



Fine Particulate Matter (PM_{2.5}) Update

Presentation to:
Fairbanks North Star Borough
Assembly
Committee of the Whole

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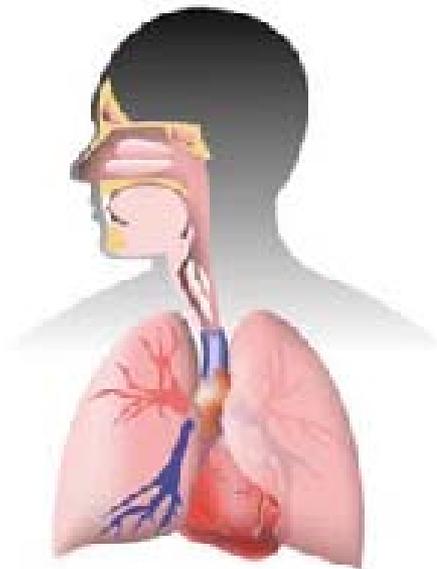
Purpose of the Presentation

- Health Impacts
- Cooperative efforts of FNSB and DEC AQ staff
- Monitoring
- Update on the FNSB Non-Attainment Area SIP
- Disclosure Requirements upon Sale of Property
- State Request to Divide the Non-Attainment Area
- Potential Additional Measures to Improve Air Quality
- Funding



Health Impacts of High PM_{2.5} Concentrations

- Air Quality Plans or SIPs are needed to meet health based standards.
- PM_{2.5}, due to its small size has the following health impacts:
 - Increased respiratory symptoms (coughing or difficulty breathing)
 - Aggravated asthma
 - Development of chronic bronchitis
 - Nonfatal heart attacks
 - Increased visits to medical facilities
- Sensitive populations:
 - Elderly
 - Children
 - Individuals with medical conditions





Cooperative efforts of FNSB and DEC

- FNSB and DEC have a long standing MOU.
- FNSB AQ staff:
 - Select special purpose monitoring (SPM) sites
 - Run SPM and compliance monitoring sites
 - Call advisories and alerts
 - Respond to citizen complaints about smoke from home heating
- DEC AQ staff:
 - Provide monitoring equipment and funding
 - State Regulations
 - State Implementation Plan (SIP) planning process/SIP submission to EPA



Monitoring

- Federal Reference Monitors (FRM) – Used to calculate compliance with national PM_{2.5} standards
 - Locations remain fixed for decades after attainment achieved
 - Filter based instruments, operating every 3rd day
- Special Purpose Monitoring (SPM) –
 - Continuous analyzers, provide hourly data
 - Used to issue air quality advisories and alerts.
 - SPM sites selected and moved by FNSB staff
 - Used to investigate ‘hot spot’ areas



Monitoring

- Clean Data Year at Fairbanks SOB and Ncore monitors - 2014 and (preliminary) 2015
- Preliminary 2016 data indicate that there continue to exceedances (7) of the 35 ug/m³ standard at the North Pole Fire Station.
- As of Feb 9 will update, preliminary data indicate that there was potentially one exceedances of the standard at the Fairbanks monitors (Ncore).
- Public can access real time air monitoring data here:
 - <http://dec.alaska.gov/Applications/Air/airtoolsweb/Aq/>



Update on SIP: Where we are today

- Moderate Area SIP submitted to EPA in December 2014
- FNSB now has enforcement authority and ordinance addressing wood smoke
- EPA has required a new federal reference monitor at the North Pole Fire Station
- New North Pole monitor will affect everything we do.



SIP Background

- Moderate SIP based upon Design Value of $44 \mu\text{g}/\text{m}^3$
 - Reduction of $9 \mu\text{g}/\text{m}^3$ required
 - Reductions with control measures incorporated at the time
 - Moderate SIP was an Impracticable SIP because *it could not demonstrate the minimum $9 \mu\text{g}/\text{m}^3$ reductions*

- Serious SIP will be based upon 2015 3 yr DV
 - 2015 Design Value of $124 \mu\text{g}/\text{m}^3$ for North Pole Fire Station monitor (preliminary data)
 - Certified 2015 data will show that DV will exceed the standard
 - Reductions of at least $89 \mu\text{g}/\text{m}^3$ will now be needed



Design Values

	2012 98 th percentil e ($\mu\text{g}/\text{m}^3$)	2013 98 th percentil e ($\mu\text{g}/\text{m}^3$)	2014 98 th percentil e ($\mu\text{g}/\text{m}^3$)	2015 98 th percentil e ($\mu\text{g}/\text{m}^3$)	2014 DV (3 yr) ($\mu\text{g}/\text{m}^3$)	2015 Preliminary DV (3 yr) ($\mu\text{g}/\text{m}^3$)
Fairbanks SOB	49.6	36.3	34.5	35.3	40	35
Fairbanks NCore	50.0	36.2	31.6	36.7	39	35
North Pole Fire Station	158.4	121.6	138.3	111.6	139	124

- Attainment with PM_{2.5} 24-hr standards of 35 $\mu\text{g}/\text{m}^3$ is determined by a design value (DV), a rolling 3 yr average of the highest 98th percentile concentration at each compliance monitor.



Non-Attainment Area Moderate SIP

- DEC Submitted Moderate Area SIP to EPA in December 2014.
 - Moderate SIP included:
 - Borough solid fuel heater change outs
 - Winter time open burn restrictions
 - Transportation projects (plugging in, mass transit)
 - State regulations
 - Public education and outreach
- Measures not enough to demonstrate attainment by 2015



Serious Nonattainment Area

- FNSB to be redesignated as a Serious Non-Attainment Area
 - EPA redesignates per Clean Air Act based upon monitoring data
 - Expected to occur June 2016; Serious Plan due Dec 2017
- Serious Area SIP will be required and must:
 - Plan for attainment by 2019
 - Include analysis for Best Available Control Measures (BACM) as compared to other Serious non-attainment areas around the country, as well as Best Available Control Technology (BACT) for stationary sources as compared to other stationary sources in other serious non-attainment areas.
 - Failure to include and implement BACM and BACT; EPA will not approve plan and this will start a sanction clock.



Serious SIP development

- DEC started working on Serious SIP in January 2015
- Notified Stationary Sources of BACT analysis in April 2015
- Serious Area SIP challenges:
 - EPA has not yet made decisions on the Moderate SIP
 - Tight timelines
 - Have not received BACT analysis from stationary sources, early schedule can not be met
 - Funding for modeling
 - Delay of PM_{2.5} Implementation Rule
 - 89 µg/m³ reductions needed to demonstrate attainment by 2019



Immediate Impacts of becoming a Serious Area

- Upon EPA re-designation of FNSB non-attainment area from Moderate to Serious, the following contingency measures become mandatory:
 - Commercial Wood Seller Registration –
 - 60 day advance public notice
 - Remove or replace older, inefficient wood heaters that don't meet state and EPA emission standards when a property is sold [18 AAC 50.077(a)(2)(B)]
 - DEC to start outreach to real estate professionals in April.
 - <http://burnwise.alaska.gov/docs/DEC-EPA-Standards.pdf>



Why did the State submit Request to EPA to Divide the Nonattainment Area?

- Likely will need more time (beyond 2019) for North Pole monitor to demonstrate attainment due to high design value.
- Clean Air Act allows for additional time but SIPs must include Most Stringent Measures.
- The only way to reduce those impacted by the Most Stringent Measure requirement is change the nonattainment boundary.
- Western half of nonattainment area is generally seeing improvements.



Request to Divide Nonattainment area

- Submitted November 20, 2015
 - EPA has until May 2017 to respond
 - Almost 1 yr after expected EPA Serious Area re-designation
- All areas in the FNSB nonattainment area would remain in one of the two areas if EPA approves request
- Western portion would include Fairbanks; Eastern portion would include North Pole
- Technical document may be found at:
- http://dec.alaska.gov/air/anpms/comm/fbks_pm2-5_area-separation-request.htm



Ramifications if Division is Approved

- Two full SIPs will be required; one each for Western and for Eastern portion of non-attainment area will have to be maintained
- Must still demonstrate attainment in all grid cells before either area can be reclassified as a maintenance area.
- Must still meet all Clean Air Act requirements



Potential Additional Measures to Improve Air Quality

- Finding enough measures to address the $89 \mu\text{g}/\text{m}^3$ in reductions needed will be very difficult.
- Focus on biggest polluting sources –
 - Hydronic heaters and coal-fired devices
 - Target change outs in areas of high concentrations (hot spots and sensitive populations)
- Start burn curtailments at lower concentrations
- Continue enforcement
- Continue to support natural gas efforts



Funding

- DEC continues to look for grants or other funding that might assist with reducing the levels of PM_{2.5} in the FNSB.
- During 2016, EPA expected to solicit for Targeted Air Shed Grant projects to reduce PM_{2.5} levels in 24-hr PM_{2.5} nonattainment areas.
 - \$20 million in total funding
 - Idaho received \$2.5 mill for annual PM_{2.5} last year



Questions?

Thank You!

For more information:

http://dec.alaska.gov/air/anpms/comm/fbks1_pm.htm