

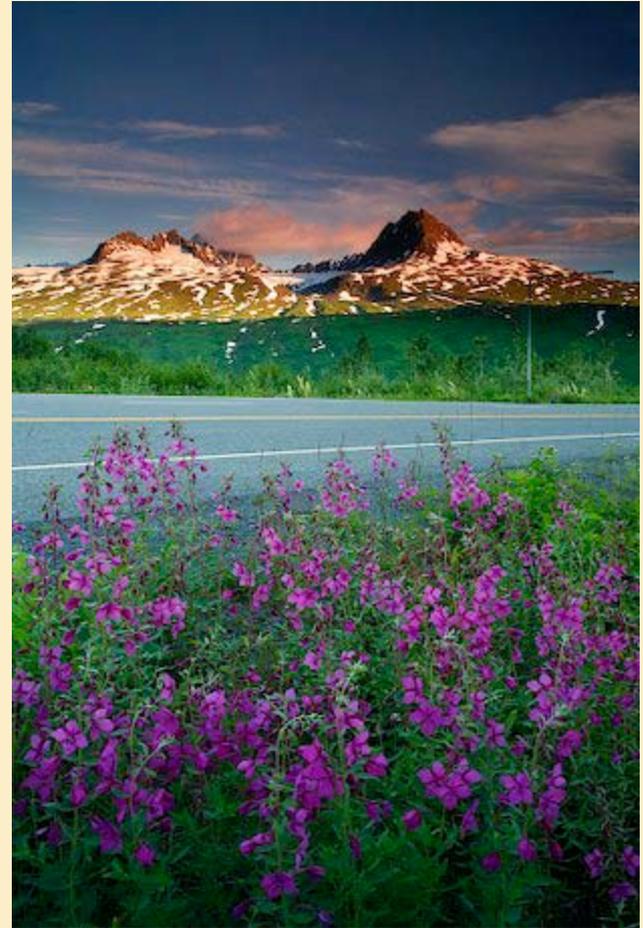


# FUGITIVE DUST – WHAT IS IT? WHY SHOULD I CARE?

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# FUGITIVE DUST PRESENTATION

- ✘ What is fugitive dust?
- ✘ Background/History of fugitive dust
- ✘ Health/Environmental Effects
- ✘ Potential sources in Alaska
- ✘ Overview of ADEC regulations
- ✘ Potential Future Policies
- ✘ Controls



# BACKGROUND ON FUGITIVE DUST

- ✘ Fugitive dust is not a new problem
- ✘ Can be naturally occurring
- ✘ Can be anthropogenic
- ✘ Small airborne particles
- ✘ Wide variety of sources



# STATE IS RESPONSIBLE TO PROTECT HEALTHY AIR

- ✘ 18 AAC 50.010 Ambient Air Quality Standards
- ✘ Demonstrate violation of Ambient Air Standards
- ✘ Regulations are based in science/measurable
- ✘ State follows the Clean Air Act
- ✘ State follows Federal Regulations
- ✘ State has primacy for the Air Program

# WHAT IS FUGITIVE DUST?



- ✘ Small airborne Particulate Matter or PM
- ✘ EPA definition: Particulate matter that is generated or emitted from open air operations (emissions that do not pass through a stack or a vent).

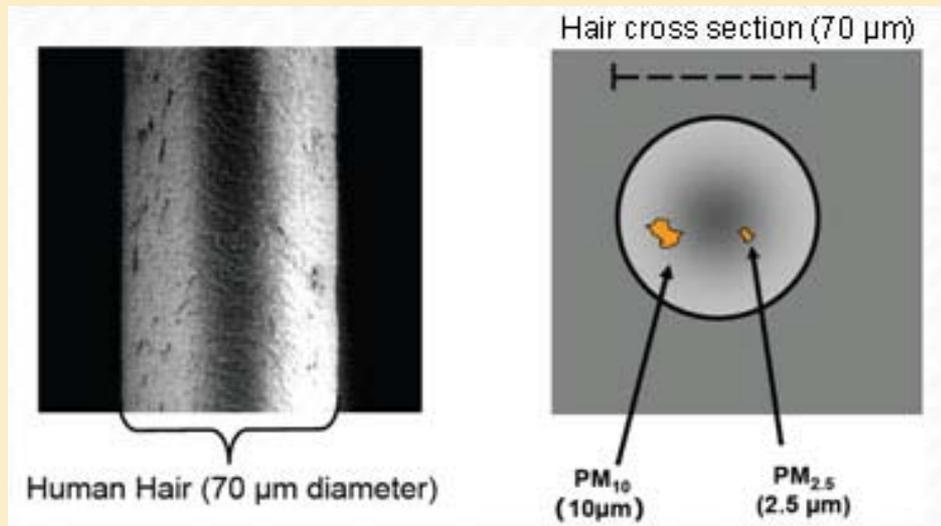
# WHAT IS PARTICULATE MATTER?

- ✘ EPA has six criteria air pollutants
  - + One of these is particulate matter
- ✘ Particulate matter includes the solid particles and liquid droplets suspended in the air.



# PARTICULATE MATTER DEFINED

- ✗ EPA classifies particulate matter in two sizes
  - + PM<sub>10</sub> – particulate matter less than 10 microns
  - + PM<sub>2.5</sub> – particulate matter less than 2.5 microns

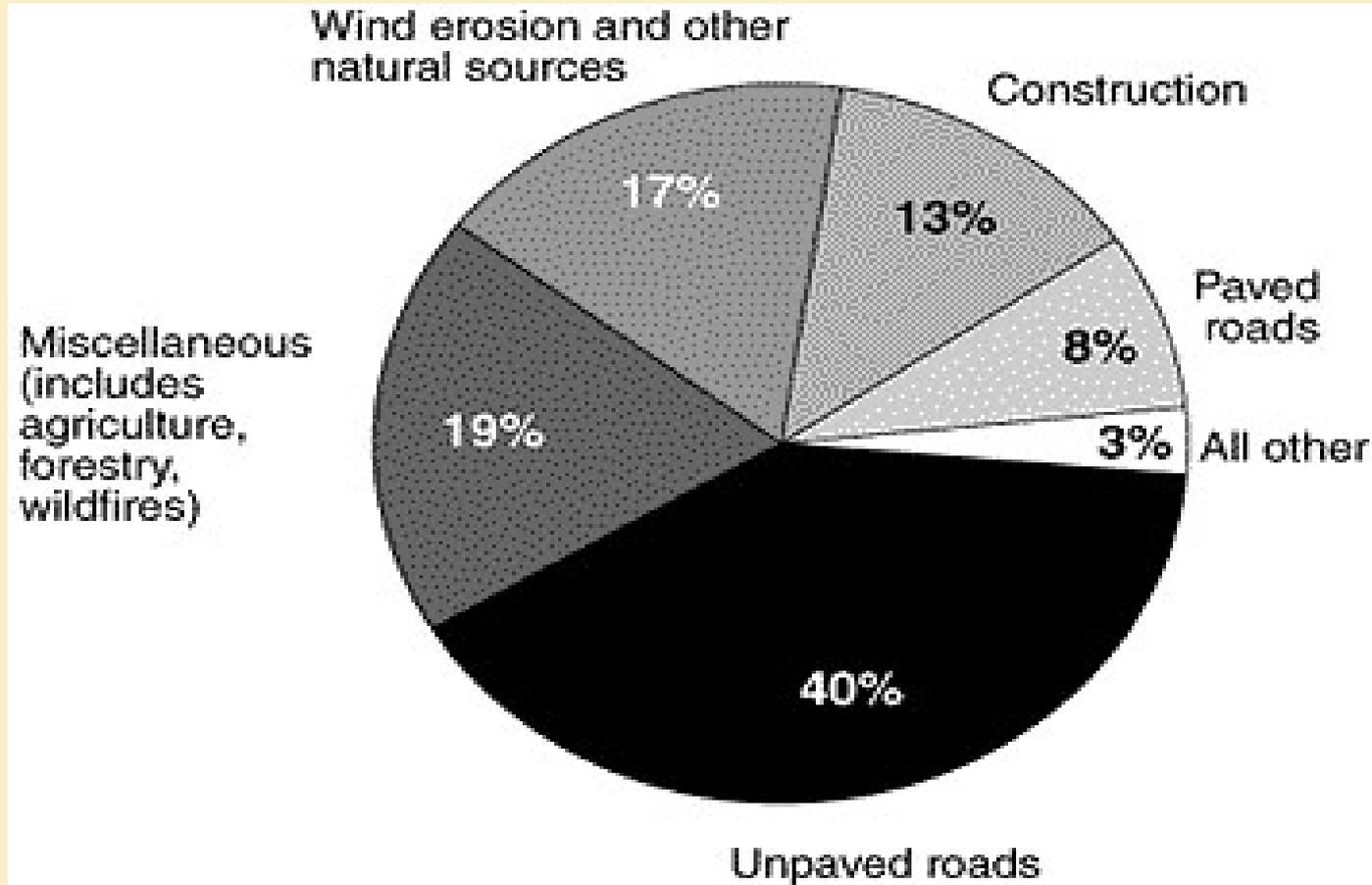


# HUMAN ACTIVITIES - CAUSES OF PM

- ✘ Industrial Activities
- ✘ Combustion
- ✘ Roads
- ✘ Material Handling
- ✘ Agriculture
- ✘ Construction



# EPA'S BREAKDOWN OF FUGITIVE DUST



# WHY SHOULD I CARE?

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- ✘ EPA estimates 25 millions tons of fugitive dust emissions per year; the majority from unpaved roads and miscellaneous agricultural lands
- ✘ Reduces visibility
- ✘ Reduces plant growth
- ✘ Health concerns
- ✘ Nuisance

# WHAT ARE THE HEALTH EFFECTS?

✘ Fugitive Dust and Particulate Matter have been linked to the following health problems:

- + Asthma
- + Chronic bronchitis
- + Emphysema
- + Heart Disease
- + Chronic obstructive pulmonary disease



# WHAT ARE THE ENVIRONMENTAL EFFECTS?

- ✘ Visibility Reduction
- ✘ Aesthetic Damage
- ✘ Surface Water Impacts
- ✘ Topsoil Impacts



# INCREASES FUGITIVE DUST?

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- ✘ Natural resource extraction and movement
- ✘ Increase in population
- ✘ More roads
- ✘ Increase in construction
- ✘ Increase in industrial activity
- ✘ Local Zoning
  - + Residential and industrial areas are in closer proximity to each other

# HOW DOES ALASKA DEAL WITH FUGITIVE DUST?

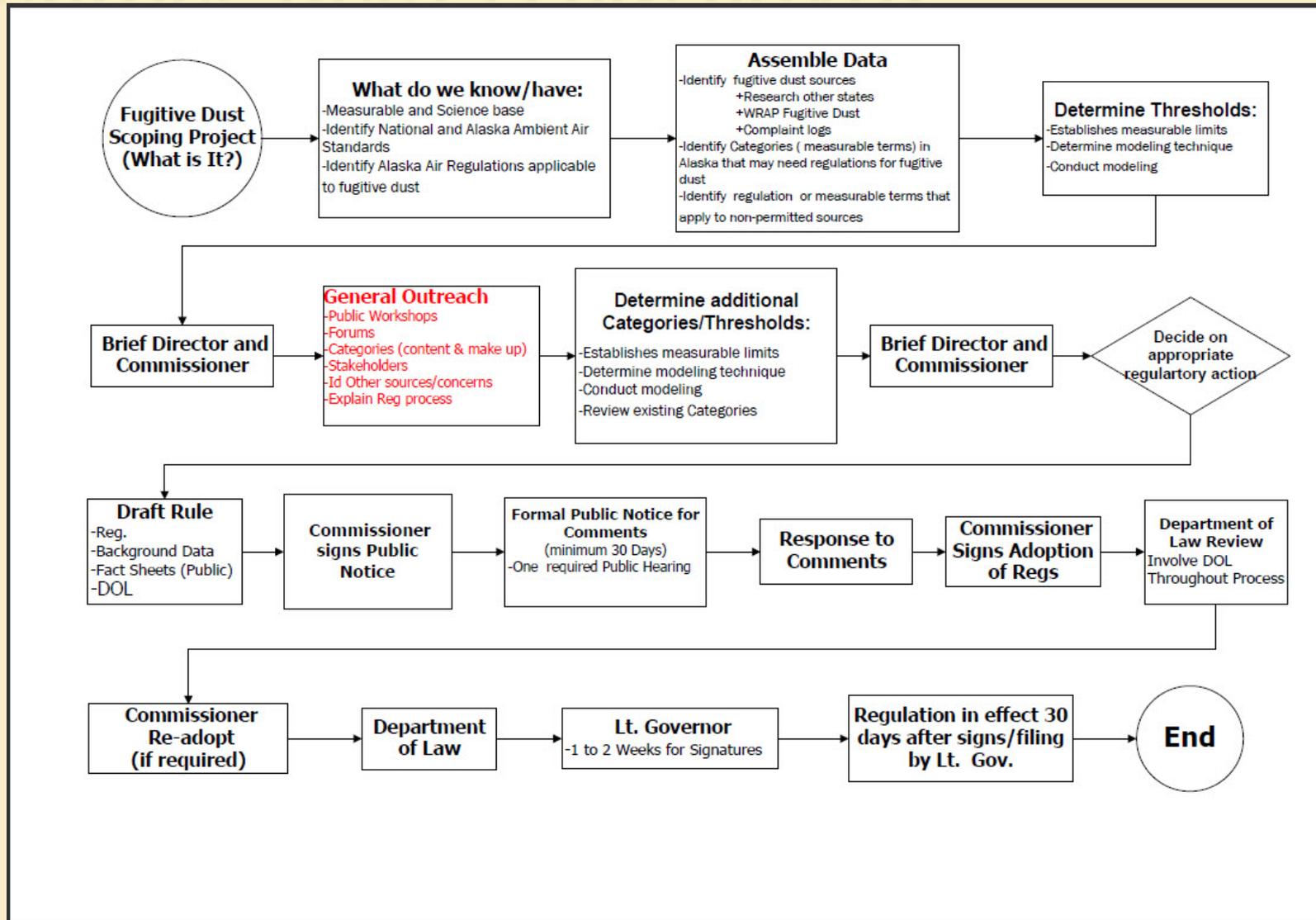
- ✘ State is responsible to protect healthy air
- ✘ Current Regulations
- ✘ Regulations are based in science
- ✘ Monitoring stations
- ✘ Unpermitted activity suspected of violating ambient air standard can be given violations



# PROCESS FOR FUGITIVE DUST REGULATIONS

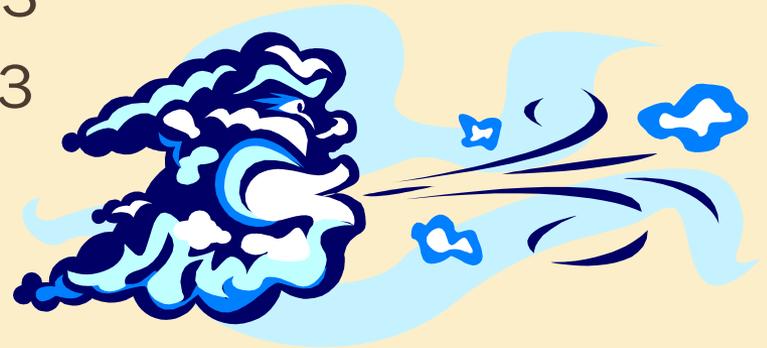
- ✘ Measurable and Science base
- ✘ Identify National and Alaska Ambient Air Standards
- ✘ Identify Alaska Air Regulations applicable to fugitive dust
- ✘ Identify fugitive dust sources
  - + Research other states-WRAP Fugitive Dust
  - + Complaint logs
- ✘ Identify Categories ( measurable terms) in Alaska that may need regulations for fugitive dust
- ✘ Identify regulation or measurable terms that apply to non-permitted sources suspected of emitting fugitive dust in violation of Alaska Ambient Air Quality Standards

# FUGITIVE DUST FLOW CHART



# NATIONAL AND ALASKA AMBIENT AIR STANDARDS

- ✘ National (EPA) Ambient Air Standards
- ✘ 18 AAC 50.010
  - + Ambient Air Standards for PM10
    - ✘ 24 hour standard 150 ug/m<sup>3</sup>
    - ✘ Annual standard 50 ug/m<sup>3</sup>
  - + Ambient Air Standards for PM 2.5
    - ✘ 24 hour standard 35 ug/m<sup>3</sup>
    - ✘ Annual Standard 10 ug/m<sup>3</sup>



# ALASKA'S REGULATIONS

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- ✘ 18 AAC 50.010 Ambient Air Quality Standards
- ✘ 18 AAC 50.020 (1) for PM10 and sulfur dioxide, the baseline concentration is the ambient concentration for a PSD major stationary source
- ✘ 18 AAC 50.045 (d) A person who causes or permits bulk materials to be handled, transported, or stored or who engages in an industrial activity or construction project shall take reasonable precautions to prevent particulate matter from being emitted into the ambient air
- ✘ AS 46.14.010 – Special procedure for more stringent regulations.

# SPECIAL PROCEDURE UNDER ALASKA STATUTE

- ✘ State regulation mirror federal standards
- ✘ AS 46.14.010 – Special procedure for more stringent regulations.
  - + Studies need to be conducted
  - + Peer reviewed
  - + Additional research or investigations may be needed if considered appropriate by the commissioner

# WHAT WE HAVE DONE TO DATE

- ✘ Investigate complaints
  - + Majority resolved under 18 AAC 50.045
- ✘ Review complaint log for fugitive dust
  - + Majority of complaints are road dust
  - + Identify unpermitted sources/categories



# WHAT ARE OTHER STATES/AGENCIES DOING

- ✘ Western Regional Air Partnership- various government agencies that developed the technical and policy tools to comply with the U.S. EPA's regional haze regulations
- ✘ Maricopa County in AZ has fugitive dust permits for anyone who disturbs more than 0.1 acre.
- ✘ The State of Wyoming regulates fugitive dust by taking instantaneous opacity reading.
- ✘ Nevada requires a dust control plan.

# POTENTIAL SOURCES IN ALASKA

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- ✘ Mines
- ✘ Sandblasting facilities
- ✘ Material handling and storage sites
- ✘ Construction sites
- ✘ Large Machine Yards
- ✘ Unpaved Roads
- ✘ Uncovered Loads
- ✘ Agricultural Lands
- ✘ Natural Occurrence



# CURRENT PERMITS

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- ✘ Control EPA's 6 criteria pollutants – PM<sub>10</sub>
  - + Title V Operating Permits
  - + Title I Construction/Minor Permits
- ✘ 18 AAC 50.502 (b) – minor permits for air quality protection
  - + Asphalt plant
  - + Thermal soil remediation unit
  - + Rock crusher
  - + Incinerators
  - + Coal Preparation Plant
  - + Port of Anchorage



# UNPERMITTED SOURCES

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- ✘ Only one pollutant- particulate matter via fugitive dust
- ✘ No ambient analysis required
- ✘ How many unpermitted facilities are out there?
- ✘ How do we determine that they have a fugitive dust problem?



# HOW TO TAKE CARE OF UNPERMITTED SOURCES

- ✘ Use current regulations
  - + 18 AAC 50.045 (d) an industrial activity or construction project shall take **reasonable precautions** to prevent particulate matter from being emitted into the ambient air
  - + 18 AAC 50.110 – No person may permit any emission which is injurious to human health or welfare, animal or plant life, or property, or which would unreasonable interfere with the enjoyment of life or property.

# POTENTIAL REGULATIONS

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## ✘ New Regulations

- + AS 46.14.010 – Special procedure for more stringent regulations.

## ✘ Minor Permits/General Permits for Fugitive Dust

- + 18 AAC 50.502 (b)
- + New categories
- + Based on ambient standards

# DETERMINING THRESHOLDS

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- ✘ Establishes measurable limits
- ✘ Above threshold violate ambient air standards
- ✘ Measurable correlation between the source and violation



# DETERMINING THE THRESHOLD (WHAT WE HAVE DONE TO DATE)

- ✘ Determine modeling technique
  - + EPA approved models
  - + Meteorological data - statewide applicability
  - + Terrain type - statewide applicability
  - + Source characterizations
- ✘ Conduct modeling
- ✘ Draft thresholds



# DETERMINING MODELING TECHNIQUES

- ✘ ADEC would need to prepare a dispersion modeling study to determine if emissions from certain industrial activities are violating ambient air quality standards
  - + Models are EPA approved
- ✘ Type of landscape
- ✘ Gather meteorological conditions that represents the whole state.
- ✘ Develop generic parameters to reflect various sources for a particular industrial activity that would be performed across the state.

# EXAMPLES OF POSSIBLE REGULATORY ACTION

- ✘ Establish permitting process for material handling sources
  - + Material handling refers to the handling, transfer, and storage of materials in aggregate form.
- ✘ Establish permitting process for abrasive blasting facilities
  - + Refers to the cleaning, polishing, conditioning, removing, or preparing of a surface by propelling a stream of abrasive (sand, slag, steel, shot, garnet, walnut shells, or carbon dioxide pellets)

# WHAT CONTROLS ARE AVAILABLE?

- ✘ Dust Control Plan
- ✘ Wetting of the problem area(s)
- ✘ Halting operations during high wind events
- ✘ Spray bars
- ✘ Bag houses
- ✘ Enclosures
- ✘ Screens



# NEXT STEPS

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- ✘ Watch complaint logs
- ✘ Additional categories for modeling/thresholds
- ✘ Monitors for ambient conditions
- ✘ Conduct workshops
  - + Seward
  - + Fairbanks
  - + Mat-Su Valley
- ✘ Communicate with stakeholders
- ✘ Potential Minor/General permit for fugitive dust





## QUESTIONS AND ANSWERS

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