2/2008	337	24			
3/25/2008	85	16	12/8/2008	343	10			
3/31/2008	91	7	12/14/2008	349	24			
4/19/2008	110	18	12/20/2008	355	30			
4/24/2008	115	19	12/26/2008	361	6			
4/27/2008	118	2						
4/30/2008	121	4						
5/7/2008	128	8						
5/12/2008	133	1						
5/19/2008	140	7						
5/25/2008	146	15						
5/30/2008	151	13						
6/5/2008	157	3						
6/11/2008	163	7						
6/26/2008	178	3						
7/2/2008	184	5						
7/8/2008	190	1						
7/11/2008	193	5						
7/17/2008	199	3						
7/23/2008	205	3						
7/29/2008	211	5						
8/4/2008	217	5						
8/10/2008	223	5						
8/16/2008	229	7						
8/22/2008	235	3						
8/28/2008	241	4						
9/3/2008	247	3						
9/9/2008	253	7						

Sample date	day of year	Value mg/m3 stp	Sample date	day of year	Value mg/m3 stp	Sample date	day of year	Value mg/m3 stp
1/1/2009	1	33						
1/7/2009	7	19						
1/13/2009	13	11						
1/15/2009	15	9						
1/19/2009	19	6						
1/25/2009	25	24						
1/31/2009	31	4						
2/6/2009	37	2						
2/12/2009	43	16						
2/18/2009	49	16						
2/24/2009	55	18						
3/2/2009	61	6						
3/8/2009	67	15						
3/14/2009	73	5						
3/20/2009	79	7						
3/26/2009	85	1						
4/1/2009	91	6						
4/7/2009	97	6						
4/13/2009	103	13						
4/19/2009	109	7						
4/25/2009	115	6						
5/1/2009	121	20						
5/7/2009	127	1						
5/13/2009	133	8						
5/19/2009	139	7						
5/25/2009	145	9						
5/31/2009	151	5						
6/6/2009	157	16						
6/12/2009	163	5						
6/18/2009	169	2						
6/27/2009	178	1						
6/30/2009	181	5						
9/28/2009	271	11						
10/4/2009	277	13						
10/10/2009	283	11						
10/16/2009	289	5						
10/22/2009	295	2						
10/28/2009	301	8						
11/3/2009	307	6						
11/9/2009	313	13						
11/15/2009	319	6						
11/21/2009	325	13						
11/27/2009	331	1						
12/3/2009	337	7						
12/9/2009	343	10						
12/15/2009	349	21						
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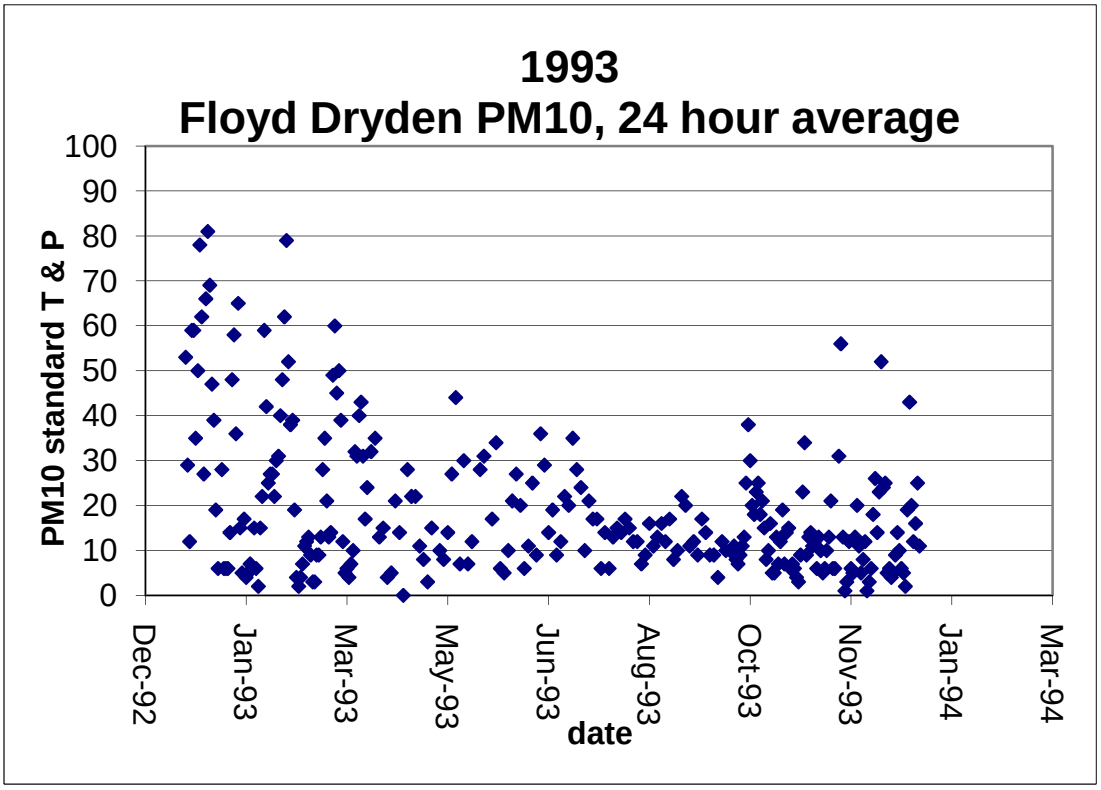
12/27/2009	361	20						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PM10 standard T & P
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Jan-94
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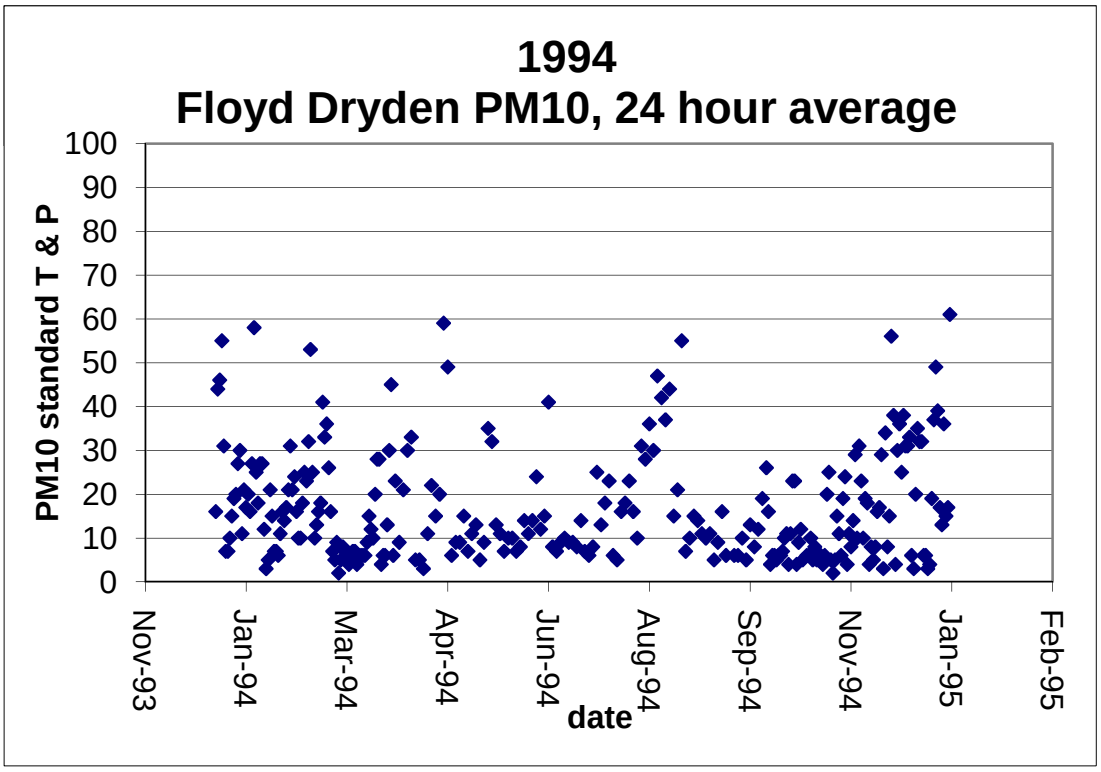
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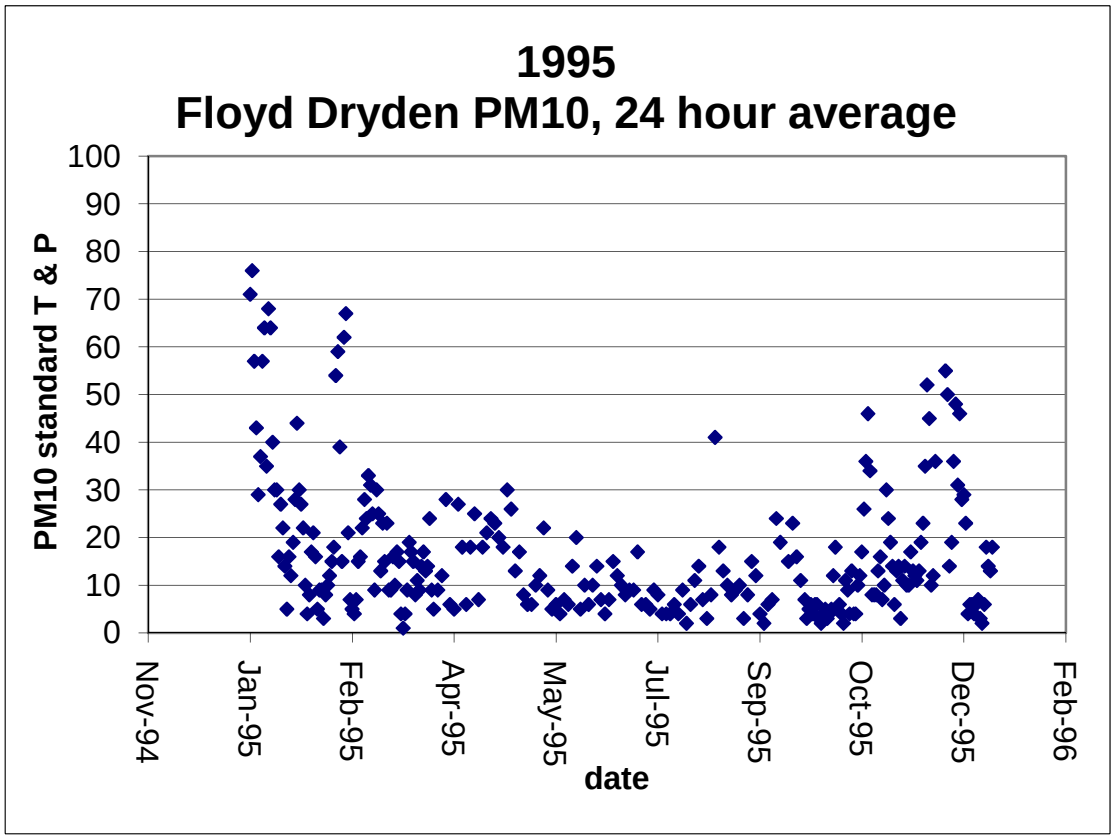
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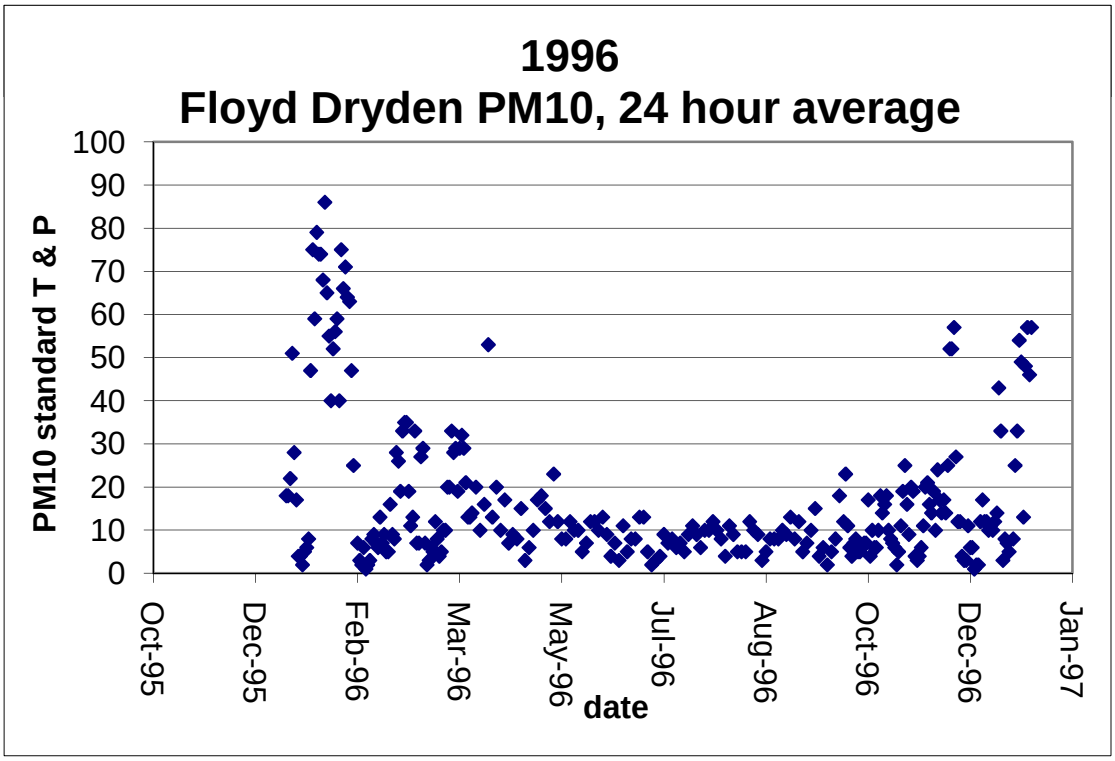
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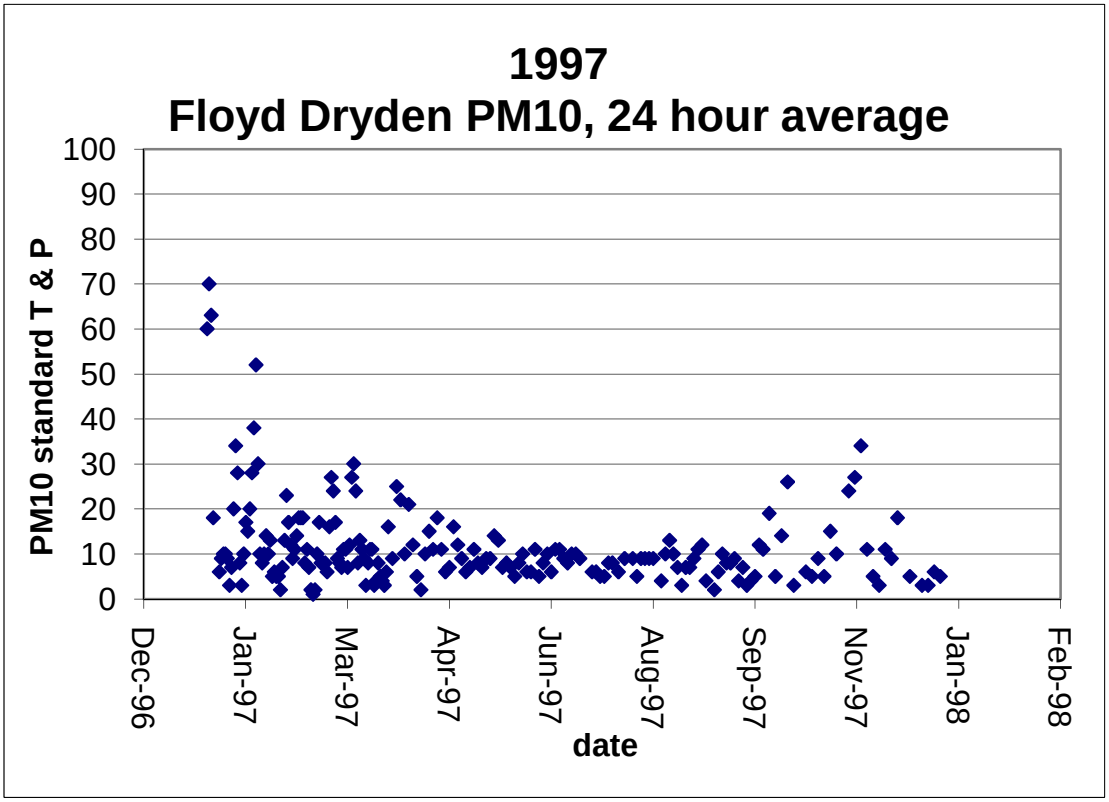
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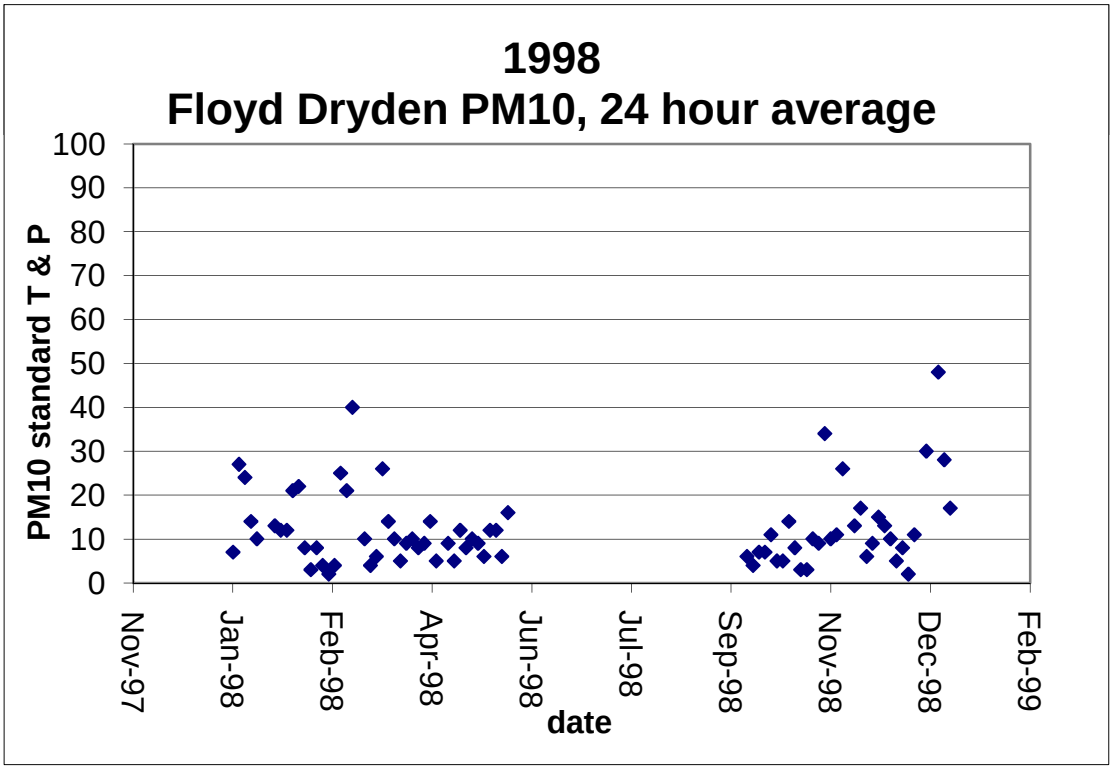
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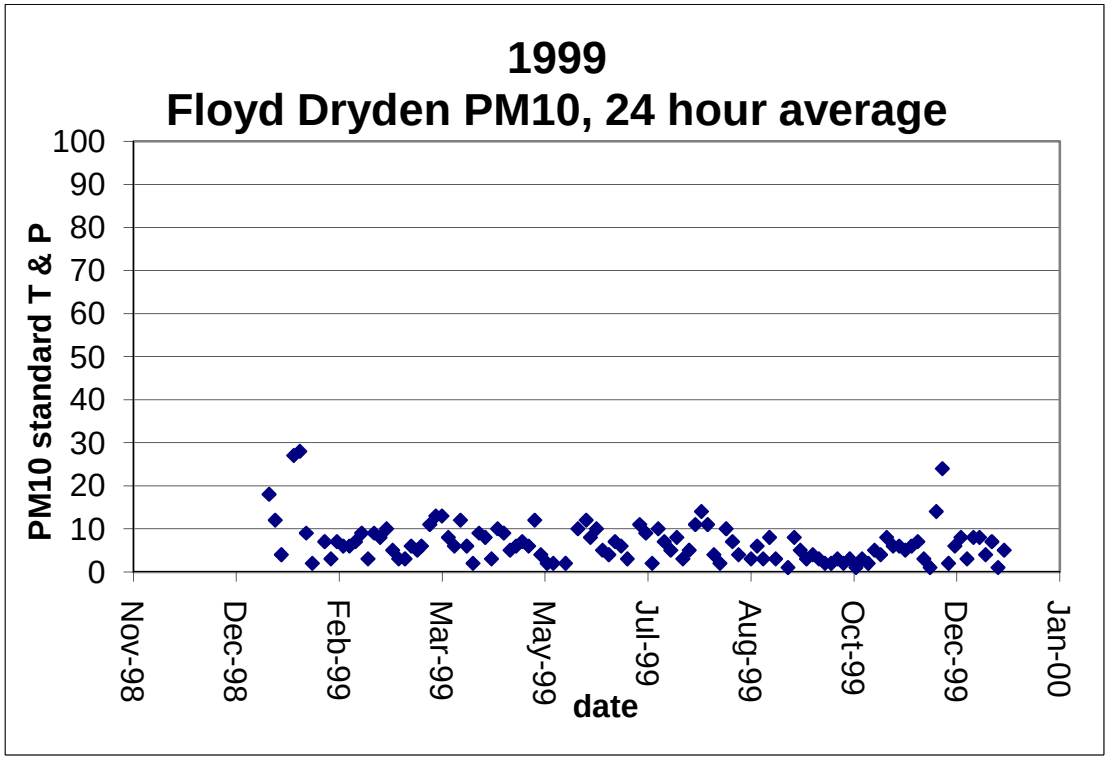
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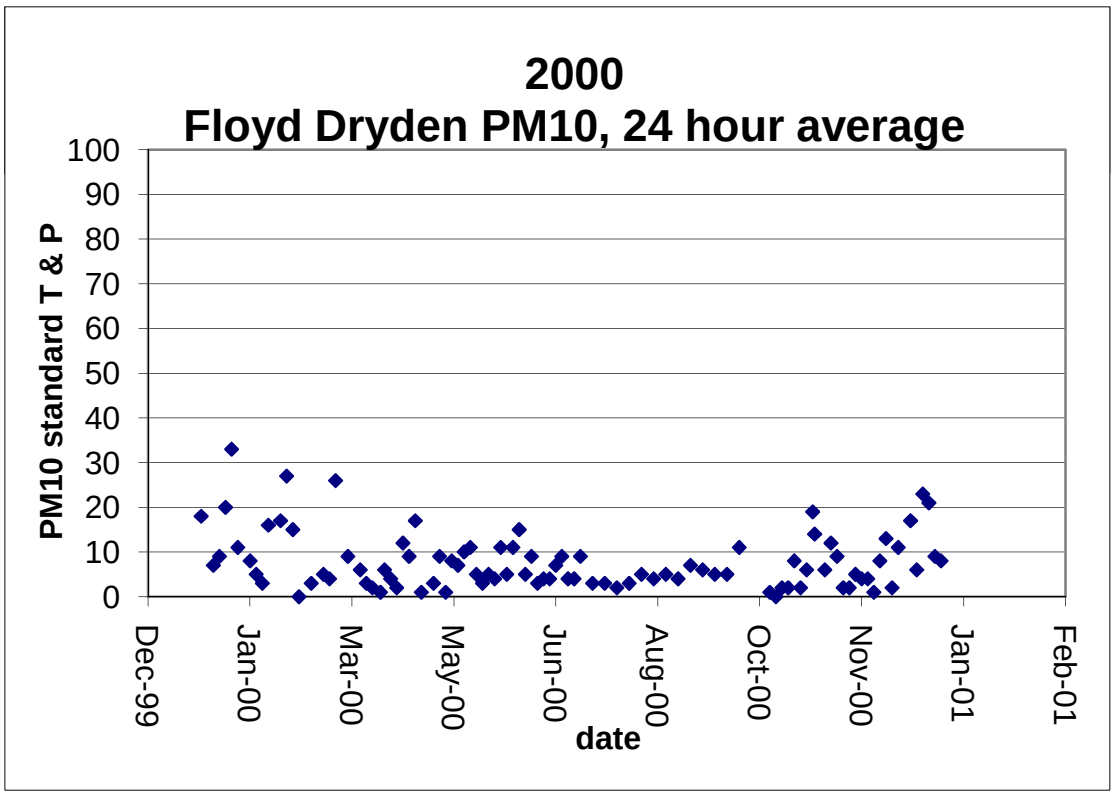
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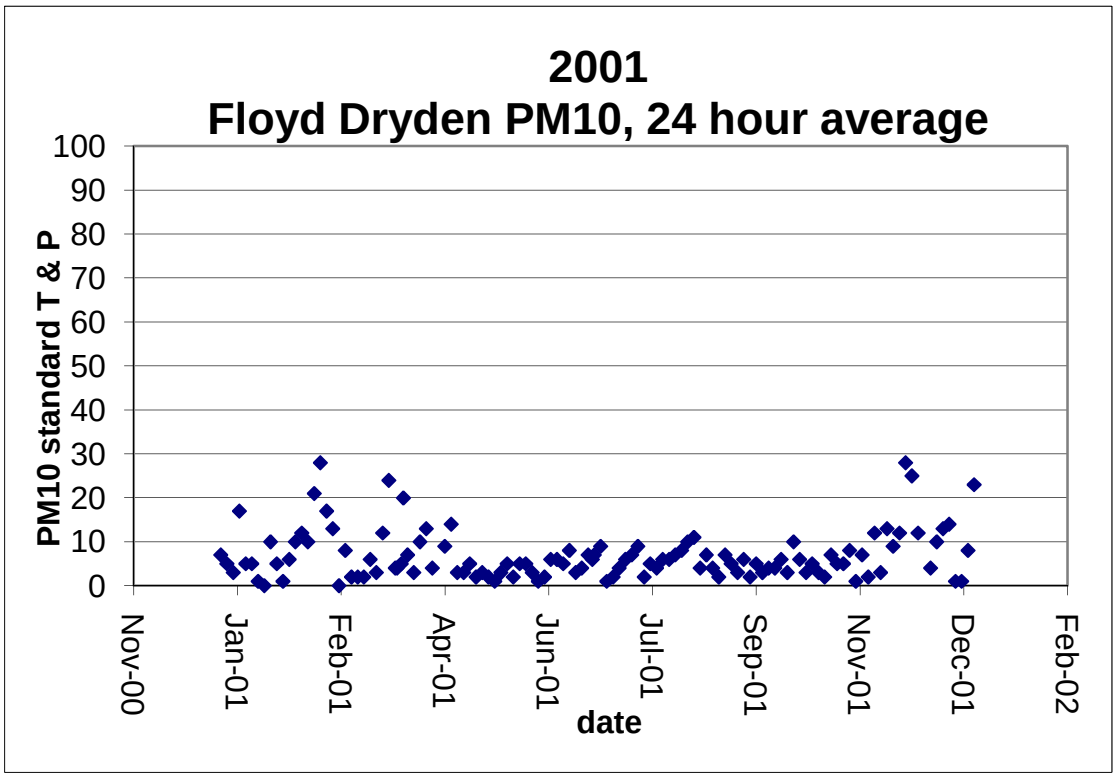
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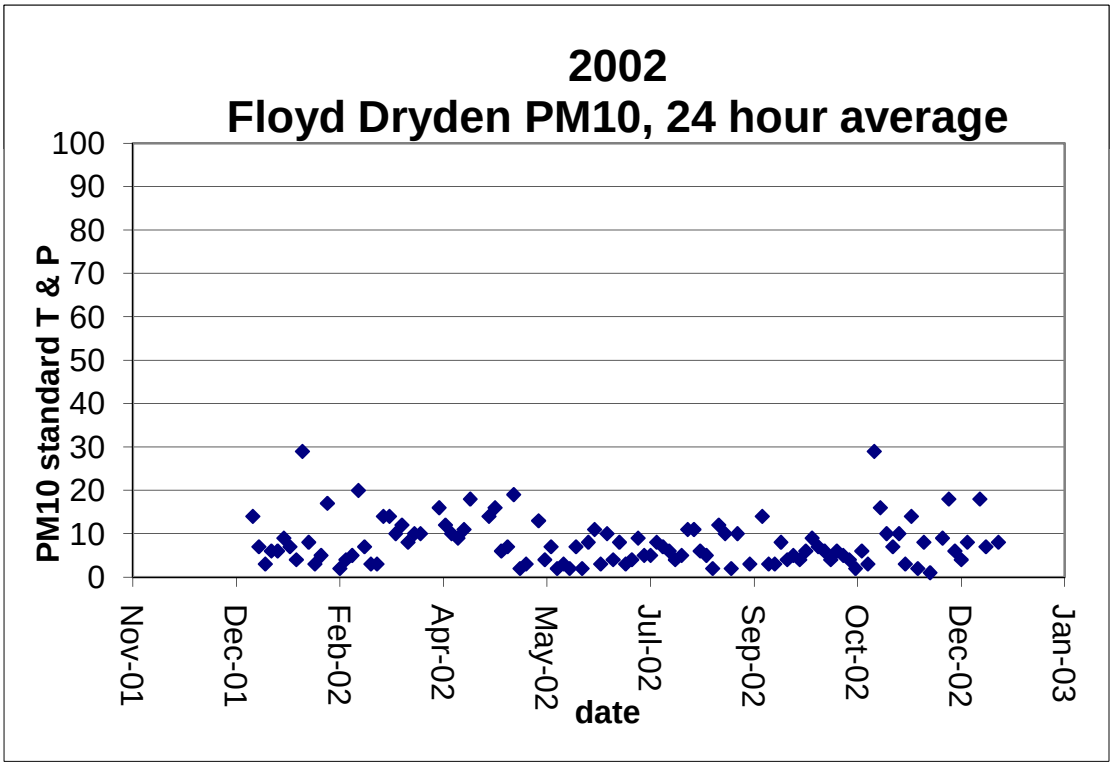
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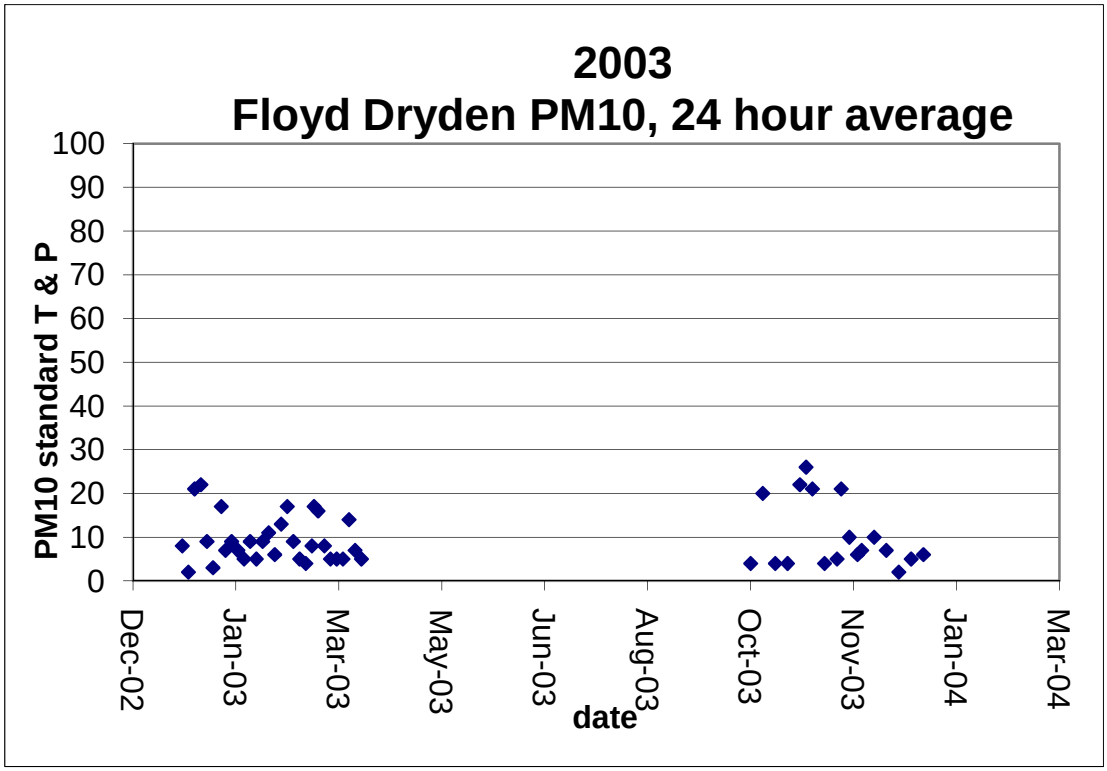
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PM10 standard T & P
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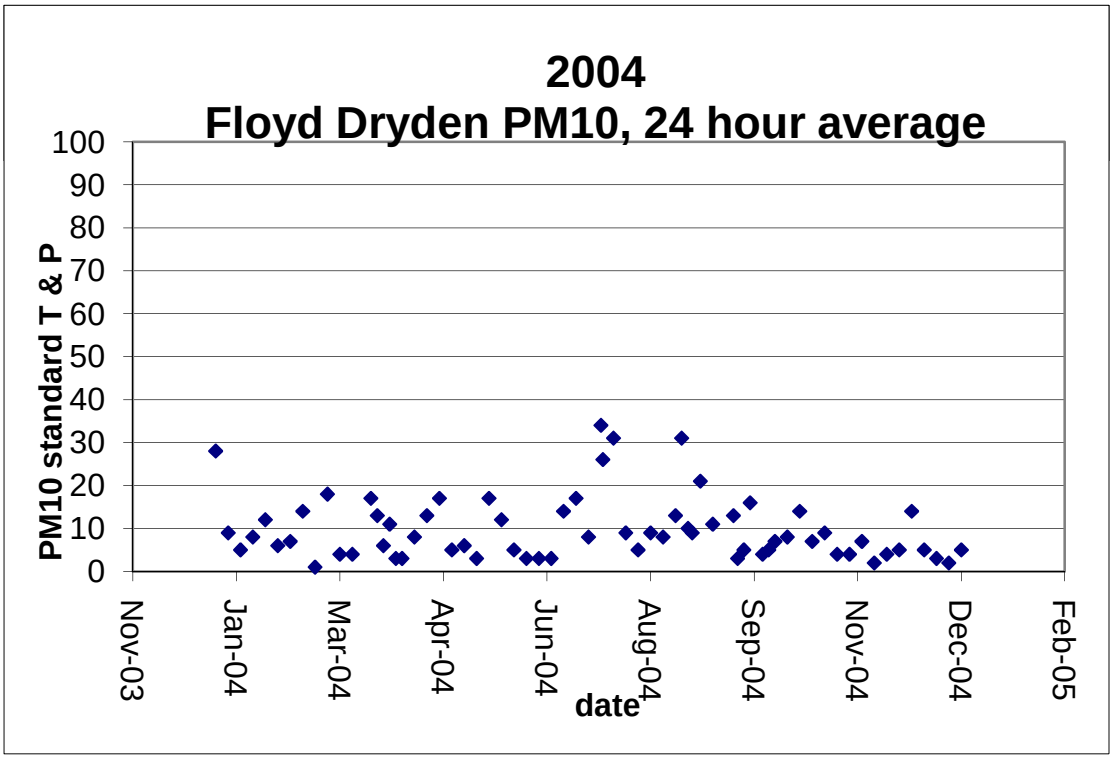
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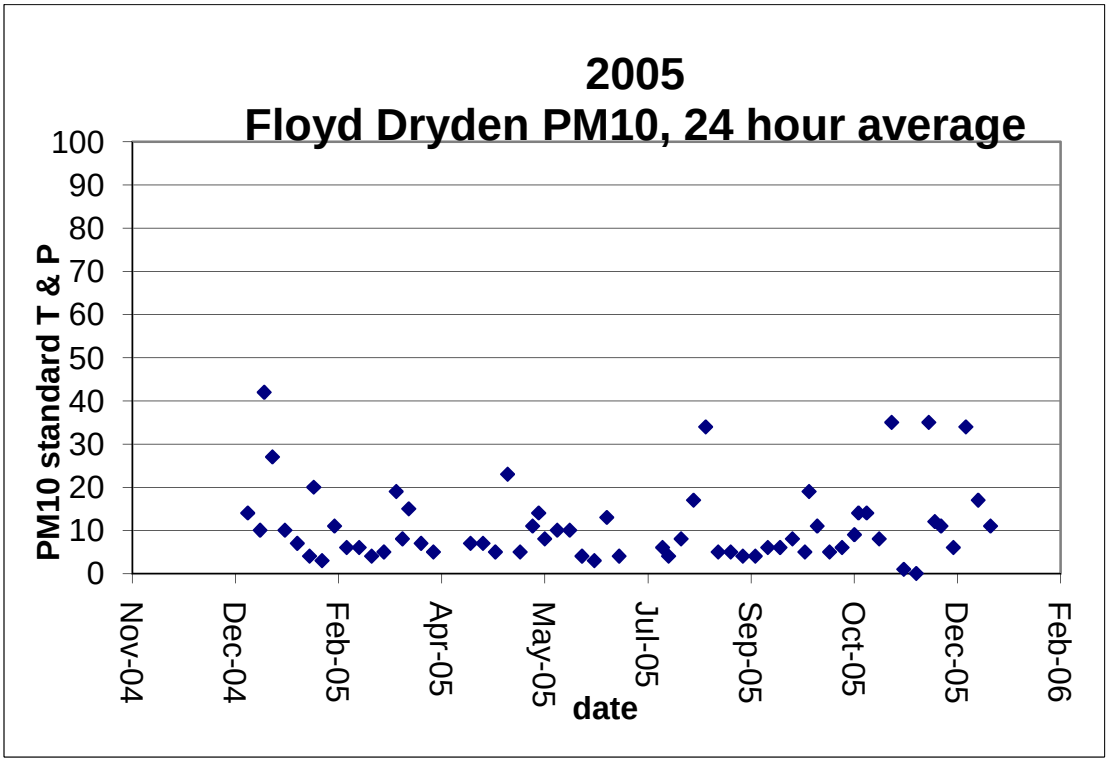
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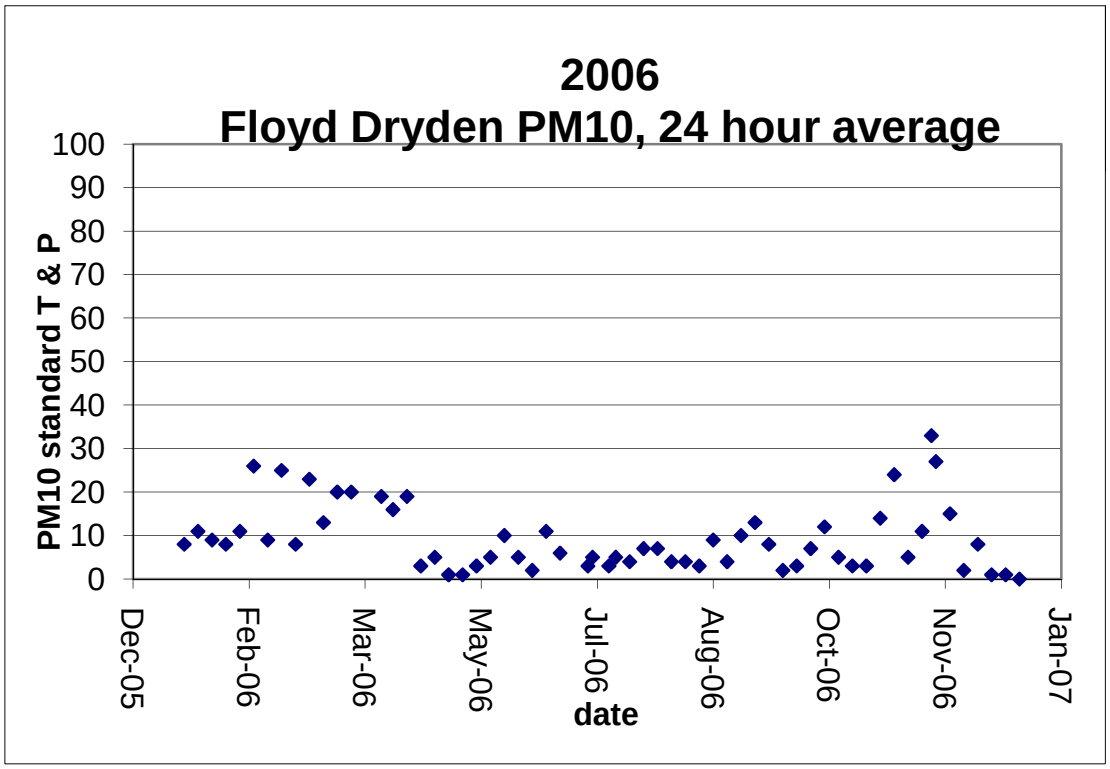
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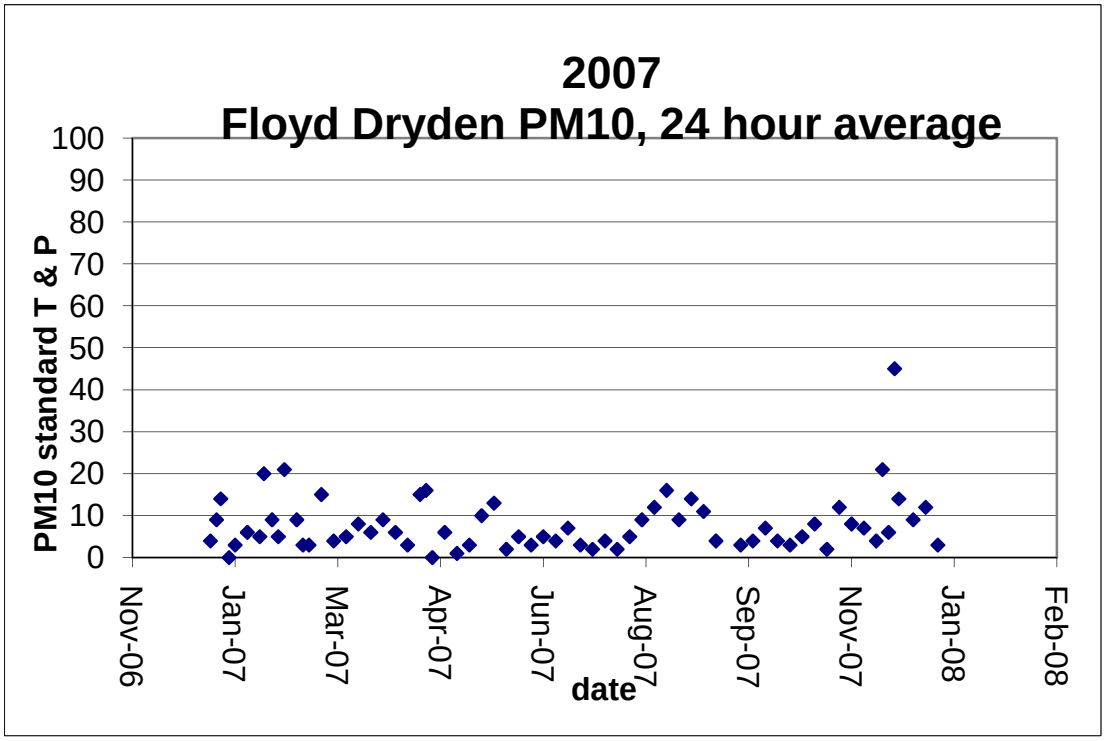
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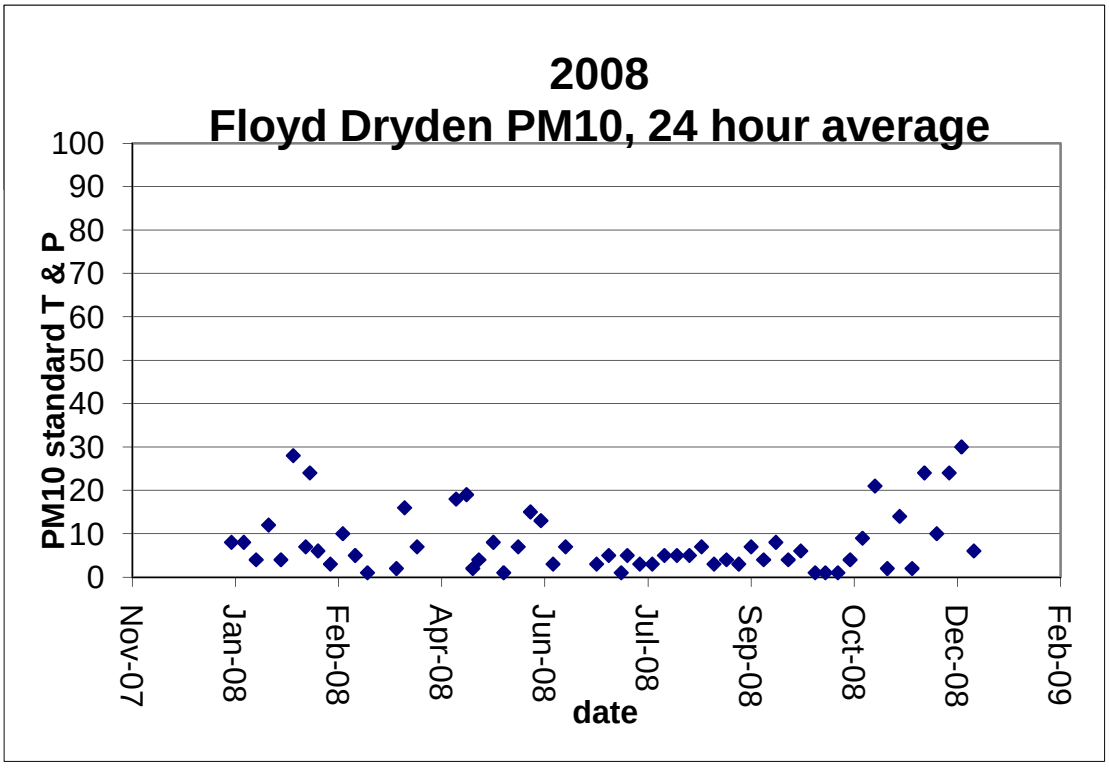
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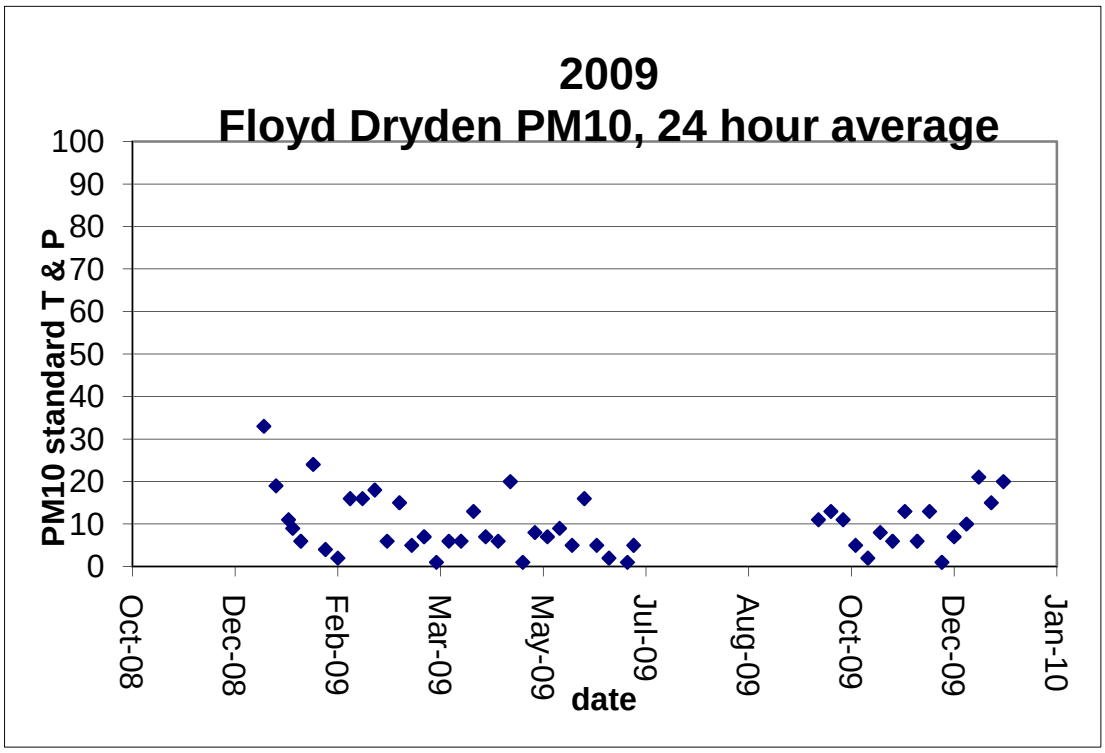
date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Floyd Dryden PM10, 24 hour average
PM10 standard T & P
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Dec-08
Feb-09
Mar-09
May-09
Jul-09
Aug-09
Oct-09
Dec-09
Jan-10
date

Appendix B: $PM_{2.5}$ Data & Charts

1999 Unless otherwise noted, all data are from FRM Partisols

Sample date	day of year	Value µg/m³ local	Q	Sample date	day of year	Value µg/m³ local	Q	Sample date	day of year	Value µg/m³ local	Q
4/10/1999	100	5.5		11/17/1999	321	5.2					
4/12/1999	102	1.4		11/20/1999	324	2					
4/13/1999	103	2.9		11/23/1999	327	1					
4/14/1999	104	4		11/26/1999	330	15					
4/15/1999	105	3.7		11/29/1999	333	27.1					
4/18/1999	108	5.8		12/2/1999	336	1.3					
4/25/1999	115	3		12/5/1999	339	5.5					
5/6/1999	126	5.6		12/8/1999	342	7.1					
5/9/1999	129	4.7		12/14/1999	348	7.4					
5/15/1999	135	7		12/17/1999	351	7.8					
5/18/1999	138	3.5		12/20/1999	354	3.1					
5/30/1999	150	1.7		12/26/1999	360	0.9					
6/2/1999	153	4.5		12/29/1999	363	5					
6/5/1999	156	10									
6/23/1999	174	4.5									
6/26/1999	177	3									
6/29/1999	180	2.1									
7/5/1999	186	7.5									
7/8/1999	189	4.6									
7/11/1999	192	1									
7/14/1999	195	6.9									
7/17/1999	198	4.1									
7/20/1999	201	3									
7/26/1999	207	2.5									
8/1/1999	213	7.3									
8/4/1999	216	9.4									
8/7/1999	219	9.7									
8/10/1999	222	3.3									
8/13/1999	225	3.1	T								
8/16/1999	228	2.7	T								
9/3/1999	246	1.9									
9/12/1999	255	3.4									
9/15/1999	258	1.9									
9/18/1999	261	7.5									
9/21/1999	264	3.2									
9/24/1999	267	2.7									
9/27/1999	270	4.2									
10/6/1999	279	1.3									
10/9/1999	282	2.1									
10/15/1999	288	1.7									
10/18/1999	291	3									
10/21/1999	294	1.5									
10/24/1999	297	1.3									
10/27/1999	300	3.2									
10/30/1999	303	2.9									
11/2/1999	306	6.6									
11/11/1999	315	5.3									
11/14/1999	318	5.2									

Flagged Data Included

T = multiple validity flags
pre- and post-RH variance ≥ 5%

2000

Sample date	day of year	Value µg/m³ local	Q	Sample date	day of year	Value µg/m³ local	Q	Sample date	day of year	Value µg/m³ local	Q
1/1/2000	1	20.2		6/2/2000	153	6.3		11/2/2000	306	5.1	
1/4/2000	4	10.2		6/5/2000	156	8.1		11/5/2000	309	12.3	
1/7/2000	7	2.8		6/8/2000	159	4.5		11/8/2000	312	8	
1/10/2000	10	10.4		6/11/2000	162	7.2		11/11/2000	315	1.1	
1/13/2000	13	23.6		6/14/2000	165	1.9		11/14/2000	318	2.4	
1/16/2000	16	**37.8**		6/17/2000	168	2.9		11/17/2000	321	3.9	
1/19/2000	19	12.9		6/20/2000	171	3.5		11/20/2000	324	2.7	
1/22/2000	22	13		6/23/2000	174	3.2		11/23/2000	327	2.9	
1/25/2000	25	9.1		6/26/2000	177	3.8		11/29/2000	333	7	
1/31/2000	31	1.3		6/29/2000	180	2.7		12/2/2000	336	11.8	
2/3/2000	34	15.8		7/2/2000	183	1.3		12/5/2000	339	0.7	
2/9/2000	40	18.2		7/5/2000	186	6.2		12/8/2000	342	11.9	
2/12/2000	43	28.3		7/8/2000	189	7.9		12/11/2000	345	17.2	
2/15/2000	46	14.5		7/11/2000	192	2.3		12/14/2000	348	12.6	2
2/18/2000	49	0.7		*7/14/2000*	*195*	*3.8*	*1*	12/17/2000	351	7.3	
2/21/2000	52	10		7/17/2000	198	2		12/20/2000	354	24.1	
2/24/2000	55	3.1		7/20/2000	201	2		12/23/2000	357	22.8	
2/27/2000	58	9.7		7/26/2000	207	2.8		12/26/2000	360	9	
3/1/2000	60	4.3		7/29/2000	210	3		12/29/2000	363	9.2	
3/4/2000	63	2.4		8/1/2000	213	2.9					
3/7/2000	66	9.8		*8/4/2000*	*216*	*3.9*	*1*				
3/13/2000	72	9.6		*8/7/2000*	*219*	*4*	*1*				
3/16/2000	75	0.9		*8/10/2000*	*222*	*3.4*	*1*				
3/19/2000	78	6		8/13/2000	225	7.3					
3/22/2000	81	2.3		*8/16/2000*	*228*	*5.9*	*1*				
3/25/2000	84	0		*8/19/2000*	*231*	*3.2*	*1*				
3/28/2000	87	3.2		*8/22/2000*	*234*	*3.6*	*1*	***Flagged data: Included***			
3/31/2000	90	5		*8/25/2000*	*237*	*3.3*	*1*				
4/3/2000	93	3.7		8/28/2000	240	5.8		*1 = deviation from CFR Critical*			
4/6/2000	96	2.2		8/31/2000	243	3		*Criteria Requirement*			
4/9/2000	99	10.5		9/3/2000	246	4.8		*2 = operational deviation*			
4/12/2000	102	5.9		9/6/2000	249	0.9					
4/15/2000	105	10.7		9/9/2000	252	3.5					
4/18/2000	108	1.6		9/12/2000	255	2.9		***Flagged data: Not Included***			
4/21/2000	111	1.4		9/15/2000	258	3.7					
4/24/2000	114	1.5		9/18/2000	261	5.4		*4 = lab issues*			
4/27/2000	117	4.3		9/24/2000	267	3.5		*X = T_{filt} out of spec.*			
4/30/2000	120	0.7		9/27/2000	270	2.5		*Y = Elapsed sample time out of*			
5/3/2000	123	4		*9/30/2000*	*273*	*4.4*	*1*	*specifications*			
5/6/2000	126	4.5		10/3/2000	276	10.2					
5/9/2000	129	7.1		10/6/2000	279	1.5		2/6/2000	37	23.3	4
5/12/2000	132	5.4		10/9/2000	282	2		3/10/2000	69	16.9	4
5/16/2000	136	4.8		10/12/2000	285	2.8					
5/18/2000	138	1.3		10/15/2000	288	1.5		11/26/2000	330	0.7	X
5/21/2000	141	2.6		*10/18/2000*	*291*	*6.9*	*1*				
5/24/2000	144	2.5		10/24/2000	297	4.5		7/23/2000	204	2.6	Y
5/27/2000	147	3.4		10/27/2000	300	12.7		9/21/2000	264	7.5	Y
5/30/2000	150	4.2		10/30/2000	303	3.6		10/21/2000	294	1.9	Y

2001

Sample date	day of year	Value µg/m³ local	Q	Sample date	day of year	Value µg/m³ local	Q	Sample date	day of year	Value µg/m³ local	Q
1/1/2001	1	5.8		6/3/2001	154	1.6		10/31/2001	304	7.8	
1/4/2001	4	4.7		6/6/2001	157	2.8		11/3/2001	307	1.5	
1/7/2001	7	1.5		6/15/2001	166	3.4		11/6/2001	310	7.9	
1/10/2001	10	16.1		6/18/2001	169	5.2		11/9/2001	313	1.6	1
1/13/2001	13	5.6		6/21/2001	172	1.4		11/15/2001	319	3.5	2
1/16/2001	16	5		6/24/2001	175	2.3		11/18/2001	322	11.8	
1/19/2001	19	1.1		6/29/2001	180	3.8		11/21/2001	325	10.8	
1/22/2001	22	0.8		6/30/2001	181	4.3		11/24/2001	328	10.5	
1/25/2001	25	10.8		7/3/2001	184	5.5		11/27/2001	331	25.9	
1/28/2001	28	5.4		7/6/2001	187	0.5		11/30/2001	334	17.8	
1/31/2001	31	1.6		7/9/2001	190	1.5		12/3/2001	337	12.6	
2/3/2001	34	5.9		7/12/2001	193	3.3		12/6/2001	340	4.4	
2/6/2001	37	10.1		7/15/2001	196	3.5		12/9/2001	343	5.2	
2/9/2001	40	14.2		7/18/2001	199	4.6		12/12/2001	346	10.4	
2/12/2001	43	11.1		7/21/2001	202	5		12/15/2001	349	13.5	
2/15/2001	46	26.5		7/24/2001	205	2.2		12/18/2001	352	15	
2/18/2001	49	29.7		7/27/2001	208	2.9		12/21/2001	355	1.1	
2/21/2001	52	18.3		7/30/2001	211	2.3		12/24/2001	358	0.6	
2/24/2001	55	15.3		8/2/2001	214	3.1		12/27/2001	361	8.7	
3/2/2001	61	6.9		8/5/2001	217	3.6		12/30/2001	364	23.4	
3/5/2001	64	2.3		8/11/2001	223	5.3					
3/8/2001	67	2.6		8/14/2001	226	7.6					
3/11/2001	70	2		8/17/2001	229	8.9					
3/14/2001	73	3.8		8/20/2001	232	3.3					
3/17/2001	76	4.5		8/23/2001	235	6.4					
3/20/2001	79	5.1		8/26/2001	238	3.8					
3/23/2001	82	10.8		8/29/2001	241	2.7					
3/26/2001	85	1.7		9/1/2001	244	5.5					
3/29/2001	88	4.7		9/5/2001	248	1.4					
4/1/2001	91	4.5		9/7/2001	250	1.4					
4/4/2001	94	2.5		9/10/2001	253	3					
4/7/2001	97	4.7		9/13/2001	256	1.8					
4/10/2001	100	8.4		9/16/2001	259	4.1					
4/13/2001	103	1.7		9/19/2001	262	1.6					
4/16/2001	106	8.2		9/22/2001	265	3.4					
4/19/2001	109	3.9		9/25/2001	268	2.4					
4/24/2001	114	1.4	1	9/28/2001	271	3.8					
4/25/2001	115	2.1	1	10/1/2001	274	1.8					
5/1/2001	121	3.2		10/4/2001	277	6.6					
5/4/2001	124	1.6		10/7/2001	280	4.6					
5/7/2001	127	2		10/10/2001	283	1.8					
5/16/2001	136	1.5		10/13/2001	286	3.3					
5/19/2001	139	2.1		10/16/2001	289	2.1					
5/22/2001	142	1.8		10/19/2001	292	1.9					
5/25/2001	145	3.3		10/22/2001	295	7.4					
5/28/2001	148	4.2		10/25/2001	298	3.4					
5/31/2001	151	2.6		10/28/2001	301	4.5					

Flagged data: Included

1 = deviation from CFR Critical Criteria Requirement
2 = operational deviation

Flagged data: Not Included

X = T_{filt} out of spec.
Y = Elapsed sample time out of specifications

2/27/2001	58	1	X
4/28/2001	118	1.8	Y
6/9/2001	160	6.5	Y
6/12/2001	163	3.9	Y
6/27/2001	178	2.7	Y

Sample date	day of year	Value µg/m³ local	Q	Sample date	day of year	Value µg/m³ local	Q	Sample date	day of year	Value µg/m³ local	Q
1/2/2002	2	14.2		1/2/2002	2	14.2		11/16/2002	320	13.3	
1/5/2002	4	6.5		1/5/2002	4	6.5		11/22/2002	326	8.1	
1/8/2002	8	3.3		1/8/2002	8	3.3		11/25/2002	329	1.3	
1/11/2002	11	4.1		1/11/2002	11	4.1		11/28/2002	332	5.4	
1/14/2002	14	6.1		1/14/2002	14	6.1		12/1/2002	335	9.4	
1/17/2002	17	10.1		1/17/2002	17	10.1		12/4/2002	338	19.8	
1/20/2002	20	6.1		1/20/2002	20	6.1		12/10/2002	344	5.1	
1/23/2002	23	3.4		1/23/2002	23	3.4		12/13/2002	347	6.8	
1/26/2002	26	32.2		1/26/2002	26	32.2		12/16/2002	350	13.8	
1/29/2002	29	7.8		1/29/2002	29	7.8		12/19/2002	353	19.4	
2/1/2002	32	2.1		2/1/2002	32	2.1		12/22/2002	356	6.2	
2/4/2002	35	4.1		2/4/2002	35	4.1		12/28/2002	362	9.3	
2/7/2002	38	18.3		2/7/2002	38	18.3					
2/10/2002	41	2		2/10/2002	41	2					
2/13/2002	44	2.1		2/13/2002	44	2.1					
2/16/2002	47	3.9		2/16/2002	47	3.9					
2/19/2002	50	4.6		2/19/2002	50	4.6					
2/22/2002	53	14.9		2/22/2002	53	14.9					
2/25/2002	56	7.3		2/25/2002	56	7.3					
2/28/2002	59	3.9		2/28/2002	59	3.9					
3/3/2002	62	3.9		3/3/2002	62	3.9					
3/6/2002	65	8.2		3/6/2002	65	8.2					
3/9/2002	68	8.6		3/9/2002	68	8.6					
3/13/2002	72	8.7		3/13/2002	72	8.7					
3/15/2002	74	13.3		3/15/2002	74	13.3					
3/18/2002	77	4.2		3/18/2002	77	4.2					
3/21/2002	80	5.3		3/21/2002	80	5.3					
3/27/2002	86	2.8		3/27/2002	86	2.8					
4/2/2002	92	6.9		4/2/2002	92	6.9					
4/5/2002	95	5		4/5/2002	95	5					
4/8/2002	98	5.3		4/8/2002	98	5.3					
4/11/2002	101	4.1		4/11/2002	101	4.1		***Flagged data: Included***			
4/14/2002	104	5.9		4/14/2002	104	5.9					
4/17/2002	107	6.7		4/17/2002	107	6.7		*2 = operational deviation*			
4/20/2002	110	2.5		4/20/2002	110	2.5					
4/23/2002	113	3.3		4/23/2002	113	3.3					
4/29/2002	119	7.5		4/29/2002	119	7.5		***Flagged data: Not Included***			
5/2/2002	122	3.9		5/2/2002	122	3.9					
5/5/2002	125	4.1		5/5/2002	125	4.1		*X = T_{filt} out of spec.*			
5/8/2002	128	12.2		5/8/2002	128	12.2					
5/11/2002	131	1.9		5/11/2002	131	1.9		3/24/2002	83	6.5	X
5/14/2002	134	1.7		5/14/2002	134	1.7		3/30/2002	89	7.2	X
5/17/2002	137	3.4		5/17/2002	137	3.4		10/17/2002	290	3.3	X
5/20/2002	140	6.5		5/20/2002	140	6.5		10/20/2002	293	1.3	X
5/26/2002	146	4.2		5/26/2002	146	4.2		10/23/2002	296	4.3	X
5/29/2002	149	0.8		5/29/2002	149	0.8		11/1/2002	305	17.5	X
6/1/2002	152	2		6/1/2002	152	2		11/7/2002	311	7.3	X
6/4/2002	155	1.4		6/4/2002	155	1.4		12/25/2002	359	18.4	X

2003

Sample date	day of year	Value µg/m³ local	Q	Sample date	day of year	Value µg/m³ local	Q	Sample date	day of year	Value µg/m³ local	Q
1/3/2003	3	7.3									
1/9/2003	9	22									
1/12/2003	12	22.9									
1/15/2003	15	8.7									
1/18/2003	18	4.8									
1/22/2003	22	12.6									
1/23/2003	23	7.9									
1/24/2003	24	6									
1/27/2003	27	7.8									
2/2/2003	33	4.6									
2/5/2003	36	7.6									
2/8/2003	39	5.2									
2/11/2003	42	9.1									
2/14/2003	45	9.2									
2/17/2003	48	5.7									
2/20/2003	51	11.5									
2/23/2003	54	17.2									
2/26/2003	57	7.9									
3/1/2003	60	3.6									
3/4/2003	63	4									
3/7/2003	66	3.1									
3/9/2003	68	4.6									
3/10/2003	69	6.8									
3/13/2003	72	4.9									
3/16/2003	75	3.7	2								
3/19/2003	78	2.7									
3/22/2003	81	3.3									
3/25/2003	84	6.7									
3/28/2003	87	4.7									
10/6/2003	279	2.4									
10/12/2003	285	18.6									
10/18/2003	291	1.7									
10/24/2003	297	2.3									
10/30/2003	303	20.9									
11/2/2003	306	28.7									
11/5/2003	309	20.8									
11/11/2003	315	4									
11/17/2003	321	3.6									
11/19/2003	323	22.2									
11/23/2003	327	9.7									
11/27/2003	331	6									
11/29/2003	333	4.7									
12/5/2003	339	9									
12/11/2003	345	6									
12/17/2003	351	1.2									
12/23/2003	357	3.8									
12/29/2003	363	5.5									
								2/1/2003	32	5.4	X

Flagged data: Included

2 = operational deviation

Flagged data: Not Included

X = T_{filt} out of spec.

Y = Elapsed sample time out of specifications

2004

Sample date	day of year	Value µg/m³ local	Q	Sample date	day of year	Value µg/m³ local	Q	Sample date	day of year	Value µg/m³ local	Q
1/4/2004	4	29.8		6/14/2004	165	2		11/5/2004	309	3.2	1
1/10/2004	10	9.4		6/17/2004	168	5.2		11/9/2004	313	13.5	
1/16/2004	16	3.2		6/20/2004	171	9.2		11/11/2004	315	9.2	
1/22/2004	22	8.2		6/23/2004	174	12.2		11/14/2004	318	6	
1/25/2004	25	3.5		6/26/2004	177	11.6		11/17/2004	321	0.6	
1/31/2004	31	9.2		6/29/2004	180	16.1		11/20/2004	324	1.4	
2/3/2004	34	5.3		7/2/2004	183	5.9		11/23/2004	327	4.3	
2/6/2004	37	3.3		7/5/2004	186	2.2		11/26/2004	330	5.3	
2/9/2004	40	6.1		7/8/2004	189	27.5		11/29/2004	333	3.2	
2/12/2004	43	10.8		7/11/2004	192	12.7		12/2/2004	336	1.3	
2/15/2004	46	12.4		7/14/2004	195	26.1		12/5/2004	339	8.1	
2/18/2004	49	10.1		7/15/2004	196	10.3		12/8/2004	342	15.5	
2/21/2004	52	1.2		7/20/2004	201	5.2		12/11/2004	345	3	
2/24/2004	55	7.7		7/23/2004	204	4.9		12/14/2004	348	12	
2/27/2004	58	13.2		7/26/2004	207	2.7		12/17/2004	351	1.6	
3/1/2004	60	13.6		7/29/2004	210	2		12/20/2004	354	9	
3/4/2004	63	4.4		8/1/2004	213	7		12/23/2004	357	0.3	
3/7/2004	66	1.1		8/4/2004	216	3.5		12/26/2004	360	21.9	
3/10/2004	69	0.4		8/7/2004	219	5.8		12/29/2004	363	2.9	
3/13/2004	72	8.4		8/10/2004	222	5.6					
3/16/2004	75	4.2		8/13/2004	225	6.1					
3/19/2004	78	7.7		8/16/2004	228	24.5					
3/22/2004	81	6.1		8/21/2004	233	5.2					
3/25/2004	84	6.7		8/22/2004	234	6					
3/28/2004	87	2		8/25/2004	237	16					
4/3/2004	93	1.2		8/28/2004	240	3.2					
4/6/2004	96	6.6		8/31/2004	243	7.5					
4/12/2004	102	3.3	*1*	9/3/2004	246	2					
4/15/2004	105	5.9		9/6/2004	249	3.1					
4/18/2004	108	5.8		9/9/2004	252	7.7					
4/21/2004	111	6.5	*1*	9/12/2004	255	2.3					
4/24/2004	114	1	*1*	9/15/2004	258	3					
4/27/2004	117	2.6		9/18/2004	261	11.2					
4/30/2004	120	7.3		9/21/2004	264	2.5					
5/3/2004	123	2.5		9/24/2004	267	8.9					
5/6/2004	126	6		9/27/2004	270	1.8					
5/9/2004	129	2.7		9/30/2004	273	5.5					
5/12/2004	132	4.9		10/4/2004	277	1.5					
5/15/2004	135	10.2		10/8/2004	281	3.2					
5/18/2004	138	3.4		10/9/2004	282	4.1					
5/21/2004	141	5.3		10/12/2004	285	11.9					
5/24/2004	144	3.6		10/15/2004	288	6.7					
5/27/2004	147	2.7		10/18/2004	291	2					
5/30/2004	149	2.3		10/21/2004	294	9.9					
6/2/2004	153	2.2		10/24/2004	297	7.6					
6/5/2004	156	5.8		10/27/2004	300	2					
6/8/2004	159	2.8		10/30/2004	303	4.2					
6/11/2004	162	2.9	2	11/2/2004	306	1.7					

Flagged data: Included

1 = deviation from CFR Critical Criteria Requirement

2 = operational deviation

2005

Sample date	day of year	Value µg/m³ local	Q	Sample date	day of year	Value µg/m³ local	Q	Sample date	day of year	Value µg/m³ local	Q
1/1/2005	1	39.9		5/16/2005	136	2.5		10/19/2005	292	4.8	
1/4/2005	4	12.7		5/19/2005	139	3.3		10/27/2005	300	11.7	
1/7/2005	7	23.5		5/22/2005	142	5.5		10/31/2005	304	12.3	1
1/10/2005	10	8.7		5/25/2005	145	7.7		11/6/2005	310	3.7	
1/11/2005	11	15		5/28/2005	148	4.6		11/12/2005	316	35.4	1
1/12/2005	12	45.1		5/31/2005	151	5.6		11/18/2005	322	1.2	
1/13/2005	13	20.7		6/3/2005	154	5.7		11/24/2005	328	1.8	
1/16/2005	16	28.2		6/6/2005	157	4.3	2	11/30/2005	334	28.3	
1/19/2005	19	6.1		6/9/2005	160	5.2		12/3/2005	337	11.2	
1/25/2005	25	12.6		6/12/2005	163	2.8		12/6/2005	340	11.1	
1/28/2005	28	6.1		6/15/2005	166	2.6		12/12/2005	346	7	
1/31/2005	31	2.5		6/18/2005	169	10.5		12/18/2005	352	34.2	
2/3/2005	34	3.1		6/21/2005	172	2.1		12/24/2005	358	15.7	
2/5/2005	36	22.2		6/24/2005	175	5.1		12/30/2005	364	9.2	
2/8/2005	39	2.1		6/27/2005	178	7.9					
2/9/2005	40	1.9		6/30/2005	181	3.1					
2/12/2005	43	4.7		7/3/2005	184	2.9					
2/15/2005	46	10		7/6/2005	187	2.8					
2/18/2005	49	9.3		7/9/2005	190	3.7					
2/21/2005	52	5.1		7/12/2005	193	4.5					
2/24/2005	55	4.8		7/16/2005	197	3.5					
2/27/2005	58	4.9		7/18/2005	199	2.9					
3/2/2005	61	0.7		7/23/2005	204	6.4					
3/5/2005	64	2.2		7/24/2005	205	3.7					
3/8/2005	67	3.1		7/27/2005	208	1.8					
3/11/2005	70	3.8		7/30/2005	211	6.6					
3/14/2005	73	4.2		8/5/2005	217	2.7					
3/16/2005	75	10.8		8/8/2005	220	12					
3/17/2005	76	7.3		8/11/2005	223	7.8					
3/18/2005	77	1.7		8/14/2005	226	27.9					
3/20/2005	79	4.6		8/17/2005	229	13.6					
3/26/2005	85	9.3		8/20/2005	232	3.5					
3/29/2005	88	5.6		8/23/2005	235	8.7					
4/1/2005	91	4.4		8/26/2005	238	4					
4/4/2005	94	3		8/29/2005	241	3					
4/7/2005	97	7.6		9/1/2005	244	2.2	1				
4/10/2005	100	3.1	1	9/3/2005	246	4.3					
4/13/2005	103	3.5	1	9/7/2005	250	2.5					
4/16/2005	106	4.9		9/10/2005	253	5					
4/19/2005	109	1.6		9/13/2005	256	3.7					
4/22/2005	112	3.8		9/16/2005	259	5.5					
4/25/2005	115	7.4		9/19/2005	262	2.2					
4/28/2005	118	3		9/22/2005	265	5					
5/1/2005	121	4.5		9/25/2005	268	5					
5/4/2005	124	2.7		9/28/2005	271	1.4					
5/10/2005	130	9.4		10/1/2005	274	3					
5/11/2005	131	7.6		10/7/2005	280	7	1				
5/13/2005	133	4.1		10/13/2005	286	3.2					

Flagged data: Included

1 = deviation from CFR Critical Criteria Requirement

2 = operational deviation

2006

Sample date	day of year	Value µg/m³ local	Q	Sample date	day of year	Value µg/m³ local	Q	Sample date	day of year	Value µg/m³ local	Q
1/5/2006	5	6		6/1/2006	152	3.9		11/13/2006	317	5	
1/11/2006	11	10.2		6/4/2006	155	1		11/23/2006	327	**36.7**	
1/14/2006	14	33	1	6/7/2006	158	4.6		11/25/2006	329	27.9	
1/17/2006	17	8.1		6/10/2006	161	7.9		11/27/2006	331	**48.5**	
1/23/2006	23	6.3	1	6/13/2006	164	5		12/1/2006	335	17.3	
1/26/2006	26	14.5		6/16/2006	167	2.2		12/7/2006	341	3.3	
1/29/2006	29	8.3		6/19/2006	170	1.9		12/13/2006	347	9.2	
2/1/2006	32	5.3		6/22/2006	173	1.5		12/19/2006	353	0.4	
2/4/2006	35	26.3		6/25/2006	176	2.3		12/25/2006	359	0.7	
2/7/2006	38	3		6/28/2006	179	2	1	12/31/2006	365	0.5	
2/10/2006	41	8.1		7/1/2006	182	3.4					
2/13/2006	44	5.9		7/4/2006	185	8.9					
2/16/2006	47	25.2		7/7/2006	188	2.5					
2/19/2006	50	12.2		7/10/2006	191	3.1					
2/22/2006	53	8.1		7/13/2006	194	2.7					
2/25/2006	56	19.9		7/16/2006	197	2.2					
2/28/2006	59	16.9		7/19/2006	200	3.2					
3/2/2006	61	19.9		7/22/2006	203	7.7					
3/3/2006	62	22.4		7/25/2006	206	1.4					
3/6/2006	65	12.7		7/28/2006	209	3.6	2				
3/9/2006	68	5.6	1	7/31/2006	212	1.3					
3/12/2006	71	18.5	1	8/3/2006	215	2.7					
3/15/2006	74	5.1		8/6/2006	218	2.7					
3/18/2006	77	14.7		8/9/2006	221	3.4					
3/21/2006	80	7.1		8/12/2006	224	3.5					
3/24/2006	83	8.4	1	8/15/2006	227	1.9					
3/27/2006	86	8.8		8/18/2006	230	2.7					
3/31/2006	90	10.4		8/21/2006	233	6.5					
4/2/2006	92	9.4		8/24/2006	236	1.8	1				
4/5/2006	95	7.5		8/27/2006	239	4	1				
4/8/2006	98	4.7		8/30/2006	242	3	1				
4/11/2006	101	6.6		9/2/2006	245	8.2					
4/14/2006	104	6.4		9/8/2006	251	10.5	1				
4/17/2006	107	1.6		9/11/2006	254	2.3					
4/20/2006	110	5.5		9/14/2006	257	5.3					
4/23/2006	113	3.3	2	9/17/2006	260	10.8					
4/26/2006	116	4.5		9/20/2006	263	2.3					
4/29/2006	119	1.2		9/23/2006	266	15.7	2				
5/2/2006	122	1.4		9/26/2006	269	1.9					
5/5/2006	125	1.1	1	9/29/2006	272	5.8					
5/8/2006	128	2.8		10/2/2006	275	5.4					
5/11/2006	131	2.6		10/8/2006	281	11.2					
5/14/2006	134	6.5		10/14/2006	287	4.7					
5/17/2006	137	3.7		10/20/2006	293	2.4					
5/20/2006	140	5.2	1	10/26/2006	299	2.9	1				
5/23/2006	143	6		11/1/2006	305	14.2					
5/26/2006	146	5.1		11/4/2006	308	21.5					
5/29/2006	149	3.3		11/7/2006	311	24.4					

Flagged data: Included

1 = deviation from CFR Critical Criteria Requirement

2 = operational deviation

2007

Sample date	day of year	Value µg/m³ local	Q	Sample date	day of year	Value µg/m³ local	Q	Sample date	day of year	Value µg/m³ local	Q
1/4/2007	4	0.7		5/6/2007	126	1.2		9/24/2007	267	1.8	
1/6/2007	6	3.9		5/9/2007	129	3.8		9/27/2007	270	r	
1/9/2007	9	7.7		5/12/2007	132	2.3		10/3/2007	276	4.1	
1/10/2007	10	25.8		5/15/2007	135	4		10/4/2007	277	3.7	
1/11/2007	11	13.9		5/18/2007	138	6.7	1	10/9/2007	282	3.2	
1/12/2007	12	10.1		5/21/2007	141	9.4		10/10/2007	283	3.5	
1/15/2007	15	0.7		5/24/2007	144	15.9	1	10/12/2007	285	1.9	
1/18/2007	18	2.7		5/27/2007	147	2.7		10/15/2007	288	1.7	
1/21/2007	21	3.4		5/30/2007	150	1.3		10/18/2007	291	0.9	
1/24/2007	24	3.4		6/2/2007	153	0		10/21/2007	294	3.4	
1/27/2007	27	12.5		6/5/2007	156	3		10/24/2007	297	3.9	
1/30/2007	30	6.3		6/8/2007	159	3.8		10/27/2007	300	7.9	
2/2/2007	33	23.7		6/11/2007	162	2.1		10/30/2007	303	0.4	
2/5/2007	36	9.9		6/14/2007	165	5.3		11/2/2007	306	1.8	
2/8/2007	39	3.7		6/17/2007	168	3.2		11/5/2007	309	12.2	
2/9/2007	40	5.1		6/20/2007	171	7.4		11/8/2007	312	12.4	
2/10/2007	41	20.3		6/23/2007	174	4.2		11/11/2007	315	10	
2/11/2007	42	21.7		6/26/2007	177	2.6		11/14/2007	318	7.4	
2/14/2007	45	11.6		6/29/2007	180	4.1		11/17/2007	321	15.1	
2/17/2007	48	8.5		7/2/2007	183	3.6		11/20/2007	324	4	
2/20/2007	51	1.5		7/5/2007	186	1.5		11/23/2007	327	1.2	
2/21/2007	52	1.8		7/8/2007	189	4.7		11/26/2007	330	4	
2/22/2007	53	2.6		7/11/2007	192	2.4		11/29/2007	333	21.8	
2/26/2007	57	8.7		7/17/2007	198	2.3		11/30/2007	334	17.8	
2/28/2007	59	17.3		7/20/2007	201	2.9		12/1/2007	335	20	
3/1/2007	60	13.3		7/23/2007	204	1.4		12/2/2007	336	2.7	
3/3/2007	62	8.5		7/26/2007	207	3.9		12/3/2007	337	7	
3/7/2007	66	1.7		7/29/2007	210	3.4		12/4/2007	338	39.6	
3/10/2007	69	2.8		8/2/2007	214	5	1	12/5/2007	339	46.2	
3/13/2007	72	4.1		8/4/2007	216	3.5		12/6/2007	340	45.9	
3/16/2007	75	3		8/9/2007	221	5.5		12/11/2007	345	4.7	
3/19/2007	78	7		8/10/2007	222	5		12/14/2007	348	9.8	
3/22/2007	81	1.3		8/14/2007	226	6.5		12/18/2007	352	11.2	
3/25/2007	84	5.6		8/16/2007	228	6.7		12/20/2007	354	14	
3/28/2007	87	1.7		8/19/2007	231	2.5		12/23/2007	357	6.5	
3/31/2007	90	7.7		8/22/2007	234	4.1		12/25/2007	359	3.4	
4/1/2007	91	10.2		8/25/2007	237	2.5		12/26/2007	360	1.5	
4/3/2007	93	10.1		8/28/2007	240	7		12/29/2007	363	10.9	
4/9/2007	99	5.1		8/31/2007	243	2.4					
4/12/2007	102	3.7		9/3/2007	246	8.4					
4/15/2007	105	0.5		9/6/2007	249	3					
4/21/2007	111	8.9		9/9/2007	252	2					
4/24/2007	114	4.2		9/12/2007	255	6.7					
4/27/2007	117	3		9/15/2007	258	2					
4/30/2007	120	4.6		9/18/2007	261	6.7					
5/5/2007	125	2.1		9/21/2007	264	2.2					

Flagged data: Included

1 = deviation from CFR Critical Criteria Requirement

Sample date	day of year	Value µg/m³ local	Q	Sample date	day of year	Value µg/m³ local	Q	Sample date	day of year	Value µg/m³ local	Q
1/1/2008	1	7.7		3/31/2008	91	7		5/23/2008	144	7.1	
1/4/2008	4	17.7		4/1/2008	92	8		5/24/2008	145	7.3	
1/7/2008	7	8.2		4/2/2008	93	6.5		5/25/2008	146	10.3	
1/10/2008	10	14		4/3/2008	94	2.8		5/26/2008	147	10	
1/19/2008	19	11.6		4/4/2008	95	1.8		5/27/2008	148	6.8	1
1/20/2008	20	30.2		4/5/2008	96	2.5		5/28/2008	149	6.3	1
1/25/2008	25	4		4/6/2008	97	3.5		5/29/2008	150	6.3	1
1/28/2008	28	20.3		4/7/2008	98	2.5		5/30/2008	151	7.3	1
1/29/2008	29	22		4/8/2008	99	3.5	1	5/31/2008	152	10.9	1
1/31/2008	31	30.1		4/9/2008	100	5.7	1	6/1/2008	153	7.7	
2/1/2008	32	14.2		4/10/2008	101	3	1	6/2/2008	154	3.5	
2/2/2008	33	10.7		4/11/2008	102	3.7	1	6/3/2008	155	1.7	
2/6/2008	37	5.9		4/15/2008	106	2.3		6/5/2008	157	1.6	
2/7/2008	38	9.4		4/16/2008	107	1.8		6/6/2008	158	2	
2/8/2008	39	21.3		4/18/2008	109	7.2		6/7/2008	159	2.5	
2/9/2008	40	15.3		4/19/2008	110	12		6/8/2008	160	4.3	
2/12/2008	43	5.7		4/20/2008	111	12.5		6/9/2008	161	4.7	
2/13/2008	44	3.6		4/21/2008	112	14.2		6/10/2008	162	6.5	
2/14/2008	45	2.2	2	4/22/2008	113	14.5		6/11/2008	163	6.5	
2/15/2008	46	3.1		4/23/2008	114	13.1		6/14/2008	166	2	
2/16/2008	47	1.9		4/24/2008	115	13.1		6/15/2008	167	2.6	
2/20/2008	51	2.1		4/25/2008	116	10.2		6/16/2008	168	3.7	
2/21/2008	52	2.7		4/27/2008	118	1.8		6/17/2008	169	3.9	
2/24/2008	55	10.3		4/28/2008	119	2.3		6/18/2008	170	4	
2/25/2008	56	4.1		4/29/2008	120	4.5		6/19/2008	171	2.1	
2/27/2008	58	2.5		5/1/2008	122	3		6/20/2008	172	4.8	
2/28/2008	59	1.2		5/2/2008	123	0.5		6/21/2008	173	3.9	
2/29/2008	60	5.5		5/6/2008	127	4.1		6/23/2008	175	2.1	
3/2/2008	62	3.8		5/7/2008	128	6.2		6/24/2008	176	1.8	
3/4/2008	64	6.1		5/8/2008	129	7.7		6/25/2008	177	2.6	
3/5/2008	65	5.7		5/9/2008	130	5.7		6/26/2008	178	0	
3/7/2008	67	0.8		5/11/2008	132	1.6		6/27/2008	179	1.7	
3/10/2008	70	6.8		5/12/2008	133	1.2		6/28/2008	180	1.8	
3/13/2008	73	4.5		5/14/2008	135	2.2		6/29/2008	181	1.9	
3/16/2008	76	0.9		5/15/2008	136	6.1		7/2/2008	184	4	
3/22/2008	82	2.9		5/17/2008	138	4		7/3/2008	185	6.2	
3/23/2008	83	1.8		5/18/2008	139	6.2		7/4/2008	186	6.2	
3/25/2008	85	10		5/19/2008	140	4.9		7/5/2008	187	3.5	
3/26/2008	86	8.2		5/21/2008	142	4.5		7/6/2008	188	1.3	
3/28/2008	88	8.8		5/22/2008	143	4.9		7/7/2008	189	2	

2008

Sample date	day of year	Value µg/m³ local	Q	Sample date	day of year	Value µg/m³ local	Q	Sample date	day of year	Value µg/m³ local	Q
7/8/2008	190	1.3		8/21/2008	234	3.7		10/9/2008	283	2.2	
7/9/2008	191	2		8/22/2008	235	2.1		10/10/2008	284	0.8	
7/10/2008	192	1.7		8/23/2008	236	1.3		10/11/2008	285	2.2	
7/11/2008	193	4.1		8/24/2008	237	1.9		10/12/2008	286	1.1	
7/12/2008	194	2.4		8/25/2008	238	8.7		10/14/2008	288	0.7	
7/13/2008	195	1.6		8/26/2008	239	5.5		10/15/2008	289	0.5	
7/14/2008	196	1.4	1	8/27/2008	240	4.3		10/16/2008	290	2.4	
7/15/2008	197	1.9	1	8/28/2008	241	3.4		10/18/2008	292	1.1	
7/16/2008	198	2.1	1	8/29/2008	242	5.5		10/19/2008	293	2.7	
7/17/2008	199	1.7	1	8/31/2008	244	13.2		10/20/2008	294	4.5	
7/20/2008	202	4.1		9/3/2008	247	2.5		10/21/2008	295	1.1	
7/21/2008	203	3.5		9/5/2008	249	5.7		10/22/2008	296	2.5	
7/22/2008	204	2.7		9/6/2008	250	7.5		10/24/2008	298	2	
7/24/2008	206	5.1		9/7/2008	251	5.3		10/25/2008	299	4.7	
7/25/2008	207	6		9/9/2008	253	5.3		10/26/2008	300	1	
7/26/2008	208	6.5		9/10/2008	254	0.9		10/27/2008	301	2.8	
7/27/2008	209	1.2		9/11/2008	255	4.1		10/28/2008	302	2.5	
7/28/2008	210	2.1		9/12/2008	256	3.1		10/29/2008	303	2.6	
7/29/2008	211	3.6		9/13/2008	257	3.5		10/30/2008	304	8.2	
7/30/2008	212	3.4		9/15/2008	259	2.7		10/31/2008	305	9.3	
7/31/2008	213	4.5		9/16/2008	260	3.4	1	11/1/2008	306	6.6	
8/1/2008	214	3.8		9/17/2008	261	3.1		11/2/2008	307	8.7	
8/2/2008	215	4.1		9/18/2008	262	6.5		11/4/2008	309	8.4	
8/3/2008	216	4.2		9/20/2008	264	3.4		11/5/2008	310	5.8	
8/4/2008	217	2.9		9/21/2008	265	5.7		11/6/2008	311	3.6	
8/5/2008	218	4.5		9/22/2008	266	2.9		11/7/2008	312	5.3	
8/6/2008	219	3.6		9/23/2008	267	2.2		11/8/2008	313	23	
8/7/2008	220	3.9		9/24/2008	268	7		11/9/2008	314	27.6	
8/8/2008	221	5.5		9/26/2008	270	9.4		11/10/2008	315	19	
8/9/2008	222	3.7		9/27/2008	271	3.7		11/11/2008	316	15.2	
8/10/2008	223	4.2		9/28/2008	272	2.7		11/12/2008	317	11	
8/11/2008	224	3		9/30/2008	274	4.1		11/14/2008	319	2	
8/12/2008	225	1.5		10/1/2008	275	3.2		11/16/2008	321	22.6	
8/14/2008	227	5.1		10/2/2008	276	3.3		11/17/2008	322	11.3	
8/15/2008	228	6.5		10/3/2008	277	6.4		11/18/2008	323	15.7	
8/16/2008	229	6		10/4/2008	278	13		11/19/2008	324	20.4	
8/17/2008	230	2.9		10/5/2008	279	5.4		11/20/2008	325	13.1	
8/18/2008	231	3.1		10/6/2008	280	8		11/21/2008	326	8.7	
8/19/2008	232	4		10/7/2008	281	11.6		11/22/2008	327	1.2	
8/20/2008	233	3.5		10/8/2008	282	2.7		11/23/2008	328	9	

Sample date	day of year	Value µg/m^3 local	Q	Sample date	day of year	Value µg/m^3 local	Q	Sample date	day of year	Value µg/m^3 local	Q
11/25/2008	330	1.2									
11/26/2008	331	0.8									
11/27/2008	332	2.2									
11/28/2008	333	0.7									
11/29/2008	334	3.8									
11/30/2008	335	6.5									
12/1/2008	336	9.3									
12/2/2008	337	25									
12/3/2008	338	18.2									
12/5/2008	340	11									
12/6/2008	341	19.1									
12/7/2008	342	21.1									
12/8/2008	343	8.3									
12/10/2008	345	2.5									
12/11/2008	346	9.8									
12/12/2008	347	17									
12/13/2008	348	6.1									
12/14/2008	349	24.8									
12/16/2008	351	16									
12/17/2008	352	25.2									
12/18/2008	353	31.1									
12/19/2008	354	30.4									
12/20/2008	355	30.9									
12/21/2008	356	25.2									
12/22/2008	357	23.8									
12/23/2008	358	10.9									
12/24/2008	359	35.8									
12/25/2008	360	23									
12/26/2008	361	3.4									
12/28/2008	363	7.9									
12/29/2008	364	14.3									
12/31/2008	366	40.7									

Flagged data: Included

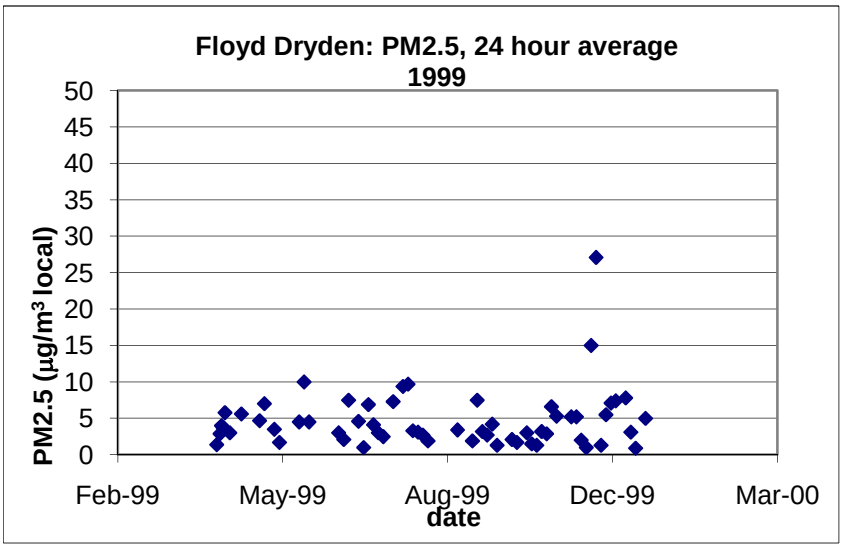
1 = deviation from CFR Critical Criteria Requirement
2 = operational deviation

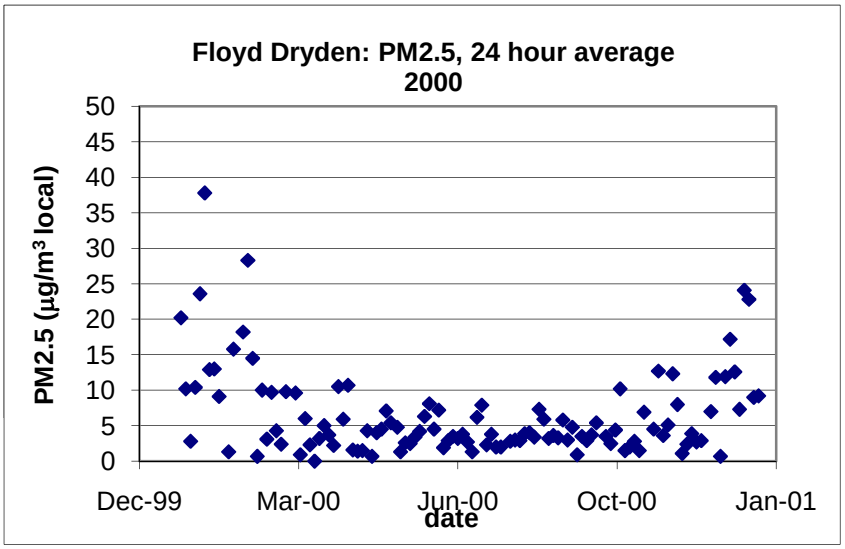
Sample date	day of year	Value µg/m³ local	Q	Sample date	day of year	Value µg/m³ local	Q	Sample date	day of year	Value µg/m³ local	Q
1/1/2009	1	37.5		2/27/2009	53	24.8		4/21/2009	102	3.2	
1/2/2009	2	13.2		2/28/2009	54	23.4		4/22/2009	103	7.3	
1/3/2009	3	13		3/1/2009	55	18.9		4/23/2009	104	7.2	
1/4/2009	4	13		3/2/2009	56	4.5		4/24/2009	105	7.6	
1/6/2009	6	14.3		3/3/2009	57	5.3		4/25/2009	106	4.7	
1/8/2009	8	15.5		3/4/2009	58	13.9		4/26/2009	107	8.2	
1/9/2009	9	19.3		3/5/2009	59	12.1		4/27/2009	108	10.7	
1/10/2009	10	14.1		3/6/2009	60	3		4/28/2009	109	8.4	
1/11/2009	11	7.6		3/7/2009	61	7.5		4/29/2009	110	8.5	
1/14/2009	12	6.4		3/8/2009	62	15.2		4/30/2009	111	8.2	
1/15/2009	13	8.9		3/9/2009	63	14.6		5/1/2009	112	8.2	
1/16/2009	14	6.3		3/10/2009	64	7.5		5/2/2009	113	9.6	
1/17/2009	15	2.8		3/11/2009	65	7.7		5/3/2009	114	7.7	
1/18/2009	16	1.4		3/12/2009	66	5.6		5/4/2009	115	2.5	
1/19/2009	17	4.2		3/13/2009	67	1.3		5/5/2009	116	3.8	
1/21/2009	18	5.9		3/14/2009	68	4.2		5/6/2009	117	2.1	
1/22/2009	19	4.9		3/16/2009	70	6.3		5/7/2009	118	2.7	
1/23/2009	20	11.3		3/17/2009	71	6.3		5/8/2009	119	2.4	
1/24/2009	21	19		3/18/2009	72	4.4		5/9/2009	120	4	
1/25/2009	22	21.7		3/19/2009	73	2.1		5/11/2009	122	5.1	
1/26/2009	23	15.5		3/20/2009	74	5.7		5/12/2009	123	4.2	
1/27/2009	24	17.8		3/21/2009	75	5.5		5/13/2009	124	4	
1/28/2009	25	7.2		3/22/2009	76	6.4		5/14/2009	125	4.9	
1/29/2009	26	2.4		3/23/2009	77	7.2		5/15/2009	126	4.3	
1/30/2009	27	0.7		3/24/2009	78	2.8		5/16/2009	127	2.7	
1/31/2009	28	1.8		3/26/2009	79	1.3		5/18/2009	129	3.2	
2/3/2009	30	3.2		3/28/2009	80	3.9		5/19/2009	130	4.9	
2/4/2009	31	7.9		3/29/2009	81	3.6		5/20/2009	131	4.1	
2/5/2009	32	8.6		3/30/2009	82	2.3		5/21/2009	132	4	
2/6/2009	33	1.1		3/31/2009	83	4.2		5/22/2009	133	5.2	
2/7/2009	34	1.6		4/1/2009	84	3.2		5/23/2009	134	5.6	
2/8/2009	35	4.2		4/2/2009	85	5.9		5/24/2009	135	7.4	
2/11/2009	37	7.4		4/3/2009	86	6.6		5/25/2009	136	5.1	
2/12/2009	38	16.4		4/4/2009	87	7.2		5/26/2009	137	2.7	
2/13/2009	39	13.3		4/5/2009	88	1.7		5/27/2009	138	3.5	
2/14/2009	40	13.4		4/6/2009	89	3.2		5/28/2009	139	4.3	
2/15/2009	41	9.2		4/7/2009	90	5.7		5/29/2009	140	3.1	
2/16/2009	42	12		4/8/2009	91	2.6		5/30/2009	141	3.2	
2/17/2009	43	11.2		4/9/2009	92	3.3		5/31/2009	142	4	
2/18/2009	44	16		4/10/2009	93	2.5		6/1/2009	143	4.8	
2/19/2009	45	14.4		4/11/2009	94	3.7		6/3/2009	144	5.2	
2/20/2009	46	8.5		4/13/2009	95	6.8		6/5/2009	146	6.6	
2/21/2009	47	7.8		4/14/2009	96	9.2		6/6/2009	147	10.4	
2/22/2009	48	7.4		4/15/2009	97	10		6/7/2009	148	9.3	
2/23/2009	49	13.2		4/16/2009	98	7.3		6/8/2009	149	7.9	
2/24/2009	50	12.2		4/17/2009	99	4.5		6/9/2009	150	5.2	
2/25/2009	51	28.2		4/18/2009	100	1.7		6/10/2009	151	7.7	
2/26/2009	52	9.2		4/19/2009	101	4.7		6/12/2009	153	4.2	

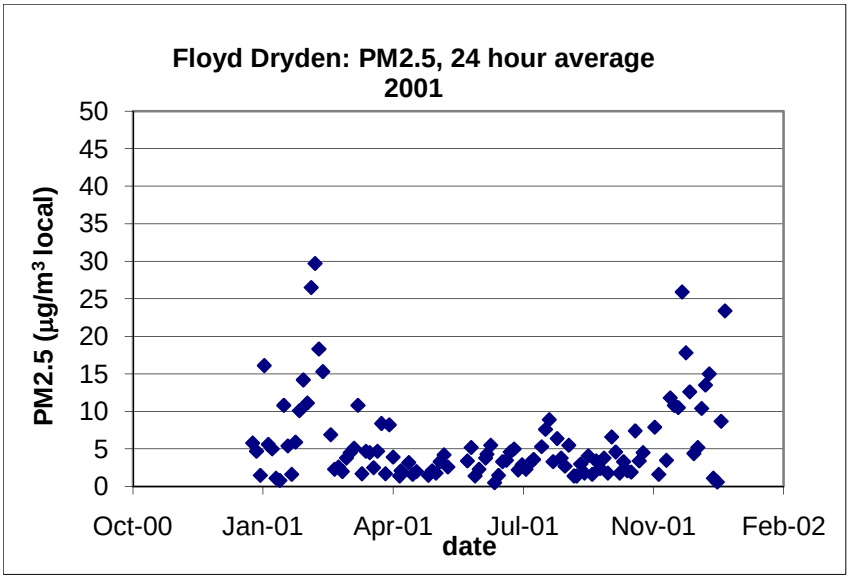
Sample date	day of year	Value µg/m³ local	Q	Sample date	day of year	Value µg/m³ local	Q	Sample date	day of year	Value µg/m³ local	Q
6/13/2009	154	4		10/22/2009	295	1.5	1*				
6/15/2009	156	3.7		10/25/2009	298	1.7	*				
6/16/2009	157	1.7		10/28/2009	301	7.2	*				
6/17/2009	158	5.5		10/31/2009	304	6.2	*				
6/18/2009	159	2.3		11/3/2009	307	5.5	*				
6/19/2009	160	2.7		11/6/2009	310	0.9	*				
6/20/2009	161	2.2		11/9/2009	313	12.5	*				
6/21/2009	162	2.7		11/15/2009	319	5.4	*				
6/24/2009	164	3.5		11/18/2009	322	9.2	1*				
6/25/2009	165	4.3		11/21/2009	325	14.2	*				
6/26/2009	166	3.2		10/28/2009	241	7.2	*				
6/27/2009	167	2.2		10/31/2009	242	6.2	*				
6/29/2009	168	3.3		11/3/2009	243	5.5	*				
6/30/2009	169	4.8		11/6/2009	244	0.9	*				
8/5/2009	205	22		11/9/2009	245	12.5	*				
8/6/2009	206	31.5		11/15/2009	246	5.4	*				
8/7/2009	207	18.6		11/18/2009	247	9.2	*				
8/8/2009	208	2.7		11/21/2009	248	14.2	*				
8/9/2009	209	1.5		11/24/2009	249	6.9	*				
8/10/2009	210	3.1		11/27/2009	250	0.9	*				
8/12/2009	211	3.1		11/30/2009	251	6.2	*				
8/13/2009	212	4		12/3/2009	252	7.1	*				
8/14/2009	213	3.4		12/6/2009	253	32.2	*				
8/15/2009	214	1.5		12/9/2009	254	10.6	*				
8/16/2009	215	0.2		12/12/2009	255	32.6	*				
8/17/2009	216	1.4		12/15/2009	256	22.3	*				
8/19/2009	217	8.2		12/18/2009	257	1.4	*				
8/20/2009	218	3.9		12/24/2009	259	8.5	*				
8/23/2009	219	1.8	*	12/27/2009	260	19.5	*				
8/29/2009	221	1.7	*	12/30/2009	261	12.9	*				
9/1/2009	222	4.9	*								
9/4/2009	223	5.2	*								
9/7/2009	224	3.8	*								
9/10/2009	225	1.1	*								
9/13/2009	226	6.1	*								
9/16/2009	227	4	*								
9/19/2009	228	5.4	*								
9/22/2009	229	2.2	*								
9/27/2009	230	5.9	*								
9/28/2009	231	8.5	*								
10/1/2009	232	2.2	*								
10/4/2009	233	10.1	*					***Flagged data: Included***			
10/7/2009	234	8.3	*								
10/10/2009	235	8	*					*1 = deviation from CFR Critical*			
10/13/2009	236	2.7	*					*Criteria Requirement*			
10/16/2009	237	4.4	*								

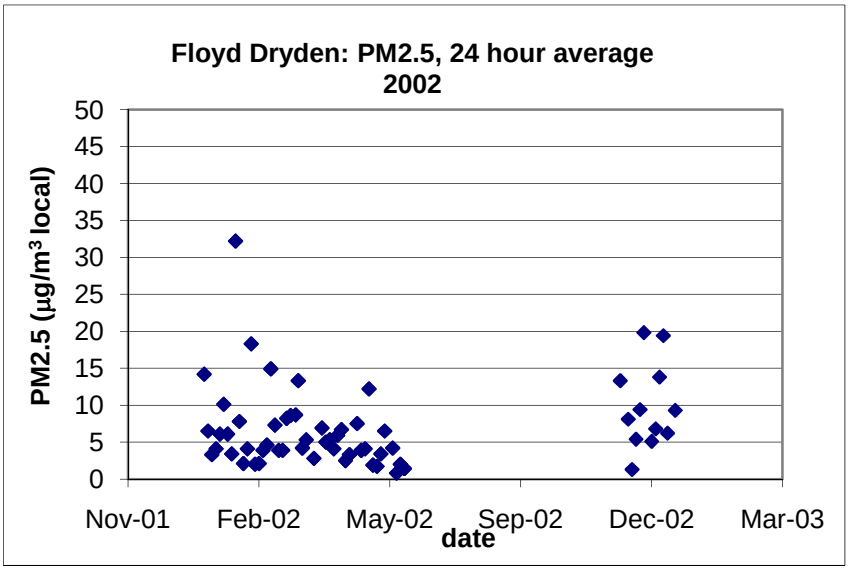
* FRM Partisol Partisol is secondary level monitor

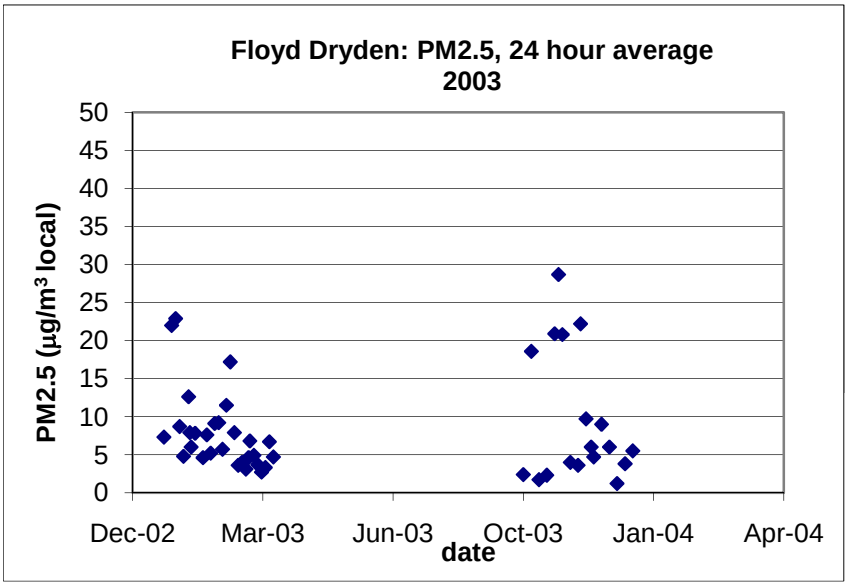
Sample date	day of year	Value µg/m³ local	Sample date	day of year	Value µg/m³ local	Sample date	day of year	Value µg/m³ local
8/21/2009	233	1.2	10/10/2009	283	7.7	11/24/2009	328	6.8
8/22/2009	234	0.8	10/11/2009	284	15.0	11/25/2009	329	7.1
8/23/2009	235	0.1	10/12/2009	285	3.4	11/26/2009	330	7.5
8/24/2009	236	1.7	10/13/2009	286	3.0	11/27/2009	331	1.1
8/25/2009	237	0.8	10/14/2009	287	5.9	11/28/2009	332	2.3
8/27/2009	239	2.4	10/15/2009	288	6.5	11/29/2009	333	4.3
8/27/2009	239	3.3	10/16/2009	289	4.5	11/30/2009	334	7.1
8/28/2009	240	-1.5	10/17/2009	290	3.3	12/1/2009	335	3.3
8/29/2009	241	-1.2	10/18/2009	291	3.9	12/2/2009	336	0.6
8/30/2009	242	4.3	10/19/2009	292	5.8	12/3/2009	337	8.1
8/31/2009	243	7.4	10/20/2009	293	4.0	12/4/2009	338	11.1
9/1/2009	244	3.9	10/21/2009	294	2.0	12/5/2009	339	27.5
9/2/2009	245	7.4	10/22/2009	295	0.4	12/6/2009	340	32.0
9/3/2009	246	3.9	10/23/2009	296	1.7	12/7/2009	341	20.8
9/4/2009	247	3.5	10/24/2009	297	0.9	12/8/2009	342	28.0
9/5/2009	248	1.7	10/25/2009	298	1.4	12/9/2009	343	10.7
9/6/2009	249	3.3	10/26/2009	299	3.8	12/10/2009	344	15.6
9/7/2009	250	2.5	10/27/2009	300	4.8	12/11/2009	345	15.7
9/8/2009	251	0.5	10/28/2009	301	6.8	12/12/2009	346	33.7
9/9/2009	252	2.3	10/29/2009	302	7.5	12/13/2009	347	37.1
9/10/2009	253	-1.5	10/30/2009	303	8.5	12/14/2009	348	17.9
9/11/2009	254	7.8	10/31/2009	304	6.8	12/15/2009	349	23.5
9/12/2009	255	8.7	11/1/2009	305	5.3	12/16/2009	350	14.6
9/13/2009	256	5.3	11/2/2009	306	2.7	12/17/2009	351	1.7
9/14/2009	257	6.8	11/3/2009	307	6.4	12/18/2009	352	2.0
9/15/2009	258	8.9	11/4/2009	308	6.1	12/19/2009	353	13.0
9/16/2009	259	2.0	11/5/2009	309	1.1	12/20/2009	354	27.8
9/17/2009	260	-0.1	11/6/2009	310	1.1	12/21/2009	355	17.7
9/18/2009	261	0.0	11/7/2009	311	0.3	12/22/2009	356	15.0
9/19/2009	262	3.8	11/8/2009	312	2.9	12/23/2009	357	9.2
9/20/2009	263	-1.4	11/9/2009	313	12.7	12/24/2009	358	8.5
9/21/2009	264	0.8	11/10/2009	314	8.3	12/25/2009	359	4.7
9/22/2009	265	0.3	11/11/2009	315	4.2	12/26/2009	360	9.1
9/23/2009	266	0.3	11/12/2009	316	2.4	12/27/2009	361	20.6
9/24/2009	267	0.5	11/13/2009	317	2.0	12/28/2009	362	15.3
9/25/2009	268	-0.9	11/14/2009	318	2.1	12/29/2009	363	14.9
9/26/2009	269	3.2	11/15/2009	319	5.9	12/30/2009	364	13.6
9/27/2009	270	4.3	11/16/2009	320	4.0	12/31/2009	365	29.0
9/28/2009	271	8.8	11/17/2009	321	8.4			
10/4/2009	277	10.8	11/18/2009	322	10.2			
10/5/2009	278	2.5	11/19/2009	323	16.2			
10/6/2009	279	6.9	11/20/2009	324	11.5			
10/7/2009	280	8.1	11/21/2009	325	15.7			
10/8/2009	281	4.1	11/22/2009	326	16.5			
10/9/2009	282	5.2	11/23/2009	327	8.0			

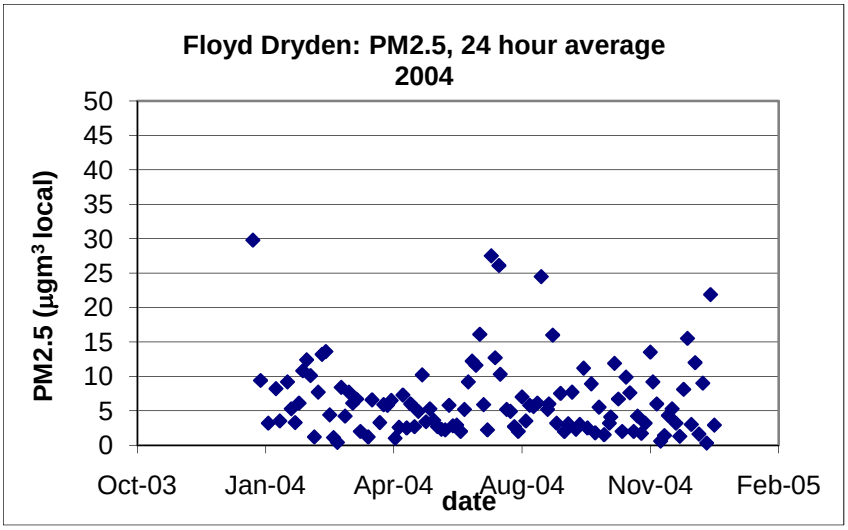

Floyd Dryden: PM2.5, 24 hour average
1999
PM2.5 (µg/m³ local)
50
45
40
35
30
25
20
15
10
5
0
Feb-99
May-99
Aug-99
Dec-99
Mar-00
date

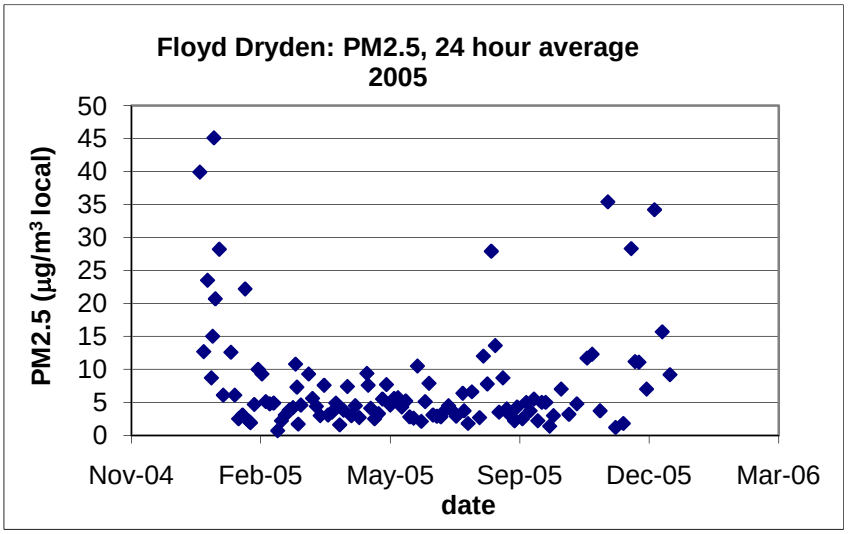

Floyd Dryden: PM2.5, 24 hour average
2000
PM2.5 (µg/m³ local)
50
45
40
35
30
25
20
15
10
5
0
Dec-99
Mar-00
Jun-00
Oct-00
Jan-01
date

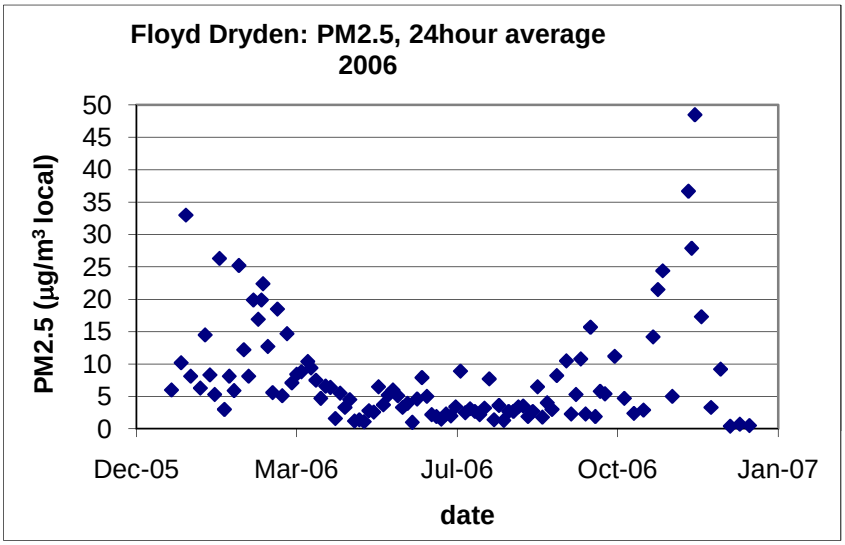

Floyd Dryden: PM2.5, 24 hour average
2001
PM2.5 (µg/m³ local)
50
45
40
35
30
25
20
15
10
5
0
Oct-00
Jan-01
Apr-01
Jul-01
Nov-01
Feb-02
date

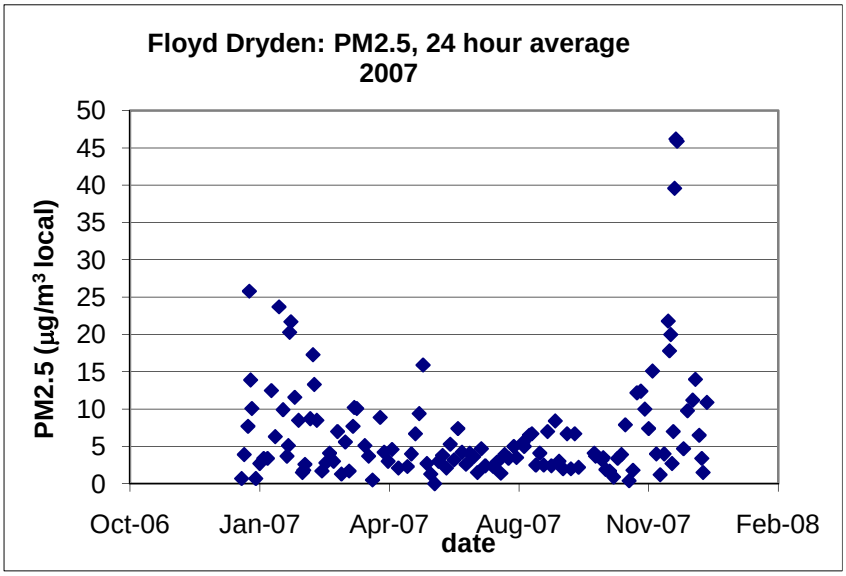

Floyd Dryden: PM2.5, 24 hour average
2002
PM2.5 (µg/m³ local)
50
45
40
35
30
25
20
15
10
5
0
Nov-01
Feb-02
May-02
Sep-02
Dec-02
Mar-03
date

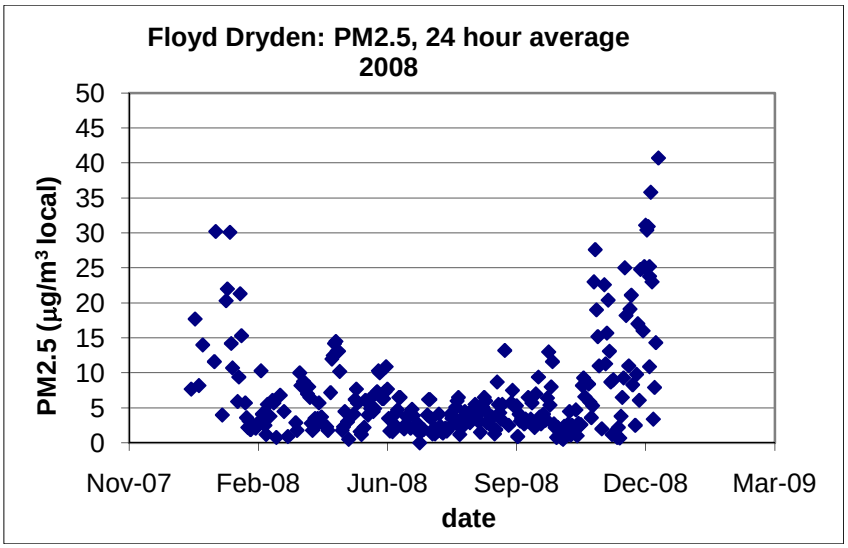

Floyd Dryden: PM2.5, 24 hour average
2003
PM2.5 (µg/m³ local)
50
45
40
35
30
25
20
15
10
5
0
Dec-02
Mar-03
Jun-03
Oct-03
Jan-04
Apr-04
date

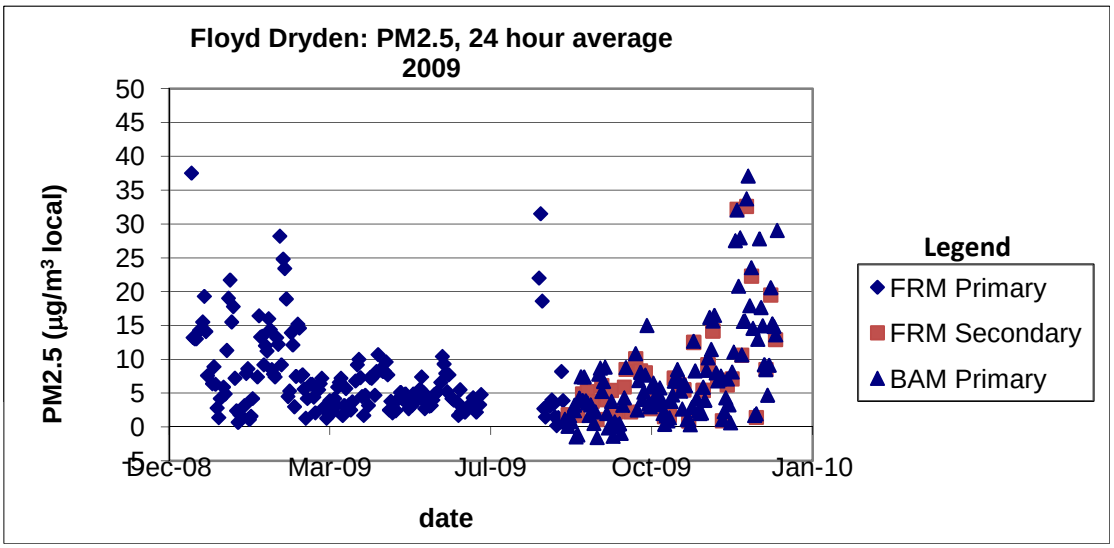

Floyd Dryden: PM2.5, 24 hour average
2004
PM2.5 (µgm³ local)
50
45
40
35
30
25
20
15
10
5
0
Oct-03
Jan-04
Apr-04
Aug-04
Nov-04
Feb-05
date


Floyd Dryden: PM2.5, 24 hour average
2005
PM2.5 (µg/m³ local)
50
45
40
35
30
25
20
15
10
5
0
Nov-04
Feb-05
May-05
Sep-05
Dec-05
Mar-06
date


Floyd Dryden: PM2.5, 24hour average
2006
PM2.5 (µg/m³ local)
50
45
40
35
30
25
20
15
10
5
0
Dec-05
Mar-06
Jul-06
Oct-06
Jan-07
date


Floyd Dryden: PM2.5, 24 hour average
2007
PM2.5 (µg/m³ local)
50
45
40
35
30
25
20
15
10
5
0
Oct-06
Jan-07
Apr-07
Aug-07
Nov-07
Feb-08
date


Floyd Dryden: PM2.5, 24 hour average
2008
PM2.5 (µg/m³ local)
50
45
40
35
30
25
20
15
10
5
0
Nov-07
Feb-08
Jun-08
Sep-08
Dec-08
Mar-09
date


Floyd Dryden: PM2.5, 24 hour average
2009
PM2.5 (µg/m³ local)
50
45
40
35
30
25
20
15
10
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date
Legend
FRM Primary
FRM Secondary
BAM Primary