

ALASKA TRIBAL AIR QUALITY PHASE I ASSESSMENT

Completing this Phase I Assessment can help tribes begin to understand air pollution hazards in their communities. This packet contains the Phase I Assessment tool, a guide for completing the assessment and web links for those who want additional information on the air quality topics covered by the assessment.



ALASKA NATIVE
TRIBAL HEALTH
CONSORTIUM

Tribal Air Quality: Phase I Assessment

Instructions for completing the assessment

Who should complete the assessment? This assessment can be completed by anyone. No previous training in air quality or environmental health is required. However, environmental workers (such as IGAP employees), representatives of the tribe or people with an interest in air quality may find this guide particularly useful.

How to conduct the assessment? The environmental assessment can help determine if there is an air quality problem in the community. This Phase I Assessment was developed to be used with the ANTHC Tribal Air Quality Assessment Process. Each section introduces a topic that is a potential air quality concern for a community. Within the section, specific factors that could lead to air quality issues are identified and explained for the assessor. The non-bold text provides an overview of the topic while the bold text provides specific instructions on how to respond to the questions. For those factors that are present in the community, the assessor would mark an “x” in the box located to the immediate left of the question on the assessment form.

What to do after the assessment? After determining if the factors are present (or not), the assessor can decide if each air quality topic is a concern in the community and requires action or further examination through a Phase II Assessment. In the Assessment Summary, the assessor will produce a summary of performing Phase I, their findings from the assessment, and next steps or recommendations for future action regarding air quality. (Please refer to the sample Assessment Summary)

For the findings section, the assessor should choose the three air quality categories that are determined to be the most concerning. Each category shall include a statement about why it is important (refer back to the assessment). Recommendations could include continuing to Phase II of the Tribal Air Quality Assessment or solutions to potential problems. Upon completion of the summary, a copy of the summary along with an explanation shall be provided to the Tribal Council and a copy shall be faxed to ANTHC Air Quality Program at the fax number listed.

If the Phase I assessment indicates that there is a potential air quality problem, the user would have the option of moving to Phase 2 and to begin spot sampling for data that would either confirm or disprove the presence of an issue. The Phase I assessment consists of questions to lead the user to decide whether or not to pursue further methods of evaluation of the community’s air quality.

ALASKA TRIBAL AIR QUALITY PHASE I ASSESSMENT



COMMUNITY:	Tribe:
COMPLETED BY (Name & Organization):	ASSESSMENT DATE:

Please read through each item in the table. If this is a problem in your community, mark an “x” in the box to the left.

1. ROAD DUST: Road surfacing materials such as dirt, sand, silt and gravel contain small particles that, when inhaled, can go deep into the lungs and cause health problems. Road dust can be particularly harmful to young children, elders, and individuals with existing medical problems.

	1A. Road surface: Paving roads with asphalt surfacing material is an ideal because these materials do not easily release small particles into the air. Are most roads paved with asphalt? Mark an “x” in the box if most roads are <u>not</u> paved with asphalt.
	1B. Road dust control: Road dust is commonly controlled in rural Alaska by spreading water on dusty roads or by treating roads with a palliative (road surface coating). Mark an “x” in the box if none of these dust control measures are available.
	1C. Condition and use of Controls Measures: Sometimes dust control measures are available but not in good condition or not used. Water trucks should be operational as used when needed. Palliatives should be applied properly and re-applied as needed. Mark an “x” in the box if operating conditions and utilization of controls are inadequate.
	1D. Weather conditions: Weather conditions may have a significant impact on the creation of airborne road dust. Does the community frequently experience dry and windy weather? Mark an “x” in the box if dry and windy conditions favoring the production of road dust are common.
	1E. Speed limits: Speed limits are an example of an “administrative control”. Administrative controls do not rely on construction or expensive equipment to reduce road dust. Instead, administrative controls require residents to change their behavior. Driving slower on unpaved roads produces less dust. Mark an “x” in the box if an ordinance has not been passed by the council establishing speed limits. Also place an “x” in the box if a speed limit has been established but is not enforced.
	1F. Community concern: Are community residents concerned about road dust? Mark an “x” in the box if you are concerned about road dust your community. Also mark an “x” in the box if you are aware of other residents who are concerned about road dust.

Notes or observations about road dust:

2. PETROLEUM EMISSIONS: Burning fossil fuels leads to production of nitrogen oxide, volatile organic compounds, carbon monoxide, and other harmful air pollutants. These pollutants can react with ammonia, moisture, and other compounds in the air to form small particles that can penetrate into the lungs and cause or worsen respiratory disease. They can also aggravate existing heart disease.

2A. **Diesel generators:** Diesel generators are a common source of petroleum emissions in rural Alaska. These diesel generators should be located away from homes, schools and other places where people gather. Are diesel generators located away from homes, schools and community buildings? **Mark an “x” in the box if the diesel generator located near homes, schools and other gathering areas.**

2B. **Fuel farms:** Fuel tank farms may release harmful vapors. Fuel tank farms should be located away from homes, schools, and community buildings to minimize exposure. **Mark an “x” in the box if fuel tank farms are located near homes, schools and other gathering areas.**

2C. **Ultra low sulfur diesel:** Ultra low sulfur diesel is a type of diesel fuel that produces less air pollution. Many communities in rural Alaska do not have ultra low sulfur diesel. The person selling the fuel should be able to tell you if the fuel is low sulfur. **Mark an “x” in the box if ultra low sulfur diesel fuel is not available in the community. Also mark an “x” in the box if the person selling the fuel did not know if the fuel is low sulfur.**

2D. **Community concern:** Are community residents concerned about petroleum emissions? **Mark an “x” in the box if you are concerned about petroleum emissions your community. Also mark an “x” in the box if you are aware of other residents who are concerned about petroleum emissions.**

Notes about petroleum emissions:

3. SOLID WASTE BURNING: Burning solid waste (trash or garbage) produces very toxic air pollutants. Breathing these chemicals can increase the risk of heart disease; aggravate respiratory problems such as asthma and emphysema, and cause nausea and headaches.

3A. **Solid waste burning:** The best practice is to not burn solid waste at all. **Mark an “x” in the box if solid waste is commonly burned.**

3B. **Burn container availability:** If solid waste must be burned, then it is best to burn inside a burn unit (burn box, burn barrel, burn container, etc.) because doing so reduces the amount of air pollutants produced. **Mark an “x” in the box if a burn unit is not available. Only mark an “x” if solid waste is commonly burned.**

	<p>3C. Burn unit condition: Burn units need to be in good condition to produce the high temperatures necessary for safer burning. If a burn unit is available, is it in proper working condition? Mark an “x” in the box if the community burn unit is in poor condition. Only mark an “x” if solid waste is commonly burned.</p>
	<p>3D. Burning location: Burning solid waste near homes, schools and places where people gather can impact more people. Mark an “x” in the box if solid waste burning takes place near homes, schools and community buildings. Only mark an “x” if solid waste is commonly burned.</p>
	<p>3E. Separation: If solid waste must be burned, removing items such as tires, batteries, and household hazardous wastes (strong chemicals, oils, antifreeze, cleaners etc.) can reduce the amount of air pollutants that are produced. Mark an “x” in the box if hazardous items are not removed from solid waste before burning.</p>
	<p>3G. Community concern: Are community residents concerned about solid waste burning? Mark an “x” in the box if you are concerned about solid waste burning is a concern in your community. Also mark an “x” in the box if you are aware of other residents who are concerned about solid waste burning.</p>
<p><i>Notes about solid waste burning :</i></p>	
<p>4. WOOD STOVE EMISSIONS (OUTDOORS): Pollution from burning wood contains solid or liquid droplets that are small enough to get deep into the lungs and cause health problems. Particles less than 10 micrometers can settle in the bronchi and lungs, particles less than 2.5 micrometers in diameter pose the greatest problem, as they can enter the blood stream through the lungs.</p>	
	<p>4A. Wood stove heating: Wood stoves are a source of outdoor air pollution. Mark an “x” in the box if heating with wood stoves is common in the community.</p>
	<p>4B. Community concern: Are community residents concerned about pollution from woodstoves? Mark an “x” in the box if you are concerned about pollution from woodstoves. Also mark an “x” in the box if you are aware of other residents who are concerned about pollution from woodstoves.</p>
<p><i>Notes about wood stoves:</i></p>	

<p>5. WILDFIRES: Wildfires can be an important source of air pollution. Wildfires include tundra fires and forest fires. Wildfires release PM_{2.5}, nitrogen oxides (NO_x), volatile organic compounds (VOCs), ammonia (NH₃) and sulfur dioxide (SO₂). Emissions from fires contribute to elevated ambient concentrations of PM_{2.5} and impairment of visibility. Similar to petroleum and woodstove emissions wildfires can also have serious effects on respiratory health.</p>	
	<p>5A. Wildfires: Smoke from wildfires can be an air quality concern for Alaskan communities. Is smoke from wildfires commonly seen or smelled in the community? Mark an “x” in the box if smoke from wildfires is commonly seen or smelled in the community.</p>
	<p>5B. Community concern: Are community residents concerned about pollution from wildfires? Mark an “x” in the box if you are concerned about pollution from woodstoves. Also mark an “x” in the box if you are aware of other residents who are concerned about pollution from wildfires.</p>
<p><i>Notes about wildfires:</i></p>	
<p>6. NATURAL RESOURCE DEVELOPMENT: Development of natural resources is common throughout Alaska. Mines and oil and gas development can impact the community’s air quality.</p>	
	<p>6A. Oil or gas drilling: Air pollution from oil and gas exploration and production is similar to emissions coming from burning fossil fuels for heat, but on a larger scale. Sources necessary for oil and gas exploration and production create nitrogen oxide, volatile organic compounds, carbon monoxide and particulate matter. The size of the operation and distance from the community can influence its impact on the community. If any air permits are held by the sources, these can provide useful information on the amount and type of pollution they are releasing. Is there oil or gas drilling near the community? If oil or gas drilling is occurring near the community please mark an “x” in the box.</p>
	<p>6B. Mining activity: Air pollution from the mining industry is typically particulate matter. The type of mine and the distance from the village can influence the impact on the community. The mine’s air permit holds a wealth of air quality information about the source. If a mining operation is close to the community, it is helpful to review the air quality permit for limits and controls the mine is subject to. Are there mining activities near the community? Mark an “x” in the box if mining is occurring near the community.</p>
	<p>6C. Community concern: Are community residents concerned about natural resource development? Mark an “x” in the box if you are concerned about pollution from natural resource development. Also mark an “x” in the box if you are aware of other residents who are concerned about pollution from natural resource development.</p>

Notes about natural resource development:

7. Indoor Air: Alaskans spend a lot of time indoors. Unfortunately, indoor air usually has even more pollutants than outdoor air. Activities like heating, cooking, bathing, and even breathing all impact indoor air quality. Indoor air pollutants can be chemicals, gases, and living organisms like mold. Other pollutants cause or worsen allergies, respiratory illnesses (such as asthma), heart disease, cancer, and other serious long-term conditions.

7A. **Ventilation:** Ventilation systems remove air pollutants from the home and bring clean fresh air into the home. Some homes have been built without ventilation and other times residents disable or turn off the home ventilation system to save money on heating fuel. Disabling or turning off ventilation systems can cause serious health problems for people, especially children or people with breathing problems. **Mark an “x” in the box if residents are disabling or turning off ventilation systems (disabling/altering ventilation systems could include blocking vents, turning off HRVs, etc.). Also an “x” in the box if you know of many homes without a working ventilation system.**

7B. **Certified wood stoves:** EPA certified wood stoves can decrease the amount of harmful particles produced by wood burning by up to 70%. These wood stoves burn more efficiently and produce the same amount of heat from less wood. EPA certified wood stoves can be identified by looking at the metal label attached to the back or side of the wood stove. **Mark an “x” in the box if non-EPA certified wood stoves are common in the community.**

7C. **Burning wet wood:** EPA recommends only burning dry, split, seasoned wood in wood stoves. Dry wood burns hotter, produces more heat and less pollution. **Mark an “x” in the box if burning wet wood in the wood stoves is common.**

7D. **Moisture/Mold:** Mold growth is caused when homes are too moist and have poor ventilation. Inhaling or touching mold can cause allergic reactions to individuals that are mold-sensitive. Fixing leaky pipes, drying up wet or damp surfaces, and keeping relative humidity between 30 and 60 percent will help prevent the growth of mold. **Mark an “x” in the box if mold is present in many homes in the community.**

7E. **Tobacco smoke:** Tobacco smoke contains at least 250 chemicals that are known to be harmful to human health. The only way to fully protect nonsmokers from environmental tobacco smoke is to not smoke indoors. Exposure to children is especially harmful and has been linked to colds, pneumonia, bronchitis, and asthma. **Mark an “x” in the box if it’s common for residents to smoke in the home.**

7F. **Community concern:** Are community residents concerned about indoor air pollution? **Mark an “x” in the box if you are concerned about indoor air pollution. Also mark an “x” in the box if you are aware of other residents who are concerned about indoor air pollution.**

<i>Notes about indoor air pollution:</i>	
<p>8. INDUSTRIAL OPERATIONS: Most industrial operations produce some type of air pollution. The amount of air pollution and its impact on health vary with the size and type of operation.</p>	
	<p>8A. Industrial operations: Industrial operations that were not covered in the above sections can be noted here. Examples of industrial operations include fish processing plants, logging and manufacturing. Mark an “x” in the box if there are any industrial operations impacting the community’s air quality if not previously identified in this assessment.</p>
	<p>8B. Construction: Construction is a type of industrial operation that commonly impacts air quality in rural Alaska. Construction usually results in more dust and vehicle emissions. Controlling dust through application of water, reducing speed limits, and treating dirt roads with a palliative are a few mechanisms for controlling dust at construction sites. Vehicle emissions can also be reduced through minimizing idling. Mark an “x” in the box if construction is impacting the community’s air quality.</p>
<i>Notes about industrial operations:</i>	
9. Assessment Notes	

9A. Use the space below for any notes or general comments:

** ANTHC Contact Info: For questions about completing this assessment contact an ANTHC Environmental Health Consultation staff member at 800.560.8637.*

Tribal Air Quality Assessment Summary: _____
(Community/Tribe)

Assessor: _____ Phone Number: _____

This assessment was performed to help the community determine if an important air pollution problem exists.

IMPORTANT FINDINGS: The findings section details potential air quality problems that were detected in the assessment.

- 1.
- 2.
- 3.

NEXT STEPS: The next steps section provides a place for the assessor to make recommendations on how to move forward as a result of completing Phase I.

- 1.
- 2.

Please provide a completed copy to your Tribal Council and fax a copy to ANTHC Air Quality at: (907) 729-4090, Attn: Air Quality Program.

The following list provides helpful resources for understanding concerns identified in the Tribal Community Air Quality Assessment.

Road Dust:

U.S. Environmental Protection Agency (EPA), Region 10. Alaska Native Village Air Quality Fact Sheet Series: Road Dust. August 2010.

http://www.epa.gov/region10/pdf/tribal/anv_road_dust_aug2010.pdf

U.S. EPA, Region 10. Clean Air, Healthy Villages: Protecting Air Quality in Tribal Alaska Video Series. Road Dust. http://www.epa.gov/region10/videos/anv/road_dust.html

U.S. EPA, Office of Air and Radiation. Particulate Matter.

<http://www.epa.gov/pm/>

U.S. EPA, Office of Air and Radiation. Particulate Matter: Basic Information.

<http://www.epa.gov/air/particlepollution/basic.html>

U.S. EPA, Office of Air and Radiation. Rural Roads.

<http://www.epa.gov/oecaagct/trur.html>

Petroleum Emissions:

U.S. EPA, National Center for Environmental Assessment. Health Assessment Document for Diesel Engine Exhaust.

<http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=29060>

U.S. EPA, Region 10. Alaska Native Village Air Quality Fact Sheet Series: Diesel Fuel Use. August 2010. http://www.epa.gov/region10/pdf/tribal/anv_diesel_aug2010.pdf

U.S. EPA, Region 10. Clean Air, Healthy Villages: Protecting Air Quality in Tribal Alaska Video Series. Diesel Emissions. http://www.epa.gov/region10/videos/anv/diesel_emissions.html

Wood Stove Emissions:

Alaska Division of Environmental Conservation (DEC), Division of Air Quality. Wood Stove Information. <http://www.dec.state.ak.us/air/anpms/pm/wshome.htm>

U.S. EPA, Region 10. Alaska Native Village Air Quality Fact Sheet Series: Wood Smoke. August 2010. http://www.epa.gov/region10/videos/anv/wood_smoke.html

U.S. EPA, Region 10. Clean Air, Healthy Villages: Protecting Air Quality in Tribal Alaska Video Series. Wood Smoke. http://www.epa.gov/region10/videos/anv/wood_smoke.html

U.S. EPA, Burn Wise. Best Burn Practices. <http://www.epa.gov/burnwise/bestburn.html>

Wildfires:

Alaska DEC, Division of Air Quality. Wildfire Smoke/Particulate Information.
<http://www.dec.state.ak.us/air/am/smoke.htm>

Alaska Section of Epidemiology. Fire and Smoke Health Concerns: Frequently Asked Questions. July 2004. http://www.epi.alaska.gov/eh/wildfire/FAQ_FireSmoke.pdf

Centers for Disease Control and Prevention (CDC). Fact Sheet: Wildfires.
<http://www.bt.cdc.gov/disasters/wildfires/facts.asp>

Wildfire Smoke: A Guide for Public Health Officials. July 2008.
<http://www.arb.ca.gov/smp/progdev/pubeduc/wfqv8.pdf>

Trash Burning:

State of Alaska. Burning Garbage & Land Disposal in Rural Alaska. May 2004.
<http://www.akenergyauthority.org/AEAdocuments/BurningGarbage.pdf>

U.S. EPA Region 10. Alaska Native Village Air Quality Fact Sheet Series: Solid Waste Burning. August 2010. http://www.epa.gov/region10/pdf/tribal/anv_waste_burning_aug2010.pdf

U.S. EPA Region 10. Clean Air, Healthy Villages: Protecting Air Quality in Tribal Alaska Video Series. Solid Waste Burning. http://www.epa.gov/region10/videos/anv/waste_burning.html

Alaska DEC, Solid Waste Program. Open Burning in Rural Alaska. April 2009.
<http://dec.alaska.gov/eh/sw/Factsheets/Docs/Open%20Burning%20in%20Rural%20Alaska.pdf>

Zender Environmental. Solid Waste Solutions in Rural Alaska.
http://www.zendergroup.org/docs/swsolutions_itep_zender.pdf

Natural Resource Development:

University of Colorado Law School. Intermountain Oil and Gas BMP Project.
http://www.oilandgasbmps.org/resources/air_quality.php

National Resources Defense Council. Oil and Gas Production: Clouding Western Skies.
<http://www.nrdc.org/energy/clouding.pdf>

Indoor Air Quality:

American Lung Association. Indoor Air Quality Toolkit. <http://iaq.aklung.org/>

U.S. EPA, Office of Air and Radiation. The Inside Story: A Guide to Indoor Air Quality.
<http://www.epa.gov/iaq/pubs/insidest.html>

U.S. EPA, Region 10. Alaska Native Village Air Quality Fact Sheet Series: Indoor Air. August 2010.
http://www.epa.gov/region10/pdf/tribal/anv_indoor_air_aug2010.pdf

U.S. EPA, Region 10. Clean Air, Healthy Villages: Protecting Air Quality in Tribal Alaska Video Series. Indoor Air Quality. http://www.epa.gov/region10/videos/anv/indoor_air.html