Alaska's 2009 Air Monitoring Network Plan

Chapter 2 – Monitoring Plan

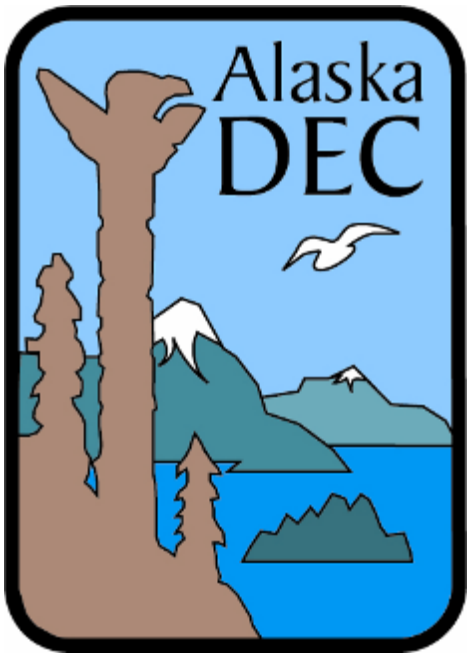

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Table of Contents

2. ***ALASKA'S 2009 AMBIENT AIR QUALITY MONITORING PLAN…….……..……..2-1***

2.1. Introduction…..……..…….…….2-1

2.2. Carbon Monoxide (CO).……...…….2-3

2.3. Coarse Particulates (PM_{10})….……..…..……2-3

2.4. Fine Particulates ($PM_{2.5}$).…….……...2-5

2.5. Tribal Village/ Rural Community Monitoring.……..……...2-6

2.6. Fire Support / Slash Burning / Air Toxics…….....2-7

2.7. Rural Diesel Health Study……..…….……....2-7

2.8. 2009 - Network Modifications…….……..……..…2-8

2.8.1. Anchorage……..…….…..……...2-8

2.8.2. Fairbanks……..……..……....2-9

2.8.3. Juneau……...……..……2-10

2.8.4. Mat-Su Valley……..……..……..……2.10

List of Tables

Table 2-1. Criteria Pollutants from the EPA…….……2-1

2 ALASKA'S 2009 AMBIENT AIR QUALITY MONITORING PLAN

2.1 *Introduction*

The Environmental Protection Agency (EPA) created the Clean Air Act to establish national air quality standards to protect public health. National Ambient Air Quality Standards (NAAQS) were developed for six 'criteria pollutants': Carbon Monoxide, Lead, Nitrogen Dioxide, Particulate Matter, Ozone and Sulfur Oxides. The thresholds for primary standards protect the health of those that are the most sensitive, including those with respiratory conditions, children, and the elderly, while secondary standards are set to protect public welfare and the environment.

Table 2.1: Criteria Pollutants from the EPA[1]

	Primary Standards		Secondary Standards
Pollutant	**Level**	**Averaging Times**	**Level | Averaging Time**
Carbon Monoxide	9 ppm (10 mg/m^3)	8-hour(1)	None
	35 ppm (40 mg/m^3)	1-hour(1)	Same as Primary
Lead	1.5 µg/m^3	Quarterly Average	Same as Primary
Nitrogen Dioxide	0.053 ppm (100 µg/m^3)	Annual (Arithmetic Mean)	Same as Primary
Particulate Matter (PM_{10})	150 µg/m^3	24-hour(2)	Same as Primary
Particulate Matter ($PM_{2.5}$)	15.0 µg/m^3	Annual(3) (Arithmetic Mean)	Same as Primary
	35 µg/m^3	24-hour(4)	Same as Primary
Ozone	0.075 ppm (2008 standard)	8-hour(5)	Same as Primary
	0.08 ppm (1997 standard)	8-hour(6)	Same as Primary
	0.12 ppm	1-hour(7) (Applies only in limited areas)	Same as Primary
Sulfur Oxides	0.03 ppm	Annual (Arithmetic Mean)	0.5 ppm | 3-hour(1) (1300 µg/m^3)
	0.14 ppm	24-hour(1)	

(1) Not to be exceeded more than once per year.

[1] NAAQS criteria table can be found at http://epa.gov/air/criteria.html

(2) Not to be exceeded more than once per year on average over 3 years.

(3) To attain this standard, the 3-year average of the weighted annual mean $PM_{2.5}$ concentrations from single or multiple community-oriented monitors must not exceed 15.0 $\mu g/m^3$.

(4) To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 $\mu g/m^3$ (effective December 17, 2006).

(5) To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm.

(6) (a) To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm.
(b) The 1997 standard – and the implementation rules for that standard – will remain in place for implementation purposes as EPA undertakes rulemaking to address the transition from the 1997 ozone standard to the 2008 ozone standard.

(7) (a) The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is $\leq$ 1, as determined by appendix H.
(b) As of June 15, 2005 EPA revoked the 1-hour ozone standard in all areas except the fourteen 8-hour ozone non attainment Early Action Compact (EAC) Areas.

Alaska's air monitoring program focuses on three of the six criteria pollutants regulated through the NAAQS: carbon monoxide (CO), and both coarse (PM_{10}) and fine ($PM_{2.5}$) particulate matter. There are six separate and distinct monitoring issues throughout the state associated with these pollutants:

- Carbon Monoxide (CO) – seasonal monitoring in Anchorage and Fairbanks (October through March).
- Coarse Particulate Matter (PM_{10}) – monitoring in the major communities of Juneau, Anchorage and the central Matanuska-Susitna Valley (Mat-Su).
- Fine Particulate Matter ($PM_{2.5}$) – monitoring in Juneau, Fairbanks, Anchorage and the Mat-Su Valley.
- Wildland Fire Emissions ($PM_{2.5}$) - statewide monitoring during the summer fire season (May – September).
- Slash Burning ($PM_{2.5}$) for agricultural and beetle kill (August – May).
- Rural Community/ Tribal Village Dust Monitoring (May-September), Residential Wood Smoke (September-March) and Air Toxics Monitoring (special projects) – selected communities statewide.

The state's primary air monitoring network evaluates the level of these criteria air pollutants, following guidance provided in EPA's National Monitoring Strategy, and focuses Alaska's monitoring on our largest communities. Citizen complaints from rural villages have been addressed on an "as available" basis in the past. Resolutions from concerned tribal council leaders in the Northwest Arctic Borough have resulted in that region running the most active air monitoring programs in rural Alaska.

2.2 *Carbon Monoxide (CO)*

The communities of Anchorage and Fairbanks continue to experience strong winter inversions which trap and concentrate air pollution. Anchorage is located at the upper end of the Cook Inlet in south-central Alaska and is bounded by the Turnagain Arm on the west and south, the Knik Arm on the north and the Chugach Mountains to the east. Fairbanks is located in Interior Alaska at the upper end of the Tanana River Valley. Fairbanks experiences some of the strongest winter inversions in the United States. Both communities were designated "Serious Non-attainment" for CO in the late 1990s, but have since collected several years of clean CO data. Both communities requested re-designation to attainment and were placed in "maintenance status" as of October 2004.

The Anchorage CO monitoring network is currently comprised of four monitoring sites, one in east Anchorage, one in downtown Anchorage, one in west Anchorage near the airport, and one in Eagle River, a suburb of Anchorage ten miles to the northeast. The Garden site is the oldest CO monitoring site in the network and is located at a church in an old east Anchorage residential neighborhood. The Turnagain site is located northeast of the Ted Stevens International Airport to look at CO levels in a west Anchorage neighborhood with dense housing and few garages. The Turnagain site is a historical CO hot spot. The Benson & New Seward site was closed down four years ago at the request of the new building owner. The monitor was moved to the Bowman School site which is located in south Anchorage and was selected to examine residential community impacts in that part of town. The Bowman site was shut down after the 2006/7 CO sampling season because CO concentrations measured at this site were unremarkable, except that they may typify background conditions. In December 2005, a CO monitor was added to the Parkgate PM10 site in Eagle River. The Municipality of Anchorage is in the process of looking for a new south Anchorage location.. None of the sites above reported violations of the ambient CO standard during the winter of 2007-08.

The Fairbanks CO network consists of two monitoring sites; the Old Post Office and the Hunter School site. A third site, located at the Army National Guard building, operated through the winter of 2006-07 and was temporarily discontinued, to focus staff time on fine particulate matter issues. The Armory site consistently reported the lowest CO concentration of all the Fairbanks sites. The Old Post Office site is located in downtown Fairbanks, two blocks south of the Chena River. The Hunter School site is near an older residential neighborhood, located a mile south of downtown at an elementary/middle/high school complex and a quarter of a mile east of the local hospital. None of these monitoring sites violated the ambient CO standard during the past three years.

2.3 *Coarse Particulates (PM_{10})*

The State of Alaska has been monitoring for dust in Anchorage, Juneau and the Mat-Su Valley for over twenty years. The Municipality of Anchorage air quality staff samples for PM_{10} at the Garden, Tudor Road, and Parkgate (Eagle River) monitoring sites; all of which have suffered exceedances of the PM_{10} standard during exceptional events. Exceedances unrelated to an exceptional event have been recorded only at the Parkgate site. Such exceedances date back to 1987 or earlier. Elevated concentrations of PM_{10} in the Municipality of Anchorage have

primarily been related to ash from volcanic eruptions and re-entrained road particulates. Most exceedances occur during high wind events (40 to100 mph winds) which can occur in any season. Eagle River is still designated "non-attainment" for $PM_{10.}$ The Municipality of Anchorage has submitted documentation to classify all three PM_{10} exceedances recorded in Eagle River in the last twenty years as Exceptional Events, and is developing a plan to have the community re-designated to attainment. The Municipality has a Memorandum of Agreement with DEC, Department of Transportation (DOT) and EPA Region 10 to control dust in downtown Anchorage. The Municipality received additional air quality funding through the congressional delegation in 2005 and is in the process of expanding the Upper Cook Inlet air monitoring network to include the Mat-Su Valley and upper Kenai Peninsula as part of the Cook Inlet Region Integrated Air Monitoring System (CIRIAMS). This data network will help all of the local communities better protect public health.

The southern Mat-Su Valley, located 40 miles northeast of Anchorage, is in the process of transitioning from a rural-agricultural to an urban-suburban character. The cities of Wasilla and Palmer are the fastest growing communities in the state. While increased road paving has significantly reduced the road dust levels across the Valley, high winds off the Matanuska River and Knik River drainages can still raise dust levels into the very unhealthy range. Dust monitoring is currently performed in the Butte, a small community south of Palmer. DEC started working with the Municipality of Anchorage and the Mat-Su Borough in 2007 to expand the Mat-Su Valley monitoring network. The expanded monitoring network will include sites in downtown Palmer and Wasilla to better address air issues raised by Valley residents. The two sites are expected to be operational before the winter of 2008-2009.

To better address air quality concerns on the Kenai Peninsula, the Department will be establishing a new air monitoring site in Soldotna in early 2009. This site will be installed as part of the CIRIAMS monitoring network which is intended to provide real-time data to the public and help the Department issue more timely air quality advisories.

The Fairbanks PM_{10} monitoring sites were installed in the late 1980s to investigate wood smoke concerns. Before establishing a $PM_{2.5}$ standard to regulate fine particulate matter, wood smoke was sampled using PM_{10} instrumentation and fell under the PM_{10} standard. Despite sampling at several locations, the monitoring program did not find significant levels of PM_{10}. While monitoring focused on road corridors and subdivisions with higher woodstove use, the City's program to pave roads and cheaper home heating fuel costs may have helped keep PM_{10} levels below the standard. The last monitor was de-installed in the late 1990s based on low PM_{10} concentrations and the need to switch focus to $PM_{2.5}$.

Juneau has one active PM_{10} monitoring site located in the Mendenhall Valley at the Floyd Dryden Middle School. Juneau initially had two particulate problems in the late 1980s. Challenged with rapid growth, a majority of the Mendenhall Valley's residential streets were unpaved (road dust) and most homes had a woodstove which provided some, if not all, of their home heating. On dry days dust would be re-entrained off the road surfaces. On cold, clear winter nights woodstoves created a thick smelly smog that easily exceeded the 24-hour air quality standard. To address the wood smoke issue, the City and Borough of Juneau set up a burn ban strategy for use when smoke levels were expected to be high. This control strategy worked well for maintaining compliance with the particulate standard at the 150 $\mu g/m^3$ level for

PM_{10} and the initial $PM_{2.5}$ standard at 65 $\mu g/m^3$, but will need to be re-evaluated under the new $PM_{2.5}$ standard (35 $\mu g/m^3$). The dust problem was not so easy to control and required a federal Congestion Mitigation Air Quality (CMAQ) funded road paving effort in the early 1990s to effectively control the road dust. Despite implementing these control strategies and PM_{10} levels dropping, Juneau has never been officially re-designated to attainment. Currently the City and Borough of Juneau and DEC are working on a maintenance plan for PM_{10}. Although DEC suspected that the Lemon Creek Valley also had a similar dust/wood smoke issue, sampling did not produce enough data to document or repudiate the problem.

2.4 *Fine Particulate ($PM_{2.5}$)*

Alaska's original fine particulate monitoring network consisted of nine area wide sites spread out between Fairbanks, Denali National Park, the Mat-Su Valley, Anchorage and Southeast Alaska. The sites were installed between 1999 and 2000 to look at potential impacts from combustion sources in Alaska. The targets were larger communities with power plants and automobiles, communities with high woodstove use and background/transport sites. Based on EPA $PM_{2.5}$ siting criteria, we did not position $PM_{2.5}$ samplers to evaluate woodsmoke impacts from summer wildland fires.

The department downsized the $PM_{2.5}$ monitoring network in 2004 to six sites. The remaining network included one site in Anchorage (Garden), one in Juneau (Floyd Dryden), one in the Mat-Su Valley (Butte), one in Fairbanks (State Office Building) and a set of Special Purpose Monitoring (SPM) sites in Skagway. The special purpose monitoring (SPM) monitoring in Skagway did not identify a problem and was discontinued in April 2005.

As part of a shift in the National Monitoring Strategy, Alaska began adding continuous $PM_{2.5}$ analyzers to Federal Reference Method (FRM) monitoring sites. The national long range plan was to convert all manual samplers to continuous analyzers to provide a more comprehensive monitoring database. The strategy required a collocation of continuous samplers with FRM monitors to determine if a bias existed in the collected data. This was considered an important step as agencies in the lower 48 states were noticing that the newer technology analyzers were producing significant data disparities. While analyzers have improved, and one has been given federal equivalent method certification, running them collocated with an FRM sampler is still required to validate their performance as significant discrepancies exist and have been documented nationwide. The collocation is important, as good quality, continuous particulate data plays a critical role in calculating daily Air Quality Indices (AQI), which are used to help develop air advisories and protect public health. Alaska continues to study the accuracy of these samplers. The intent is still to provide real-time $PM_{2.5}$ data to the public by the end of December 2008.

Fairbanks has consistently experienced the highest $PM_{2.5}$ values measured in the state. During the summer months when wildland fires spread thick, grey smoke over Interior Alaska, the Fairbanks area is inundated with very high fine particulate levels. During the summers of 2004 and 2005, the community suffered through days with particulate levels that were more than 10 times the old standard of 65 $\mu g/m^3$. At times, smoke from these fires covered most of Interior Alaska from the Bering Sea eastward to the Canadian border. During the winter months,

Fairbanks' strong temperature inversions have contributed to trapping fine particle emissions in the lowest levels of the atmosphere. Based on winter $PM_{2.5}$ levels alone, Fairbanks had come close to exceeding the annual fine particulate standard (set at 15 $\mu g/m^3$) for the past seven years. Since the strengthening of the $PM_{2.5}$ standard in December 2006, Fairbanks also recorded many values over the new 24 hour standard of 35 $\mu g/m^3$. Based on monitoring results from the past three years, the City of Fairbanks is in the process of being designated non-attainment for fine particulate and will be required to develop a strategy for bringing the community back into attainment.

The communities of Wasilla and Palmer continue to grow exponentially and the DEC receives several smoke related complaints annually. While major land clearing operations have slowed, there is still enough growth for land clearing operations to smoke out parts of the Palmer-Wasilla area each year. DEC is in the process of installing a $PM_{2.5}$ continuous sampler in the downtown area of each community this summer to examine smoke levels and help local leaders address air quality issues and better protect public health.

2.5 *Tribal Village/ Rural Community Monitoring*

The State provides support to Alaska's rural communities in their efforts to assess local air quality. Because a majority of the citizens (percentages range from 50-95%) in these communities are Alaskan Native, much of the monitoring is supported by EPA's General Assistance Program (GAP) or EPA's Tribal Air Grant process. The GAP program provides limited funding and training which places a large responsibility on the State to ensure that "village" baseline monitoring projects are successful.

The State's "tribal air monitoring" program currently includes active monitoring in three communities, with requests for assistance in ten more. The State expects that this number could double with the recent revisions of the national particulate standard. The DEC is currently helping the Northwest Arctic Borough villages of Kivalina, Ambler and Kotzebue assess dust levels in their communities. The department initially provided support to the Maniilaq Association, but assumed their technical role in 2004 when the Maniilaq monitoring program lost staff. The western Alaska communities of Bethel and St Mary's are the only two communities in that region which have operated dust monitors in the past five years, although as many as 40 other villages have indicated an interest in monitoring for dust.

Village monitoring in rural Alaska has been confirming what the local people have been telling the DEC for years…. "It's dusty out here". Enhanced by increased 4-wheeler use and the systematic affects of global warming, a majority of these communities appear to have bad summer and fall dust problems. Over the past five years, Kotzebue has recorded more than 25 exceedances of the PM_{10} standard and Noorvik (2004) and Noatak (2005) have both recorded at least 10 exceedances with several values reaching 600 $\mu g/m^3$.

The State believes the high dust levels reported in the above mentioned communities represent the conditions that would be found in other similar sized rural communities across the state if they performed PM_{10} monitoring. DEC, along with the State DOT and the University of Alaska – Fairbanks are working together to identify and test potential dust control strategies for use in

rural Alaska. The state is not planning to seek a PM_{10} non-attainment designation for rural communities at this time, but may in the future if the more simple solutions are not found to be effective.

Portions of rural Alaska may also have a $PM_{2.5}$ wood smoke problem. Strong winter inversions in Interior Alaska coupled with weak economies, higher home heating bills, and easy access to wood have seen Alaskan's woodstove use on the rise. The impact on these small communities is unknown at this time, but cannot be overlooked.

2.6 *Fire Support/ Slash Burning/Air Toxics*

The DEC is taking a more active role in evaluating impacts from wildland fire smoke. The addition of two monitoring staff in 2005 from State general fund dollars has assisted in the protection of the public from smoke impacts. The meteorologist position has direct access to all National Weather Service weather data and has worked closely with state and federal fire suppression staff to develop smoke forecasts and air quality advisories to better protect public health. This position has also been involved with developing a real-time smoke monitoring capability for taking direct measurements of smoke downwind of the fires. The air quality monitoring technician provides field support to our staff meteorologist and fire incident commanders during the fire season. While staff was trained and prepared to conduct field monitoring during the summers of 2006 and 2007, the wetter and cooler summers all but wiped out the fire season, and the team only deployed once. These mild fire seasons allowed staff time to train with the new samplers and provide instrument orientation for federal agency staff.
The Kotzebue Air Toxics Monitoring Study was conducted in Northwest Alaska between December 2004 and April 2006. After many logistical and staff related delays, the field monitoring was successfully completed. The initial monitoring plan was to collect indoor and outdoor air toxics data in a regional "hub" community and, for comparison purposes, in a small village in that same region. Funding constraints forced the DEC to scale that project back to monitoring in Kotzebue only. The eventual start date for the outdoor sampling was December 2004 with the indoor sampling beginning in June 2005. The project plan for this sampling was reviewed in house and tentatively approved by EPA. DEC teamed up with Washington State University (WSU) for analytical services and to help identify compounds of concern. DEC has completed the review and analysis of the analytical data, and is in the process of finalizing the project write-up. Loss of staff involved with this project has delayed the completion, and the final report is expected to be out by early 2009.

2.7 *Rural Diesel Health Study*

As part of the low sulfur diesel initiative, DEC evaluated the impact of diesel emissions on the residents of a small rural Alaskan community. After an extensive search, the Native Village of St Mary's was selected as the location for the investigation. The study monitored ambient air down-stream from the village power plant for NO_x, SO_2, and diesel particulates ($PM_{2.5}$ filter analysis using a TEOM with an FDMS module, diesel particulate assessment using a diesel particulate matter (DPM) cassette, and diesel particle analysis using an Aethalometer). Field monitoring started in January 2006 and ran through April 2006. The collected data was analyzed and a final draft report has been developed and is undergoing peer review. An unexpected loss of staff has delayed the final version of this report, and a new target release date is set for early 2009.

2.8 *2009 - Network Modifications*

DEC reviews and modifies the State air monitoring network annually based on the needs of the State, available funding and EPA guidance. The 2008-09 monitoring network will continue to focus on the same pollution sources as in 2007-08. Budget cuts and loss of trained staff over the past three years have had a significant impact on the department's ability to conduct field monitoring. The effectiveness of the State's monitoring capability will continue to be challenged by the retention of the PM_{10} standard (dust issues in rural Alaska) and a lowering of the $PM_{2.5}$ standard (increased woodstove use statewide). Detailed descriptions of the network monitoring sites follow in Chapters 3 – 6, and a summary table of AQS site identification numbers and site specific input parameters in Appendix C.

2.8.1 Anchorage

The Municipality of Anchorage is in the process of expanding their local air monitoring network to include sites in the Mat-Su Valley and on the Kenai Peninsula. Federal dollars which were awarded through the congressional delegation are being used to enhance the existing network and make monitoring data more accessible to the public. The Cook Inlet Regional Integrated Air Monitoring System (CIRIAMS) will include seven $PM_{10}/PM_{2.5}$ monitoring sites and provide real-time air monitoring data to the public and air quality/public health decision makers. This upgraded real time data acquisition and reporting system is expected to be online by late 2008.

The Municipality of Anchorage is categorized as a Metropolitan Statistical Area (MSA) for air quality purposes based on a misunderstanding of the Upper Cook Inlet airshed. The communities in this area are listed as having a population of over 351,000, which qualifies the MSA for funding to establish an ozone site. Nonetheless this region does not meet the intent of a MSA. The Anchorage MSA includes the Mat-Su Valley, located 40-50 miles north of Anchorage, Eagle River and Chugiak which are 15-20 miles north of Anchorage and Girdwood which is located 40 miles south of Anchorage. Because of the local topography, and associated wind flow patterns, it is not appropriate to consider this area as a MSA for air quality purposes. The State however agrees that with the lowering of the ozone standard, it is time to conduct monitoring for ozone to establish baseline concentrations in Alaska. The State and the municipal air quality staff are proposing two locations for monitoring ozone to best represent the Upper Cook Inlet airshed. The State will partner with the Municipality of Anchorage to operate an ozone monitoring site within the Anchorage bowl, and one in Eagle River. Equipment will be purchased by April 2009, and sampling is anticipated to begin with the 2010 season.

The Municipality of Anchorage operated four Carbon Monoxide monitoring sites during the winter of 2007-08, including the new DHHS site near their office. The State and Municipality air staffs have discussed the need for continued operation of a large CO network in light of the shift in the National Monitoring Strategy to fewer, more representative fixed sites, and the Municipality's recent re-designation to attainment for CO. While continued monitoring is part of the maintenance plan, the State's monitoring staff believes a smaller monitoring network can be used to assess continued compliance with the CO standard. The State has suggested that one fixed site with one or two mobile sites to look at potential hot spots or to respond to complaints might be sufficient. The State will continue to work with the Municipality to identify sites which

should be shut down. All requests for site shut down will be forwarded to EPA Region 10 for approval.

The Anchorage air quality staff operated one $PM_{2.5}$ site (Garden) in 2007-08. This site captured both manual and continuous data, although the State only reports the manual data to AQS. This monitoring site was originally classified as a State and Local Air Monitoring Site (SLAMS) and funded through the State's 103 grant funding for $PM_{2.5}$.With the December 2006 revision of the $PM_{2.5}$ standard, EPA has placed a lower priority on this site with the decision that it would no longer fund $PM_{2.5}$ monitoring sites with good air quality (maximum values lower than 80% of the new standard). This decision resulted in loss of funding for the Garden site's $PM_{2.5}$ monitor and has resulted in the State requesting it be re-classified as an SPM site based on Anchorage's low $PM_{2.5}$ values.

The community had four PM_{10} sites operating in 2005, but decided to drop the Muldoon Site, which targeted seasonal dust monitoring based on improved air quality. The Tudor PM_{10} monitoring site is collocated and runs year round, the Garden Site is the primary monitoring site in the network and the Parkgate site in Eagle River (old non-attainment monitoring site) continues to run on a 1-in-6 schedule despite having had clean data for over 15 years. The State continues to maintain that this site is not needed and has made several recommendations in the past that it be shut down and limited resources be shifted to higher priority monitoring. The State believes there needs to be a provision in the particulate matter regulations for automatic reclassification of a site based on demonstrated performance.

2.8.2 Fairbanks:

The 2007-08 $PM_{2.5}$ network monitored for fine particulates at the State Office Building and three new sites: Nordale Elementary School, Sadler's Furniture Store and the Fairbanks North Star Borough's air quality office on Peger Road. The additional sites were added by the Borough to address a future non-attainment designation related to the revision of the national $PM_{2.5}$ (fine particulate) standard in December 2006. Plagued by high winter fine particulate levels for the past eight years, the Borough elected to take a proactive stance in determining the magnitude, extent and source of their winter $PM_{2.5}$ problem. This effort may see the operation of several more monitoring sites as the Borough and State prepare for the development of a $PM_{2.5}$ State Implementation Plan (SIP). Currently, an additional site is planned for the community of North Pole. The primary monitoring effort will be led by the Borough's air program staff with assistance from DEC. The State's speciation monitor was moved to the State Office Building from Anchorage in the fall of 2004, and provides valuable information on potential $PM_{2.5}$ sources. PM_{10} monitoring in Fairbanks was discontinued in the late 1990s due to low dust levels.

The Fairbanks North Star Borough currently operates two CO monitoring sites. Implementation of a strong I&M program in the mid 1980s along with reduced vehicle emissions and vehicle plug-ins have helped reduce the eight hour CO levels to below the ambient air standard of 9 ppm. While the Borough air staff have continued to monitor CO levels in the community and the two main monitoring sites, Old Post office and Hunter School, continue to show CO levels below the standard. The Alaska Army National Guard Armory site never did show high values. To better

support impending work needed for defining the magnitude and extent of a $PM_{2.5}$ non-attainment area, the Borough requested to temporarily shut down the Armory CO site, and it was approved by the State and EPA.

Fairbanks was selected as the state's location for the multi pollutant NCORE site. A final location for the site has not yet been selected. Several of the NCORE siting criteria make site selection very complicated. The state is working closely with the Fairbanks North Star Borough on finding the best workable location. Some of the required instrumentation has already been purchased, but a shelter and the bulk of sampling equipment still needs to be funded. It is the intent to have the site installed and operational by 2011.

2.8.3 Juneau:

Juneau remains classified as non-attainment for PM_{10} despite paving the valley roads over 15 years ago. The PM_{10} "wood smoke" problem all but disappeared with the implementation of the Juneau woodstove burn ban program in the late 1980s. The PM_{10} "woodstove" problem actually became a $PM_{2.5}$ problem with the promulgation of a national fine particulate standard in 1997. The State never saw any more woodstove related PM_{10}/$PM_{2.5}$ exceedances even with the $PM_{2.5}$ standard set at 65 $\mu g/m^3$. With the recent revision of the standard to 35 $\mu g/m^3$, the State is concerned that higher home heating costs may renew the public's interest in wood-fired heaters. This belief seems to be supported by a slight increase in $PM_{2.5}$ levels during the winter months, placing Juneau on the edge of being classified non-attainment. Analysis of the 2008 calendar year data will be the deciding factor in the determination of Juneau's attainment status. The Floyd Dryden monitoring site continues to monitor for PM_{10} (manual) and $PM_{2.5}$ (manual and continuous). Concerns over new growth in the Mendenhall Valley and the potential for new wood smoke 'hot spots" have resulted in new wood smoke control discussions between the department and the city. .

The PM_{10} monitoring program in Juneau was always about emissions from woodstoves. Controlled under the PM_{10} regulations of 1987, wood smoke levels continued to drop in part due to public awareness and pressure, increased effort required for wood gathering, and the City's effective woodstove control program through the mid 1990s. A shift in the winter weather patterns also played a role, but how much is still up for debate.

Efforts to better define the magnitude of the wood smoke problem in the Valley resulted in the discovery that PM_{10} dust levels occasionally exceeded the standard. The dust issue was effectively corrected through a road paving project which was expanded to include the neighboring Lemon Creek Valley. The mid Mendenhall Valley PM_{10} site was shut down in the mid 1990s in recognition of the effectiveness of the road paving project, but the Floyd Dryden site has continued to monitor for PM_{10}. The Mendenhall Valley monitoring sites have shown that the dust problem was effectively controlled over 15 years ago. The State continues to maintain that this site is not needed and recommends it be shut down. The State believes there needs to be a provision in the particulate matter regulations for automatic reclassification of a site based on demonstrated performance.

2.8.4 Mat-Su Valley Monitoring:

The Mat-Su Valley monitoring network will see the addition of two new monitoring sites later this summer. The sites are part of the Municipality's CIRIAMS network designed to assess regional particulate levels and better protect public health. The new sites will be located in downtown Palmer and Wasilla. As usual, the main focus for the Mat-Su Valley is PM_{10} (dust) with a few pockets of smoke from land clearing and wildland fires. The Mat-Su Valley is known as the farming belt because of the excellent soils which have been deposited over hundreds of years through wind-blown dust deposition. The Mat-Su Borough manages an effective air advisory program which notifies local residents and the school system when dust is expected to present a health threat. The small community of Butte, located south of Palmer, has a high percentage of homes which burn wood and like the rest of Alaska, is expected to increase its consumption of wood as fuel oil and natural gas prices continue to rise.