Alaska Department of Environmental Conservation Annual Air Quality Monitoring Network Plan

June 25, 2013

Air Quality Division

Air Monitoring
&
Quality Assurance
Program

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EXECUTIVE SUMMARY

This year's Alaska Department of Environmental Conservation (DEC) annual air quality network monitoring plan has been streamlined and reformatted to provide, not only, the information required by regulation but also to make the information more accessible to reviewers. A great deal of the information previously included in the text is now summarized in tables and figures.

To adapt to challenges presented by reduction in funding while still striving to meet monitoring objectives, DEC has collaborated with the air quality programs of the Municipality of Anchorage (MOA) and the Fairbanks North Star Borough (FNSB) to consolidate and re-allocate monitoring resources. The following is a brief discussion of network modifications made during the July 2012 to June 2013 monitoring years and those modifications proposed for the future.

The MOA made a number of modifications to their network because of a significant reduction to the municipal budget. All monitoring at the Department of Health & Human Service building (DHHS) site was discontinued. The site included Met-One beta attenuation monitors (BAMs) for PM_{10} and $PM_{2.5}$, and a carbon monoxide (CO) monitor. High volume samplers for PM_{10} were removed from the Tudor Road site and the Parkgate site and will soon be removed from the Garden site. CO monitoring at the Parkgate site was discontinued. After 3 years of data collection, ozone (O_3) monitoring at the Garden site was discontinued on October 31, 2012. The 1-year monitoring program at Merrill Field to assess lead emissions (as TSP-Pb) from small piston-engine aircraft was concluded on October 12, 2012. MOA further requests to discontinue operation of the PM_{10} Hi-Vol sampler at the Garden site after December 2013. A thorough discussion of the MOA network modifications are provided in Section 4.

In continuing efforts to develop control strategies to resolve $PM_{2.5}$ nonattainment, the FNSB have made a number of network modifications. These changes will provide a more efficient and cost-effective use of monitoring equipment to assess pollutant concentrations and further the characterization of local atmospheric chemistry. To consolidate monitoring efforts in the downtown area, the $PM_{2.5}$ continuous Met-One BAM was shutdown at the State Office Building site. In addition, the FRM $PM_{2.5}$ R & P Partisol collocated sampler was removed from the State Office Building site and relocated to the NCORE site. A new site was added March 1, 2013 to assess $PM_{2.5}$ concentrations in a neighborhood area on the west side of Fairbanks near the Watershed School. The Watershed School site includes a continuous Met-One BAM monitor and a FRM R & P Partisol sampler. At the conclusion of the winter monitoring season on April 1, 2013, the $PM_{2.5}$ site near North Pole Elementary was shutdown and removed. The demobilization of this site included an R & P Partisol FRM sampler, a continuous Met-One BAM monitor, and a Met-One SASS speciation sampler.

Future modifications proposed for the FNSB network include moving the $PM_{2.5}$ STN chemical speciation sampler from the State Office Building to the NCORE site and shutting down the CO site at the Old Post Office Building. Further detail and the rationale for the current and proposed modifications are provided in Sections 4 and 5, and Appendix D.

1. INTRODUCTION

The Code of Federal Regulations Title 40 §58.10 requires each state agency to adopt and submit to the U.S. Environmental Protection Agency (EPA) Regional Administrator an annual monitoring network plan which shall provide for the establishment and maintenance of an air quality surveillance system that consists of a network made up of the following types of monitoring stations:

- state and local air monitoring stations (SLAMS) including monitors that use:
  - federal reference method (FRM), or
  - federal equivalent method (FEM)
- multi-pollutant stations (NCORE)
- $PM_{2.5}$ chemical speciation stations (STN), and
- Special Purpose Monitoring (SPM) stations.

The plan shall include a statement of purposes for each monitor and evidence that siting and operation of each monitor meets the requirements of appendices A, C, D, and E of 40 CFR 58 where applicable.

The annual monitoring network plan must be made available for public inspection for at least 30 days prior to submission to EPA. Any annual monitoring network plan that proposes SLAMS network modifications including new monitoring sites is subject to the approval of the EPA Regional Administrator, who shall provide opportunity for public comment and shall approve or disapprove the plan and schedule within 120 days. If the State or local agency has already provided a public comment opportunity on its plan and has made no changes subsequent to that comment opportunity, and has submitted the received comments together with the plan, the Regional Administrator is not required to provide a separate opportunity for comment.

The 2013/14 plan shall include all required stations to be operational by July 1, 2013. Specific locations for the required monitors shall be included in the annual network plan submitted to the EPA Regional Administrator by July 1, 2013.

The annual monitoring network plan must contain the following information for each existing and proposed site:

1. The AQS site identification number.
2. The location, including street address and geographical coordinates.
3. The sampling and analysis method(s) for each measured parameter.
4. The operating schedules for each monitor.
5. Any proposals to remove or move a monitoring station within a period of 18 months following plan submittal.
6. The monitoring objective and spatial scale of representativeness for each monitor as defined in 40 CFR 58, Appendix D.
7. The identification of any sites that are suitable and sites that are not suitable for comparison against the annual $PM_{2.5}$ NAAQS as described in 40 CFR 58.30.

8. The MSA, CBSA, CSA or other area represented by the monitor.
9. The designation of any lead monitors as either source-oriented or non-source-oriented according to 40 CFR 58, Appendix D.
10. Any source-oriented monitors for which a waiver has been requested or granted by the EPA Regional Administrator as allowed for under paragraph 4.5(a)(ii) of 40 CFR 58, Appendix D.
11. Any source-oriented or non-source-oriented site for which a waiver has been requested or granted by the EPA Regional Administrator for the use of Pb-PM_{10} monitoring in lieu of Pb-TSP monitoring as allowed for under paragraph 2.10 of 40 CFR 58, Appendix C.

2 AIR QUALITY MONITORING PRIORITIES

In 1970 the Congress of the United States created the U.S. Environmental Protection Agency (EPA) and promulgated the Clean Air Act (CAA). Title I of the CAA established National Ambient Air Quality Standards (NAAQS) to protect public health. NAAQS were developed for six *criteria pollutants*: particulate matter (PM), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO), ozone (O_3), and lead (Pb). Particulate matter has two associated NAAQS: one for fine particulate matter less than 2.5 micrometers in aerodynamic diameter ($PM_{2.5}$) and one for coarse particulate matter less than 10 micrometers in aerodynamic diameter (PM_{10}). Threshold limits established under the NAAQS to protect human health are known as primary standards. The primary health standards are to protect the most sensitive of the human population, including those people with existing respiratory or other chronic health conditions, children, and the elderly. Secondary standards established under the NAAQS are to protect the public welfare and the environment. Since promulgation of the original CAA, the EPA has continued to revise the NAAQS based on its assessment of national air quality trends and on current (and ongoing) health studies.

To protect public health and assess attainment with NAAQS, the State of Alaska Department of Environmental Conservation (DEC) established an air quality monitoring program. The State of Alaska has a large geographical area with a small population. Anchorage and the Matanuska-Susitna (Mat-Su) Valley have the bulk of the 710,231[1] people in the state, about 54%. The remainder of the population is distributed among the cities of Juneau and Fairbanks with populations of about 30,000-40,000 and many scattered and isolated small villages most of which are off the road system and have populations ranging from 16 people to 10,000 people. The total area of the state is approximately 1.7 million square kilometers (km) or 656,425 square miles[2].

[1] Population data obtained from the 2010 US Census, http://live.laborstats.alaska.gov/cen/dp.cfm
[2] Geographical data obtained from NetState.com, http://www.netstate.com/states/geography/ak_geography.htm

In accordance with the National Monitoring Strategy, DEC plans air monitoring activities using the following criteria:

- Monitor in larger communities to cover the largest possible population exposure;
- Monitor in designated smaller towns and villages that are representative of multiple communities in a region; and
- Monitor in response to air quality complaints.

The Air Monitoring & Quality Assurance (AMQA) section of the DEC Air Quality Division has a relatively small staff of professionals with which to conduct the state's air quality assessment efforts. To enhance the quality of work performed statewide DEC's staff works closely with the Municipality of Anchorage (MOA), the Fairbanks North Star Borough (FNSB), the Matanuska-Susitna Borough, the City & Borough of Juneau (CBJ) and environmental staff in other, smaller communities to assess air quality levels statewide. To continue to protect public health and the environment, air quality monitoring is focused on eight primary issues by descending priority:

1. Fine particulate matter ($PM_{2.5}$) monitoring
2. Coarse particulate matter (PM_{10}) monitoring
3. Wildland fire monitoring ($PM_{2.5}$)
4. PM Difference ($PM_{10-2.5}$) monitoring
5. Carbon monoxide (CO) monitoring
6. Rural communities and tribal village monitoring (primarily PM_{10})
7. Ozone (O_3) monitoring
8. Lead (Pb) monitoring

2.1 *Fine Particulate Matter - $PM_{2.5}$*

The primary sources of fine particulates in the atmosphere are combustion processes. Health research in the lower 48 states and Alaska has found that $PM_{2.5}$ size particles are creating a major health problem in communities across the United States. For people in Alaska, this problem is exacerbated by increased exposure to fine particulate generated by home heating with wood during extreme cold temperatures, extended wintertime temperature inversions which trap pollutants close to ground level, and smoke from wildland fires common to interior Alaska during the summer months.

Wood smoke has been a major contributor to elevated fine particulate levels in Southeast Alaska for years. Juneau's Mendenhall Valley exceeded the PM_{10} standard numerous times in the late 1980s/early 1990s, but successfully reduced particulate matter levels with an effective wood smoke control program, public education and woodstove conversion to pellet stoves and oil fired space heaters.

Fine particulates have also been a concern in some Interior Alaska communities, especially during the winter months when extremely strong inversions trap emitted particles close to the

surface. In the smaller, rural villages, this problem is normally associated with wood smoke. In the large communities, like Fairbanks, the pollution mix is primarily comprised of wood smoke, emissions from power generation (coal-fired), emissions from oil based home heating and automobile emissions.

2.2 *Coarse Particulates - PM_{10}*

PM_{10} or "dust" impacts are widespread throughout Alaska and have been a pollutant of concern for over 40 years. PM_{10} has been monitored in Anchorage, Juneau, the Mat-Su Valley, and Fairbanks has been going on for over twenty years. Two locations in the State were designated non-attainment for dust in 1991; the Municipality of Anchorage (Eagle River) and the City and Borough of Juneau (Juneau).

Dust has also been identified as a problem in most of the rural communities in Alaska. With the exception of the "hub" communities, most of the smaller villages have a limited road system and little resources to pave roads. In addition, the soil composition is often frost susceptible and not conducive to paving. With the recent addition of all terrain vehicles (4 wheelers) and automobiles, the amount of re-entrained dust has increased substantially.

2.3 *Carbon Monoxide-CO*

Alaska's two largest communities, Anchorage and Fairbanks were designated non-attainment for carbon monoxide (CO) in the mid to late 1980s. Motor vehicle CO emissions increase in the cold winter temperatures experienced in Alaska. These elevated emissions combined with strong wintertime temperature inversions resulted in both communities exceeding the CO standards numerous times each winter. Neither community has had a violation of the CO standard in almost 15 years. Both communities requested re-designation to attainment and were reclassified as *maintenance* areas in 2004.

2.4 *Lead Monitoring-Pb*

To comply with the November 2008 revision of the state and federal air quality standard for lead, DEC explored establishing a source-oriented, lead monitoring site near the Red Dog Mine in Alaska's Northwest Arctic Borough. The Red Dog Mine, fifty miles inland, extracts lead and zinc ore from an open-pit mine and concentrates the ore at their processing facility for transport to the coast where it is stored for barging and eventual export. The intent of the revised lead standard was source-oriented monitoring for all facilities that had potential annual emissions equal to or greater than one half ton of lead and the Red Dog Mine is the state's only emission source that meets this criterion. Unfortunately, the area around the mine is extremely rugged terrain with no road access or sources of power. This makes a sampling program untenable. DEC and EPA are working together to develop a protocol for DEC to model the mine emissions. A schedule for this task has been delivered to EPA and accepted. In addition to source-oriented monitoring, the EPA selected MOA to participate in a national study to assess ambient air

concentrations of lead associated with emissions from small piston-driven aircraft. The MOA conducted a 1-year monitoring program at the Merrill Field Airport.

2.5 *Ozone Monitoring-O_3*

The March 27, 2008 revision of the national ozone standard required the State of Alaska to establish an O_3 monitoring program by April 1, 2010. The regulation required at least one State and Local Air Monitoring (SLAMS) O_3 site in a core based statistical area (CBSA) with a population greater than 350,000. The Anchorage/Mat-Su Valley population forms the only combined Metropolitan Statistical Area (MSA) in the State of Alaska which meets the criteria. The MOA Garden site was selected as a metropolitan site. Monitoring was conducted during ozone season from 2010 through 2012. An ozone monitoring site was also established in Wasilla started in May 2011. The multi-pollutant NCORE site in Fairbanks began monitoring for ozone in 2012.

2.6 *Sulfur Dioxide Monitoring-SO_2*

No sulfur dioxide monitoring is currently being performed in Alaska except at the NCORE site in Fairbanks. Monitoring for SO_2 was performed in Southeast Alaska in the 1980s and early 1990s in response to public concerns about emissions from the two regional pulp mills. While elevated concentrations were observed during the monitoring, the 8-hour SO_2 standard at the time was not exceeded. With the revision of the SO_2 standard and introduction of the 1-hour standard additional monitoring in rural communities may be warranted. Short term studies in St. Mary's and Fairbanks indicate a potential for exceedances of the SO_2 standard during the winter time. Especially in light of the ubiquity of diesel power generation in rural Alaska, elevated SO_2 levels might be a widespread issue. As staffing and funding allows, DEC will conduct studies in rural communities to better understand the issue.

2.7 *Nitrogen Oxide Monitoring-NO_2*

DEC is not currently operating any NO_x monitoring sites in the state. NO_2 monitoring was conducted as part of the Unocal Tesoro Air Monitoring Program (UTAMP) conducted in North Kenai during the early 1990s. The state operated its own independent monitoring site and measured for ammonia and NO_2. Elevated short term NO_2 values were observed, but the annual concentration was not exceeded.

With the revision to the NO_2 standard and introduction of the 1- hour NO_2 standard, DEC will have to evaluate if, and where, additional monitoring will be warranted. As part of the NCORE suite of pollutants, NO_y (total reactive nitrogen compounds) and NH_3 (ammonia), have been sampled in Fairbanks;, however, attempts to utilize available equipment have failed as a result of instrumental limitations. The FSNB air program is currently looking for new instrumentation or modifications to existing equipment that will work properly in the extreme sample conditions experienced in Fairbanks.

3 STATE OF ALASKA AMBIENT AIR MONITORING NETWORK

3.1 *Monitoring Sites*

DEC operates and maintains a number of ambient air monitoring networks throughout the State of Alaska and provides technical support and oversight for air monitoring sites operated by the local air quality agencies in the Municipality of Anchorage and the Fairbanks North Star Borough. Table 3-1 provides the site name, address, geographic coordinates, and identification number for all the air monitoring sites submitting data to the EPA Air Quality System (AQS) data base as of July 1, 2013.

Table 3-1 AQS Monitoring Site as of July 1, 2013

Site Name	Address	Latitude/ Longitude*	AQS Identification
Garden Site	Trinity Christian Church 3000 East 16th Ave. Anchorage, AK	61.205861N -149.824602W	02-020-0018
Tudor Road Site	3335 East Tudor Rd Anchorage, AK	61.181083N -149.817389W	02-020-0044
Turnagain Site	Unitarian Church 3201 Turnagain St. Anchorage, AK	61.191514N -149.934930W	02-020-0048
Parkgate/Eagle River Site	11723 Old Glenn Hwy. Eagle River, AK	61.326700N -149.569707W	02-020-1004
Old Post Office Site	250 Cushman St. Fairbanks, AK	64.845278N -147.721111W	02-090-0002
State Office Building Site	Federal Building 675 Seventh Ave. Fairbanks, AK	64.840833N -147.723056W	02-090-0010
NCORE Site	809 Pioneer Road Fairbanks, AK	64.845307N -147.72552W	02-090-0034
North Pole Fire Station #3 Site	388 Hurst Rd. North Pole, AK	64.762973N -147.310297W	02-090-0036
Butte Site	Matanuska-Susitna Valley Harrison Court Butte, AK	61.534100N –149.0351855W	02-170-0008
Palmer Site	Matanuska-Susitna Valley South Gulkana St. Palmer, AK	61.599322N -149.103611W	02-170-0012
Wasilla Site	Matanuska-Susitna Valley 100 West Swanson Wasilla, AK	61.583331N -149.453624W	02-170-0013

Floyd Dryden Middle School Site	3800 Mendenhall Loop Road Juneau, AK	58.388889N 134.565556W	02-110-0004
Kenai Peninsula Borough Building Site	144 North Binkley St. Soldotna, AK	60.489131N –151.070017W	02-122-0008

* Coordinates for latitude and longitude are consistent with the World Geodetic System (WGS 84).

Figure 3-1 shows the State of Alaska air monitoring networks that report to the EPA AQS data base. Regional maps showing the locations of Municipality of Anchorage network, the Fairbanks North Star Borough network, Matanuska-Susitna Valley network, the Juneau site, and the Soldotna site are presented in Figures 3-2 through 3-6.

Other monitoring sites operated by DEC in support of rural dust studies, and impacts of wildland fires are discussed in Appendix D.

Figure 3-1 State of Alaska AQS Air Monitoring Networks

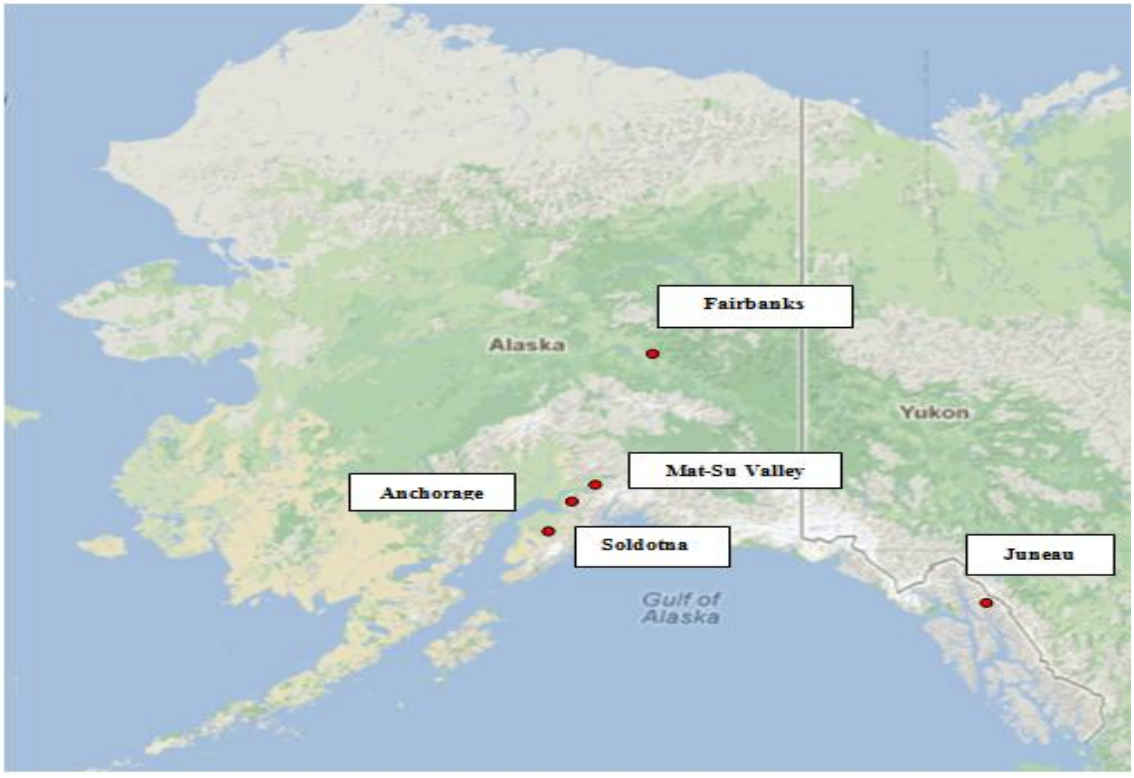


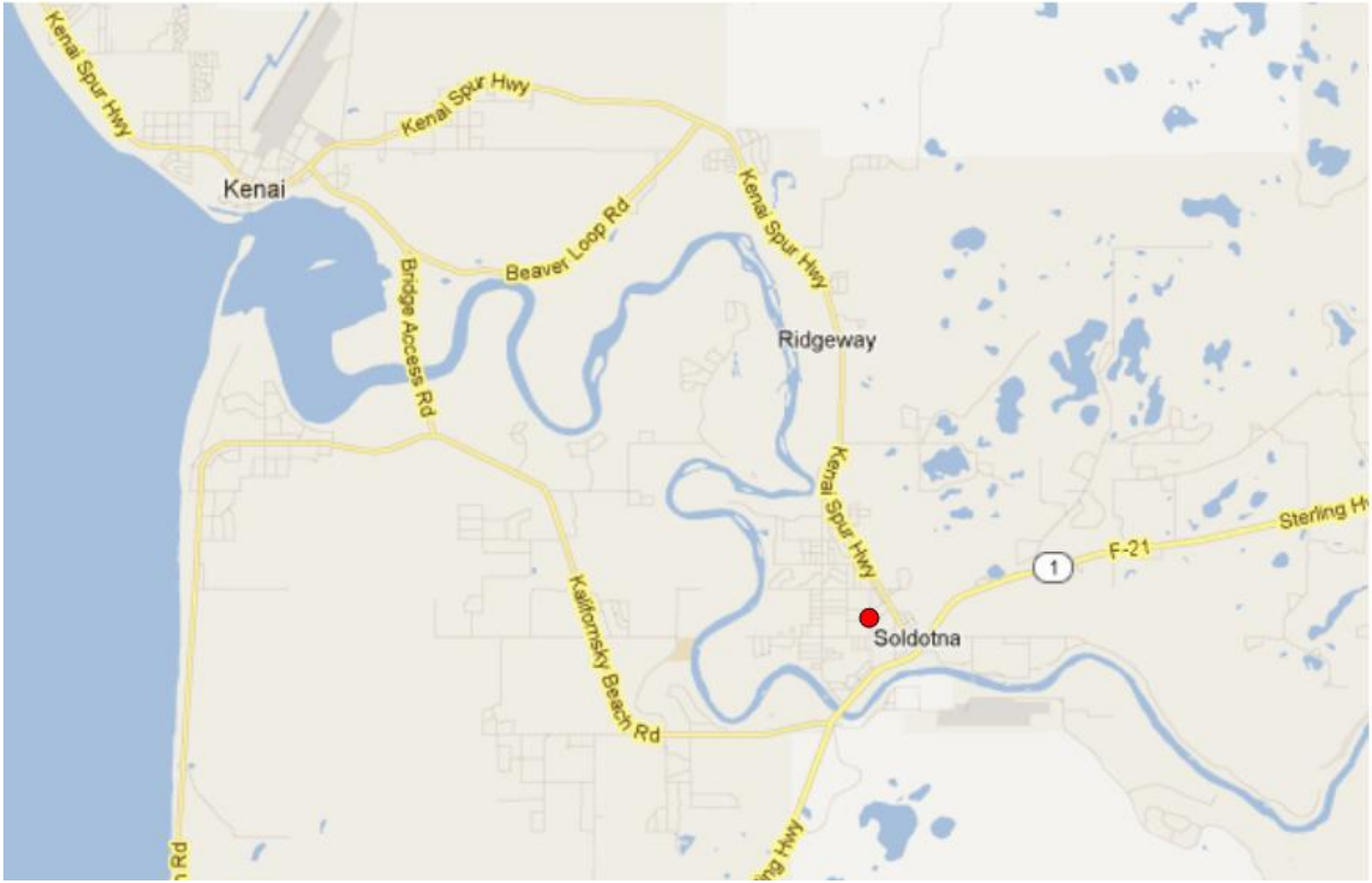
Figure 3-2 Municipality of Anchorage air Monitoring Network

Figure 3-3 Fairbanks North Star Borough Air Monitoring Network

Figure 3-4 Matanuska-Susitna Valley Air Monitoring Network

Figure 3-5 The Juneau Air Monitoring Site

Figure 3-6 The Soldotna Air Monitoring Site



3.2 *Siting Criteria*

EPA Region 10 requested that DEC staff provide a table demonstrating that each monitoring site complies with siting criteria identified in 40 CFR Part 58 Appendix E. Included are two tables: one for CO sites (Table 3-2) and one for PM sites (Table 3-3). Certain sites have been found to have had their monitoring scale incorrectly designated. A discussion of the monitoring scale changes follows each table.

Carbon Monoxide Sites

Carbon monoxide (CO) inlet probes should be at least 1 meter away, both vertically and horizontally, from any supporting structure or wall. For micro-scale sites the probe height must be between 2.5 and 3.5 meters, whereas for other scale sites the probe must be between 3 and 15 meters high.

A probe must have unrestricted airflow for at least 270 degrees, or 180 degrees if it is located on the side of a building. Obstructions must be a minimum distance away equal to twice the distance by which the height of the obstruction exceeds the height of the probe. Trees should not be present between the dominant CO source or roadway and the inlet probe.

The following is a list with definitions on monitoring site scaling;

Micro-scale—defines the concentrations in air volumes associated with area dimensions ranging from several meters up to about 100 meters.

Middle Scale—defines the concentration typical of areas up to several city blocks in size with dimensions ranging from about 100 meters to 0.5 kilometer.

Neighborhood Scale—defines concentrations within some extended area of the city that has relatively uniform land use with dimensions in the 0.5 to 4.0 kilometers range.

Urban Scale—defines the overall, citywide conditions with dimensions on the order of 4 to 50 kilometers. This scale would usually require more than one site for definition.

The following table (Table 3-2) lists all CO monitoring sites in Anchorage and Fairbanks (including SPM) and how they fit the siting criteria from Appendix E of 40 CFR Part 58.

Table 3-2 CO Monitoring Sites in Anchorage and Fairbanks July 2012-June 2013.

Site Name	Monitoring Scale	Probe Distance from Wall (meters)	Height (meters)	Unrestricted Air Flow	Spacing from Roadway (meters)	Trees
Garden	Neighborhood	1	3	180 degrees unobstructed	7	Yes
Turnagain	Neighborhood	1	3	180 degrees unobstructed	12 from 500 VPD roadway	Yes
DHHS*	Neighborhood	1	3	270 degrees unobstructed	28	None
Parkgate*	Neighborhood	1	2.5	180 degrees unobstructed	22	None
NCORE	Neighborhood	Not applicable	4	360 degrees unobstructed	85	None
Old Post Office	Micro-scale	1	3	180 degrees unobstructed	3	None

* CO monitoring at DHHS and Parkgate was discontinued on December 31, 2012.

Particulate Matter (PM_{10} and $PM_{2.5}$) Sites

For micro-scale sites particulate matter inlets must be between 2 and 7 meters from ground level. For other siting scales the probe must be between 2 and 15 meters high.

A sampler must have at least 2 meters separation from walls, parapets, penthouses, etc. A sampler must have unrestricted airflow for at least 270 degrees, or 180 degrees for street canyon sites. Obstructions must be a minimum distance away from the sampler with the separation equal to twice the distance by which the height of the obstruction exceeds the height of the sampler inlet.

Micro-scale sampler inlets must be located between 5 and 15 meters from the nearest traffic lane for traffic corridor sites, and between 2 and 10 meters for street canyon sites. The minimum separation distance between the probe and nearest traffic lane for middle, neighborhood, or urban scale sites depends upon the number of vehicles per day (VPD) that use the roadway according to a rather complicated table in Appendix E of 40 CFR Part 58. Table 3-3 lists all PM monitoring sites in Alaska (including SPM) and how they fit the siting criteria from Appendix E of 40 CFR Part 58.

Table 3-3: PM Monitoring Sites in Alaska as of July 1, 2013

Site Name	Monitoring Scale	Height (meters)	Spacing from Obstructions (meters)	Spacing from Roadway (meters)	Traffic (VPD)	Trees
Garden	Neighborhood	10	12m to 5m tall penthouse	10	< 5,000	None
Tudor	Micro-scale	3.3	4m, tree tops level with inlet	7	46,900	3 trees to the south
Parkgate	Neighborhood	6	13m to 4m tall penthouse	44	11,000	None
Harrison Court	Neighborhood	4	> 8	150	Unknown, probably < 5,000	None
Palmer	Neighborhood	4	> 8	18	Unknown, probably < 5,000	None
Wasilla	Neighborhood	4	> 8	20	16,494	None
State Office Building	Neighborhood	6	30m to 3.75m tall penthouse	20	7,400	None
NCORE	Neighborhood	4	75 m to 12 m building	85	3,559	None
North Pole Fire #3	Neighborhood	4	none	23 to Hurst Rd	3,730	> 30
Floyd Dryden	Neighborhood	6	Furnace flue @ 20m, 4m penthouse @ 15m	65	12,770	12 m tall 25m away
Soldotna	Neighborhood	4	None	~ 30	< 5,320	10 m to group of 6 m tall trees

3.3 *Monitoring Methods, Designation and Sampling Frequency*

Table 3-4 presents information used in coding the data submitted by DEC to the AQS database. The information provided in Table 3-4 for each monitoring site includes pollutant parameter

name, monitor designation, the AQS parameter and POC codes, the AQS method code, the frequency of sampling, and the instrumentation used. The monitor designation states the purpose for which the data are to be used, such as: for State & Local Air Monitoring (SLAM) to demonstrate NAAQS compliance, Special Purpose Monitoring (SPM) for general air quality assessments, and the Speciation Trend Network (STN) for atmospheric chemistry assessments. The 5-digit AQS parameter codes are specific to the pollutant, instrumentation or sampling equipment used, and how the concentration units are expressed in either local conditions or corrected to standard conditions for temperature and pressure. The 5-digit parameter code identifies the parameter being measured e.g. PM_{10}, SO_2, or wind speed. The 1-digit POC code is the parameter occurrence code. The POC indicates whether the sampler or instrument is a primary data source (-1) or a secondary data source such as a collocated sampler (-2) or that an instrument is measuring on a continuous basis (-3). The AQS method code provides information specific to the analytical technique used for the pollutant determination such as instrumental analysis using chemiluminescence for nitric oxide or gravimetric analysis for particulate. The notation presented in the sample frequency indicates how often the pollutant concentration is determined. For example, 1/6 indicates that one sample is collected every sixth day according to the national EPA air monitoring schedule. Continuous indicates that an instrument is continuously analyzing a sample stream providing a pollutant concentration on a real-time basis (e.g. 1-min SO_2 reading) or a near-real time basis (e.g. 1-hour $PM_{2.5}$ reading from a beta attenuation monitor, a BAM). The equipment information column identifies specific on-site equipment (either a sampler or instrument) to the AQS parameter code.

Table 3-4 Air Monitoring Method Codes July 1, 2013

Site Name/ Location	Pollutant Parameter	Monitor Designation	AQS Parameter Code - POC Code	AQS Method Codes	Sample Frequency	Equipment Information
Garden Site Anchorage	PM_{10STD}	SLAM	81102-1	063	1/6	General Metal Works PM_{10} High-Volume Sampler
	PM_{10STD}	SLAM	81102-3	122	Continuous	Met-One BAM 1020X Coarse
	$PM_{2.5LC}$	SLAM	88101-3	170	Continuous	Met-One BAM 1020X Coarse
	CO	SLAM	42101-1	554	Continuous Seasonal Oct-Mar	Thermo Env. Inst. Model 48i
Tudor Site Anchorage	PM_{10STD}	SPM	81102-3	122	Continuous	Met-One BAM 1020

Site Name/ Location	Pollutant Parameter	Monitor Designation	AQS Parameter Code - POC Code	AQS Method Codes	Sample Frequency	Equipment Information
Turnagain Anchorage	CO	SLAM	42101-1	054	Continuous Seasonal Oct-Mar	Thermo Env. Inst Model 48c
Parkgate Eagle River	PM_{10STD}	SLAM	81102-3	122	Continuous	Met-One BAM 1020X Coarse
	$PM_{2.5LC}$	SLAM	88101-3	170	Continuous	Met-One BAM 1020X Coarse
State Office Building Fairbanks	$PM_{2.5LC}$	SLAM	88101-1	117	1/3	R & P Partisol 2000
	$PM_{2.5LC}$ Black Carbon	STN	NA*	NA*	1/3	URG 3000N
	$PM_{2.5LC}$ Speciation	STN	NA*	NA*	1/3	Met-One Super-SASS
NCORE Fairbanks	PM_{10STD}	NCORE	81102-3	122	Continuous	Met-One BAM 1020X Coarse
	PM_{10LC}	NCORE	85101-3	122	Continuous	Met-One BAM 1020X Coarse
	$PM_{2.5LC}$	NCORE	88501-3	170	Continuous	Met-One BAM 1020X Coarse
	PM_{10LC} - $PM_{2.5LC}$	NCORE	86101-3	185	Continuous	Met-One BAM 1020X Coarse
	$PM_{2.5LC}$	NCORE	88101-1	117	1/3	R&P Partisol 2000
	$PM_{2.5LC}$ collocated	NCORE	88101-2	117	1/6	R & P Partisol 2000
	PM_{10STD}	NCORE	81102-1	126	1/3	R&P Partisol 2000
	PM_{10LC}	NCORE	85101-1	126	1/3	R&P Partisol 2000
	CO	NCORE	42101-1	554	Continuous	Thermo Fisher 48i
	SO_2 (1-hr)	NCORE	42401-1	560	Continuous	Thermo Fisher 43i

Site Name/ Location	Pollutant Parameter	Monitor Designation	AQS Parameter Code - POC Code	AQS Method Codes	Sample Frequency	Equipment Information
	SO_2 (5-min)	NCORE	42401-2	560	Continuous	Thermo Fisher 43i
	NO_Y	NCORE	42600-1	574	Continuous	Thermo Fisher 42i-Y
	NO	NCORE	42601-1	574	Continuous	Thermo Fisher 42i-Y
	$PM_{2.5LC}$ Speciation	SPM	NA**	NA**	1/3 Seasonal Nov-Mar	Met-One Super-SASS
	NO_X Non-FRM	NCORE	NA***	NA***	Continuous	Thermo Fisher 17i
	NO Non-FRM	NCORE	NA***	NA***	Continuous	Thermo Fisher 17i
	NO_2 Non-FRM	NCORE	NA***	NA***	Continuous	Thermo Fisher 17i
	O_3	NCORE	44201-1	087	Continuous	Teledyne API 400E
	WD	NCORE	61104-1	061	Continuous	Met-One Sonic Anemometer
	WS	NCORE	61103-1	061	Continuous	Met-One Sonic Anemometer
	BP	NCORE	64101-1	014	Continuous	Met-One Barometer
	Amb Tmp 2 m	NCORE	62101-2	061	Continuous	Met-One
	Amb Tmp 10 m	NCORE	62101-1	061	Continuous	Met-One
North Pole Fire #3	$PM_{2.5LC}$	SPM	NA**	NA**	1/3 Seasonal Oct-Mar	Met-One Super SASS $PM_{2.5}$ LC
	$PM_{2.5LC}$	SPM	88101-1	117	1/3 Seasonal Oct - Mar	R&P Partisol 2000
	$PM_{2.5LC}$	SPM	NA**	NA**	Continuous	Met-One BAM 1020

Site Name/ Location	Pollutant Parameter	Monitor Designation	AQS Parameter Code - POC Code	AQS Method Codes	Sample Frequency	Equipment Information
Palmer Mat-Su Valley	PM_{10STD}	SPM	81102-3	122	Continuous	Met-One BAM 1020X Coarse
	PM_{10LC}	SPM	85101-3	122	Continuous	Met-One BAM 1020X Coarse
	$PM_{2.5LC}$	SPM	88101-3	170	Continuous	Met-One BAM 1020X Coarse
	$PM_{2.5LC}$	SPM	88101-1	117	1/6	R&P Partisol 2000
Butte Mat-Su Valley	PM_{10STD}	SPM	81102-3	122	Continuous	Met-One BAM 1020X Coarse
	PM_{10LC}	SPM	85101-3	122	Continuous	Met-One BAM 1020X Coarse
	$PM_{2.5LC}$	SPM	88101-3	170	Continuous	Met-One BAM 1020X Coarse
	PM_{10STD}	SPM	81102-1	126	1/6	R&P Partisol 2000
	PM_{10LC}	SPM	85101-1	126	1/6	R&P Partisol 2000
	$PM_{2.5LC}$	SPM	88101-1	117	1/6	R&P Partisol 2000
Wasilla Mat-Su Valley	PM_{10STD}	SPM	81102-3	122	Continuous	Met-One BAM 1020X Coarse
	PM_{10LC}	SPM	85101-3	122	Continuous	Met-One BAM 1020X Coarse
	$PM_{2.5LC}$	SPM	88101-3	170	Continuous	Met-One BAM 1020X Coarse
	O_3	SPM	44201-1	087	Continuous Seasonal Apr - Oct	Teledyne API 400E
Floyd Dryden Juneau	$PM_{2.5LC}$	SLAM	88101-3	170	Continuous	Met-One BAM 1020
	PM_{10STD}	SLAM	81102-1	126	1/6	R&P Partisol 2000
	PM_{10STD}	SLAM collocated	81102-2	126	1/6	R&P Partisol 2000

Site Name/ Location	Pollutant Parameter	Monitor Designation	AQS Parameter Code - POC Code	AQS Method Codes	Sample Frequency	Equipment Information
	PM_{10LC}	SPM	85101-1	126	1/6	R&P Partisol 2000
	PM_{10LC}	SPM collocated	85101-2	126	1/6	R&P Partisol 2000
Kenai Borough Building Soldotna	PM_{10STD}	SPM	81102-3	122	Continuous	Met-One BAM 1020X Coarse
	PM_{10LC}	SPM	85101-3	122	Continuous	Met-One BAM 1020X Coarse
	$PM_{2.5LC}$	SPM	88101-3	170	Continuous	Met-One BAM 1020X Coarse

NA* - not applicable, speciation data is certified but not submitted directly to AQS by DEC. A contractor, RTI performs the chemical analysis and submits the data to AQS.
NA** - not applicable, data collected for atmospheric chemistry studies, which is not submitted to the AQS data base.
NA*** - not applicable, the Thermo Fisher Model 17i ammonia analyzer is currently being used as a non-FRM instrument to collect $NO_X/NO/NO_2$ data. The non-FRM data is not submitted to the AQS data base.

4 SUMMARY OF NETWORK MODIFICATIONS FOR 2012- 2013

In late 2012, the Municipality of Anchorage Air Quality Program's 2013 operating budget was reduced by approximately 50 percent. To adapt to the loss of operating funds and subsequent staff reduction, the Anchorage air quality program requested the EPA to make a number of modifications to the Anchorage network. The requested changes included complete shutdown of the DHHS site, removal of CO monitors at two sites, and removal of PM_{10} samplers from two sites. The request letter to the EPA with the attached rational and the EPA's approval letter are presented in Appendix D.

Other modifications to the overall Alaska monitoring system were made to make data collection efforts more cost efficient and to effectively achieve monitoring objectives.

4.1 *Modifications to the $PM_{2.5}$ Network*

Table 4-1 lists all modifications to the $PM_{2.5}$ Network for data reported to AQS during the period from January 1, 2012 through June 30, 2013.

Table 4-1 Modifications to the $PM_{2.5}$ Network

Site Name Location	Instrument Information	Description of Modification	Date of Modification
State Office Building Fairbanks	Met-One BAM 1020	Removed from site	April 1, 2013
State Office Building Fairbanks	R & P Partisol 2000 Collocated FRM	Relocated to the NCORE site	May 8, 2013
North Pole Elementary North Pole	Met-One BAM 1020	Shutdown & Removal	April 1, 2013
North Pole Elementary North Pole	R & P Partisol 2000 FRM	Shutdown & Removal	April 1, 2013
North Pole Elementary North Pole	Met-One SASS	Shutdown & Removal	April 1, 2013
DHHS Anchorage	Met-One BAM 1020 $PM_{2.5}$	Shutdown & Removal	December 31, 2012

4.2 *Modifications to the PM_{10} Network*

Table 4-2 Modification to the PM_{10} Network

Site Name Location	Instrument Information	Description of Modification	Date of Modification
DHHS Anchorage	Met-One BAM 1020 PM_{10}	Shutdown & Removal	December 31, 2012
Tudor Anchorage	PM_{10} High Volume Sampler	Shutdown & Removal	January 31, 2012
Parkgate Eagle River	PM_{10} High Volume Sampler	Shutdown & Removal	January 31, 2012

4.3 *Modifications to the Carbon Monoxide Network*

As part of the discussed budget reductions, the Municipality of Anchorage shutdown data collection for carbon monoxide (CO) at the Parkgate SLAM site in Eagle River and the DHHS SPM site in Anchorage. The shutdown at both sites was effective December 31, 2012.

4.4 *Modifications to the Ozone network*

The Municipality of Anchorage completed the third year of ozone (O_3) data collection at the Garden site on October 31st, the conclusion of the 2012 O_3 monitoring season. Analysis of the data showed the Garden site to be in compliance with the O_3 NAAQS. A discussion of the data is presented in the Municipality's request letter to EPA provided in Appendix D.

4.5 *Modifications to the Lead Network*

The Merrill Field TSP lead (Pb) study began October 18, 2011 and concluded October 12, 2012. The one-year study conducted by the Municipality of Anchorage at the behest of the EPA was part of a national study to assess Pb emissions from small piston-engine aircraft still using lead formulated aviation fuel.

5 PROPOSED NETWORK MODIFICATION

5.1 *$PM_{2.5}$ Network*

DEC proposes shutting down the Fairbanks State Office Building (SOB) $PM_{2.5}$ monitors and moving the STN site to the NCORE site by October 1, 2015. The NCORE site is located less than 0.5 miles from the SOB site and was intended to contain the STN site. Currently the State's EPA grant is not paying for speciation and $PM_{2.5}$ data collection at the NCORE site. FNSB and DEC are funding the site through Federal Highway Administration CMAQ funds. Declining funds and staff time require the state and FNSB to consolidate these sites.

Below is a comparison of FRM data for the last three calendar years. The NCORE site was established at its current location because an expansion of the SOB site was not possible. DEC recognizes that the SOB $PM_{2.5}$ monitor is the violating monitor in the Fairbanks $PM_{2.5}$ non-attainment area, but believes that the NCORE site can be used as a representative site for the Fairbanks downtown area.

Table 5-1 presents a comparison of summary statistics between the SOB and NCore sites for the calendar years 2010 through 2012.The data show that, while the sites are not identical, all the summary statistics except for the maximum concentration in 2010 are very close and show good overall representation.

Table 5-1 Summary Statistics for the Calendar Years 2010-2012 for $PM_{2.5}$ FRM data from the SOB and NCORE sites

Summary statistics						
	2010		2011		2012	
	SOB	*NCORE*	*SOB*	*NCORE*	*SOB*	*NCORE*
Mean	13.9	13.0	10.8	10.8	10.3	10.6
Median	8.2	8.0	5.4	6.1	5.2	5.5
Standard Deviation	14.5	13.3	10.4	10.2	11.6	11.2
Minimum	0.6	1.1	1.0	0.0	0.0	0.5
Maximum	83.2	63.8	42.6	45.9	55.5	56.9
98th percentile	51.8	50.7	38.0	33.1	49.6	50.0
24 hour design value					46	45
annual design value					11.2	11.4

The frequency distribution below (Figure 5-1) shows a pattern very similar to the summary statistics presented above. The frequency distribution is expressed in terms of the AQI index levels rather than concentration. The difference between the sites for AQI level green (good air quality) is 0.7%, for yellow (moderate air quality) is 1.0%, for orange (unhealthy air quality for sensitive groups) is 1.9%, and for red (unhealthy air quality) is 0.3%.

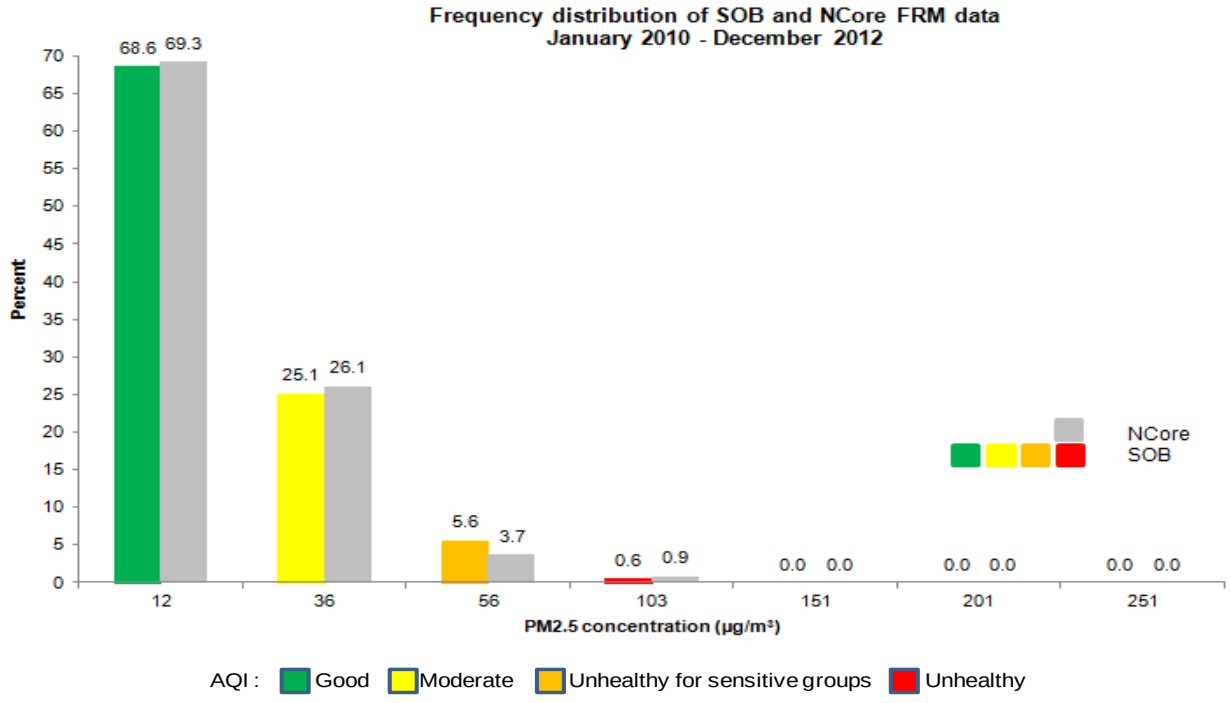


Figure 5-1. Frequency distribution of $PM_{2.5}$ concentrations for the Fairbanks SOB and NCORE sites from January 2010 through December 2012

A Chemical Mass Balance (CMB) analysis of both sites for the timeframe of October 2011 through March 2013 is in progress. DEC assumes the results will show a similar picture, i.e. that both sites record slightly different values. A final site comparison of analyzers will be provided in next year's monitoring plan.

5.2 *PM_{10} Network*

The Municipality of Anchorage intends to discontinue operation of the PM_{10} Hi-Vol sampler at the Garden site after December 2013. MOA has monitored PM_{10} and $PM_{2.5}$ via a Met One BAM 1020X since 2009. The PM_{10} BAM at the Garden site in now the primary PM_{10} instrument making the Hi-Vol PM_{10} sampler redundant.

5.3 *CO network*

DEC proposes shutting down the Fairbanks Old Post Office CO site before the next CO sampling season begins on October 1, 2013. CO is currently also sampled at the Fairbanks NCORE site. A comparison of the data from both sites follows below.

CO sampling began at the NCORE site in 2010 while the Old Post Office site has been in operation since 1972. Below is a comparison between the Old Post Office site and the NCORE site 1-hour and 8 -hour average CO concentrations for 2011 and 2012 (Table 5-2). During the past two sampling years, the hourly concentrations never rose above 7ppm for the 1-hour or 8-hour averages, respectively. There are currently only two years of data available for the comparison, and even though there is a noted difference in the level of CO concentration between 2011 and 2012, the concentrations measured are well below the national standards. Table 5-2 summarizes the 1st and 2nd max concentrations for the 1-hour and 8 hour averages as well as per year and site.

Table 5-2 CO concentrations measured in Fairbanks

	Old Post Office		NCORE	
	1st max	2nd max	1st max	2nd max
1 hour average				
2011	6.9	5.4	3.0	2.6
2012	6.8	6.7	4.7	4.5
8 hour average				
2011	6.9	5.4	3.0	2.6
2012	6.8	6.7	2.4	2.1

The maximum 1-hour CO concentration measured at the Old Post Office site in 2012 was 6.8 ppm, compared to 4.7 ppm recorded at the NCORE site that same year. These concentrations represent less than 20% of the 1-hour National Ambient Air Quality Standard of 35 ppm. The

maximum 8-hour rolling average CO concentration measured in 2012 at the old Post Office site was 6.8 ppm compared to 2.4 ppm measured at the NCORE site.

The figures below (Figures 5-2 through 5-5) illustrate the frequency distribution for the 1-hour and 8-hour average CO concentrations for 2011 and 2012. Both years show a very similar trend with the maximum frequency tapering off quickly above 1.5 ppm. In 2011, 1-hour CO concentrations above 2 ppm were measured about 1.5 % of the time at the Old Post Office site, compared to 0.9 % at the NCORE site (Figure 5-2). Similarly, only 0.6% of the 2011 8-hour CO concentrations were above 2 ppm measured at the Old Post office and less than 0.1% at the NCORE site (Figure 5-3).

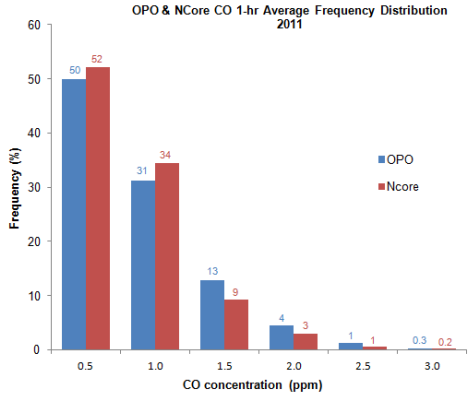


Figure 5-2 Frequency distribution of 1 hour CO concentrations measured at the Old Post Office site and NCORE Site in 2011

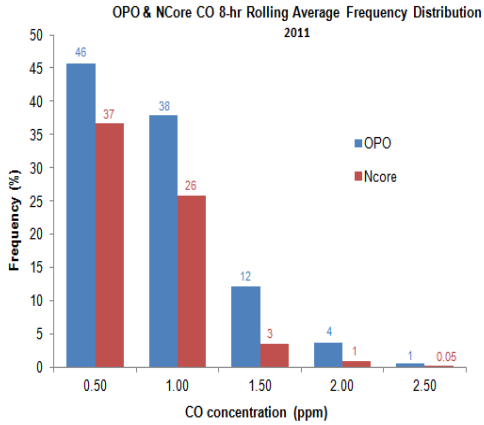


Figure 5-3 Frequency distribution of 8 hour CO concentrations measured at the Old Post Office site and NCORE Site in 2011

Although concentrations in 2012 were slightly higher on average, only 1.3 % of the 1-hour CO concentrations at the Old Post Office site were above 3 ppm, (5.4% above 2ppm), and approximately 0.1% of the 1-hour concentrations measured at the NCORE site were above 3 ppm (1.11 % above 2 ppm) (Figure 5-4). In 2012, the 8-hour concentrations rose above 3 ppm less than 0.5 % of the time at the old Post Office site, while the 8-hour concentration at the NCORE site never rose above 3ppm, see Figure 5-5.

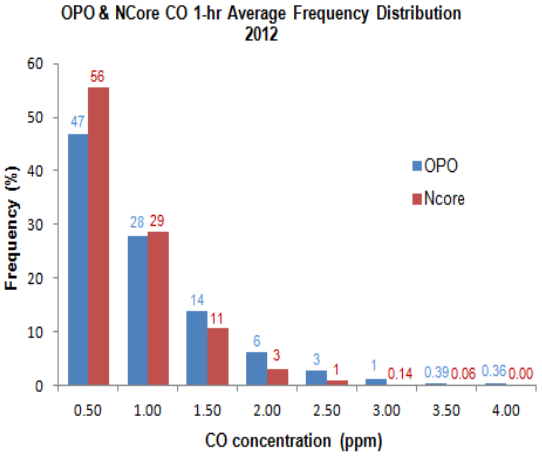


Figure 5-4 Frequency distribution of 1 hour CO concentrations measured at the Old Post Office site and NCORE Site in 2012.

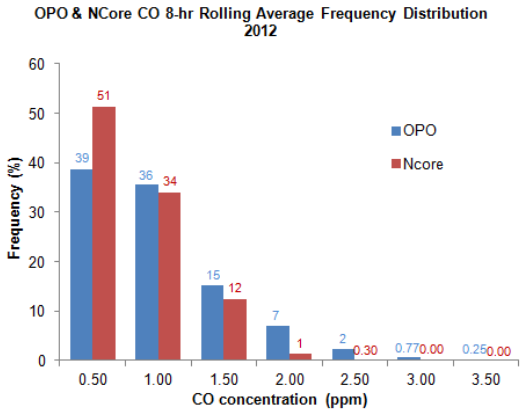


Figure 5-5 Frequency distribution of 8 hour CO concentrations measured at the Old Post Office site and NCORE Site in 2012

Both sites are located in downtown Fairbanks. The Old Post Office site is situated in a street canyon on the south side of the Chena River, while the NCORE site is located in an open area on the north side of the river. The sites are less than 0.25 miles apart. In recent years the building owners have had numerous tenants in the retail shop through which the FNSB staff gain access to our instrument room. These tenants have retail assets and administrative offices they want secure and so access and hours of operation vary from tenant to tenant. The limitations on access has presented challenges for the FNSB staff, causing technicians to make emergency access calls to address equipment issues and this is not always available when it is not a fire or safety issue. Currently there is no tenant in the retail shop and access must be made by appointment with the property managers.

Access and budgetary issues make the Old Post Office site a less desirable location for sampling. With the low CO concentrations recorded over many years, DEC recommends shutting the site down. No exceedances of the CO standard have been recorded in Fairbanks since 2000.

APPENDIX A: NAAQS SUMMARY TABLES

Alaska Monitoring NAAQS Summary for $PM_{2.5}$ as $\mu g/m^3$ at Local Conditions

NAAQS 35 $\mu g/m^3$ (24-Hr, 98th percentile, average over 3 years)
NAAQS 15 $\mu g/m^3$ (Annual mean, averaged over 3 years)

		98th Percentile 24-hour Mean				Weighted Annual Mean				2012-2010 Design Value	
$PM_{2.5}$ Monitoring Sites	**Site ID**	**2012**	**2011**	**2010**		**2012**	**2011**	**2010**		**24-hr**	**Annual**
The Garden Site (MOA)	02-020-0019	28.4	17.3	23.2		6.6	5.2	6.1		23	6.0
DHHS Site (MOA)	02-020-0052	16.7	11.6	17.2		4.9	3.9	4.8		15	4.5
Parkgate Site (MOA)	02-020-1004	17.9	15.7	17.0		5.3	4.6	5.5		17	5.1
The Butte Site (Mat-Su Valley)	02-170-0008	33.4	30.2	37.5		5.9	6.4	7.5*		34	6.6
Palmer Site (Mat-Su Valley)	02-170-0012	13.7	9.1	11.6*		4.2	4.1	3.1*		11	3.8
Wasilla Site (Mat-Su Valley)	02-170-0013	22.8	15.1	*		5.7	6.3	*		NA	NA
State Office Building (FNSB)	02-090-0010	49.6	38.0	51.8		10.7	10.7	12.3		46	11.2
NCORE Site (FNSB)	02-090-0034	50.0	33.1	50.7		11.7	10.4	12.6		45	11.4
North Pole Elementary (FNSB)	02-090-0033	68.1	*	*		10.2	*	*		NA	NA
Floyd Dryden Site (Juneau)	02-110-0004	23.5	24.8	27.3		6.4	7.1	8.8		25	7.4
Soldotna Site (Kenai Peninsula Borough)	02-122-0008	7.4	8.2*	*		1.0	2.9*	*		NA	NA

* Annual values not meeting completeness criteria
NA – not applicable, design values calculations are based on 3 years of data

Alaska Monitoring NAAQS Summary for PM_{10} as $\mu g/m^3$ at STP

NAAQS 150 $\mu g/m^3$ (Not to be exceeded more than once per year on average over 3 years)

PM_{10} Monitoring Sites	Site ID	2012			2011			2010		
		Exceedances	1st Max 24-hr	2nd Max 24-hr	Exceedances	1st Max 24-hr	2nd Max 24-hr	Exceedances	1st Max 24-hr	2nd Max 24-hr
The Garden Site (MOA)	02-020-0018	0	59	53	0	39	36	0	49	40
Tudor Road Site (MOA)	02-020-0044	0	120	115	0	129	117	1	155	98
DHHS Site (MOA)	02-020-0052	0	83	68	0	61	43	0	89	64
Parkgate Site (MOA)	02-020-1004	0	81	77	0	95	62	0	47	39
NCORE (FNSB)	02-090-0034	0	95	83	0	64	52	NA	NA	NA
Butte Site (Mat-Su Valley)	02-170-0008	0	113	81	0	34	34	0	49	45
Palmer Site (Mat-Su Valley)	02-170-0012	0	152	121	2	214	174	NA	NA	NA
Wasilla Site (Mat-Su Valley)	02-170-0013	0	120	109	NA	NA	NA	NA	NA	NA
Floyd Dryden Site (Juneau)	02-110-0004	0	24	19	0	24	21	0	27	27
Soldotna Site (Kenai Peninsula Borough)	02-122-0008	0	131	108	NA	NA	NA	NA	NA	NA

NA – data not available

Alaska Monitoring NAAQS Summary for CO as ppm

NAAQS 9 ppm as 8-Hour Mean (Not to be exceeded more than once per year)
NAAQS 35 ppm as 1-Hour Mean (Not to be exceeded more than once per year)

CO Monitoring Sites	Site ID	2012			2011			2010		
		Exceedances	1st Max 8-hour	2nd Max 8-hour	Exceedances	1st Max 8-hour	2nd Max 8-hour	Exceedances	1st Max 8-hour	2nd Max 8-hour
The Garden Site (Trinity Christian Church MOA)	02-020-0019	0	4.4	4.3	0	3.9	3.6	0	4.6	3.8
Turnagain Site (MOA)	02-020-0048	0	6.6	5.5	0	4.4	4.2	0	6.9	6.1
DHHS Site (MOA)	02-020-0052	0	3.0	2.8	0	2.1	1.9	0	2.9	2.8
Parkgate (MOA)	02-020-1004	0	2.7	2.7	0	2.7	2.5	0	2.7	2.5
Old Post Office (FNSB)	02-090-0002	0	6.8	6.7	0	6.9	5.4	0	6.4	6.3
NCORE (FNSB)	02-090-0034	0	2.4	2.1	0	3.0	2.6	*	*	*

* Annual values not meeting completeness criteria

Alaska Monitoring NAAQS Summary for SO_2 as ppb

NAAQS 75 ppb (99th percentile of 1-hour daily maximum concentration averaged over 3 years)

SO_2 Monitoring Site	Site ID	2012		2011		2010		3-yrs Design Value
		99th Percentile	Completed Quarters	99th Percentile	Completed Quarters	99th Percentile	Completed Quarters	
NCORE (FNSB)	02-090-0034	49	4	44*	1	*	*	NA

* Annual values not meeting completeness criteria
NA – not applicable, design values calculations are based on 3 years of data

Alaska Monitoring NAAQS Summary for O_3 as ppm

NAAQS 0.075 ppm 8-hour (Annual 4th highest daily maximum 8-hr concentrations averaged over 3 years)

O_3Monitoring Sites	Site ID	2012			2011			2010			3-Years	
		Valid Days	Percent Compl	4th Max	Valid Days	Percent Compl	4th Max	Valid Days	Percent Compl	4th Max	Percent Compl	Design Value
The Garden Site (Trinity Christian Church MOA)	02-020-0019	213	100	0.046	211	99	0.047	212	99	0.042	99	0.045
Wasilla Site (Mat-Su Valley)	02-170-0013	143	67	0.048*	167	78	0.049	*	*	*	NA	NA
NCORE (FNSB)	02-090-0034	197	92	0.048	85	40	0.035*	*	*	*	NA	NA

* Annual values not meeting completeness criteria

NA – not applicable, design values calculations are based on 3 years of data

Alaska Monitoring NAAQS Summary for TSP-Pb as µg/m^3 local conditions

NAAQS 0.15 µg/m^3 (Not to be exceeded as 3-month rolling average)

TSP-Pb Monitoring Site	Site ID	2012		2011		2010		3-Years	
		Max Value	Max Month	Max Value	Max Month	Max Value	Max Month	Max Value	Max Mon/Yr
Merrill Field (MOA)*	02-020-0051	0.07	Aug	0.03	Dec	*	*	NA	NA

* The Merrill Field study was a special 1-year sampling program to assess Pb emissions from small piston-engine aircraft. The sampling program was conducted from October 18 2011 to October 12, 2012.

NA - not applicable

APPENDIX B: IMPROVE NETWORK

In 1977, Congress amended the Clean Air Act to include provisions to protect the scenic vistas of the nation's national parks and wilderness areas. In these amendments, Congress declared as a national visibility goal:

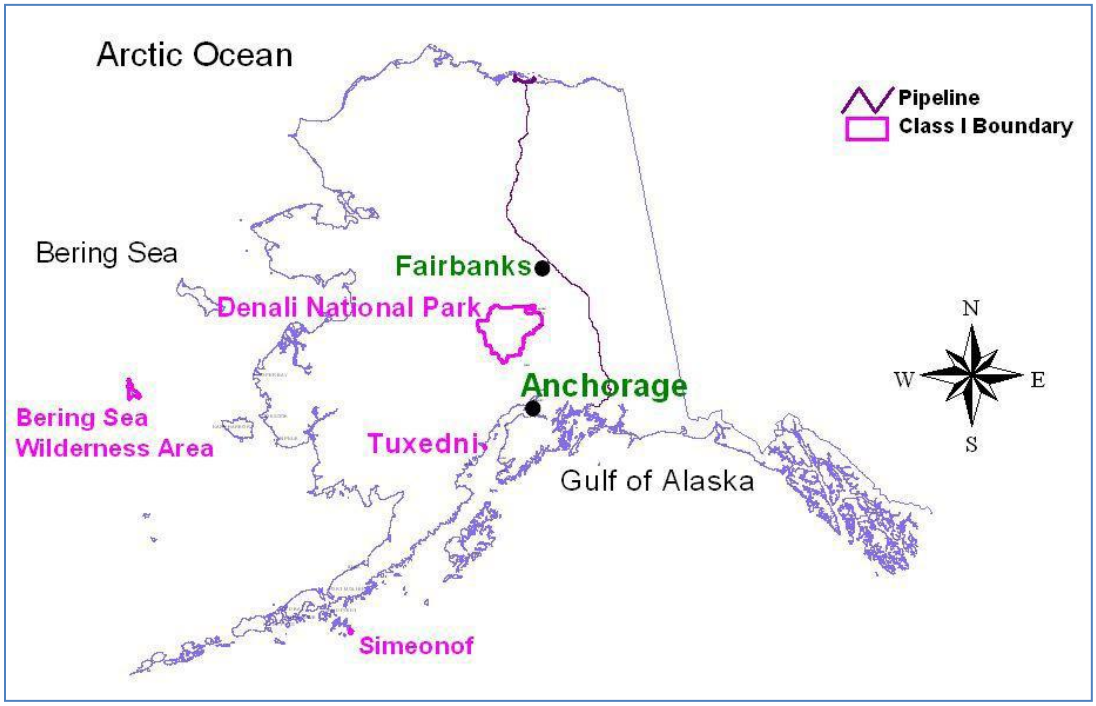
> *The prevention of any future, and the remedying of any existing, impairment of visibility in mandatory Class I Federal areas which impairment results from manmade air pollution. (Section 169A)*

At that time, Congress designated all wilderness areas over 5,000 acres and all national parks over 6,000 acres as mandatory federal Class I areas. These Class I areas receive special visibility protection under the Clean Air Act.

The 1990 amendments to the Clean Air Act established a new Section 169(B) to address regional haze. To address the 1990 Clean Air Act amendments, the problem of long-range transport of pollutants causing regional haze, and to meet the national goal of reducing man-made visibility impairment in Class I areas, EPA adopted the Regional Haze Rule in 1999.

Alaska has four Class I areas subject to the Regional Haze Rule: Denali National Park, Tuxedni National Wildlife Refuge, Simeonof Wilderness Area, and Bering Sea Wilderness Area. They were designated Class I areas in August 1977. Figure 1 shows their locations, with Denali National Park in the Interior, Tuxedni and Simeonof Wilderness Areas as coastal, and the Bering Sea Wilderness Area.

Figure 1-Alaskan Class I Areas



In Alaska, Class I Areas are managed by the National Park Service (NPS) and the U.S. Fish and Wildlife Service (USFWS.)

The Alaska Regional Haze SIP includes a monitoring plan for measuring, estimating and characterizing air quality and visibility impairment at Alaska's four Class I areas. The haze species concentrations are measured as part of the IMPROVE monitoring network deployed throughout the United States. Alaska uses four IMPROVE monitoring stations representing three of the four Class I Areas. Three of these stations (Denali National Park and Preserve, Simeonof, and Tuxedni) were deployed specifically in response to Regional Haze rule requirements. There is no air monitoring being conducted at the Bering Sea Wilderness Area due to its remote location.

Denali National Park and Preserve

Denali National Park and Preserve (DNPP) is a large park in the interior of Alaska. It has kept its integrity as an ecosystem because it was set aside for protection fairly early in Alaska's history. Denali National Park headquarters lies 240 miles north of Anchorage and 125 miles southwest of Fairbanks, in the center of the Alaska Range. The park area totals more than 6 million acres. Denali is the only Class I site in Alaska that is easily accessible and connected to the road system. Denali has the most extensive air monitoring of Alaska's Class I areas, so more detailed examinations of long-term and seasonal air quality trends are possible for this site.

IMPROVE monitoring sites were established at two locations within or near the boundaries of the National Park and Preserve. The first air monitoring site is located near the eastern end of the park road at the Park Headquarters. A second, newer site, known as Trapper Creek, is located to the south of the Park at another site with reliable year-round access and electrical power.

The Denali Headquarters monitoring site (DENA1) is across the Park Road from park headquarters, approximately 250 yards from headquarters area buildings. The site (elevation of 2,125 feet) sits above the main road (elevation 2,088 feet). The side road to the monitoring site winds uphill for 130 yards, providing access to the monitoring site and a single-family residential staff cabin. The hill is moderately wooded, but the monitoring site sits in a half an acre clearing. During the park season, mid-May to mid-September, 70 buses and approximately 560 private vehicles per day loaded with park visitors traverse the road. During the off season, approximately100 passenger and maintenance vehicles pass within 0.3 miles of the monitoring site. Private vehicles are only allowed on the first 14.8 miles of the Park Road.

The Trapper Creek IMPROVE monitoring site (TRCR1) is located 100 yards east of the Trapper Creek Elementary School. The site is located west of Trapper Creek, Alaska and a quarter mile south of Petersville Road. The site is the official IMPROVE site for Denali National Park and Preserve and was established in September 2001 to evaluate the long-range transport of pollution into the Park from the south. The elementary school experiences relatively little traffic during the day, about 4 buses and 50 automobiles. The school is closed June through August. This site was selected because it has year-round access to power, is relatively open, and is not directly impacted by local sources.

IMPROVE monitoring data have been recorded at the Denali Headquarters IMPROVE site from March of 1988 to present. The IMPROVE monitor near the Park's headquarters was the original

IMPROVE site. Due to topographical barriers, such as the Alaska Range, it was determined that the headquarters site was not adequately representative of the entire Class I area. Therefore, Trapper Creek, just outside of the park's southern boundary, was chosen as a second site for an IMPROVE monitor and is the official Denali IMPROVE site as of September 10, 2001. The headquarters site is now the protocol site. A CASTNet (Clean Air Status and Trends Network) monitor is located near the Denali Headquarters IMPROVE site.

Simeonof Wilderness Area

Simeonof Wilderness Area comprises 25,141 acres located in the Aleutian Chain, 58 miles from the mainland. It is one of 30 islands that make up the Shumagin Group on the western edge of the Gulf of Alaska. Access to Simeonof is difficult due to its remoteness and the unpredictable weather. Winds are mostly from the north and northwest as part of the midlatitude westerlies. Occasionally winds from Asia blow in from the west. The island is isolated and the closest air pollution sources are marine traffic in the Gulf of Alaska and the community of Sand Point.

The Fish and Wildlife Service placed an IMPROVE air monitor in the community of Sand Point to represent the wilderness area. The community is on a nearby, more accessible island approximately 60 miles north west of the Simeonof Wilderness Area. The monitor has been on-line since September 2001. The location was selected to provide representative data for regional haze conditions at the wilderness area.

Tuxedni National Wildlife Refuge

Tuxedni National Wildlife Refuge is located on a fairly isolated pair of islands in Tuxedni Bay off of Cook Inlet in Southcentral Alaska. There is little human use of Tuxedni except for a few kayakers and some backpackers. There is an old cannery built near Snug Harbor on Chisik Island which is not part of the wilderness area; however it is a jumping off point for ecotourists staying at Snug Harbor arriving by boat or plane. The owners of the land have a commercial fishing permit as do many Cook Inlet fishermen. Set nets are installed around the perimeter of the island and in Tuxedni Bay during fishing season.

Along with commercial fishing, Cook Inlet has reserves of gas and oil that are currently under development. Gas fields are located at the Kenai area and farther north. The inlet produces 30,000 barrels of oil a day and 485 million cubic feet of gas per day. Pipelines run from Kenai to the northeast and northeast along the western shore of Cook Inlet starting in Redoubt Bay. The offshore drilling is located north of Nikiski and the West McArthur River. All of the oil is refined at the Nikiski refinery and the Kenai Tesoro refinery for use in Alaska and overseas.

The Fish and Wildlife Service installed an IMPROVE monitor near Lake Clark National Park to represent conditions at Tuxedni Wilderness Area. This site is on the west side of Cook Inlet, approximately 5 miles from the Tuxedni Wilderness Area. The site was operational as of December 18, 2001, and represents regional haze conditions for the wilderness area.

Bering Sea Wilderness Area

The Bering Sea Wilderness Area is located off the coast of Alaska about 350 miles southwest of Nome. Hall Island is at the northern tip of the larger St Matthew Island.

The Bering Sea Wilderness Area had a DELTA-DRUM sampler placed on it during a field visit in 2002. However, difficulties were encountered with the power supply for the sampler and no

viable data are available from that effort. No IMPROVE monitoring is currently planned for the Bering Sea Wilderness Area because of its inaccessibility.

Monitoring data and additional information for the Alaskan IMPROVE sites are available from the EPA website, http://vista.cira.colostate.edu/improve .

Additional Monitoring Considerations

DEC published a final study report for the Regional Haze Trans boundary Monitoring project in July 2012.
(http://www.dec.state.ak.us/air/am/Haze%20report/Final%20Regional%20Haze%20Trans-Boundary%20Monitoring%20Project.pdf)
One of the driving factors for the study was the quantitative evaluation of foreign contribution to local air quality impacts. While long-range transport of pollutants was observed and documented through various measurement techniques, DEC was unable to quantify international source contribution even as a whole. Current sampling methods do not provide enough time resolution to adequately document short events lasting only a few days i.e., the IMPROVE sampling schedule misses 2/3 of the year because samplers operate every third day. DRUM samplers which operate on a semi-continuous basis i.e., collecting 3-hour samples, initially seemed a viable method to collect year-round data and provide a comparison to the IMPROVE chemical analysis. Even if all the other problems encountered with operating the DRUM samplers in a remote field setting could be overcome, a reliable quantitative comparison to the IMPROVE data set is not possible given the low mass loading on the DRUM sampling strips combined with uncertainty for start and end hours.

DELTA-DRUM Samplers have been used at several sites in Alaska for relatively short periods. Researchers have unsuccessfully modified these samplers for remote winter use in Denali Park. Drum samplers were set up at the Denali and Trapper Creek sites as well as in McGrath and Lake Minchumina in February and March 2008. They experienced numerous mechanical and pump problems due to severe winter conditions and proved to be too problematic. These samplers operated intermittently between February/March 2006 and April 2009, resulting in very little usable data.

DEC still has concerns about the location of the Denali headquarters IMPROVE site as being representative of the entire Class I area. The Denali Headquarters IMPROVE site is located within the area of most heavy use and development and, thus, may not be representative of the pristine wilderness that makes up the remainder of the park lands. Lake Minchumina was clearly the cleanest site. An argument could be made that most of the 6 million acres of DNPP best resemble Lake Minchumina with its current 13 residents compared to Denali headquarters or Trapper Creek which see nearly a half a million visitors per year. Most of the park visitors (432,301 in 2008), and DNPP staff (145 permanent, 290 summer seasonal) and Talkeetna staff (10 permanent, approximately 20 summer seasonal) are concentrated around DNPP headquarters (personal communication Blakesley 2012, June 6; DNPP, 2012). Traffic is mostly concentrated on the main highway and the single dirt road through the wilderness area (DNPP, 2012).

The question that still needs to be answered is whether or not the Lake Minchumina site is more representative of the entire park than the two existing IMPROVE sites at Denali Headquarters and Trapper Creek. Before a final decision for relocation would be made, additional studies

should be conducted that integrate meteorological observations with aerosol concentrations more quantitatively than was possible for this study analysis. As DEC continues to implement its Regional Haze plan and performs required updates in future years, the experience and data gained through this study can be used to inform the development and planning for new monitoring efforts that may provide additional insight into aerosol impacts in Alaska's Class I areas. Given the vast, remote areas of Alaska, the challenge remains to develop air monitoring approaches that can be successfully operated in the State's wilderness areas.

Future studies will use more robust sampling equipment for long term monitoring. Because of the remoteness of Alaska's Class I sites, DEC will most likely explore other sampling equipment for regulatory monitoring to demonstrate compliance with the Regional Haze Rule glide-path. As the concentrations of anthropogenic aerosols decreases toward background it will become more difficult to monitor successfully in the future without advances in monitoring instrumentation and pump and power technologies.

APPENDIX C: ADDITIONAL MONITORING PROJECTS

Smoke Monitoring for Air Quality Advisories

Smoke from wildland fires can affect large areas and impacts air quality in regions both close to and far away from the burning fire. Almost every summer, large areas of the State are impacted by smoke from wild fires, with air quality degrading into the very unhealthy to hazardous range. DEC assists the Alaska Fire Service in assessing air quality impacts in areas affected by fires and provides information needed to protect public health. The DEC Air Quality Division uses two separate methods to assess air quality impacts and issue air quality advisories statewide: monitoring data and visibility information. Often a combination of both data sets is used to issue air quality advisories. The DEC meteorologist or AQ staff with assistance from the NWS use meteorological and air monitoring data to forecast smoke movement and predict where air quality impacts might be experienced.

DEC currently operates two continuous analyzers in rural Alaska during the wild fire season, in Galena and Ft Yukon, with the help of local site operators. DEC also has two portable, battery operated continuous particulate matter monitors (E-BAM) equipped with satellite communication devices, which can transmit the data to a website. The E-BAM instrument requires little maintenance and staff is typically only needed at set-up and to ensure proper operation for the first day. Remote data access allows staff in the DEC office or in the field to use the data for advisories and briefings. Currently no additional samplers are requested, as staff time and travel funds are the limiting factor in expanding the smoke monitoring network.

Mercury Monitoring

DEC received funding through the Alaska Coastal Impact Assessment program to expand the current network of two Mercury Deposition Network (MDN) sites (measuring wet deposition mercury) as part of the National Atmospheric Deposition Program in Kodiak and in Unalaska (Dutch Harbor). This funding supports the laboratory analysis of the Kodiak and Unalaska samples to include the following trace metals: lead, cadmium, copper, nickel, zinc, chromium, beryllium, arsenic, and selenium. These compounds are typically found in the exhaust of major stationary sources and have been used to identify source emission signatures. In addition, one new wet deposition monitoring site in Nome will be established to measure mercury deposition along with the above mentioned trace metal contaminants in rain or snowfall. This Alaska Coastal Deposition Network, consisting of the new site and the existing sites in Kodiak and Unalaska will be operated using the techniques and quality assurance protocols of the Mercury Deposition Network (MDN), managed by the National Atmospheric Deposition Program.

The data gathered by the coastal deposition network will be used to determine if deposition is localized or if Alaska's coastal ecosystem is uniformly impacted. As transport of airborne pollution is the major contamination pathway, the data collected should be considered essential for use in preventative ecosystem management. Increases in airborne pollutants will slowly make their way into the ecosystem, thus deposition data can be used to predict future ecosystem

impacts, plan mitigation strategies, and assist ecosystem management. In addition, deposition data can be used to develop and corroborate models for mitigation strategies and opportunities.

Working with DEC and National Weather Service meteorologists and atmospheric scientists schooled in the analysis of back trajectories, the trace metal and mercury data will be combined with local and global meteorological data to assess long range and short range transport patterns to identify potential local, regional and international source regions. The mercury data will be available on the Mercury Deposition network (MDN) web page. The trace metal data will be stored in a database at the DEC AQ office and will be linked with the mercury and meteorological data. The reports will be shared with the fish tissue monitoring program and any interested parties. A final report will be posted on the DEC web page.

Radiation Monitoring

The State has three radiation monitoring network sites (RadNet) located in Anchorage, Fairbanks and Juneau. Various agencies and groups operate the equipment. The site in Anchorage is operated by the Alaska Department of Health and Social Services. The University of Alaska Fairbanks operates the Fairbanks site. The DEC Air Quality Division operates the site in Juneau. A decision needs to be made if these sites are intended as early warning stations or to document radiation levels experienced throughout the state. If early warning is the goal, the sites in Anchorage and Fairbanks are not the best locations to meet this objective. The sites should either be moved to the coast to allow for early detection and actions before the radiation reaches the population centers inland or additional coastal monitors should be installed to meet this need.

APPENDIX D: CORRESPONDENCE & DOCUMENTATION OF NETWORK MODIFICATION

MUNICIPALITY OF ANCHORAGE

Department of Health and Human Services 907-343-6718

Mayor Dan Sullivan

October 17, 2012

Keith Rose
EPA Region 10
Office of Air, Waste and Toxics
AWT-107
1200 Sixth Avenue, Suite 900
Seattle, WA 98101

Re: Request for Modifications to the Anchorage Air Monitoring Network

Dear Mr. Rose,

The Municipality of Anchorage Air Quality Program (AAQP) is facing the possibility of significant cuts to its 2013 budget. The Anchorage Assembly is currently considering a proposed FY13 municipal budget that would cut our funding by $221,000. If this occurs, total funding to the program would be cut by almost 50% and would result in the loss of 1.5 positions. As a consequence, we are examining ways to reduce the required workload of the remaining two staff members.

To this end, AAQP is requesting EPA approval to discontinue a number of monitors in the Anchorage air monitoring network effective January 1, 2013. The Anchorage Assembly is not expected to make a final decision on the FY2013 budget until late November or early December. In order to give EPA adequate time to consider this request, we have prepared this letter in advance of the Assembly decision. If air quality funding is restored in the final budget, we may withdraw or modify this request.

In the attachment, we describe the monitors proposed for discontinuation and the rationale for terminating their operation. You will see that in all cases, the monitors proposed for discontinuation are well below the applicable national ambient air quality standard. Even with these proposed cutbacks, we will continue to meet our ongoing obligation to monitor PM-10 in the Eagle River PM-10 Nonattainment Area and CO in the Anchorage CO Maintenance Area.

The Alaska Department of Environmental Conservation has reviewed and supports this request. If you have any questions or need additional information to render a decision, please let me know. Thank you for your consideration.

Sincerely,

Stephen S. Morris
Air Quality Program Manager

Cc: Barbara Trost, Air Quality Monitoring Program Manager, ADEC
Britteny Matero, Manager, Public Health Division, MOA DHHS
Janet Vietmeier, Acting Director, MOA DHHS

P.O. Box 196650 • Anchorage, Alaska 99519-6650 • http://www.muni.org

Attachment -Request for Modifications to Anchorage Air Quality Monitoring Network

Monitors Proposed for Discontinuation – Description and Rationale

Ozone (O_3) Monitoring

AAQP is requesting approval to discontinue the O_3 SPM* monitor at the Garden station in east Anchorage (3000 E 16th Avenue, site id 020200018) effective October 31, 2012.

Federal regulation requires ozone monitoring in Alaska from April 1 – October 31. This site has been in operation since April 2010 and we will conclude three years of seasonal monitoring on October 31 of this year. Monitored concentrations have been well below the national ambient air quality standard (NAAQS) for O_3. The table below compares 8-hour average monitored concentrations at Garden to the NAAQS. Compliance with the O_3 NAAQS is determined by examining the 3-year average of fourth highest daily 8-hour maximum. The NAAQS is set at 0.075 ppm. Table 1 below shows that the 3-year average of the 4th maximum concentration at the Garden site is 0.045 ppb, about 40% below the NAAQS.

Table 1
Summary of O_3 Data from Garden Site
(8-hr average, ppm)

NAAQS = 0.075 ppm

Year	1st Maximum	4th Maximum	Number of Exceedances	% Valid Days of Data
2010	0.046	0.042	0	99.1%
2011	0.050	0.047	0	98.6%
2012*	0.048	0.047	0	100.0%

3-year avg of 4th maximum**	0.045

* 2012 is a preliminary analysis of data collected through October 15, 2012. Data have not undergone full QA.

** 3-year average includes unvalidated, incomplete data from 2012

The Alaska Department of Environmental Conservation (ADEC) is currently monitoring O_3 in Wasilla, Alaska approximately 45 kilometers northeast of Anchorage. Like Garden, this site is included in the Anchorage – Mat Su Consolidated Metropolitan Statistical Area (CMSA). ADEC plans to continue monitoring at the Wasilla site for at least one more year. This satisfies the 40 CFR 58 Appendix D requirement for at least one O_3 monitoring site in Metropolitan Statistical Areas (MSAs) with a population greater than 350,000. The Anchorage – Mat Su MSA has a population of 380,821 (2010 Census).

Carbon Monoxide (CO) Monitoring

AAQP is requesting approval to discontinue CO monitoring at the Parkgate site in Eagle River (11723 Old Glenn Highway, site id 020201004) and at the DHHS site in downtown Anchorage (727 L Street, site id 0200052), effective December 31, 2012. The Parkgate

* SPM (Special Purpose Monitor) is a designation given by a State or local agency to a monitor that is not part of the EPA-designated SLAMS (State and Local Air Monitoring System) network. The first 24 months of data collected from an SPM (by itself) may not be used to determine whether a violation of the NAAQS has occurred.

and DHHS CO monitors are designated as SPM. CO monitoring will continue at the Garden and Turnagain SLAMS sites.

CO monitoring has been conducted seasonally (Oct 1 – Mar 31) at the Parkgate and DHHS sites since October 2007. The CO NAAQS is set at 35 ppm for an hourly average and 9 ppm for an 8-hour average, not to be exceeded more than once per year. Compliance with the NAAQS is therefore determined by examining the second highest one-hour and 8-hour averages measured in each calendar year. Tables 2 and 3 summarize second maximum one-hour and 8-hour averages for all Anchorage sites by calendar year beginning in 2008. The data record presented for 2012 ended October 15 and is thus incomplete.

Table 2
Summary of Anchorage CO data
(2nd maximum one-hr average, ppm)

NAAQS = 35 ppm

Year	Garden	Turnagain	DHHS (slated for discontinuation)	Parkgate (slated for discontinuation)
2008	6.0	8.3	6.4	4.8
2009	6.2	7.6	7.2	4.0
2010	5.2	8.1	5.0	5.6
2011	5.5	6.4	5.2	5.8
2012*	6.4	7.2	4.5	3.7

* 2012 is a preliminary analysis of data collected through October 15, 2012. Some data have not undergone full QA.

Table 3
Summary of Anchorage CO data
(2nd maximum 8-hr average, ppm)

NAAQS = 9 ppm

Year	Garden	Turnagain	DHHS (slated for discontinuation)	Parkgate (slated for discontinuation)
2008	3.8	5.5	3.1	2.9
2009	4.4	5.8	3.6	3.2
2010	3.8	6.1	2.8	2.5
2011	3.6	4.2	1.9	2.5
2012*	4.3	5.4	2.5	2.4

* 2012 is a preliminary analysis of data collected through October 15, 2012. Some data have not undergone full QA.

Tables 2 and 3 demonstrate that the DHHS and Parkgate sites have been well under the one-hour and 8-hour CO NAAQS. Note that the Garden and Turnagain sites, which are slated to continue operation, have recorded consistently higher CO concentrations than the DHHS and Parkgate sites.

PM-10 and PM-2.5 Monitoring

AAQP is requesting approval to discontinue PM-10 and PM-2.5 monitoring at the DHHS site in downtown Anchorage (727 L Street, site id 0200052), effective December 31, 2012. The DHHS site is designated as a SPM for both PM-10 and PM-2.5. PM-10 monitoring will

continue at the Garden and Parkgate SLAMS sites and the Tudor Road SPM site. PM-2.5 monitoring will continue at the Garden and Parkgate SLAMS sites.

Table 4 compares PM-10 concentrations at the DHHS site to other monitors in the Anchorage network. It should be noted that all of the measured DHHS values above 89 µg/m^3 are attributed to natural wind blown dust from glacier river valleys north of Anchorage. ADEC has or will request exceptional events waivers for each of these events. If these events are excluded from consideration, 24-hour average PM-10 concentrations at DHHS have been 40% or more below the 150 µg/m^3 NAAQS. To meet compliance with the PM-10 NAAQS, 24-hour concentrations may not exceed 150 µg/m^3 more than three times in any consecutive 3-year period exclusive of exceptional events.

Table 4
Summary of Anchorage PM-10 data
(all values in µg/m^3)

NAAQS = 150 µg/m^3 (24-hour avg)

	Garden			DHHS (slated for discontinuation)			Parkgate			Tudor		
	max	2nd max	# exceed	max	2nd max	# exceed	max	2nd max	# exceed	max	2nd max	# exceed
2009	123**	122**	0	147**	120**	0	163**	136**	1**	--	--	--
2010	113**	54	0	179**	89	1**	207**	92	1**	126	80	0
2011	36	36	0	61	43	0	108	70	0	129	117	0
2012*	76	69	0	58	57	0	81	77	0	115	109	0

* Through June 30, 2012

** These values are attributed to natural wind blown dust from glacier river valleys north of Anchorage.

Table 5 compares PM-2.5 concentrations at the DHHS site to other monitors in the Anchorage network. The 24-hour NAAQS for PM-2.5 is set at 35 µg/m^3 (3-year average of the 98th percentile concentration). Values measured at DHHS have been less than half of this standard. The annual average concentration measured at DHHS has been about one-third of the 15 µg/m^3 NAAQS. Compliance with the annual average NAAQS is determined by examining the 3-year average of the monitored annual average concentration.

Table 5
Summary of Anchorage PM-2.5 data
(all values in µg/m^3)

NAAQS = 35 µg/m^3 (24-hour avg),15 µg/m^3 (annual avg)

	Garden		DHHS (slated for discontinuation)		Parkgate	
	98th Percentile 24-hr avg	Annual Average	98th Percentile 24-hr avg	Annual Average	98th Percentile 24-hr avg	Annual Average
2009	25	7.3	15	5.3	22	6.3
2010	23	6.2	17	4.8	17	5.5
2011	17	5.3	12	3.9	16	4.6
2012*	26	5.8	18	4.9	17	4.6

* Through June 30, 2012

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, WA 98101-3140

DEC 20 2012

OFFICE OF
AIR, WASTE AND TOXICS

Mr. Steve Morris
Air Quality Program Manager
Municipality of Anchorage
P.O. Box 196650
Anchorage, Alaska 99519-6650

Dear Mr. Morris:

In a letter to Mr. Keith Rose dated October 17, 2012, you requested that the EPA approve the discontinuation of several monitors operated by the Municipality of Anchorage (MOA) due to the possibility of significant budget cuts to the Anchorage Air Quality Program, effective January 1, 2013. The monitors that you requested to discontinue include the:

1) Ozone monitor at the Garden site in Anchorage,
2) CO monitors at the DHHS site in Anchorage and the Parkgate site in Eagle River, and
3) PM10 and PM2.5 monitors at the DHHS site.

Garden site Ozone monitor: The three year average 4th highest ozone value at the Garden site is about 40% below the ozone NAAQS, and the Alaska Department of Environmental Quality (ADEC) will continue to operate an ozone monitor in Wasilla, Alaska. The Wasilla monitor satisfies the 40 CRF 58 Appendix D requirement for at least one ozone monitor in a Metropolitan Statistical Area with a population greater than 350,000. For this these reasons, the EPA approves discontinuing the Garden site ozone monitor by January 1, 2013.

DHHS and Parkgate CO monitors: The 1-hour and 8-hour design values for the DHHS and Parkgate CO monitors for 2008-2012 are substantially below the 1-hour and 8-hour CO NAAQS, and these monitors are both designated as Special Purpose Monitors. For these reasons, EPA approves discontinuing the DHHS and Parkgate CO monitors by January 1, 2013.

DHHS PM10 and PM2.5 monitors: The PM10 and PM2.5 monitors at the DHHS site are designated as Special Purpose Monitors. The highest PM10 value measured at the DHHS over the past years, excluding one wind-blown event in 2010, is 89 ug/m3. The DHHS PM10 monitor has consistently shown lower values than the Parkgate and Tudor monitors. MOA will continue to operate the Parkgate, Tudor, and Garden site PM10 monitors. The 98 percentile and average PM2.5 values measured at the DHHS site monitor have been consistently lower that those values measure at either the Parkgate and Garden site monitors over the past four years. MOA will continue to operate the PM2.5 monitors at the Parkgate and Garden sites. For these reasons, EPA approves discontinuing the DHHS PM10 and PM2.5 monitors by January 1, 2013.

If you have any questions about the EPA's approval to discontinue monitors in Anchorage, please contact Keith Rose at 206-553-1949.

Sincerely,

Debra M Suzuki

Debra Suzuki, Manager
Air Planning Unit