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Developing a Tribal Implementation Plan



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On the cover: The Cherry Creek Reservation of the Cheyenne River Sioux. Photo courtesy of the Cheyenne River Sioux (www.siox.org).

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Chapter 1

Introduction

What is the purpose of this document?

A Tribal Implementation Plan (TIP) is a set of regulatory programs your tribe can develop and adopt to help attain and/or maintain national air quality standards for six common air pollutants: carbon monoxide, nitrogen dioxide, sulfur dioxide, lead, particulate matter, and ozone. A TIP may be one part of a broader tribal air quality management program that may also include programs to enforce federal limitations on other pollutants, monitor air quality, inventory emissions, issue stationary source operating permits, and address indoor air pollution.

This document is intended to help tribal environmental staff assess the need for a TIP, explain the different program elements that a TIP may consist of, and contains Environmental Protection Agency's (EPA) suggestion on how to develop a TIP if a tribe chooses to do so. It also includes some preliminary interpretations of the statutory and regulatory requirements related to TIP preparation, adoption, submittal and approval. The discussion in this document is intended solely as guidance. While EPA has made every effort to ensure the accuracy of the discussion



The Magnificent Cheyenne River Valley. The Cheyenne River Valley is home to the Cheyenne River Sioux Tribe, in North Central South Dakota.

(Photo courtesy of Cheyenne River Sioux Tribe.)

in this guidance, requirements related to TIPs are determined by statute and regulations (see Chapter 2, "Implementation Plan Basics"). In the event of a conflict between the discussion in this document and any statute or regulation, this document would not be controlling.

Your Tribe and other interested parties are free to raise questions and objections about the substance of this guidance document and the appropriateness of any of these recommendations or interpretations in this guidance to a particular situation. EPA will consider whether or not the recommendations or interpretations in this guidance document are appropriate in any given situation. Any decision to apply a particular recommendation or interpretation will be made based on the applicable statutory and regulatory requirements. Accordingly, this document does not impose legally-binding requirements on EPA, Indian tribes, or any other party.

This document is a living document and may be revised periodically without public notice. EPA welcomes public comments on this document at any time and will consider these comments in any future revision of this document. While the primary audience is tribal environmental staff, this document can also serve to explain the federal air program to interested Tribal Councils and Leaders. The chapters are organized as follows:

- » Chapter 1 provides background information on the Clean Air Act and National Ambient Air Quality Standards, explains how a TIP protects these standards and relates to the rest of your tribe's¹ air quality management program, and lists some of the benefits of developing a TIP.
- » Chapter 2, *Characteristics of TIPs*, describes the unique qualities of TIPs and introduces the potential elements of a TIP.
- » Chapter 3, *Goal Setting & Data Gathering*, explains the national air quality designations; provides suggestions on what should be considered in setting up your air quality goals for your TIP; and presents two methods of

data gathering that can provide useful information to your tribe: emissions inventories and air quality monitoring.

- » Chapter 4, *Potential TIP Elements*, provides information on the regulations and programs that can be included in a TIP: maintenance and attainment strategies, preconstruction permitting programs, and regional haze plans.
- » Chapter 5, *Compliance and Enforcement*, has information on how regulated sources can measure and report emissions to demonstrate compliance, and how to develop an enforcement program.
- » Chapter 6, *TIP Adoption and Submission*, presents information on conducting public outreach, adopting your TIP, submitting your TIP to EPA for approval, and revising your TIP.

In addition to the resources presented throughout this document, there are appendices that provide national and regional EPA contact information (Appendix A), resources on all aspects of TIP development (Appendix B), and education and training resources (Appendix C). An acronym list and glossary are also provided.

The Clean Air Act

What is the Clean Air Act?

The Clean Air Act (CAA) was originally passed in 1970 and was the subject of substantial amendment, most recently in 1990.² The CAA: requires EPA to set national air quality standards for certain pollutants; requires EPA to develop programs to address specific air quality problems; establishes EPA's enforcement authority; and provides for air quality research. For most CAA programs, EPA establishes federal guidelines and gives the state or tribe regulatory authority flexibility in how it implements the programs. The CAA, as amended in 1990, now consists of the nine separate Titles listed in Table 1-1. A "plain English" guide to the CAA is available at www.epa.gov/oar/oaqps/peg_caa/pegcaain.html.

National air quality standards ensure that all Americans have the same basic health and environmental protections. The CAA allows individual states and tribes to have air pollution standards that are stronger than the national standards, but they are not allowed to have weaker standards. Congress recognizes in the CAA that it is sensible for states and tribes to take the lead in carrying out the CAA because air quality problems are best addressed by those who hold a special understanding of local industries, geography, housing patterns, and other local circumstances.

Table 1-1. Organization of the Clean Air Act Amendments

Title I	National Ambient Air Quality Standards
Title II	Mobile Sources
Title III	Hazardous Air Pollutants
Title IV	Acid Deposition (also known as Acid Rain)
Title V	Stationary Source Operating Permits
Title VI	Stratospheric Ozone & Global Climate Protection
Title VII	Provisions Regarding Enforcement
Title VIII	Miscellaneous Provisions
Title IX	Clean Air Research

Implementation Plans, and thus the bulk of this document, focus on the National Ambient Air Quality Standards. However, there are guidance documents and assistance available if your tribe is interested in implementing other CAA programs. Resources include:

- » EPA's Office of Air Transportation and Quality for information on mobile sources of air pollution (www.epa.gov/otaq/)
- » EPA's *United Air Toxics* website for information on hazardous air pollutants (www.epa.gov/ttn/uatw/)

- » EPA's *Operating Permits Program* website for information on Title V Major Stationary Source Operating Permits (www.epa.gov/oar/oaqps/permits/)
- » EPA's Office of Air and Radiation's website (www.epa.gov/oar/) or your regional EPA office (Appendix A) for information on other air quality programs
- » EPA's Office of Air and Radiation's website for Tribes (www.epa.gov/air/tribal)

What are the National Ambient Air Quality Standards?

The EPA established National Ambient Air Quality Standards (NAAQS) for six common air pollutants ("ambient" air is air to which the general public has access, as opposed to air within a facility or at a smokestack). There are NAAQS (pronounced "knacks") for carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), lead (Pb), particulate matter (PM), and ozone (O₃).³ Ozone is formed when ozone precursors [such as NO₂ and volatile organic compounds (VOC)] change into ozone in the atmosphere in the presence of sunlight; areas that do not comply with the ozone NAAQS regulate NO_x and VOC.

The NAAQS are based on comprehensive studies of available ambient air monitoring data, health effects data, and material effects studies. These studies are published in documents called *Air Quality Criteria Documents*, and these six pollutants are often referred to as "criteria" pollutants. The criteria pollutants can injure health, harm the environment, and cause property damage. Information about these pollutants, their health and environmental effects, and common sources that emit them, is provided in Appendix D.

Most pollutants regulated by the NAAQS have two limits. One limit (the "primary" standard) protects everyone - including children, people with asthma, and the elderly - from health risks. The other limit (the "secondary" standard) prevents unacceptable effects on the public welfare, e.g., unacceptable damage to crops and vegetation, buildings and property, and ecosystems. Table 1-2 presents the NAAQS standards.

Table 1-2 National Ambient Air Quality Standards (NAAQS) ^a

Pollutant	Averaging Time ^b	$\mu\text{g}/\text{m}^3$ ^c	ppm ^d	Primary or Secondary
Carbon Monoxide (CO)	8-hour	10,000	9.0	P
	1-hour	40,000	35.0	P
Nitrogen Dioxide (NO₂)	annual	100	0.053	P & S
Sulfur Dioxide (SO₂)	annual	80	0.03	P
	24-hour	365	0.14	P
	3-hour	1,300	0.50	S
Ozone (O₃)	8-hour	235	0.08	P & S
	1-hour	157	0.12	P & S
Lead (Pb)	quarterly	1.5	n/a	P & S
Particulate Matter (PM₁₀)^e	annual	50	n/a	P & S
	24-hour	150	n/a	P & S
Particulate Matter (PM_{2.5})^f	annual	15	n/a	P & S
	24-hour	65	n/a	P & S

^a The NAAQS is an allowable level of a specific pollutant found in the ambient air.

^b The time period over which emissions are averaged for purposes of determining attainment.

^c $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter of air

^d ppm = parts per million

^e PM₁₀ is particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.

^f PM_{2.5} is particulate matter with an aerodynamic diameter less than or equal to 2.5 micrometers.

Each NAAQS corresponds to a specific averaging time, and some pollutants have standards for more than one averaging time. The averaging time is the time period over which air pollutant concentrations are averaged for the purpose of determining attainment with the NAAQS. Air pollutants can be measured in either micrograms per cubic meter of air ($\mu\text{g}/\text{m}^3$) or in parts per million (ppm).

A geographic area that meets or does better than the primary standard is called an **attainment area**; areas that do not meet the standards, or that contribute pollution to nearby areas that do not meet the standards, are called **nonattainment areas**. An area may be designated attainment for some pollutants and nonattainment for others.

Tribal Air Programs and TIPs

*Under what authority can
Indian tribes adopt Clean
Air Act programs?*

The CAA, as amended in 1990, authorizes EPA "to treat Indian tribes in the same manner as states" under the CAA and instructed EPA to promulgate regulations to identify the CAA provisions for which it is appropriate to treat tribes in the same manner as states.⁴ Accordingly, EPA issued the Tribal Authority Rule (TAR).⁵ Under the TAR, Indian tribes can be treated in the same manner as states for CAA provisions related to implementation plans except for certain provisions identified in 40 C.F.R. §49.4. However, there are some §49.4 exceptions relevant to TIPs (for example, tribes are not required to comply with CAA Implementation Plan submittal deadlines) which are discussed throughout this document.

The EPA expects and hopes that many Tribes will wish to develop and implement their own CAA programs. However, Tribes are not required to adopt and implement all CAA programs, or, any CAA program at all.

The TAR also outlines the eligibility criteria tribes must meet in order to be treated in the same manner as a state,

and defines the process by which EPA will approve tribal CAA programs.

The CAA allows tribes to obtain the authority to run CAA programs for the regulation of "air resources within the exterior boundaries of the reservation or other areas within the tribe's jurisdiction" [CAA Section 301(d)(2)(B)]. Tribes have authority over all air resources within the exterior boundaries of their reservation (including non-Indian owned fee lands). For off-reservation areas, tribes must demonstrate the basis for jurisdiction. For the purpose of simplicity in this document, the word "reservation" will refer to all land within the exterior boundaries of the reservation and off-reservation areas determined to be under a tribe's jurisdiction.

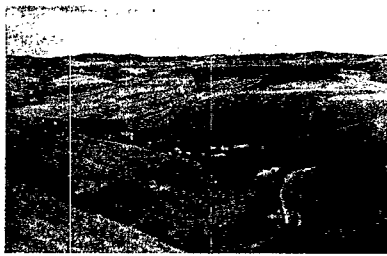
How does EPA determine whether an Indian tribe is eligible under the CAA to be treated in the same manner as a state?

In order to be treated in the same manner as a state under the provisions of the CAA, tribes must demonstrate that they meet certain eligibility criteria. The TAR outlines the eligibility criteria tribes must meet.

◇ **Request for
Determination of
Eligibility**

The TAR requires EPA to determine that a tribe is eligible to implement CAA programs (i.e., eligible for "treatment in the same manner as a state" for purposes of the CAA).⁸ Tribes can apply for eligibility determinations at the same time they submit their TIP for approval or as a prior, separate action. You should consider the range of CAA provisions relevant to your request for eligibility and discuss with your EPA Regional contact which provisions you may want to include in your request (e.g., all provisions or only specifically identified provisions). To become eligible, your tribe must:

- » Demonstrate federal recognition⁶
- » Demonstrate that it has a governing body carrying out substantial governmental duties and powers. This can be demonstrated by submitting a descriptive statement that your tribe is currently carrying out substantial governmental duties and powers over a defined area. This statement should:



Tribal Headquarters of the Nez Perce tribe, located in Lapwai, Idaho. The Nez Perce Reservation is approximately 761,000 acres and contains three Title V sources.

(Photo courtesy of Nez Perce Tribe.)

- > Describe the form of the tribal government
- > Describe the types of government functions currently performed by the tribal governing body, such as the exercise of police powers affecting or relating to the health, safety, and welfare of the affected population; taxation; and exercise of the power of eminent domain
- > Identify the source of the tribal government's authority to carry out the governmental functions currently being performed
- » Demonstrate that the functions your tribe is applying to carry out pertain to the management and protection of air resources within the exterior boundaries of your reservation (or other areas within the tribe's jurisdiction). This should be demonstrated with a descriptive statement of the tribe's authority to regulate air quality. For applications covering areas within the exterior boundaries of the reservation the statement must identify with clarity and precision the exterior boundaries of the reservation including, for example, a map and a legal description of the area. For tribal applications covering areas outside the boundaries of a reservation the statement should include:
 - > A map or legal description of the area over which the application asserts authority
 - > A statement by the tribe's legal counsel (or equivalent official) that describes the basis for the tribe's assertion of authority (including the nature or subject matter of the asserted regulatory authority) which may include a copy of documents such as tribal constitutions, by-laws, charters, executive orders, codes, ordinances, and/or resolutions that support the tribe's assertion of authority.⁷
- » Demonstrate that the tribe is reasonably capable of performing the functions your tribe is applying to carry out in a manner consistent with the terms and purposes of the CAA and all applicable regulations. This should

be done with a narrative statement describing your tribe's capability to administer effectively the programs for which it is seeking approval. For example, if your tribe is applying for a General Assistance Program (GAP) grant, your tribe has probably employed someone to write the grant proposal and carry out the work your tribe has proposed to do with that funding. A description of these people's job descriptions could be included in the narrative statement. As the TAR preamble points out, some tribes may not want to go through the expense of developing a CAA program without first being assured that they satisfy the "treatment as state" eligibility criteria. The TAR allows for that approach. Specifically, the TAR allows a tribe that does not already have substantial experience in managing an environmental program to potentially satisfy the capability requirement by submitting a plan for how it will acquire necessary management and technical skills. The EPA Regional Office can provide information on what else should be included.

If your tribe has previously received authorization to implement a CAA program or any other EPA-administered program, your tribe may satisfy the eligibility requirements by referencing the prior program authorization in your application and providing required information which has not been submitted in the previous application. For example, you may have to submit additional information to demonstrate your tribe's capability to administer the program you are seeking approval to carry out. It is generally expected that a program-by-program inquiry into the question of capability will be necessary since a Tribe may have capability to carry out certain activities but not others.

What is air quality management?

Air quality management refers to all the activities a regulatory authority undertakes to safeguard the air resources for which it is responsible. For your tribe, these activities may include:

- » Evaluating existing air quality
- » Setting air quality goals

- » Determining the emissions reductions necessary to reach these goals
- » Choosing control strategies to use to obtain those reductions
- » Implementing those strategies
- » Re-evaluating air quality and assessing results
(see Figure 1-1)

These steps can be used to address any air quality issue of importance to your tribe, such as indoor air pollution, acid deposition, or regional haze. However, only those strategies that address criteria pollutants would be part of your tribe's TIP.

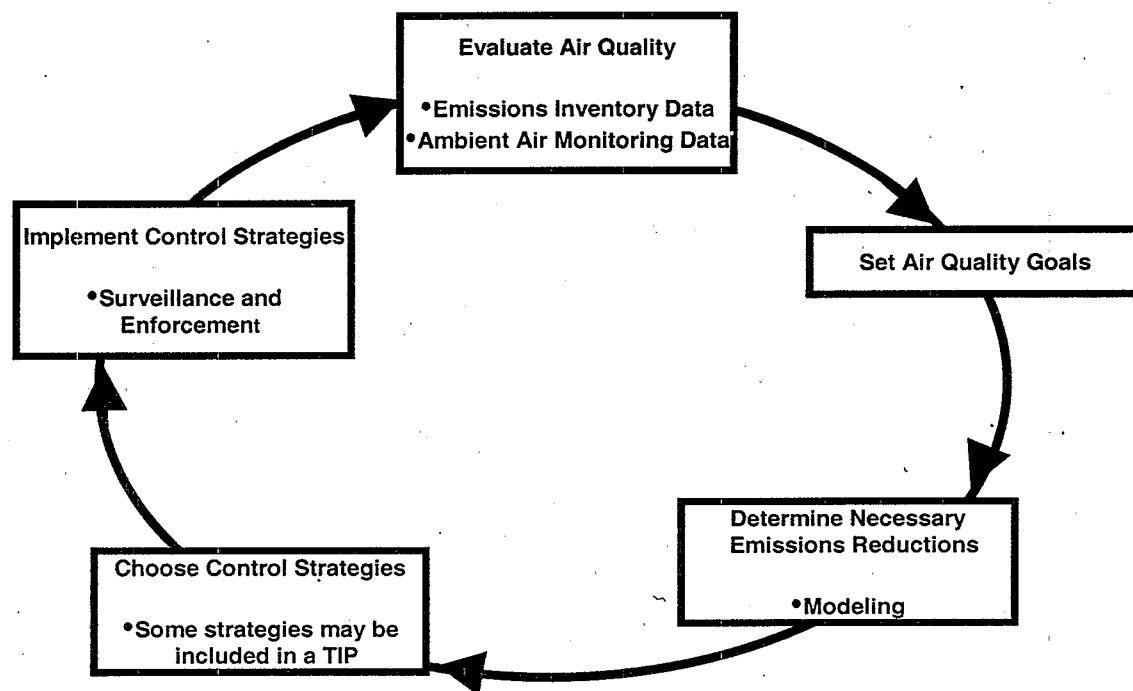


Figure 1-1. Flow diagram of the air quality management process.

How does a tribe start managing air quality?

Your tribe may be new to air quality management, or may already have an air quality management program in effect. In either case, knowledge of existing air quality in the vicinity of the reservation can help the tribe set air quality goals. You can use emissions inventories and ambient air

quality monitoring systems, discussed in Chapter 3, to evaluate existing air quality and identify sources of emissions on your reservation. The data you collect will help determine which pollutants, if any, the tribe should be concerned about.

Once the tribe knows the types of sources and pollutants affecting the area over which you may seek to run a TIP, a tribe may want to do some research. Different types of sources tend to emit different pollutants, and different pollutants have different effects on health, the environment, and property. For example, NO_x is a prime precursor to ozone, which may be harming public health on your reservation; NO_x often comes from large industrial furnaces. On the other hand, PM affects health and contributes to limiting the visibility of distant vistas; it is often generated by fossil fuel combustion, open burning, construction activities, and vehicles on unpaved roads. The goals the tribe sets and the strategies chosen will vary, depending on the pollutants and sources selected. Appendix D provides information on the environmental effects, health effects, and common sources of the criteria pollutants.

The National Ambient Air Quality Standards (NAAQS) for CO, NO₂, SO₂, Pb, PM, and O₃ are minimum air quality goals established by EPA under the CAA.

The data the tribe collects is just one factor a tribe can use to set air quality goals and priorities. The tribe may also want to consider tribal values, public health and environmental problems related to air quality, plans for economic development, and other issues of tribal concern. The NAAQS for CO, NO₂, SO₂, Pb, PM, and O₃ are minimum air quality goals established by EPA under the CAA. Depending on the existing air quality on your reservation and the other factors mentioned above, the tribe may want to set air quality goals more strict than the NAAQS and/or set goals to address other pollutants. There is more information on setting air quality goals in Chapter 3.

Once a tribe establishes its air quality goals, the tribe will need to determine the emissions reductions necessary to reach those goals. The tribe may use data collected through monitoring and an emissions inventory to model the effect of different changes in emissions. Chapter 4 presents a

methodology a tribe can use to determine the emission reductions needed if air quality exceeds the NAAQS. After establishing air quality goals and determining the necessary emission reductions, the tribe will need to decide which control strategies to use to obtain these emission reductions. To accomplish these reductions, you could decide to develop rules or form a cooperative agreement with the EPA. The control strategies your tribe chooses will depend on the types of pollutants your tribe is trying to reduce and the sources of those pollutants. Control strategies are discussed in more detail in Chapter 4.

Once your tribe begins implementing your control strategies, your tribe will need to ensure compliance. Ensuring compliance involves inspecting facilities and taking enforcement actions such as assessing penalties, if necessary. Chapter 5 presents information on compliance and enforcement.

After implementing your control strategies, your tribe should continue to monitor air quality to determine how successful the strategies are. Depending on the results you find, your tribe may decide to leave your program as it is, or your tribe may choose to revise your goals, targeted emission reductions, and/or control strategies.

There are many air quality issues a tribal air program can address, such as an operating permit program or hazardous air pollutants. The issues your program chooses to address will depend on local air quality, the sources of pollutants, and the particular air quality concerns and air quality goals of your tribe (see Figure 1-2).⁸

What is a TIP and how does it fit into a tribal air program?

The CAA requires the NAAQS to be met everywhere, and the primary purpose of an implementation plan (whether it is developed by a state, a tribe, or EPA), is to ensure that the NAAQS are attained and maintained. A TIP may be one part of your tribe's air program. A TIP is a tribe's plan

for improving its ambient air quality (if it is in violation of the NAAQS), for maintaining or improving its air quality (if it is already cleaner than the NAAQS), and/or meeting regional haze program goals. Although not required to do

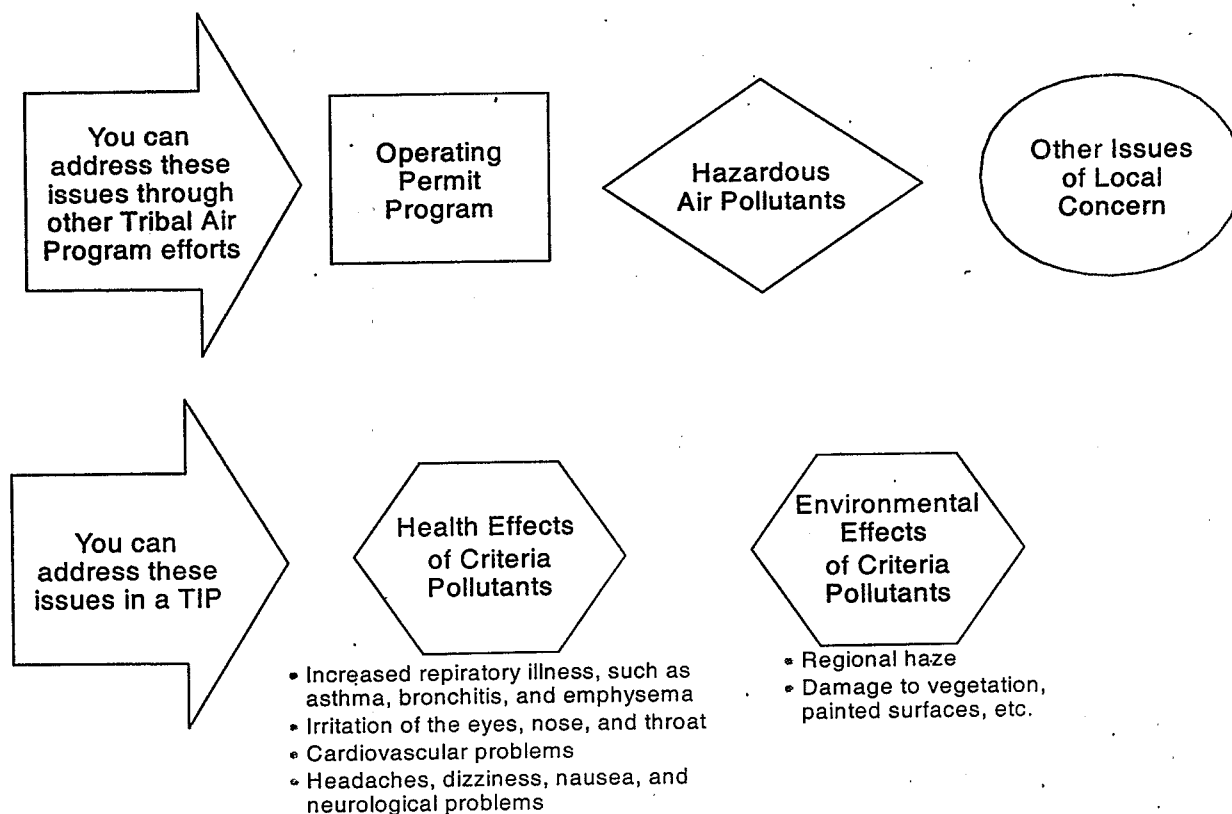


Figure 1-2. Potential Tribal Air Program Issues

so, your tribe may choose to develop a TIP.

A TIP can include:

- » A strategy to maintain or improve current air quality if it is better than the NAAQS
- » A strategy to attain the NAAQS if air quality violates the NAAQS
- » A preconstruction permitting program for new and modified major sources
- » A preconstruction permitting program for minor sources
- » A plan to attain regional haze goals

A TIP cannot include:

- » Hazardous Air Pollutants (HAPs) (Title III)⁹
- » Acid rain programs (Title IV)

- » Operating permit programs (Title V)
- » Stratospheric ozone protection programs (Title VI)
- » Rules to control non-criteria pollutants
- » Nuisance rules
- » Odor rules
- » Worker exposure rules

A TIP can be designed to respond to your tribe's particular air quality goals and values, and can be changed over time to reflect the changing air quality concerns of your tribe. The potential elements in a TIP are discussed in detail in Chapter 4.

What are the benefits of developing a TIP?

There are several benefits of developing a TIP:

- » A TIP can impact the natural environment and quality of life in the area over which it applies. A tribe that develops a TIP can play a more active role in managing tribal air resources and protecting the community's health.
- » A TIP can impact a tribe's culture. By developing a TIP, a tribe can use its goals, values, beliefs, and priorities to create air quality regulations and permitting programs for facilities in its approved TIP area.
- » A TIP enables a tribe to regulate emissions sources within the exterior boundaries of its reservation and other areas within the tribe's jurisdiction.
- » A TIP can impact the course of economic development in that area by helping the tribe fill the regulatory gap. This provides a stable regulatory environment which, in turn, encourages economic development for prospective sources of air pollution (i.e., new industrial facilities, manufacturing centers, resource extraction operations, and other new or expanding businesses that release air pollutant emissions). Since state regulations don't apply to Indian Country and EPA has not adopted federal regulations, a TIP also helps a tribe fill this regulatory gap under the CAA. Once a TIP is approved by EPA, its provisions become federally enforceable.

How does a tribe build the capability to develop a TIP?

Nationally, EPA supports a number of initiatives designed to help tribes develop air program capability, or capacity. For example, courses on various air pollution topics are provided through the American Indian Air Quality Training Program at Northern Arizona University. These courses are highly recommended if your tribe is interested in developing a tribal air program and are available on the ITEP website (www.cet.nau.edu/itep/).

Your EPA Regional Office provides information, technical assistance and financial resources to tribes developing environmental and air quality programs. One important source of financial assistance comes from the Indian Environmental General Assistance Program (GAP) Act, which authorizes EPA to award GAP grants. GAP funds are allocated to the EPA Regions by the EPA American Indian Environmental Office (AIEO) and are intended to help tribes build environmental program capability, generally. GAP grants may be used for planning, developing, and establishing environmental protection programs, which can include hiring staff and monitoring if necessary to plan, develop, or establish an environmental program. GAP grants cannot fund monitoring or assessments in support of implementation programs.¹⁰ Many tribes have begun air program development activities through GAP grants. GAP does not require tribal matching funds.

The CAA also authorizes EPA to award grants to support tribal air program activities. CAA grant funds are allocated to the EPA Regional Offices by the Office of Air and Radiation (OAR) and are intended to support tribes in all phases of air program development. Under CAA Section 103 project grants, tribes can hire and train staff to conduct research and monitoring, assess tribal air issues, monitor air quality, and plan future monitoring or regulatory development. Section 103 does not require tribal matching funds. CAA Section 105 program grants are designed to support established air pollution control agencies. Section 105 grants are for developing and implementing air pollution control programs. Tribes are encouraged to contact their EPA Regional Office for more information on these grant programs.

*What if your tribe chooses
not to develop a TIP?*

The EPA has a responsibility under the CAA and as part of its trust responsibility to ensure that public health and the environment are protected. The EPA also has the responsibility to work with tribal governments in a government-to-government relationship. In cases where a tribe does not have an approved TIP, EPA will promulgate, without unreasonable delay, such Federal Implementation Plan provisions as are necessary or appropriate to protect air quality.¹¹ EPA encourages tribes to provide assistance in the development of such provisions.

EPA has acted pursuant to this authority in several instances. For example, an area near Pocatello, Idaho, that included a portion of the Fort Hall Reservation, was designated as nonattainment for the PM₁₀ NAAQS in 1990.¹² In 1996, the Shoshone-Bannock Tribes began monitoring PM₁₀ concentrations on the Fort Hall reservation and determined that a large industrial facility located on the reservation was continuing to contribute to violations of the PM₁₀ NAAQS. The Tribes also determined that non-point sources on the reservation, such as open burning, unpaved roads, and agricultural activities, were contributing to the violations.

The Shoshone-Bannock Tribes believed that EPA would be better equipped to develop, implement, and enforce rules that would reduce emissions from the industrial facility because EPA had been working with the facility for several years.

Therefore, the Shoshone-Bannock Tribes asked EPA to draft a FIP for the facility, and worked with EPA to gather information on the industrial processes and emissions contributing to nonattainment in the area. It was also necessary to identify the reasonably available control measures for the processes, considering available technologies and their annualized costs. The EPA established emission limits for the facility, achievable with

reasonably available control measures, in 2000.¹³ In a separate action, EPA also proposed regulations for non-point sources in Indian country in the northwestern United

States that would apply to sources on the Fort Hall Reservation.¹⁴

Conclusion

The CAA requires NAAQS to be established for six common pollutants that are known to be harmful to human health, the environment, and property. A TIP is the mechanism a tribe can use to establish regulations to attain and/or maintain the NAAQS in the approved TIP area. Whether to adopt a TIP is a choice the tribe should consider in the context of its overall air program goals. If your tribe does not adopt a TIP, EPA will promulgate FIP provisions as are necessary or appropriate to protect air quality. The remainder of this document provides more information on how to set air quality goals, how to evaluate the air quality, what can be included in a TIP, and how to develop a TIP.

Endnotes

1. The term "your tribe" does not assume environmental staff are necessarily tribal members.
2. For more information on the CAA, see *The Plain English Guide to the Clean Air Act* at http://www.epa.gov/oar/oaqps/peg_caa/pegcaain.html.
3. The NAAQS are published in 40 CFR 50. For more information, see the Office of Air Quality Planning and Standards' NAAQS information page (www.epa.gov/airs/criteria.html) and criteria pollutant page (www.epa.gov/oar/aqtrnd97/brochure/sixprin.html). Information on NAAQS standards can be found at www.epa.gov/ttn/oarpg/t1main.html.
4. Section 301(d) of the CAA as amended in 1990 authorizes EPA to treat tribes in the same manner as states under the CAA.
5. The Tribal Authority Rule (TAR) was issued on February 12, 1998 (63 Federal Register 7254). The regulatory provisions of the TAR are codified at 40 CFR Part 49 (1999). See www.epa.gov/oar/tribal/airprogs/authrule/ for more information.
6. Demonstrating federal recognition can be done by demonstrating that your tribe is on the list of federally recognized tribes published by the Secretary of the Interior, available at www.doi.gov/bia/tribes/entry.html and in the Federal Register, March 13, 2000, vol. 65, number 49.

7. Information about a request by an Indian tribe for eligibility determination and Clean Air Act program approval can be found at 40 CFR Part 49.7.
8. For more information on air program development, see *Developing a Tribal Air Program, Training Manual* (April 1999) prepared by the Institute for Tribal Environmental Professionals, Northern Arizona University, and US EPA Region 6.
9. If necessary to implement a NAAQS program, a TIP could include HAPs (e.g., if there is a nexus with VOC or PM).
10. Detailed descriptions of the purpose of GAP and eligible activities can be found in the March 9, 2000 document *Indian Environmental General Assistance Program: Guidelines of the Award and Management of General Assistance Agreements for Indian Tribes*. This document is available on-line at <http://www.epa.gov/indian/pdfs/gap2000.pdf>
11. More information about Federal Implementation Plan provisions can be found in 40 CFR 49.11(a).
12. See Chapter 3 for more information on attainment and nonattainment designations.
13. For more information on these emission limits, see 40 CFR. 49.10701-10730, 65 FR 51412, August 23, 2000.
14. Reference Region X example regulations for Indian Country.

Chapter 2

Characteristics of Implementation Plans

This chapter explains what an implementation plan is, compares tribal implementation plans (TIPs) and state implementation plans (SIPs), introduces the technical information that can support a TIP and the potential elements of a TIP, and explains the other elements that may accompany a TIP when it is submitted to the Environmental Protection Agency (EPA). More detailed information about the technical information that can support a TIP (such as emission inventories and air quality modeling) is found in Chapter 3. More detailed information on the potential elements of a TIP is found in Chapter 4.

Implementation Plan Basics

What is an Implementation Plan?

As mentioned in Chapter 1, EPA established the National Ambient Air Quality Standards (NAAQS) for the six criteria pollutants to protect public health and the environment. An implementation plan is a set of programs and regulations developed by the appropriate regulatory agency in order to assure that these air quality standards are

attained and maintained. These plans can be developed by the state, tribe, or EPA, depending on which has jurisdiction in a particular area.

How do TIPs compare to SIPs?

The Clean Air Act (CAA) requires each state to adopt a SIP. Several sections of Title I of the CAA provide structured, mandatory requirements for SIP contents.¹ The EPA's requirements for SIPs are laid out in Title 40 of the Code of Federal Regulations (CFR) part 51. The SIP programs can reflect each state's particular needs and air quality issues, but they must meet certain federal standards. If a state fails to submit an approvable SIP within the schedules provided in the CAA, sanctions are imposed on the state and the EPA is required to develop and enforce a federal implementation plan (FIP) to implement the applicable CAA requirements for that state.

Section 301(d) of the CAA as amended in 1990 and as implemented through the Tribal Authority Rule (TAR), provides for tribal implementation of CAA programs. Tribes can choose to implement certain CAA programs by developing a TIP. TIPs are different from SIPs. TIPs:

- » Are optional
- » Are modular
- » Have flexible submission schedules
- » Allow for joint tribal and EPA management

◇ **TIPs are optional**

The CAA requires each state to adopt a SIP. Unlike states, tribes are not required to adopt an implementation plan. In the Tribal Authority Rule, EPA recognized that not all tribes will have the need or the desire for an air pollution control program. Where tribes elect not to develop a TIP EPA will adopt, without unreasonable delay, such Federal implementation plan provisions as are necessary or appropriate to protect air quality. However, where tribes elect to adopt rules to regulate sources of criteria air pollutants under their jurisdiction, these rules will form the core of a TIP.

◇ **TIPs are modular**

The TAR offers individual tribes the flexibility to include in a TIP only those TIP elements that address their specific air quality needs and that they have the capacity to manage.

The modular approach gives the choice to adopt only the TIP elements considered most relevant to the air quality needs of each tribe and that each tribe has the capacity to manage.

Under this modular approach, the TIP elements the tribe adopts must be “reasonably severable” from the package of elements that can be included in a whole TIP.

“Reasonably severable” means that the elements selected for the TIP are not integrally related to elements that are not included in the TIP, and are consistent with applicable CAA and regulatory requirements.²

TIP elements are discussed in more detail in the next section of this chapter and in Chapter 4.

◇ **TIPs have flexible submission schedules**

Neither the CAA nor the TAR requires tribes to develop TIPs. Therefore, unlike states, tribes are not required to meet the implementation plan submission deadlines or attainment dates specified in the CAA. Tribes can establish their own schedules for developing TIP elements (e.g., regulations to limit emissions of a specific air pollutant) and submitting them to EPA. Tribes will also not face sanctions for failing to submit or for submitting incomplete or deficient TIPs.

Once TIP elements are approved, EPA will expect tribes to diligently implement them. Therefore, tribes should work with their EPA Regional Offices to develop schedules to expeditiously implement the regulations and programs included in TIP elements. If a tribe fails to implement an approved regulation or program, EPA may exercise its authority to enforce the TIP. EPA could also sanction the tribe (e.g., withhold grant funds) for failing to implement an approved program.³

◇ **TIPs allow for joint tribal and EPA management**

Joint management can be helpful because it allows tribes to concentrate on specific areas of interest or need. Tribes can revise a TIP and take on or give back programs based on changes in tribal need or capacity. The EPA may regulate emission sources that the tribe chooses not to include in a TIP if it is necessary or appropriate to adequately protect air quality. The EPA may also promulgate federal regulations initially through a FIP, and later approve tribal rules covering particular types of sources or activities in a TIP.

This type of joint management should result in a program fully protective of tribal air resources.

For example, your tribe may initially want to adopt and implement rules for open burning and construction activities to address particulate matter concerns, but defer regulation of industrial sources of emissions to EPA. At a later date, your tribe may decide to adopt rules for industrial sources of emissions as well. This modular approach would allow for an easy transition from the federal industrial source rules to the tribal rules. When the tribal rules are approved, they become the federally enforceable requirements and replace the existing FIP requirements.

It is important to remember that as part of your tribe's overall air program, the tribe may develop requirements that are not part of your TIP. These requirements can support other environmental and cultural issues that are important for the tribe and do not have to be approved by EPA. For example, a tribe may want to adopt regulations on residential wood combustion or open burning (as many tribes have already done).

***Where are the Statutory and
Regulatory Requirements
for a TIP?***

Title I of the Clean Air Act contains the requirements that SIPs and, as appropriate, TIPs must meet.⁴ However, in some instances these regulatory requirements may be inconsistent with the Clean Air Act as amended in 1990, and to facilitate SIP development under the amended CAA, EPA has issued several guidance documents that may be useful to consult if you are developing a TIP.

Your tribe should also review EPA's Tribal Authority Rule (TAR) [40 CFR Part 49] which has specific provisions regarding TIPs. In addition, the preamble notices accompanying the proposed and final TAR provide guidance regarding TIP requirements.⁵

It is important to keep in mind that TIP requirements may vary depending on the specific TIP elements your Tribe intends to adopt. For this reason, and in light of the large body of potentially applicable requirements, EPA strongly encourages you to speak with your Regional contact to determine the requirements that may apply to your specific

TIP. Your EPA Regional contact can also identify other relevant guidance documents that may be useful for you to consult as you develop your TIP.

Developing a TIP

What technical information do you need to develop a TIP?

Information on existing emissions and ambient air quality in the area over which your tribe seeks to run a TIP will help determine your air quality goals and which TIP elements to develop. Two mechanisms for obtaining such data, emissions inventories and air quality monitoring, are introduced below and discussed in greater detail in Chapter 3.

◇ Emissions Inventory

An emissions inventory is a quantitative list of the amounts and types of pollutants that are entering the air from each source on your reservation. Your inventory may be comprehensive, looking at all pollutants, or focused on only selected pollutants of concern. The fundamental elements in an emissions inventory are the characteristics and locations of the sources, as well as the amounts and types of pollutants emitted. A tribe may want to develop an emissions inventory to help identify air pollution concerns and determine the air quality goals your tribe wants to address in your TIP.

◇ Air Quality Monitoring



An air monitoring station at the Tribal Air Monitoring Support (TAMS) Center in Las Vegas.

The concentration of various air pollutants can be measured using devices called monitors. Monitoring data collected on or in the vicinity of your reservation can help determine if the existing air quality on your reservation meets the NAAQS and set air quality goals. Your tribe may monitor the short-term and annual concentrations of pollutants that your tribe is concerned about to determine if those concentrations are above or below the NAAQS.

Alternatively, if your tribe decides not to develop an air quality monitoring network, it may be able to utilize air quality data from nearby monitors operated by other entities such as states, regional planning organizations, or the federal government. And, your tribe can still develop a TIP without already having monitoring data as some TIP elements, such as regional haze plans, can be developed

What are the potential elements in a TIP?

without knowing the exact current concentrations of pollutants on the reservation.

The CAA and TAR give EPA broad discretion in approving TIPs to address the specific air quality problems and circumstances of individual tribes. As described above, a TIP can address one or more relevant criteria pollutants, and may include selected elements of a complete NAAQS implementation plan, provided those elements are reasonably severable from the other CAA elements not included in the TIP. The potential elements of a TIP are:

- » Maintenance strategies
- » Attainment strategies
- » Source preconstruction permits
- » Regional haze plans

The EPA believes these elements are "reasonably severable" from each other and can be approved for tribes to implement. These elements are briefly described below; more detailed descriptions are provided in Chapter 4. Tribes may elect to develop TIPs that include one or several of these elements. Elements that are initially excluded from a TIP can be included at a later date. The EPA expects that in some cases, a TIP may need to be supplemented with a FIP if it is necessary or appropriate, to protect air quality.

**◇ Maintenance Strategy
(for areas that attain the
NAAQS or are
unclassifiable)**

In an attainment area, the air quality is as clean as or cleaner than the NAAQS for all of the criteria pollutants.⁶ Areas for which there are insufficient air quality data to determine if the NAAQS are met may be designated "unclassifiable" and are treated as attainment areas. If your reservation is in an attainment or unclassifiable area, a goal of your TIP could be to maintain that good air quality. The reservation does not need a NAAQS designation however, for your tribe to develop a TIP. A maintenance strategy includes:

- » Enforceable emission limits for existing emission sources and

- » Evidence the emission limits are adequate to prevent NAAQS violations on the reservation and in other jurisdictions
- » Schedules for implementing emission limits expeditiously

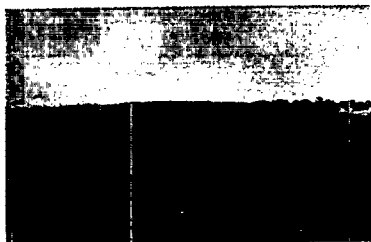
Tribes may submit a TIP that includes enforceable emission limits and compliance schedules for a single source, and not include evidence that the emission limits are adequate to prevent NAAQS violations in other jurisdictions. The EPA can fully approve such TIP elements as progress toward developing a more complete implementation plan that meets the tribes air quality goals. The EPA may also evaluate whether the emission units are adequate to prevent NAAQS violations, if necessary and appropriate.

Construction of new sources on the reservation could add enough emissions that the goal of the TIP to maintain the NAAQS would not be met. Therefore, the tribe may also want to include in their TIP source preconstruction permit programs, one of the next severable elements discussed.

◇ **Attainment Strategy
(for areas that are in
nonattainment for
NAAQS)**

A goal of a TIP in an area with air quality worse than the NAAQS for some criteria pollutants (a "nonattainment" area) would be to reduce the concentrations of those pollutants below the NAAQS.⁶ The EPA and the tribe can work together to develop an attainment strategy for a nonattainment area. An attainment strategy generally includes:

- » Enforceable emission limits that will require application of at least Reasonably Available Control Measures (RACM) or Reasonably Available Control Technology (RACT) for existing sources
- » Evidence the emission limits are adequate to prevent NAAQS violations on the reservation and in other jurisdictions (an "attainment demonstration")
- » Schedules for implementing emission limits and evidence that the compliance schedules will produce



The Dexter Road Project of the Oneida Tribe of Indians of Wisconsin. The Oneida Reservation contains approximately 65,000 acres. The Dexter Road Project involves native grassland restoration and reforestation. (Photo courtesy of the Oneida Tribe of Indians of Wisconsin.)

annual reductions in emissions until the NAAQS are met

- » Additional regulation to achieve emission reductions beyond those necessary to meet the NAAQS, to be held in reserve and used only if the primary regulations do not result in attainment of the NAAQS ("contingency measures")

Tribes may submit a TIP that includes enforceable emission limits and compliance schedules for a single source, and not include evidence that the emission limits are adequate to prevent NAAQS violations. The EPA can fully approve such TIP elements as progress toward developing a more complete implementation plan that meets the tribes air quality goals.

When tribal lands are part of a multi-jurisdictional area, if the tribe does not show that the emission limits in their TIP are adequate to prevent NAAQS violations, EPA will review the emission limits and compliance schedules to assure that they will not interfere with the overall plan to attain the NAAQS in the area. In cases where sources on tribal lands would interfere with an area meeting its attainment date, EPA will develop a FIP to reduce emissions from those sources, where necessary and appropriate, since the tribe is not required to meet the attainment date.

Construction of new sources on the reservation could add enough emissions that the goal of the TIP to attain the NAAQS would not be met. Therefore, the tribe may also want to include in their TIP source preconstruction permit programs, the next severable elements discussed.

The ambient air quality on the reservation may violate the NAAQS because emissions from sources located outside of your reservation are transported there. Sources of pollutants outside the TIP area may be a concern if your reservation is adjacent to or surrounded by a nonattainment area, or if it is downwind of major sources of emissions that are not under your tribe's jurisdiction. Although your tribe can only regulate sources in the area covered by its

approved TIP, the *Regional Air Quality* section in Chapter 4 describes ways your tribe can address this problem.

◇ **Source Preconstruction Permit Programs**

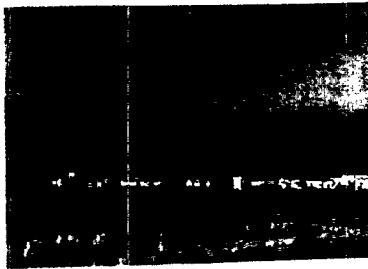
The CAA provides for programs to review and permit new major sources and major modifications to existing sources as part of an overall strategy to attain or maintain the NAAQS.⁶ These programs are collectively known as New Source Review.

- » The Prevention of Significant Deterioration (PSD) program is a federal program for attainment and unclassifiable areas. Under this program, new major sources and major modifications to existing sources must obtain a PSD permit before construction.⁷ Tribes can adopt a PSD program of their own that meets EPA requirements, or a tribe can accept delegation to manage the federal PSD program.
- » The nonattainment New Source Review (NSR) program is for nonattainment areas. Tribes can adopt statutory requirements for an NSR program of their own to regulate emissions from new major sources and major modifications to existing sources. In the future, when EPA establishes a federal nonattainment NSR program tribes will be able to accept delegation to manage that program.

Tribes in attainment, unclassifiable, and nonattainment areas may also develop a minor New Source Review program (minor NSR). With a minor NSR program, enforceable emission limits are established for minor new sources to limit the source's potential to emit,⁸ help attain or maintain the NAAQS, and help prevent significant deterioration of air quality. EPA is continuing to develop a federal minor NSR rule and anticipates that it will include a provision for delegation of the federal program to interested tribes.

◇ **Regional Haze Plans**

The purpose of regional haze plans is to improve visibility in mandatory federal Class I areas (primarily national parks and wilderness areas). In 1999, EPA issued regional haze regulations that require states to work together specifically to improve regional haze. Five regional planning



Your tribe may wish to develop a regional haze plan in order to protect or improve visibility.

What elements must accompany a TIP?

Conclusion

organizations were established to analyze the nature and causes of regional haze in mandatory federal Class I areas, evaluate potential emission reduction strategies for meeting the goals of EPA's Regional Haze Program, and generally facilitate the exchange of information among all participating governments (see Appendix E, *A Guide to Regional Air Quality Planning Organizations*).

The tribe may wish to include regional haze plans as part of its TIP if it is concerned about diminished visibility or if sources on your reservation contribute to haze in a federal Class I area. Tribes are encouraged to participate in these regional planning organizations regardless of whether they include regional haze plans in their TIPS. Participating in the regional planning organization would help the tribe learn about current developments in the area and allow the tribe to coordinate your efforts with those of other governments. Such participation will ensure tribal positions are considered in discussions of regional air quality for regional haze.

There are three elements that must accompany a TIP when it is submitted to EPA for approval: a request for a determination of eligibility; administrative elements; and a demonstration of enforcement authority. The request for a determination of eligibility is outlined in Chapter 1, Section "Tribal Air Programs and TIPS". A discussion of administrative elements⁹ can be found in Chapter 6, Section "What needs to be submitted to EPA along with your TIP?" A discussion of enforcement authority can be found in Chapter 5. A sample submission checklist is provided as Appendix K.

TIPs can be flexible enough to meet tribal needs while ensuring the NAAQS are attained and maintained. Your tribe can choose to adopt only those TIP elements that best address its air quality needs and that it has the capability to administer.

Setting air quality goals and gathering data to inform those goals is described in Chapter 3. The potential elements of a TIP - maintenance and attainment strategies, source preconstruction permit programs, and regional haze plans -

are described in Chapter 4. Compliance strategies and enforcement programs are described in Chapter 5.

Endnotes

1. The SIP requirements are established in the CAA section 110(a), Part C (*Prevention of Significant Deterioration*), and Part D (*Plan Requirements for Nonattainment Areas*). The EPA's SIP regulations are codified in 40 CFR parts 51 and 52.
2. The requirement that program elements be "reasonably severable" is set forth in the Tribal Authority Rule (TAR) at 40 CFR 49.7(c).
3. Once a TIP is approved, a tribe may be subject to sanctions when EPA determines that a requirement of the approved TIP is not being implemented. CAA section 179(a)(4).
4. See CAA Section 110, Sections 160-169, Sections 171-192, and 40 CFR Parts 51 and 52 for identifying requirements for the preparation, adoption, and submission of Implementation Plans.
5. The Tribal Authority Rule notices can be found at 63 Federal Register 7254, and 40 CFR Parts 9, 35, 49, 50, and 81.
6. See Chapter 3 of this document for more information on attainment, nonattainment, and unclassifiable air quality designations. Keep in mind that an area may be in attainment for some pollutants and in nonattainment for others. If this is the case on your reservation, the tribe may want to develop a maintenance strategy for some pollutants and an attainment strategy for others.
7. In general, major sources are sources that emit over a certain amount of a pollutant (the "major source threshold" for that pollutant); minor sources are sources that emit less than that amount. The major source threshold can vary depending on the particular pollutant and the air quality status of the area. For example, in an area designated attainment or unclassifiable for a particular NAAQS, a major stationary source is defined as any source that emits, or has the potential to emit, 250 tons per year (or, for specific types of sources, 100 tons per year) of that NAAQS pollutant subject to regulation under the CAA.

For attainment and unclassified areas, the definitions of major source and major modification are given in 40 CFR 51.166(b)(1) and (2), respectively. For nonattainment areas, the definitions of major source and major modification are given in 40 CFR 51.165(a)(1)(iv) and (v), respectively. For serious PM nonattainment areas, the definition of a major source is in the CAA section 188. For moderate, serious, severe, or extreme ozone nonattainment areas, the definition of major source is in the CAA

section 182(b), (c), (d), and (e), respectively.

8. A source's "potential to emit" estimate is based on its maximum capacity after taking into consideration enforceable permit conditions, such as the type of materials combusted, the type of materials processed, and the annual hours of operation.
9. More information on the criteria EPA uses to determine the administrative completeness of implementation plans can be found in 40 CFR 51 Appendix V.

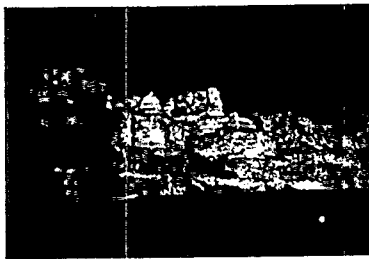
Chapter 3

Goal Setting & Data Gathering for a TIP

Since a Tribal Implementation Plan (TIP) only addresses the criteria pollutants regulated by the National Ambient Air Quality Standards (NAAQS), it may be just one part of a broader tribal air program that is concerned with many different pollutants and air quality problems. This chapter explains the federal air quality designations based on the NAAQS, and discusses what your tribe should consider when setting its air quality goals in relationship to the NAAQS. Technical information can help the tribe evaluate the air quality on your reservation, set air quality goals, and determine the most appropriate control measures for meeting those goals. This chapter also discusses two tools for gathering such information: emissions inventories and air quality monitoring systems.

Air Quality Designations

How is air quality classified in relationship to the NAAQS?



Bighorn Canyon National Recreation Area, MT & WY
Established by an act of Congress on October 15, 1966, the Bighorn Canyon National Recreation Area houses the Yellowtail Dam. Named after the famous Crow chairman Robert Yellowtail, the dam harnesses the waters of the Bighorn River. (National Parks Service)

The Clean Air Act (CAA) section 107(d) establishes three air quality designations relative to the NAAQS:

- » **Nonattainment** - any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the primary or secondary NAAQS for the pollutant
- » **Attainment** - any area (other than an area identified as being in nonattainment) that meets the primary or secondary NAAQS for the pollutant
- » **Unclassifiable** - any area that cannot be classified on the basis of available information as meeting or not meeting the primary or secondary NAAQS for the pollutant

EPA is generally required by the Clean Air Act to make designations for the entire country 2 to 3 years after each new standard is adopted.¹ However, for the 8-hour ozone standard and PM_{2.5} NAAQS, Congress established specific schedules and EPA is now moving forward with implementation and rules for the PM_{2.5} and the 8-hour ozone standards. It is the EPA's intent to promulgate designations for those standards after 2003. A variety of tools are used to determine the designation for an airshed area, including nearby monitors, modeling, or other methods to determine if an area is or is not meeting the standard. Air pollutant modeling has proven that some pollutants can be transported great distances. Therefore, it is possible that relatively rural areas (e. g. Indian country) with no nearby sources of air pollutant emissions may not meet the NAAQS. An area can be in attainment for some pollutants and in nonattainment for others. In some cases when there is insufficient air quality data to determine whether an area meets the NAAQS, the area may be designated as "unclassifiable." Such areas are treated in the same manner as an attainment area. The

attainment/nonattainment status of your reservation may influence your air quality goals.

Some areas in the eastern US that are designated attainment are treated in the same manner as nonattainment. In the 1990 CAAA these areas were established by Congress as the Ozone Transport Region. The Region is comprised of the States of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and the Consolidated Metropolitan Statistical Area that includes the District of Columbia..

◇ Attainment Areas

The CAA establishes three classes of attainment/unclassifiable areas, Class I, II, and III.² Class I areas are held to the strictest air pollution standards. "Federal Class I" areas are the Class I areas that were created in the CAA. These areas include national wilderness areas and national memorial parks greater than 5,000 acres, national parks greater than 6,000 acres, and international parks. Additional areas have since been reclassified as Class I areas, including some Indian reservations.

Class II areas initially were all those areas that were in attainment or unclassifiable that were not established as federal Class I areas. Class II areas can be redesignated as Class I and receive greater air quality protection; information on that process is found later in Chapter 4 in the section on Regional Air Quality. Class II areas can also be redesignated as Class III areas, which allows for more intensive development and greater emissions of criteria pollutants.

◇ Nonattainment Areas

The 1990 CAA Amendments require nonattainment areas in states to be further classified for some pollutants, depending on the severity of the air pollution problem.³ Areas designated nonattainment for the 1-hour ozone standard are divided into five classifications, depending on the ambient air quality: marginal, moderate, serious, severe, and extreme.⁴ The regulatory requirements increase for each class of nonattainment area, with extreme ozone nonattainment areas having the most stringent set of

requirements. Attainment deadlines also vary from 3 years for marginal areas to 20 years for extreme areas.

Carbon monoxide and particulate matter (with a diameter less than or equal to 10 micrometers; PM_{10}) nonattainment areas are classified as either moderate or serious.⁵ Each class of nonattainment area has different regulatory requirements and attainment deadlines. As with ozone nonattainment areas, tribes have the flexibility to work with EPA to ensure that appropriate regulatory requirements are applied to Indian country sources.

For lead, sulfur oxides, and nitrogen dioxide nonattainment areas there are no further classifications. Currently, there are no nitrogen dioxide nonattainment areas.⁶

To find out if your tribe's reservation is in or near a nonattainment area, your tribe can consult the Green Book - Nonattainment Areas for Criteria Pollutants. The Green Book contains nonattainment areas by county which could be helpful in determining air quality if your tribe submits a designation recommendation to EPA (see below). Online, The Green Book can be found at <http://www.epa.gov/oar/oaqps/greenbook>. The Green Book also contains pertinent Federal Register notices.⁷

How are air quality areas determined?

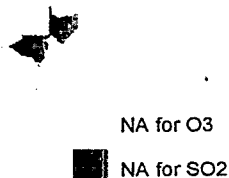


Figure 3-1. Multiple nonattainment (NA) areas within a larger NA area. This map shows two SO_2 NA areas inside the Pittsburgh-Beaver Valley ozone NA area.

For states, after the promulgation of a new or revised NAAQS, the Governor of each state is required to submit to the EPA a list of recommendations for all areas that are in nonattainment, attainment, or are unclassifiable with respect to the new or revised standards. A state recommendation for designation of an area including or adjoining an area of Indian Country does not necessarily determine the designation for that area of Indian country. However, the conditions that support the state's designation recommendation, such as air quality data and the location of sources, may indicate the likelihood that similar conditions exist in that area of Indian Country.

Tribes are encouraged, but not required, to submit designation recommendations for their reservations, or other areas under their jurisdiction, to EPA. In cases where tribes do not make recommendations, the EPA, upon

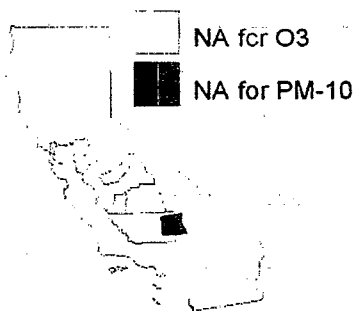


Figure 3-2. Overlapping NA areas. This map shows the Searles Valley PM₁₀ NA area which partially overlaps the San Joaquin Valley ozone NA area.

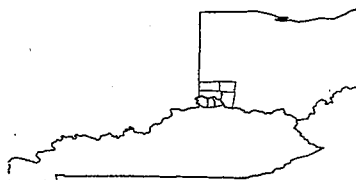


Figure 3-3. A NA area in more than one state. This map shows the Cincinnati-Hamilton moderate O₃ NA area, which overlaps the states of Ohio and Kentucky.

consultation with the respective tribe(s), will promulgate the designation it deems appropriate.⁸ If a tribe chooses to recommend a designation, EPA will consult with the affected tribe if EPA wishes to modify the recommendation.

Designations tell the public about the nature of the air quality in a given area for one pollutant. The EPA in the past has used political or physical boundaries as the default boundaries for area designations. Political boundaries could include Metropolitan Statistical Area (MSA) or Consolidated Metropolitan Statistical Area (C/MSA) boundaries, county or Indian Country boundaries. MSAs and C/MSAs are often used as useful default boundaries for urban areas which capture a densely populated and socially and economically integrated area. Physical boundaries such as a watershed, valley, or mountain range, may also define a designation area.

Designation boundaries can be larger or smaller than any area of Indian Country, county, or urban area. A tribe may want to recommend larger area boundaries, for example, if sources outside their reservation or other areas under their jurisdiction contribute to violations within such areas. On the other hand, a tribe may want to recommend smaller boundaries, for example, if a proposed nonattainment area covers multiple air basins or includes counties or areas of Indian Country which are rural in nature. It is possible for several small nonattainment areas for one pollutant to be found inside one larger one for a different pollutant (see Figure 3-1), for two areas designated nonattainment for different pollutants to overlap (see Figure 3-2), or for a nonattainment area to encompass area in more than one state (see Figure 3-3).

Some of the factors tribes may wish to consider when submitting nonattainment area boundary recommendations, rather than C/MSA boundaries, particularly in Indian country that may not have adequate or any air quality monitors, include:

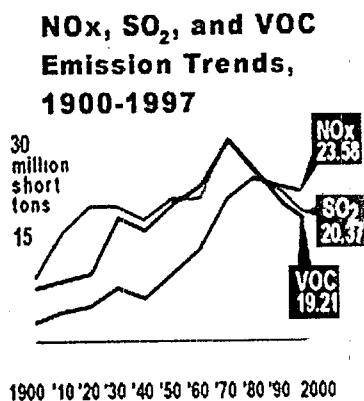
- » Location of and data from nearby air quality monitors
- » Geographic location of the land

- » Proximity to the nearest designated nonattainment area
- » Prevailing meteorology
- » Location of nearby emissions sources both inside and outside the area
- » Population density
- » Degree of urbanization on or nearby the area (including existing and future commercial and industrial development)
- » Current level of emissions control
- » Expected future growth of emissions sources

Air Quality Goals

What should be considered in setting air quality goals for your TIP?

The existing air quality on your tribe's reservation is the most important factor in determining the goals for your TIP. Diverse factors can affect air quality on reservations. Some reservations are adjacent to urban areas and are affected by pollutants from the urban area as well as sources within their boundaries. Other reservations are more rural, and may or may not have sources of pollutants within their boundaries. Because pollutants can travel great distances, reservations may also be affected by emissions from sources far outside their boundaries.



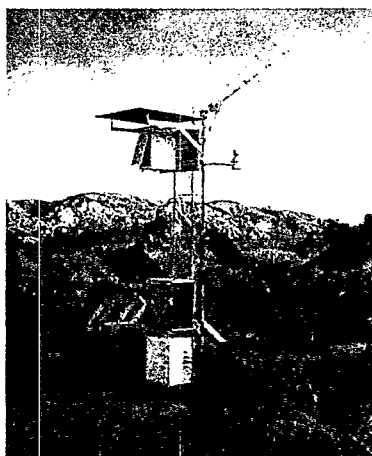
National emission trends.⁹

Two measures of the existing air quality are the concentrations of the criteria pollutants (particulate matter, ozone, sulfur oxides, nitrogen dioxide, carbon monoxide, and lead) and the impaired view of distant vistas. For those pollutants with concentrations below the NAAQS, the tribe would develop a TIP to specify the actions that will maintain good air quality and prevent deterioration of air quality. For those pollutants with concentrations above the NAAQS, the tribe would develop a TIP to specify the actions the tribe could take to reduce the emissions from sources on the reservation. If there are some pollutants that meet the NAAQS and others that violate the NAAQS, or if the tribe does not know about the air quality, a tribe may develop both types of TIPs, one to maintain air quality and one to improve it, depending on the pollutant.

In addition to the existing air quality on your reservation, other factors to consider when setting air quality goals include: the importance or value of clean air and clear

vistas to the members of your tribe and the tribal economy; the existing sources and types of air pollutants on or near your reservation; public health or environmental problems related to air quality; and the potential for new air pollution sources to locate on your reservation. You may also want to develop air quality standards that are more stringent than the NAAQS for criteria pollutants. Tribes can also develop air quality goals for non-criteria pollutants to address their particular social, cultural, and environmental needs; these goals and strategies to meet them would not be included in a TIP.

What are some typical initial air quality goals?



Air quality monitoring equipment.

This is an Optec NGN-2 nephelometer operated with solar power in the Mojave Desert. Also on the tower are an air temperature sensor, datalogger, and data collection platform with antenna.

(Photo courtesy of Air Resource Specialists, Inc.)

Your preliminary air quality goal may be to assess the current situation on your reservation by developing an emissions inventory and establishing an air quality monitoring network. An **emissions inventory** is a list of facilities and activities that cause air pollution, including the types and amounts of pollutants emitted from those activities. An **air quality monitoring network** is one or more sites where instruments are located to sample the air continuously, daily, or periodically. Meteorological stations often are part of air quality monitoring networks. Monitoring data can be used to determine the concentrations of pollutants in your communities, and which of the NAAQS, if any, are being violated. Information on emissions inventories and air quality monitoring is provided later in this chapter.

If your tribe has good reason to believe that existing pollutant concentrations are below the NAAQS (e.g., there are no significant sources of air pollution on your reservation or in adjacent areas), your goal may be to develop maintenance strategies for one or more air pollutants. The goal of a maintenance strategy is to limit air pollutant emissions so as to maintain pollutant concentrations at levels below the NAAQS. If there are significant sources of air pollution on your reservation, or in adjacent areas, the existing concentrations of some pollutants may violate the NAAQS. If this is the case, your goal may be to develop an attainment strategy to reduce the concentrations of those pollutants to levels below the NAAQS. For more information on these options, see Chapter 4.

How can nonattainment areas be redesignated as attainment areas?

Requirements for Redesignation from Nonattainment to Attainment:

- » NAAQS attained
- » EPA has approved the implementation plan
- » Improvements in air quality are permanent and emissions reductions are enforceable
- » EPA has approved the maintenance plan
- » All applicable requirements in the attainment strategy are met

A nonattainment area can be redesignated to attainment if the following conditions are met:¹⁰

- » The EPA must determine that the NAAQS are attained based on an appropriate demonstration, which could include air quality modeling
- » The applicable implementation plan must be fully approved by EPA as meeting all applicable requirements
- » The EPA must determine that improvements in air quality are due to permanent and enforceable reductions in emissions; attainment resulting from temporary reductions in emissions rates (such as reduced production, shutdown, or temporary adverse economic conditions) or unusually favorable meteorology would not qualify
- » The EPA must fully approve the maintenance plan under the CAA section 175A. Maintenance plans may be submitted prior to or at the same time as the redesignation request. Section 175A defines the general framework of a maintenance plan, which must provide for maintenance of the relevant NAAQS in the area for at least 10 years after redesignation. The core provisions that should be included to ensure maintenance of the relevant NAAQS are:
 - › An attainment emissions inventory
 - › A maintenance demonstration showing future emissions will not cause a violation of the NAAQS
 - › Contingency measures to promptly correct any violation of the NAAQS that occurs after redesignation, including all measures that were contained in the attainment strategy prior to redesignation

Tribes are encouraged to work closely with states and their regional EPA office early in the redesignation process to help ensure that a redesignation request has a high

What if you want to set standards more stringent than the NAAQS?

Developing An Emissions Inventory

What is an emissions inventory?

How can an emissions inventory be useful to your tribe?

likelihood of being approved by EPA (see Appendix A, *Tribal Contacts at EPA*).

If the air quality on your reservation is currently better than the NAAQS, your tribe may want to set air quality goals more protective than the NAAQS. The Prevention of Significant Deterioration (PSD) program is a source preconstruction permitting program applicable to areas with air quality that is better than the NAAQS. The primary purpose of the PSD program is to preserve good air quality in areas that meet the NAAQS while still allowing economic development to occur. For more information on this program, see Chapter 4.

An emissions inventory identifies the activities on your reservation that cause air pollution and the types and amounts of pollutants emitted by those activities. A source of air pollution is any activity that causes pollutants to be emitted into the air. An emissions inventory is a quantitative list of the amounts and types of pollutants that are entering the air from all sources within a certain area. The fundamental elements in an emissions inventory are the characteristics and locations of the sources, as well as the amounts and types of pollutants emitted.

An emissions inventory can help identify air pollution concerns and determine the air quality goals your tribe wants to meet. Detailed information on activities on your reservation that cause air pollution, and the types and quantities of pollutants generated by those activities, can help your tribe set and attain its air quality goals.

An emissions inventory is one of the most basic tools of air quality management. With an emissions inventory, your tribe can simulate air pollutant formation and transport (e.g., ozone), estimate potential pollutant concentrations on your reservation, and estimate the effectiveness of potential emission reduction requirements. Chemical transformation

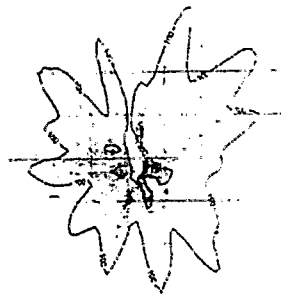
Are there any regulations governing the tracking and reporting of emissions?

and computer dispersion models use emissions data and meteorological data to project how pollutants will form and spread (disperse) across a region.

For many years EPA has maintained a number of requirements for emissions inventory reporting. EPA recently revised and simplified the reporting requirements, added several new requirements related to particulate matter and regional haze, and moved them all to a single location in the Code of Federal Regulations. This action was called the Consolidated Emission Reporting Rule (CERR).¹¹ Although the notice publishing the rule says specifically that Tribes are not required as a general matter to develop emission inventories or to comply with the requirements of the CERR, it provides additional guidance to Tribes on how to develop and quality assure emission inventories, and discusses some of the benefits of reporting emissions from Tribal lands into the National Emission Inventory.

What types of emissions inventories are there?

There are three types of emissions inventories, depending on the intended use of the data: base-year, periodic, and modeling.



Dispersion models use emissions and meteorological data to project how pollutants will spread (disperse) across a region.¹²

- » **Base-year inventories** provide information about the emission levels at the start of pollution-control efforts. These inventories provide a baseline against which progress in reducing or maintaining emissions can be measured. They also inform decision-makers about how much and what types of pollutants are being emitted which can be used in future permitting decisions. The other types of inventories are derived from the base-year inventory, so it is important that it is as comprehensive, accurate, and current as possible.
- » **Periodic inventories** are generally done every 1-3 years after the base-year inventory, depending on the needs of your program. Periodic inventories are used to track changes in emissions over the time that emission reduction strategies are implemented in nonattainment areas. They can be compared to the base-year inventory to identify the progress achieved in reducing emissions over the interim period.

- » **Modeling inventories** are only prepared to support air quality modeling efforts. Air quality models are used to simulate the chemical reactions of pollutants and their dispersion in the atmosphere. Very specific information on emission sources is required for air quality models (e.g., stack height, emissions temperature, etc.). Modeling inventories are based on either allowable or actual emissions, depending on the purpose of the modeling. Allowable emissions are the type and quantity of emissions allowed by regulations. Allowable emissions for the base-year and projected for the attainment year are used to evaluate whether an attainment strategy will reduce emissions enough to meet the NAAQS. Actual emissions are the type and quantity of emissions actually emitted from sources during normal operation and may be more or less than the allowable emissions. Actual emissions data are used with air quality monitoring data to evaluate model performance.

What is an Inventory Preparation Plan?

Careful and thorough planning can greatly facilitate the inventory development process and prevent the need for costly revisions. Before an inventory is developed, an Inventory Preparation Plan (IPP) should be prepared.¹³ An IPP is a concise, prescriptive document that includes inventory objectives and general procedures, and clearly describes how the tribe will document and present the inventory to EPA and/or others.

As part of the IPP process, the tribe should consider:

- » Scope of the inventory
- » End uses of the data
- » Availability and usefulness of existing data
- » Strategy for data collection and management

In general, most IPP's:

- » Define the geographic inventory area
- » Define the attainment or nonattainment status of the area
- » Define the scope of the inventory (i.e., identify which types of sources and pollutants will be covered, and for which year)

How does your tribe start creating an emissions inventory?

$$\begin{array}{ccccc} \text{Emissions} & \times & \text{Activity} & = & \text{Emissions} \\ \text{Factor} & & \text{Data} & & \text{Estimate} \end{array}$$

Formula for calculating emissions estimates.

- » Specify who is responsible for preparing the inventory and each person's responsibilities
- » Identify plans for data collection, analysis, and emission estimation procedures
- » Describe quality control and quality assurance procedures¹⁴

To begin creating an emissions inventory, your tribe will need to identify potential sources of emissions on your reservation. The EPA's Office of Air Quality Planning and Standards, Emissions Monitoring and Analysis Division, maintains a preliminary database of emissions inventory information on many sources in Indian country and the states. A local business directory and phone book can also be a good starting point. Service and retail businesses can usually be ruled out (with some exceptions, such as sources that use a lot of solvent or gasoline distribution facilities); concentrate on manufacturing, treatment plants, assembly, extraction, storage, engines, and utilities. Other types of sources include burning and dust from construction and unpaved roads.

While planning your inventory, the tribe may want to send a letter to the business asking for general information on the work they do. Your tribe can also obtain information by visiting the facility and asking for a tour. Once you have a list of sources, the tribe can begin compiling information for your inventory.

To collect data, the tribe may need to develop reporting forms. Your regional EPA office and the states surrounding your reservation may have a sample reporting form that your tribe can use or modify. Examples of the type of information it would be useful to obtain from each source:

- » The name and location of the source
- » The owner/operator's contact information
- » A description of the activities causing the emissions
- » The source's current compliance status with regulations
- » The source's operating parameters and schedules
- » The pollutants emitted (controlled and uncontrolled)
- » The emission rates of each pollutant emitted
- » The control methods used

- » Characteristics of the emissions (i.e., ground level, roof level, stack, gas temperature)
- » Activity data (i.e., tons per year of input used (e.g. gallons of paint) or output produced)

The EPA provides several resources and guidance documents to assist the tribe in planning and developing an emission inventory.¹⁵

- » *The ClearingHouse for Inventories and Emissions Factors (CHIEF)*
- » Emissions Inventory Guidance for Implementation of Ozone and Particulate Matter NAAQS and Regional Haze Regulations
- » *The Emissions Inventory Improvement Program (EIIP)*
- » The Compilation of Air Pollutant Emission Factors, AP-42, *Volumes I and II*
- » Additional information, including the types of sources and emissions to include in an emissions inventory, approaches to inventory development, and additional resources, are provided in Appendix F, *Emissions Inventories*.

Developing An Air Quality Monitoring Program

What is an air quality monitoring program? Does your Tribe need one?

An air quality monitoring program provides information on the ambient pollution levels for a given area. This information can be used to identify changes in air quality and to determine whether the area meets the NAAQS for the criteria pollutants. Air quality data are also important for determining the goals of your TIP and the actions necessary to obtain or sustain good quality air. However, your tribe does not need to have a NAAQS determination or monitors to develop a TIP.



Jay Littlewolf, Administrator of the Northern Cheyenne Tribe's Air Quality Program, checks PM monitoring equipment.

What should a monitoring program achieve?



Scott Williams, technician for the Northern Cheyenne Tribe's Air Quality Program, changes a filter on a PM monitor.

Information on existing monitoring stations is available through the Office of Air Quality Planning and Standards at www.epa.gov/oar/oaqps/qa/monprog.html. You can discuss with EPA what currently available ambient monitoring data may be representative of pollutant levels for your reservation. Based on this discussion, your tribe may decide to accept the existing ambient monitoring networks as being adequate to provide data which are representative of your reservation. Or your tribe may decide, in conjunction with EPA, that additional monitoring on your reservation by either your tribe or EPA is needed to establish and track ambient pollutant levels there.

The tribe is not required to have an air quality monitoring network in order to adopt TIP measures. If your tribe decides to implement an air quality monitoring system, data from an emissions inventory can be useful in determining where to site or locate the monitors.

Monitoring programs usually measure the concentrations of the criteria pollutants across an area at regular intervals; the concentrations of hazardous air pollutants can also be measured. Before designing a monitoring network, it is helpful to determine your purpose in monitoring. Does the tribe want to:

- » Determine whether average pollutant concentrations are above or below the NAAQS?
- » Determine highest levels of air pollution expected to occur in the area?
- » Determine the extent of regional pollutant transport?
- » Determine representative levels of air pollution in areas of high population density?
- » Determine general background concentrations of pollutants?
- » Determine the impact of significant sources of air pollution on overall levels of air pollution?
- » Determine the economic, cultural and public welfare-related impacts of pollutants on visibility, vegetation, health, and other factors?

If an objective of your monitoring program is to determine if the NAAQS are being met, the program must satisfy the technical requirements given in 40 CFR 58 to achieve the following goals:¹⁶

- » Acceptable quality assurance procedures, which are necessary to provide data that meet the basic objectives and to minimize loss of data
- » Proper equipment and methods
- » Proper location and number of monitoring stations
- » Proper location of the equipment that collects air samples (after selection of the general location of a monitoring station)
- » At least one monitor that operates during air pollution emergency episodes

How does the tribe report and use the data?



A monitoring station used by the Northern Cheyenne Tribe's Air Quality Program.

Data on air pollution levels obtained using federal reference methods are submitted to the EPA's Aerometric Information Retrieval System-Air Quality System (AIRS-AQS). This database provides easily-retrieved information on the levels of the criteria pollutants in all areas of the country. The EPA's procedures for reporting and using data ensure timely and widespread access to accurate information. Anyone who has access to the World Wide Web may browse and obtain reports from AIRS-AQS at www.epa.gov/airs/.

If your tribe is administering an air quality monitoring program, the tribe should also prepare an annual statistical report for the EPA. This report should summarize information about the highest levels recorded for each criteria pollutant and monitoring station.

Your tribe can use the data collected to determine whether the reservation's air quality is better or worse than the NAAQS. If the tribe is collecting data for determining whether an area meets the NAAQS, EPA's regulations require complete data from three consecutive calendar years. The requirement of complete data underscores the importance of following quality assurance procedures because they ensure minimal data loss. If your tribe is collecting data to compare to air quality modeling results, it is also useful to collect meteorological data, such as temperature, wind speed, and wind direction.

How does your tribe start an air quality monitoring program?



Outdoor training and evaluation platform at the TAMS Center in Las Vegas.

In addition to the resources mentioned above, there are additional resources available to assist your tribe in developing an air quality monitoring program:¹⁷

- » 40 CFR Parts 50, 53, 58
- » EPA's *Air Pollutant Monitoring* website provides general monitoring information and information on existing monitoring systems (www.epa.gov/oar/oaqps/montring.html).
- » The EPA's *Ambient Monitoring Technology Information Center* (www.epa.gov/ttn/amtic) provides technical information on monitoring programs and methods, along with monitoring guidance documents and articles.
- » The *Tribal Air Monitoring Support Center (TAMS)*, located at EPA's Radiation and Indoor Environments National Laboratory at the University of Nevada, Las Vegas, provides hands-on training and support services for tribal air professionals on the topic of air quality monitoring (www.cet.nau.edu/itep/TAMS/TAMS_default.htm).
- » Additional information, including the types of monitors and monitoring networks, the objectives of a monitoring network, the spatial scales for monitoring networks, and additional resources are provided in Appendix G *Air Quality Monitoring*.

Conclusion

The air quality goals your tribe sets for criteria pollutants can be addressed in a TIP. To set such goals, it may be helpful to gather data about the sources of air pollution and the ambient air quality on your reservation through an emissions inventory and an air quality monitoring program. If your tribe develops a monitoring program, your tribe should periodically review it to determine whether it achieves the basic objectives. If the program does not achieve its objectives, it can be modified. The tribe can use information from these data gathering techniques to guide your decision-making, determine which control strategies to use, and later, evaluate the effects of your efforts.

Endnotes

1. The EPA revised the air quality standards for particulate matter and ground level ozone in 1997. Implementation of the revised standards was delayed by litigation until February 27, 2001, when the U.S. Supreme Court ruled in the case. EPA must determine how it will implement the revised standards consistent with the Court's decision.
2. For more information on Class I, II, and III designations of attainment areas, see the CAA section 162.
3. For more information on the NAAQS, see the Office of Air Quality Planning and Standards' NAAQS information page (www.epa.gov/airs/criteria.html) and criteria pollutant page (www.epa.gov/oar/aqtrnd97/brochure/sixprin.html). Information on NAAQS standards can be found at www.epa.gov/ttn/oarpg/t1main.html. For more information on nonattainment areas, see the Office of Air Quality Planning and Standards nonattainment website, www.epa.gov/airs/nonattn.html. For a complete listing of nonattainment areas, see EPA's *Green Book*, accessible at www.epa.gov/oar/oaqps/greenbk/index.html.
4. For more information on ozone nonattainment area requirements, see the CAA sections 181 through 185.
5. For more information on carbon monoxide nonattainment area requirements, see the CAA sections 186 and 187. For more information on PM nonattainment area requirements, see the CAA sections 188 through 190.
6. For more information on sulfur oxide, lead, or nitrogen dioxide nonattainment area requirements, see the CAA sections 191 and 192.
7. The Green Book can also be found at 40 CFR Part 81.
8. For more information on ozone designations, see EPA's *Guidance on 8-Hour Ozone Designations for Indian Tribes*, available on the Office of Air and Radiation's TribalAIR website, www.epa.gov/oar/tribal/airprogs/tribe8hd.html.
9. This graph is from the *National Air Pollutant Emission Trends Update: 1970 - 1997*, December 1998, www.epa.gov/ttn/chief/trends/trends97/index.html.
10. The criteria for redesignation from nonattainment to attainment are given in the CAA section 107(d)(3)(E).
11. The Consolidated Emission Reporting Rule (CERR) can be found in the Federal Register, 67 FR 39602, June 10, 2002 (www.access.gpo.gov/su_docs/fedreg/a0206/oc.html).
12. Image provided courtesy of AirNova, Pennsauken, NJ.

13. For more information on developing an Inventory Preparation Plan, see EPA's, *Handbook for Criteria Pollutant Inventory Development: A Beginner's Guide for Point and Area Sources* (www.epa.gov/ttn/chief/txt/beginner.pdf) or see *Emissions Inventory Guidance for Implementation of Ozone and Particulate Matter NAAQS and Regional Haze Regulations* (www.epa.gov/ttn/chief/txt/eidocfml.pdf; reference number EPA-454/R-99-006).
14. Quality Control (QC) includes the system of technical activities your tribe implements to measure and control the quality of the inventory as it is being developed. Examples of QC measures include technical reviews, accuracy checks, and the use of approved emissions estimation procedures. Quality Assurance (QA) is an external review and audit conducted by personnel not working on the inventory's development to assess the effectiveness of the QC program and the completeness and accuracy of the inventory.
15. The following resources on emissions inventories are presented in this chapter:
 - » The ClearingHouse for Inventories and Emissions Factors (CHIEF) at www.epa.gov/ttn/chief is an on-line resources with information on emissions factors, emissions inventories, and emissions estimation software. This site includes a link to the *Handbook for Criteria Pollutant Inventory Development: A Beginner's Guide for Point and Area Sources* (reference number EPA-454/R-99-037).
 - » *The Emissions Inventory Guidance for Implementation of Ozone and Particulate Matter NAAQS and Regional Haze Regulations*, April 1999, www.epa.gov/ttn/chief/txt/eidocfml.pdf (reference number EPA-454/R-99-006). This document contains information about preparing IPPs, as well as information concerning the preparation of emission inventories for nonattainment area planning.
 - » The Emissions Inventory Improvement Program (EIIP). The primary guidance on inventory development is summarized in the *EIIP Document Series, Volumes I-X*, accessible through the EIIP website (www.epa.gov/ttn/chief/eiip/techreport/index.html) and the National Technical Information Service (www.ntis.gov/ or (703) 605-6000). These volumes contain information on planning an emissions inventory, estimating emissions from different types of sources, data management, recordkeeping, and quality control and quality assurance.
 - » The Compilation of Air Pollutant Emission Factors, AP-42 (www.epa.gov/ttn/chief/ap42/), contains information on over 200 stationary, including brief descriptions of processes used, potential sources of air emissions from the processes and in many cases common methods used to control these air emissions. Volume II contains information on emission factors from mobile sources.
16. Regulations on ambient air quality monitoring can be found in 40 CFR 51 Appendix P and 40 CFR 58.
17. The following resources on air quality monitoring are presented in this chapter:
 - » Information on existing air quality monitoring stations is available through the Office

- of Air Quality Planning and Standards at www.epa.gov/oar/oaqps/qa/monprog.html.
- » The Aerometric Information Retrieval System—Air Quality System (AIRS-AQS) is a database with information on the levels of the criteria pollutants in all areas of the country (www.epa.gov/airs/).
 - » 40 CFR Parts 50, 53, 58.
 - » The EPA's Ambient Monitoring Technology Information Center (www.epa.gov/ttn/amtic) provides technical information on monitoring programs and methods, along with monitoring guidance documents and articles.
 - » EPA's *Air Pollutant Monitoring* website provides general monitoring information and information on existing monitoring systems (www.epa.gov/oar/oaqps/montring.html).
 - » The *Tribal Air Monitoring Support Center* provides hands-on training and support services for tribal air professionals on the topic of air quality monitoring (www.cet.nau.edu/itep/TAMS/TAMS_default.htm) or (702) 798-2559.

Chapter 4

Potential TIP Program Elements

As previously discussed, the TAR provides tribes with the flexibility to adopt partial TIPs, so long as the adopted program elements are “reasonably severable” from the program elements that are not included in the TIP.¹ Data from emissions inventories and air quality monitoring, can be used to determine the air quality goals and needs of your reservation and which TIP elements, if any, your tribe may want to adopt. Or, the tribe may choose to implement some TIP program elements without air quality monitoring data or an emission inventory in order to address gaps in regulations. This chapter focuses on the potential TIP elements that your tribe can adopt to help reach the tribe’s air quality goals, including:

- » maintenance strategies
- » attainment strategies
- » source preconstruction permits
- » regional haze plans

Maintenance Strategies

What is a maintenance strategy?

The goal of a maintenance strategy is to limit air pollutant emissions so as to maintain pollutant concentrations at levels below the NAAQS.

If your tribe has good reason to believe that existing air pollutant concentrations on your reservation are below the National Ambient Air Quality Standards (NAAQS) your goal may be to develop a maintenance strategy for one or more air pollutants.² Your tribe may also choose to develop a maintenance strategy for only a portion of your reservation (instead of the entire area) if another portion has been designated nonattainment. The goal of a maintenance strategy is to limit air pollutant emissions so as to maintain pollutant concentrations at levels below the NAAQS.

What are the basic steps for developing a maintenance strategy?

To develop a maintenance strategy, your tribe would obtain data (including that from an emissions inventory and air quality monitoring) and conduct analyses necessary to accomplish the following objectives, as applicable:

- » Establish enforceable emission limits
- » Write enforceable regulations
- » Prevent downwind NAAQS violations
- » Create an appropriate compliance schedule

♦ Establish enforceable emission limits

Your tribe can establish enforceable emission limits for new and existing emission sources on your reservation. Most emissions limits are on equipment, although your tribe can establish a maximum emissions level or "cap" for a facility. To determine at what level emissions limits should be set, ascertain the amount of emissions your tribe could permit that would still allow the reservation to meet its air quality goals. Your tribe may wish to consider innovative approaches to establishing enforceable emission limits, such as averaging and bubbling. Bubbling enables a source to average emissions from the entire facility, while averaging enables a source to average emissions from several similar emission points within the facility.

◇ **Write enforceable regulations**

One basic purpose of regulations is to list the actions that the owners and operators of sources must take to help achieve your tribe's air quality goals. To be enforceable, regulations must be clear and specific. Regulations could include technology-based standards and market-based standards, which are discussed in the upcoming Attainment strategies section - *Identify appropriate control measures*. The methods of determining compliance must be clear for both sources and the tribal air program staff. Your tribe also needs to adopt regulations in accordance with tribal law and administrative procedures (see Chapter 6 for more information) and your tribe must have the authority to enforce the regulations (see Chapter 5 for more information).

For many types of sources, the states and/or the Environmental Protection Agency (EPA) have regulations which can be used as models for your tribe's regulations. The EPA has also written many guidance documents to assist states and tribes in developing enforceable regulations. Resources that can help your tribe write enforceable regulations include:

- » The State and Territorial Air Pollution and Program Administrators/Association of Local Air Pollution Control Officials (STAPPA/ALAPCO) publishes reference guides that contain "menus of options" for controlling various sources of pollutants (www.4cleanair.org/).
- » The EPA Office of Air and Radiation's (OAR) Policy and Guidance Information web site is designed to provide access to rules, policy, and guidance documents produced by the OAR. This site provides easy access to both current and historical regulatory information (www.epa.gov/ttn/oarpg/).
- » The EPA's Air Quality Office in your region can help your tribe identify existing state and local regulations that can serve as models for your tribe's regulations (see Appendix A).

» Appendix G, *TIP Enforceability Checklist*, provides general criteria that can be used to determine if regulations are clearly written and approvable.

» Appendix J, *Regulation Development*

◇ **Prevent downwind NAAQS violations**

The Clean Air Act (CAA) section 110(a)(2)(D) prohibits emissions from one area from negatively impacting air quality in another area. The EPA is responsible for resolving problems over inter-jurisdictional transport of air pollutants. More information about EPA intervention can be found later in this chapter under *Regional Air Quality: Can EPA intervene in regional air quality problems?*

Tribes may submit a TIP that includes enforceable emission limits and compliance schedules and not include evidence that the emission limits are adequate to prevent NAAQS violations. The EPA can fully approve such TIP elements as progress toward developing a more complete implementation plan that meets the tribes air quality goals. In such a case, if necessary and appropriate, EPA will determine if the tribe's emission limits will prevent NAAQS violations.

◇ **Create an appropriate compliance schedule**

If your maintenance plan establishes new emission limits, it should also set an expeditious schedule by which sources must comply with the regulations. The CAA generally requires states to implement emission control programs within 3-5 years. Some emission reductions should be achieved each year until the regulations are fully implemented. In addition, your maintenance plan should include a schedule for periodic review of your emissions inventory and modeling data, if applicable. Reviewing the air quality data for your reservation will help your tribe determine if your tribe is meeting your goal to maintain air quality better than the NAAQS.

What can be done about new sources of emissions?

Construction of new sources on the reservation could add enough emissions that the goals of maintaining the NAAQS would not be met. Therefore, your tribe may also want to adopt, as a separate TIP element, a preconstruction permit program to review plans for new major sources of emissions (and major modifications to existing emission

sources) and issue permits that limit emissions from those sources.

The Prevention of Significant Deterioration program (PSD) is a preconstruction permit program for areas with air quality that is better than the NAAQS. There is a federal PSD program, which EPA administers, that applies in Indian country. The PSD program can help your tribe preserve good air quality while still allowing economic development to occur.

Under a PSD program, the tribe can require major sources wanting to locate on your reservation to model their projected air quality impacts at various distances from their proposed locations (i.e., 20 km, 30 km, 40 km, 50 km). You can then limit emissions from the sources to reduce the impact on the air quality.

If your tribe chooses to adopt and administer a PSD program it will help you develop communications with jurisdictions that border your reservation. By alerting your neighbors of any emission increases on your reservation, they can account for those emissions in their air quality planning. Furthermore, by increasing communication with surrounding jurisdictions, your tribe will be more informed of emission changes outside its reservation that may affect its air quality.

Your tribe can also establish a similar program to review construction plans for minor new sources. More information can be found later in this chapter under *Source Preconstruction Permits*.

How does your tribe start creating a maintenance strategy?

To start creating a maintenance strategy, it may be useful to inventory the sources, types, and quantities of air pollutants emitted on your reservation. Your tribe may also want to determine the current concentrations of those pollutants relative to the NAAQS through ambient air quality monitoring and/or modeling. In addition to the references provided in this document, the Air Quality Program of your regional EPA office can assist your tribe in this effort (see Appendix A).

Attainment Strategies

What is an attainment strategy?

The goal of an attainment strategy is to reduce the concentrations of pollutants to levels below the NAAQS.

What are the basic steps for developing an attainment strategy?

The existing concentrations of some pollutants on your reservation may be above the NAAQS if there are significant sources of air pollution on your reservation or in adjacent areas. In those cases, or in the case where EPA has designated your reservation as being nonattainment, your goal may be to develop an attainment strategy to reduce the concentrations of those pollutants to levels below the NAAQS. Your tribe may also choose to develop an attainment strategy for a portion of your reservation (instead of the entire reservation) if it is appropriate.

Your tribe may decide to concentrate its efforts on regulating the existing sources of emissions, and possibly on regulating new sources of air pollution, as well. As your tribe develops an attainment strategy, it should consider how to best maintain a balance between its air quality regulations, its economy, and its culture. The appropriate balance will depend on the relationships between these and other factors, and the values, goals, and priorities of your tribe.

To develop an attainment strategy, your tribe would obtain the data (including that from an emissions inventory and air quality monitoring) and conduct the analyses necessary to accomplish the following objectives, as applicable:³

- » Ascertain the effect of emissions from sources within and outside the TIP area
- » Determine emission reductions needed to attain or maintain the NAAQS for the pollutant(s) of concern
- » Identify which emission control measures to use to bring your area into attainment and allow it to stay in attainment
- » Write enforceable regulations that require sources to implement emission control measures that result in verifiable emission reductions



*Everglades National Park,
FL*

With a rich cultural history dating back to 10,000 B.C., the Everglades are the tribal homelands of the Tequesta in southeast Florida; the Calusa in the southwest; and the Jeaga and Ais along the east coast north of the Tequesta; and the Mayaimi, Creek, and Seminoles near Lake Okeechobee.

(Photo courtesy of the National Parks Service)

- ◇ **Ascertain the effect of emissions from sources within and outside the TIP area**

- » Prevent downwind NAAQS violations
- » Create a schedule that sources will follow to comply with the regulations, ensuring progress toward attainment
- » Develop "contingency measures" for situations in which air quality improvements do not occur according to schedule

The EPA has prepared policy memoranda related to attainment strategies which are available at EPA's site for NAAQS policy and guidance memos (www.epa.gov/ttn/oarpg/t1pgm.html). Literature in the fields of engineering, policy analysis, and economics discusses emission control measures for specific sources and how to package individual measures into a comprehensive plan. Since the Tribal Authority Rule (TAR) allows tribes to adopt severable TIP elements and to build a TIP in a modular fashion, your tribe may select the requirements that meet its air quality objectives (provided such elements are not integrally related to program elements not included in the TIP). Your tribe should contact the regional EPA office before submitting your TIP (see Appendix A). The following discussion of attainment strategies presents a general framework for planning.

The information in your tribe's emission inventory on the types and amounts of pollutants emitted by sources can be used to determine the impacts of those sources on pollutant concentrations on the reservation. Another reason the air quality on your reservation may be worse than the NAAQS is air pollution from nearby, non-reservation sources being transported across your reservation boundaries. Sources of pollutants outside the TIP area may be a concern if your reservation is adjacent to or surrounded by a state nonattainment area, or if it is downwind of major sources of emissions that are not under your tribe's jurisdiction.

Your tribe may want to ascertain the potential effects that pollutants from sources outside the TIP area have on your reservation's air quality. Therefore, an appropriate air

quality model, as recommended in EPA's Guideline on Air Quality Models,⁴ can be used to estimate the effects of emissions from those sources and activities, located both on and off the reservation, on the reservation's air quality. The modeled pollutant concentrations, when added to an overall background (natural) pollutant levels on the reservation, gives an estimate of the total concentration of each pollutant. The effects of emissions from sources located off the reservation on total pollutant concentrations can be estimated by running the model with only those sources, and separately running the model with sources located on the reservation.

Some pollutants, such as ozone and fine particulate matter, are not emitted directly from a source, but rather are formed in the atmosphere through chemical reactions with emissions from many sources over a large area. These secondary pollutants are regional in nature and consequently are inappropriate for the type of analysis described above.

Your tribe can only regulate sources within its jurisdiction. However, if your tribe determines that emissions from sources outside the TIP area are causing your reservation's air quality to exceed the NAAQS, or if your tribe worries that such emissions may cause future air quality problems on your reservation, there are steps your tribe can take. For more information, see the section on *Regional Air Quality* later in this chapter. Your tribe can also approach the regional office for assistance in making these assessments.

◇ **Determine the necessary emission reductions**

To determine the emission reductions needed from sources on your reservation, the monitoring data your tribe collects must be compared to the NAAQS. To make this comparison, your tribe needs to calculate the "design value" for each pollutant of concern. The design value is the monitoring data in the same form and over the same averaging period as the NAAQS. The method for calculating the design value depends upon the units and averaging time of the NAAQS.⁵ Your tribe should follow EPA's data handling conventions and computational formulas when determining design values. More information on the data analysis requirements can be found



Sources outside your TIP area, such as this industrial complex, may transport pollutants onto your TIP area.

◇ **Identify appropriate control measures**

Control measures may be technology-based or market-based.

in the Code of Federal Regulations (CFR) at 40 CFR 50 (accessible at www.access.gpo.gov/nara/cfr/index.html).

If the design value for a pollutant is greater than the NAAQS, the area violates the NAAQS for that pollutant. For example, the NAAQS for carbon monoxide (CO) is 9 parts per million (ppm) for an 8-hour average concentration. If the design value for CO on your reservation is 10 ppm, it indicates that the concentration of CO in the ambient air exceeds the NAAQS and your design value must be reduced by at least 1 ppm or ten percent.

To reduce the ambient concentration of CO, your tribe could: (1) reduce the CO emissions by a fixed amount (about 10 percent) from every source in your emission inventory; or (2) reduce the CO emissions from different sources by different amounts (based on the cost effectiveness of control options or other factors important to your tribe). For the latter strategy, your tribe could use air quality modeling to test different combinations of reductions before deciding which combination to use.

Some pollutants, such as ozone, are formed from more than one precursor pollutant through complicated atmospheric chemistry; these pollutants would require more complex strategies to determine which precursor pollutant emissions to reduce, by how much, and from which sources.

The hurdle that proposed control measures must clear is whether, taken as a group, they can achieve the emission reductions necessary to decrease pollutant concentrations by the amount indicated by the design value (see above).⁶ A fundamental choice that your tribe will make when selecting control measures is whether it will adopt a technology-based or a market-based strategy.

With a **technology-based strategy**, your tribe would require a process change or an emission limitation for a piece of equipment or process. For example, your tribe might set the maximum allowable sulfur dioxide emission rate from a process; set the maximum allowable volatile organic compound content allowed in coatings (such as those used in the manufacturing wood products); require



*Nez Perce National
Historical Park, ID*

For thousands of years the valleys, prairies, mountains and plateaus of the inland northwest have been home to the Nez Perce people. The park also houses the battlefield from the War of 1877, where the Nez Perce people fought the U.S. Army. (National Parks Service)

work practices such as wetting dry, dusty materials at construction sites to reduce particulate matter emissions; or require the installation of a certain pollution control device for reducing emissions. These measures are technology-based.

If your tribe prescribes emission limitations or emission-reducing actions for each source or category of sources, regulations must require the use of Reasonably Available Control Technologies (RACT) or Reasonably Available Control Measures (RACM).⁷ RACT is typically for large point sources such as industrial facilities, while RACM is for area sources such as agricultural operations.

The EPA has many resources to provide guidance for the selection of appropriate control measures. The Clean Air Technology Center (CATC) is a resource on all areas of emerging and existing air pollution prevention and control technologies, and provides public access to information on their use, effectiveness, and cost. In addition, the CATC will provide support, as resources allow, related to the technical and economic feasibility, operation, and maintenance of these technologies. The RACT/BACT/LAER Clearinghouse within the CATC contains information from state and local air pollution control agencies that can be used in determining what types of controls and pollution prevention measures have been applied to and/or are required for various sources, the effectiveness of these technologies, and the annualized cost of purchase, operation, and maintenance.⁸ More information on the CATC is available at www.epa.gov/ttn/catc/.

A **market-based strategy**, or economic incentive program, achieves air quality objectives by providing market-based incentives or information to emission sources.⁹ There are four main types of economic incentive programs:

- » *Emission trading programs* limit the total emissions from a certain type or group of sources and allow the sources to trade or buy emission credits to comply with their individual emission limits

- » *Financial mechanism programs* include fees paid by emitters for each unit of emissions, or subsidies that promote pollution-reducing activities or products
- » *Clean air investment funds* allow sources with high costs for reducing emissions to pay into a fund instead; the funds are then used by the regulatory authority to procure emission reductions elsewhere
- » *Public information programs* include educational programs, product certifications, "ozone action days," and other information people can consider when making choices that affect air quality

A market-based strategy is most successful when several large sources that continuously monitor emissions participate. Your tribe may consider requiring certain sources to join an existing regional market-based trading program to achieve emission reductions. Guidance on developing an economic incentive program can be found in *Improving Air Quality with Economic Incentive Programs* (EPA-452/R-01-001, January 2001), available at www.epa.gov/ttn/oarpg/tlmain.html and through EPA's Air and Radiation Docket and Information Center (Docket Number A-97-27) by calling (202) 260-7548.

The selection of control measures depends on several factors, including:

- Number and types of sources
- Pollutants to be reduced
- Expertise, experience, and number of air program staff
- Effectiveness, cost and fairness of various control measures

The best regulatory approach for your tribe depends on the number and types of sources your tribe is regulating, the pollutants to be reduced, the expertise, experience, and number of your air program's staff, and other considerations. Your situation is likely to be different from that of other tribes. If your tribe chooses a technology-based approach, it will restrict the flexibility that sources have in complying, but it will create a program that is relatively easy to implement. If your tribe chooses a market-based approach, it will provide maximum compliance flexibility (which may reduce the total cost of compliance for sources), but will create a more complicated system to implement.

Only careful investigation of the options for limiting emissions from the sources under your jurisdiction will tell which control measures are best for your tribe. Because

“best” could mean several things, another important part of the air quality planning process is to explicitly state the criteria that your tribe will use to select control measures. Criteria may include effectiveness, cost, and fairness. Questions to ask when selecting control measures include:

- » How well does the method reduce emissions?
- » How certain are the reductions using the method?
- » Are the reductions sufficient to ensure the source is not causing an air quality violation downwind?
- » What is the total cost? Cost per ton of pollution reduced? Up-front capital cost? Annual operating and maintenance cost?

♦ **Write enforceable regulations**

As discussed above under Maintenance Strategies, regulations must be clear and specific and the methods of determining compliance must be clear for both sources and the tribe’s air program staff. Regulations need to be written in accordance with tribal law and administrative procedures (see Chapter 6 for more information) and your tribe must have the authority to enforce the regulations (see Chapter 5 for more information).

For many types of sources, the states and/or the Environmental Protection Agency (EPA) have developed many resources and guidance documents to assist in developing enforceable regulations. In addition, Appendix G, *TIP Enforceability Checklist*, provides general criteria that can be used to determine if regulations are clearly written and approvable and Appendix J, *Regulation Development* provides useful information.

♦ **Prevent downwind NAAQS violations**

The Clean Air Act (CAA) section 110(a)(2)(D) prohibits emissions from one area from negatively impacting air quality in another area. The EPA is responsible for resolving problems over inter-jurisdictional transport of air pollutants. More information about EPA intervention can be found later in this chapter under *Regional Air Quality: Can EPA intervene in regional air quality problems?*

Tribes may submit a TIP that includes enforceable emission limits and compliance schedules and not include evidence that the emission limits are adequate to prevent NAAQS

violations. The EPA can fully approve such TIP elements as progress toward developing a more complete implementation plan that meets the tribes air quality goals. In such a case, if necessary and appropriate, EPA will determine if the tribe's emission limits will prevent NAAQS violations.

◇ **Create an appropriate schedule for emission reductions**

Your attainment strategy should include a schedule by which sources must comply with regulations. The compliance date should allow the sources to comply without great economic difficulty and ensure attainment of the NAAQS as soon as possible. The CAA generally requires states to implement attainment strategies within five years of less

Your tribe may want your schedule to ensure that reasonable further progress (RFP) is made in annual emission reductions. RFP, or annual incremental emission reductions, are required for state nonattainment areas. To make RFP, some emission reductions should be achieved each year (i.e., new regulations take effect of new sources must comply each year) until the attainment strategy is fully implemented.

Your tribe may or may not decide to demonstrate RFP through the schedule you develop. However, when tribal lands are part of a multi-state jurisdictional area, if the tribe does not show that the emission limits in their TIP are adequate to prevent NAAQS violations and make RFP, EPA will review the emission limits and compliance schedules to assure that they will not interfere with the overall plan to attain the NAAQS in the area. In cases where sources on tribal lands would interfere with an area meeting its attainment date, EPA will develop a FIP to reduce emissions from those sources, where necessary and appropriate, since the tribe is not required to meet the attainment date.

◇ **Develop appropriate contingency measures**

The tribe should discuss with the regional office the need for including contingency measures in the TIP. Contingency measures should accomplish about 1 year's worth of progress toward meeting the NAAQS, or an additional 20 to 25 percent of the emissions being

reduced.¹⁰ For example, if emissions must be reduced 100 tons per year to attain the NAAQS, contingency measures should be capable of reducing emissions by an additional 20 to 25 tons per year. Your tribe should also establish criteria for determining when and if the contingency measures have to be implemented, and set a schedule for implementing them, if needed. If your tribe does not include contingency measures in their TIP, EPA will adopt additional measures to fill the gap, where necessary and appropriate.

What can be done about new sources of emissions?

Construction of new sources on the reservation could add enough emissions that the goal of the TIP to attain and maintain the NAAQS would not be met. Therefore, the tribe may also want to include source preconstruction permit programs as a separate TIP element in their TIP. The program, applicable to areas with air quality that is worse than the NAAQS, is a nonattainment New Source Review (NSR) program. You can limit the impacts of emissions from new major sources and major modifications to existing sources with a NSR program. Tribes can also establish a similar program to review construction plans for new minor sources. For more information, see the *Source Preconstruction Permits* section later in this chapter.

How does your tribe start creating an attainment strategy?

To start developing an attainment strategy, your tribe will need to determine the emission reductions necessary to attain and maintain the NAAQS for the pollutant(s) of concern. Your tribe will also need to identify the sources of air pollution that need to be controlled and the emission control measures your tribe wants to require to achieve these emission reductions. Your tribe's attainment strategy may include adopting a source preconstruction permitting program and creating a mandatory schedule for sources to implement emission control measures. Contingency measures for situations in which emission reductions do not occur according to schedule are another element your tribe can include in an attainment strategy. In addition to the references provided in this document, the Air Quality Program of your regional EPA office can also provide guidance as your tribe creates an attainment strategy (see Appendix A).

Source Preconstruction Permits

What is New Source Review?



*Reviewing plans for a
proposed new source.*

The New Source Review (NSR) program requires all new major sources or existing sources with major modifications in both nonattainment areas and attainment areas to obtain preconstruction permits.¹¹ The definition of major stationary source and major modification varies with the air quality status of the area and the type of pollutant.¹² In general, major sources are sources that emit over a certain amount of a pollutant (the "major source threshold" for that pollutant); minor sources are sources that emit less than that amount. A major modification means any physical change in or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant subject to regulation under the CAA.¹³

For example, in attainment and unclassifiable areas, a major stationary source is defined as any source that emits, or has the potential to emit,¹⁴ 250 tons per year (or, for specific types of sources, 100 tons per year) of any pollutant subject to regulation under the CAA. Serious particulate matter nonattainment areas and moderate, serious, severe, and extreme ozone nonattainment areas have lower thresholds for determining what is a major source.

The NSR permit requirements are determined on a case-by-case basis. The permits specify emission limits and control requirements for each emission point at a source, as well as the monitoring, recordkeeping, and reporting requirements. The CAA created three separate NSR programs to address different situations involving new and growing facilities (see Table 4-1).

Table 4-1. Overview of the New Source Review Programs

Program Name	Program Abbreviation	Applicable Areas	Applicable Sources
Nonattainment New Source Review	nonattainment NSR	Nonattainment	New major sources Existing major sources with major modifications
Prevention of Significant Deterioration	PSD	Attainment, Unclassifiable	New major sources Existing major sources with major modifications
Minor New Source Review	minor NSR	Nonattainment, Attainment, Unclassifiable	New minor sources Any modification to minor sources Minor modifications to major stationary sources

If your tribe does not adopt a major NSR program, the EPA may adopt, without unreasonable delay, Federal Implementation Plan provisions as are necessary or appropriate to protect air quality.

The nonattainment NSR and PSD programs, collectively known as major NSR, are federal regulations under the CAA. Implementation of the federal NSR programs can be delegated to individual states and tribes. A tribe should contact the Regional Office if it wishes to have such programs delegated. If a source wants to locate in Indian Country, and your tribe has not or does not want to adopt a major NSR program, EPA would do a source-specific FIP. Minor NSR programs are state, local, and tribal programs that apply to sources smaller than those in the major NSR programs. EPA is in the process of developing these programs.

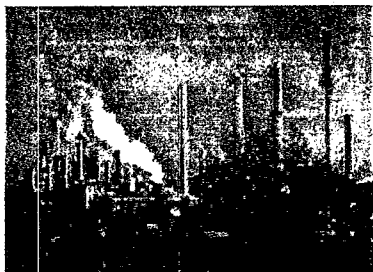
Both the major and minor new source review programs focus primarily on the criteria pollutants (ozone, nitrogen dioxide, lead, carbon monoxide, sulfur dioxide, and particulate matter) regulated by the NAAQS. State minor NSR programs frequently cover additional pollutants, including many toxic air pollutants, which are not covered in their SIPs.

The core procedures in the major NSR programs are: (a) evaluating the consequences of allowing facilities to start

operations or to expand; (b) requiring the most effective emissions control measures for these facilities; and (c) including informed public participation in the evaluation of consequences and selection of emissions control measures. These procedures must occur before the construction or expansion of a facility begins.

If emissions from a new major source or major modification may affect a national park or wilderness area, the evaluation may also include the impact of emissions on visibility and natural and cultural resources in the park or wilderness area. Federal land managers can assist with this effort. For lands owned by the government of the United States, a federal land manager is the representative of the department or agency with authority over such land, such as a Regional Forester or individual Forest Supervisor for US Forest Service lands.

What is the nonattainment NSR program?



The nonattainment NSR program deals with large point sources such as this petroleum refinery.

Numerous requirements in the CAA apply to new major sources and major modifications at existing sources in nonattainment areas. For example, a facility covered by nonattainment NSR must install control equipment ensuring the Lowest Achievable Emission Rate (LAER). The economic costs are not considered when defining the applicable control technology to obtain LAER. The LAER is defined as the more stringent of the following limitations:

- » The most stringent emission limitation contained in a SIP of any state for the same class or category of source (unless it is demonstrated that this limitation is unachievable)
- » The most stringent emission limitation achieved in practice

Another requirement of the nonattainment NSR program is that increases in emissions from new major sources and major modifications must be matched or offset by greater emissions reductions from other sources (called "offsets"), thus ensuring that progress is made toward decreasing the total emissions for the area and meeting the NAAQS.¹⁵

Nonattainment NSR programs must meet all the requirements established in the Code of Federal Regulations (CFR) at 40 CFR 51.160-165, and Part D of the CAA. State air regulators have developed nonattainment NSR programs which tribes can use as models when developing their own programs. Your regional EPA office can also provide assistance and guidance (see Appendix A, *Tribal Contacts at EPA*). The EPA is developing an example nonattainment NSR program. Once it is promulgated, your tribe will be able to adopt it by reference. NSR guidance documents are available from EPA at www.epa.gov/ttn/nsr/.

What is the PSD permitting program?

The purpose of the Prevention of Signification Deterioration (PSD) permitting program is to prevent air quality that is below the NAAQS from deteriorating more than an incremental amount. If the air quality on your reservation is currently better than the NAAQS, your tribe may want to adopt a PSD permitting program which would allow for air quality goals more protective than the NAAQS. The PSD permitting program applies to all new major sources or major modifications of existing major sources in attainment and unclassifiable areas. With a PSD program, your tribal permitting authority can require the best available air pollution control technology (BACT) to be installed when large new sources are constructed or expanded. BACT is defined as an emission limitation based on the maximum degree of reduction of each pollutant [subject to regulation under the PSD program] which your permitting authority determines is achievable through application of production processes and available methods, systems and techniques. BACT is to be determined for each source on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs. [See section 169(3) of the Clean Air Act.]

The PSD permitting process typically takes from 3 months to 1 year. However, complicated or controversial permits can take longer. In order to obtain a permit, a source and the permitting authority must do the following:



*Yosemite National Park,
California*

Indian people have lived in the Yosemite region for as long as 8,000 years. By the mid-nineteenth century, when native residents had their first contact with non-Indian people, they were primarily of Southern Miwok ancestry. However, trade with the Mono Paiutes from the east side of the Sierra for pinyon pine nuts, obsidian, and other materials from the Mono Basin resulted in many unions between the two tribes.

- » Evaluate the BACT, which is based on the most stringent control available for a similar type of source that is technically and economically feasible
- » Perform an ambient air impact study
- » Conduct additional impact studies including visibility, soils, and vegetation

Under the PSD permitting program, the "baseline" concentration of regulated pollutants must be determined. The baseline is the ambient concentration level of a pollutant that exists at the time of the first application for a PSD permit in the baseline area. The baseline concentration can be determined using existing data representative of air quality in the area where the new source will be located. If representative data do not exist, your permitting authority can require the permit applicant to establish a site-specific monitoring network, and monitor the air quality for a period of at least one year immediately before applying for a permit to construct. Your permitting authority can also require the permit application to monitor the meteorological parameters of the area to facilitate modeling the potential impacts of emissions from the new source.

The ambient concentration resulting from total emissions from all sources (both permitted and non-permitted sources) is not allowed to exceed the baseline plus an increment set in the CAA and in EPA's regulations.¹⁶ Owners of new and growing facilities must show how much the increase in emissions will increase the concentrations of air pollutants in Indian country. The total effect of the increased emissions from new and modified sources on pollutant concentrations may not exceed the baseline plus the increment, nor exceed the NAAQS. In most cases, the baseline plus the increment will result in an emissions ceiling more stringent than the NAAQS (see Figures 4-1 and 4-2).

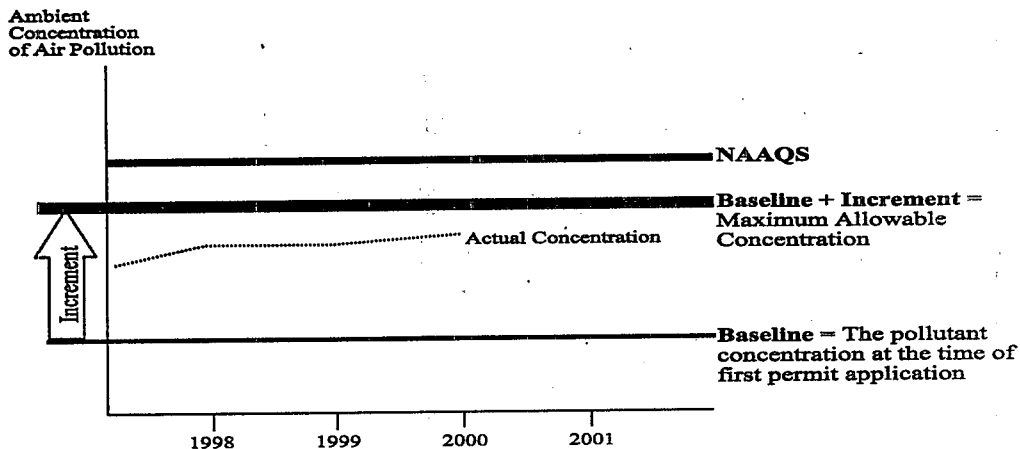


Figure 4-1. PSD Program: *Baseline + Increment = Ambient Standards More Stringent Than NAAQS.*

Under the PSD Program, the maximum allowable ambient concentration equals the baseline plus the increment. Therefore, standards can be more stringent than the NAAQS.

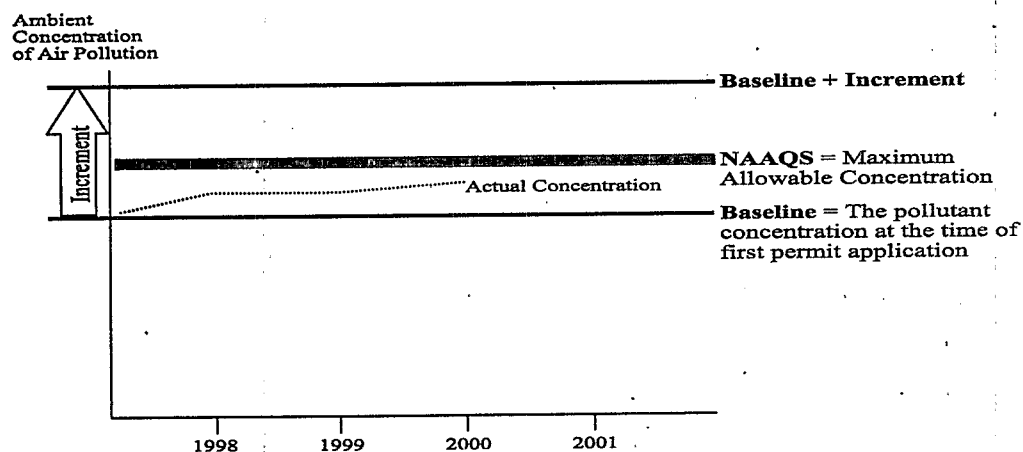


Figure 4-2. PSD Program: *NAAQS Remain Maximum Emission Level*

There could be cases where the baseline plus the increment would exceed the NAAQS. However, the NAAQS are a ceiling that ambient concentrations are NOT allowed to exceed.

The increments are smallest for Class I areas and largest for Class III areas. Only very little degradation of air quality is allowed in Class I areas.

The increments are smallest for Class I areas and largest for Class III areas (attainment area classifications are discussed in Chapter 3).¹⁶ Therefore, Class I areas (which include national parks, national wilderness areas, national monuments, national seashores, other areas of special natural, recreational, scenic, or historic value, and areas reclassified as Class I) receive the greatest protection. Only very little degradation of air quality is allowed in Class I areas. To permit a major new facility or major modification of an existing facility in a Class I area, an offset from another facility in the area may be necessary.

Apart from your tribe's decision whether to adopt your own PSD program, your tribe has some freedom to change the classification of your reservation and thus affect the amount of allowable emissions growth from new and growing facilities. The CAA automatically classifies most attainment areas as Class II, but a federally recognized Indian tribe may apply to change the classification of its reservation to Class I or Class III.¹⁷ Reservations that have been reclassified from Class II to Class I include those of the Northern Cheyenne, Flathead, Fort Peck, Spokane, and Yavapai-Apache Indians.

Your tribe's governing body can request reclassification by submitting a proposal to the EPA, notifying the appropriate state(s), and holding a public hearing. See Appendix H (*Procedures for Area Reclassification to Class I*) and the CAA section 164 for more detailed information on the statutory and regulatory requirements for redesignation.

The EPA has developed a PSD permitting program. The EPA must administer the PSD permitting program in any state or reservation that has not developed its own PSD permitting program or received a delegation of authority from the EPA to implement the federal program. Your tribe may request delegation of PSD administration if it has the technical knowledge and legal authority to implement and enforce the requirements. Alternatively, your tribe can develop your own PSD permitting program and submit it as part of your TIP. One way your tribe can establish a PSD permitting program is to incorporate the federal PSD permitting program by reference into your TIP (this process

is different than delegation).¹⁸ The federal PSD permitting requirements and the requirements that state and tribal PSD permitting programs must meet are found at 40 CFR 51.165(b), 51.166 and 52.21.

What is minor NSR?

Minor NSR programs can be developed in both attainment and nonattainment areas and apply to smaller new facilities and facility expansions that are not large enough to qualify as major new sources or major modifications. Examples of common minor sources include gasoline stations, automobile refinishing shops, dry cleaners, incinerators, and small industrial facilities. A minor NSR program allows a state or tribe to exercise oversight over the growth of pollution from minor sources to ensure such sources will not cause or contribute to a violation of the NAAQS, while still allowing growth to occur.

A minor NSR program can also provide permitting flexibility. In minor NSR, a source with a potential to emit above the major source threshold can agree to enforceable emissions limits below the major source threshold. The source would not be required to undergo the more complex major NSR and lower emissions would be ensured. Such a source is called a "synthetic minor" source.

There is no federal minor NSR program and the CAA is not specific on what is required in such a program. Therefore, states and tribes currently have flexibility when designing these programs. Existing minor NSR programs vary greatly, and can differ in attainment and nonattainment areas. Typically the programs require emission limitations and monitoring, recordkeeping, and reporting to ensure compliance with the emission limits. State air regulators have developed minor NSR programs. Your tribe may want to consider using a state's minor NSR program as a model when developing its own minor NSR rules.

How does your tribe start creating a preconstruction permit program?

Your emissions inventory will help your tribe identify the types of sources a preconstruction permit program on your reservation will need to regulate. Information on permitting can be found in the references provided in this document. In addition, the EPA tribal air coordinator for your region can help your tribe determine which, if any,

existing NSR or minor NSR programs may be useful models for your tribe to use, and assist your tribe in the development of its preconstruction permit program (Appendix A).

Regional Air Quality

Why is regional air quality important?



Testing visibility with an IMPROVE monitor.¹⁷

This is an Optec LPV-2 transmissometer, with the transmitter end of the instrument on a rooftop in Denver, Colorado. It's corresponding receiver end is located on another rooftop a distance away. (Air Resources Specialists, Inc.)

According to the CAA section 110(a)(2)(D), emissions from one area are not supposed to negatively impact another area's air quality. Sources are not allowed to:

- » Contribute significantly to nonattainment in other areas
- » Interfere with maintenance of the NAAQS in another area
- » Interfere with measures implementing prevention of significant deterioration in other areas
- » Interfere with measures protecting visibility in other areas

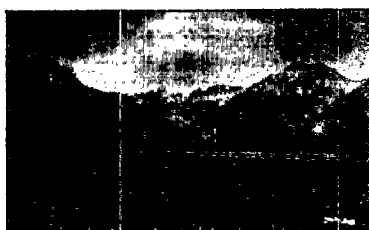
However, pollutants such as sulfur dioxide, nitrogen oxides, ozone, and fine particulate matter can travel great distances from the source. Therefore, urban and rural areas working to reduce ozone may be fighting a losing battle if upwind sources release pollutants that travel in their direction. Regionally, tribal and state governments, businesses, citizens, and EPA and other federal agencies need to work together to help overcome this problem. In fact, it may be less expensive and more fair to control emissions throughout a region rather than just in the nonattainment areas.

Sophisticated computer modeling of a region including your reservation - and possibly multiple surrounding states - can be used to evaluate the impacts upwind sources have on your reservation, and the impacts sources on your reservation have on downwind areas. Atmospheric transformation and dispersion models that are used regularly for these investigations include the Regulatory Emission Modeling System for Aerosols and Deposition (REMSAD) and the Urban Airshed Model-V (UAM-V).¹⁹ REMSAD calculates concentrations of particulate matter

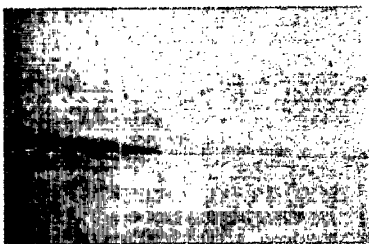
and UAM-V calculates concentrations of ground-level ozone. Dispersion models are helpful when developing emission control strategies because they relate changes in emissions to changes in air pollutant concentrations.

Two options your tribe has for addressing regional air quality are: participating in regional planning to develop a regional haze plan; and petitioning EPA for intervention if your tribe believes upwind sources are contributing to nonattainment on your reservation.

What is haze?



A clear day...



... and a hazy day at Glacier National Park, MT.

Regional haze affects public welfare such as the quality of life in the places where we live, work, and play. Haze obscures the clarity, color, texture, and form of what we see. Regional haze plans can be included as elements of TIPs.

Haze is caused when light encounters tiny pollution particles (sulfates, nitrates, organic carbon, soot, and soil dust) and some gases (nitrogen dioxide) in the air. Some light is absorbed by the particles and gases and other light is scattered away before it reaches an observer. More pollutants mean more absorption and scattering of light, resulting in more haze. Humidity (especially prevalent in the east) magnifies the haze problem because some particles, such as sulfates, attract water and grow in size, scattering more light.

Some of the same pollutants for which NAAQS have been established because of their serious health and environmental effects also contribute to regional haze. Some haze-causing pollutants (mostly fine particles) are directly emitted to the atmosphere by a number of activities, such as electric power generation, various industrial and manufacturing processes, truck and auto emissions, burning related to forestry and agriculture, and construction activities. Others are formed when gases are emitted to the air and form particles as they are carried downwind (such as sulfate, formed from sulfur dioxide, and nitrates, formed from NO_x). Natural sources, such as forest fires, windblown dust, and organic emissions from biogenic sources also contribute to haze.²⁰ Particles in the air can travel hundreds or thousands of miles, contributing

What has the EPA done to improve and protect visibility?

to the haze that causes visibility impairment over broad regions of the United States. This distribution makes regional efforts for addressing haze a necessity.

The EPA issued regional haze regulations in 1999 (the "Regional Haze Rule") that call for states and tribes, in partnership, to establish goals for improving visibility and to develop long-term strategies to return visibility to natural conditions in federal Class I areas (primarily national parks and wilderness areas). The EPA's Regional Haze Program applies to all states and to tribes that are eligible to implement CAA programs. They are to address their contributions to visibility problems in national parks and wilderness areas both within and outside their borders. Most initial plans for implementing the regional haze program are due in 2008. However, nine states and the tribes located in the western portion of the country have the option of submitting plans in 2003 to improve visibility in 16 Class I areas on the Colorado Plateau. Progress reviews are due every five years, and comprehensive plan revisions are due in 2018 and every ten years thereafter. The regional haze regulations also call for coordinated efforts between the states and eligible tribes to meet particulate matter health standards.

How can your tribe improve and protect visibility?



This dirt is from a recently developed sub-division in Lame Deer, MT. It will eventually be washed down to a busy street and, when it dries and gets blown by traffic and wind, will contribute to a PM problem.

Your tribe can improve and protect visibility by developing a regional haze plan. These regional haze plans, part of the EPA's Regional Haze Program, are discussed below. Because these plans are regional in scope, The EPA is encouraging states and tribes to work in regional groups to develop and implement their air quality plans. Five regional planning organizations (RPOs) covering the 48 contiguous states have been established to analyze the nature and causes of regional haze in each federal Class I area (see Appendix E, *A Guide to Regional Air Quality Planning Organizations*). These organizations will also work together to evaluate potential emission reduction strategies for meeting the goals of EPA's Regional Haze Program.²¹ The RPOs will explore ideas for meeting regional haze program goals, perform technical analyses, and generally facilitate the exchange of information among all participating governments. The EPA is encouraging the RPO's to develop recommended strategies and agree on

acceptable methodologies for apportioning emission reduction responsibilities to state and tribal governments. States and tribes then implement these strategies through individual state or tribal regulations. The regional haze rule provides flexibility for states and tribes to develop a range of strategies addressing stationary, mobile, and area sources.

◇ ***Regional Planning Organizations***

A tribe that wishes to include a regional haze plan as part of their TIP, or that is interested in regional air quality issues in general, should participate in the regional planning organization for its area. The RPOs are primarily partnerships between state and tribal governments as air quality regulators in various geographic areas of the country, although these organizations want participation from all interested parties.

There are a number of benefits for tribes in participating in the RPOs: (1) participation helps build a tribe's capability to manage its air quality; (2) participation helps build working relationships with other air quality professionals; (3) participation can help a tribe leverage monitoring, modelling and other technical resources; (4) in the future, the RPOs may address other long-range transport issues such as transport of ozone, fine particulate matter and toxic air pollutants; and (5) tribes can contribute to the RPOs by providing fresh ideas, monitoring visibility on their reservations, and filling gaps in emission regulations (even small quantities of emissions can affect regional haze).

When participating in a regional planning effort, your tribe may wish to advocate for the tribe's interests in air quality on its reservation. You may wish to articulate the tribe's positions on issues, and ensure that studies of the potential impacts of new regulations assess the air quality benefits and economic costs for your tribe, as well as other implications, such as effects on the quality of life on your tribe's reservation.

When identifying problems and developing solutions, it is important that every participant in the regional planning effort use consistent methods for counting sources, developing emissions inventories, and considering other

factors, such as environmental costs and benefits. With this information, the group should develop a plan for implementing the recommendations it develops.

◇ *Regional Haze Plans*

Regional planning organizations are working together to develop regional haze plans. Regional haze plans include goals for improving visibility in national parks and wilderness areas and to develop long-term strategies for reducing emissions of air pollutants that cause visibility impairment. These goals should show reasonable progress goals based on improving visibility in the Class I affected area on the haziest day, as well as not allowing degradation of visibility on clear days. The long-term strategies should include enforceable measures allowing your tribe to meet the goal. It will be helpful to identify all manmade emissions contributing to impaired visibility in the Class I areas, and then identify the emission reduction measures your tribe will require. It may be the case that visibility will improve with the implementation of programs designed to meet the national ambient air quality standards for particulate matter.

An example of collaboration to address regional haze

One regional planning group that developed a regional haze strategy is the Grand Canyon Visibility Transport Commission (GCVTC). The GCVTC was established by Congress through the 1990 CAA Amendments to address visual air quality in the national parks and wilderness areas on the Colorado Plateau. The GCVTC was comprised of tribal, state, and federal representatives. Many of the GCVTC recommendations were incorporated into section 51.309 of the regional haze rule. Section 51.309 outlines an optional approach for the states and tribes in a nine-State western region to submit regional haze plans in 2003. Examples of some of the emission reduction strategies included in section 51.309 are:

- » Regional sulfur dioxide emissions milestones for each year in the 2003-2018 period, and a backstop market trading program to be implemented if any milestone is exceeded.
- » Mobile source emissions caps for areas contributing significantly to visibility impairment.



*Grand Canyon National
Park, Arizona*

The Grand Canyon National Park has a long history of tribal culture, namely with the Pueblo tribes. About 2,000 ancestral Puebloan sites have been found within the park boundaries. The Grand Canyon also houses the homelands of the Cerbat, Navajo, and Apache tribes. (Photo courtesy of the American Park Network)

*Can EPA intervene in
regional air quality
problems?*

- » Smoke management plans and annual fire emissions goals for prescribed fire programs
- » Comprehensive emissions tracking strategies for clean air corridors to ensure that visibility does not degrade on the cleanest "least impaired" days.
- » Programs to expand energy conservation and to provide incentives for early emissions reductions.

Once the GCVTC made its recommendations, the Western Regional Air Partnership (WRAP) was formed to implement GCVTC's recommendations. The WRAP's goals are to "promote and monitor the implementation of the recommendations from the GCVTC and, with the concurrence of its members, engage in other common regional air quality issues."

The members of WRAP include governors from western states, western tribal leaders, and representatives of the Departments of Agriculture and Interior, and EPA. Tribal representation includes the Pueblo of Acoma, the Campo Band of Kumeyaay Indians, the Cortina Indian Rancheria, the Hopi Tribe, the Hualapai Nation of the Grand Canyon, the Northern Cheyenne Tribe, the Salish and Kootenai Confederated Tribes, the Pueblo of San Felipe, the Nez Perce Tribe, and the Shoshone-Bannock Tribes of Fort Hall. Tribal air professionals are in many of the workgroups and committees. For more information on the WRAP, visit their web site at www.wrapair.org, or contact the National Tribal Environmental Council at (505) 242-2175.

Section 126 of the CAA requires certain new major sources and major modifications to provide written notice to all nearby states and eligible tribes that may be affected by their emissions before they can be built. Sources that must comply with this requirement are those either subject to a PSD program, or that may significantly contribute to levels of air pollution above the NAAQS in another region.

This section of the CAA also authorizes a downwind jurisdiction to petition EPA to impose emission limits directly on upwind sources if emissions from those sources are found to adversely affect that jurisdiction.²² (A tribe

making an appeal must be eligible for treatment in the same manner as a state.) In 1997, eight northeastern states filed petitions requesting EPA to make a finding that nitrogen oxide (NO_x) emissions from certain major stationary sources significantly contribute to ozone nonattainment problems in the petitioning states. The eight petitioning states were Connecticut, Maine, Massachusetts, New Hampshire, New York, Pennsylvania, Rhode Island, and Vermont. The petitions identified 30 states and the District of Columbia as containing sources that significantly contribute to regional transportation of ozone to the northeast.

In December 1999, after a technical review and public comment period, EPA granted the section 126 petitions from four northeast states (Connecticut, Massachusetts, New York, and Pennsylvania), finding that certain large electric utilities, industrial boilers, and turbines violated the CAA prohibition against significantly contributing to air pollution in other states. The petitions of the other four states were denied because by that time, all areas in those states met the 1-hour NAAQS for ozone. As a result of these findings, EPA is directly regulating the offending sources by applying the necessary emissions limits, and requiring each affected facility to participate in a federal NO_x "cap-and-trade" emissions trading program. A total of 392 facilities affected by these petitions will have to reduce annual emissions of NO_x by a total of nearly 510,000 tons.

Conclusion

There are several potential TIP elements that your tribe can adopt to help it reach its air quality goals: maintenance strategies, attainment strategies, source preconstruction permits, and regional haze plans. Once your tribe has decided which TIP elements, if any, to adopt, it can begin developing its TIP. Chapter 5 addresses two important aspects of TIP development: source compliance and enforcement of regulations.

Endnotes

1. "Reasonably severable" means that the TIP elements selected are not integrally related to the elements that are not included in the TIP and are consistent with applicable CAA and

regulatory requirements. 40 CFR Part 49.7(c)

2. The CAA Section dealing with maintenance plans is Section 110(a)(1). Maintenance strategies for areas previously in nonattainment are established in the CAA section 175A.
3. Sections 171 through 193 of the CAA establish the requirements for attainment plans.
4. The EPA's Guidelines on Air Quality Models can be found at 40 CFR Part 51, Appendix W and on-line at www.epa.gov/ttn/scram
5. Information on the data analysis requirements can be found in 40 CFR 50 and at the NAAQS policy and guidance memos site (www.epa.gov/ttn/oarpg/t1pgm.html).
6. Resources provided in this section for developing control measures include:
 - » The Clean Air Technology Center (CATC) is a resource on emerging and existing air pollution prevention and control technologies, and provides public access to information on their use, effectiveness, and cost (www.epa.gov/ttn/catc/).
 - » The RACT/BACT/LAER Clearinghouse (www.epa.gov/ttn/catc/).
 - » *Improving Air Quality with Economic Incentive Programs*, EPA-452/R-01-001, January 2001, available at www.epa.gov/ttn/oarpg/t1main.html and through EPA's Air and Radiation Docket and Information Center (Docket Number A-97-27) by calling (202) 260-7548.
7. RACT is defined as the "devices, systems, process modifications, or other apparatus or techniques that are reasonably available taking into account: (1) The necessity of imposing such controls in order to attain and maintain a national ambient air quality standard; (2) The social, environmental, and economic impact of such controls; and (3) Alternative means of providing for attainment and maintenance of such standard." RACT connotes a device or technological method such as a scrubber or baghouse or reformulation of coatings to reduce VOC content whereas RACM connotes a pollution prevention or other practice or measure —although the difference is not absolute. In general, the existing sources in nonattainment areas must meet emissions limits achievable by RACT. For more information, see the RACT/BACT/LAER Clearinghouse (www.epa.gov/ttn/catc/), and *Procedures for Identifying Reasonably Available Control Technology for Stationary Sources of PM₁₀* (EPA 452/R-93-001), September 1992, available through the Clear Air Technology Center products page (www.epa.gov/ttn/catc/).
8. BACT refers to the "best available control technology," an emission limitation based on the maximum degree of emission reduction (considering energy, environmental, and economic impacts) achievable through application of production processes and available methods, systems, and techniques. Use of the BACT concept is allowable on a case by case basis for major new or modified emission sources in attainment areas (used under the Prevention of Significant Deterioration program) and applies to each pollutant

regulated by PSD. LAER refers to the "lowest achievable emission rate," which is the rate of emissions that reflects (a) the most stringent emission limitation in the implementation plan of any state for such source unless the owner or operator demonstrates such limitations are not achievable; or (b) the most stringent emissions limitation achieved in practice, whichever is more stringent. LAER is usually required in the New Source Review program.

9. Regulations for economic incentive programs are in 40 CFR 51.490 through 51.494. Guidance on developing an economic incentive program can be found in *Improving Air Quality with Economic Incentive Programs*, EPA-452/R-01-001, January 2001, available at www.epa.gov/ttn/oarpg/t1main.html and through EPA's Air and Radiation Docket and Information Center (Docket Number A-97-27) by calling (202) 260-7548.
10. The requirement for contingency measures is established in the CAA section 172(c)(9) and codified in 40 CFR 51.152.
11. For more information on NSR, see www.epa.gov/ttn/nsr/.
12. For attainment and unclassified areas, the definitions of major source and major modification are given in 40 CFR 51.166(b)(1) and (2), respectively. For nonattainment areas, the definition of major source is given in 40 CFR 51.165(a)(1)(iv). For serious PM nonattainment areas, the definition of a major source is in the CAA section 188. For moderate, serious, severe, and extreme ozone nonattainment areas, the definition of major source is in the CAA section 182(b), (c), (d), and (e), respectively. Definitions for major modifications in the NSR and PSD programs can be found in 40 CFR 51.165(a)(1)(v) and 51.166(b)(2)(i). The term "significant" is defined for these programs in 40 CFR 51.165(a)(1)(x) and 51.166(b)(23).
13. New major sources of hazardous air pollutants (HAPs, defined in the section 112 of the CAA) are not subject to the nonattainment or attainment major New Source Review programs discussed here.
14. A source's "potential to emit" is its emission estimate based on the maximum capacity of that source, taking into consideration enforceable permit conditions, such as the type of materials combusted, the type of materials processed, and the annual hours of operation.
15. "Offsets" are emissions reductions obtained from existing source(s) by a prospective major new stationary source, or a source planning major modifications, in order to offset the increase in pollutant emissions caused by the new or modified source (thereby creating no net increase in emissions). Offsets must always be greater than the amount of the new emissions, depending on the area's air quality designation. Offsets are generally secured from other sources in the vicinity of the new source or modification. However, in the case of modifications, offsets can also be obtained, with limitations, from within the source itself.

16. PSD increments for NO₂, PM, and SO₂ Class I, II, and III areas are specified in the CAA section 163 and in 40 CFR 51.166(c). Currently there are no increments for CO, O₃, or Pb.
17. For more information on area redesignation under the PSD program, see the CAA section 164 and Appendix H, *Procedures for Area Redesignation to Class I*.
18. If your tribe adopts federal PSD regulations by reference in an approved TIP, when reading 40 CFR 52.21, substitute the appropriate tribal authority for references to the EPA "Administrator."
19. Information on air quality models is available at EPA's Support Center for Regulatory Air Models (www.epa.gov/ttn/scram/).
20. Biogenic sources are non-manmade or natural emitters of air pollutants. For example, conifer trees emit terpenes which are volatile organic compounds, a precursor to ozone.
21. See the Visibility Program website of the Office of Air and Radiation for more information on regional haze (www.epa.gov/oar/vis/index.html).
22. For more information on petitioning EPA for a finding that upwind sources are contributing significantly to NAAQS violations on your reservation, see the CAA section 126 and www.epa.gov/ttn/rto/126/.

Chapter 5

Compliance & Enforcement for a TIP

It is essential that your Tribal Implementation Plan (TIP) includes legally enforceable requirements for measuring and reporting emissions from the facilities that the tribe regulates. These requirements will allow your tribe to determine the success or failure of facilities in achieving the emissions reductions necessary for reaching the tribe's air quality goals. To prove that they are making those reductions and complying with applicable emission limits, facilities will need to measure or monitor their emissions and report them to the tribe. This chapter provides information on establishing requirements for facilities to measure and report their emissions, and programs to enforce the regulations in your TIP through inspections, notices of violation, and fines.

Measuring & Reporting Emissions

Which emission measurement techniques must the tribe require?

The tribe can require some facilities to determine emissions indirectly and require other facilities to measure emissions directly, depending on their size, processes, and emissions.

◇ Indirect measurement

Emission measurement requirements must be included in your tribe's TIP.¹ The appropriate measurement technique may depend on the type of facility, the pollutant to be measured, the type of process, and/or the nature of the facility's emission limitation. The quantity of emissions or size of facility may also be considered when setting these requirements because small facilities (which may be minor sources) may have a compelling need for the most economical measurement and reporting requirements.

There are three types of emission measurement techniques:

- » Indirect measurement
- » Periodic direct measurement (or "source testing")
- » Continuous direct measurement

Indirect measurement of emissions may be a suitable requirement for facilities with certain types of emissions. For example, the wood furniture industry includes many facilities that are sources of volatile organic compounds (VOC) emissions. A common method for reducing emissions from wood furniture manufacturers is requiring limitations on the VOC content of primers, paints, and other coatings. For example, EPA's emission limitation for topcoats (the final coating on a piece of wood furniture) is 0.8 lb VOC/lb solids (as applied).² "As applied" is the actual VOC concentration of the coating after any thinners have been added. "As purchased" is the VOC content of the coating before any thinner is added. The EPA has also set emission limitations for the other coatings used by the industry.

A furniture manufacturer could demonstrate compliance by using only "compliant coatings" (coatings that meet the emission limitations), maintaining records on the VOC content of coatings, and documenting the calculations of

the as-applied VOC content of the coatings used. The furniture manufacturer would need to keep accurate records of all the specific coatings and thinners it uses and the volume of coatings and thinners used. It would need to obtain the VOC content of the coatings and thinners from the product data sheets that are prepared and certified by coating and thinner manufacturers. Thus, the furniture manufacturer would certify emissions rates with records and calculations, but without directly measuring emissions.

This indirect measurement technique may also be appropriate for facilities if the individual sources of emissions are very numerous or dilute and hence cannot practically be connected to an exhaust vent or control device. For instance, a large wood furniture factory will have multiple production lines, dozens of spray booths and other applicators, and drying areas. The option of using compliant coatings and following the associated reporting requirements may be the least costly approach to meeting and demonstrating compliance with VOC emission limits.

◇ **Periodic direct measurement**

Another measurement option is to directly test emissions from a source to determine if it is in compliance with its emission limitations. Source testing is usually conducted under the most extreme conditions that can be reasonably expected at the facility, such as maximum and minimum production capacities. The tribe may require periodic retesting, for example every one to five years, to ensure that the source is continuing to comply with its emissions limitations.

The EPA has published approved emission test methods for criteria pollutants in Title 40 of the Code of Federal Regulations (CFR), part 60 Appendix A and part 40 Appendix M.³ Links to these test methods can also be found at EPA's Emission Measurement Center website at www.epa.gov/ttn/emc/.

◇ **Continuous direct measurement**

Continuous direct measurement can be accomplished using a continuous emission monitoring system (CEMS). A CEMS uses probes placed in the path of exhaust gases to continuously measure pollutant emissions. Pollutant analyzer measurements and a conversion equation, graph,



*CEMS monitoring.*⁴

How can visible emissions (opacity) be monitored?

Which procedures for reporting and record-keeping must the tribe require?

or computer program produce results in units of the applicable emission limitation or standard.

Large stationary sources such as power plants, pulp and paper mills, and smelters usually exhaust large volumes of combustion or process gasses through stacks. CEMS are advantageous for these facilities because they create timely and accurate records of compliance with emissions limits. The EPA requires some facilities, such as fossil fuel-fired power plants, sulfuric acid plants, nitric acid plants, and fluid bed catalytic cracking unit catalyst regenerators at petroleum refineries, to use CEMS.

Many stationary sources discharge visible emissions in the form of black and white plumes. Opacity refers to the degree to which a plume reduces the transmission of light, obscuring the view of an object in the background. Higher opacity means greater visibility impairment.

Implementation plans must include opacity limits for particulate matter.⁵ These regulations often limit opacity from agricultural and wood waste burners, charbroilers, and other stationary sources. Compliance can be determined by observers following the appropriate EPA reference methods, such as Method 9 - Visual Determination of the Opacity of Emissions From Stationary Sources.⁶ The EPA trains and certifies observers in the use of these methods. Your tribe does not need a TIP to participate in training.

Your TIP must require the regulated facilities to report and keep records of the information your tribe needs to determine compliance with, and enforce, the emissions limitations and other requirements that your tribe has set. The tribe needs to set schedules for submitting reports to ensure that the information is reported in a timely manner. For example, data from CEMS must be reported periodically (e.g., quarterly) to demonstrate compliance with emission limits.

The specific information required from a facility depends on its means of demonstrating compliance with the

emissions limitations and how your tribe plans on using the data once it is submitted. Different test methods, performance standards, and regulations will have different data reporting requirements. For example, if your tribe restricts VOC emissions through use of compliant coatings, your tribe should require coatings users to keep records on coating usage and to submit semiannual compliance certifications. The coatings users should possess certified product data sheets for all regulated coatings. Their records should document the VOC content (as applied) of each coating and the procedures for calculating the as-applied values. The compliance certifications should state that the coatings documented in the product data sheets are the coatings actually used at the facility.

How does a tribe start measuring emissions?

A tribe starts measuring emissions using one of the three measurement techniques mentioned previously. Using the VOC situation above, if a tribe required indirect measurements, the tribe could request the facility's records and then calculate their "as-applied" values. To take periodic measurements, a tribe could require the facility to do a source test using a Federal Reference Method, such as those in 40 CFR Part 60 Appendix A and Part 40 Appendix M, and then submit the report to the tribe. For continuous measurement, a tribe could require the facility to submit its CEMS data report directly to the tribe. When requiring the facility to undergo a source test, it is recommended that you understand which Federal Reference Methods are required to be able to use the results of the test.

How does a tribe include measuring and reporting in your TIP?

In the TIP, a tribe must identify the regulated sources, the pollutants that must be measured or monitored, acceptable measurement and monitoring techniques, the data to be reported, and the frequency of measurement and reporting. Tribes must also explain how they will use the reported data, such as for compliance assurance, and for an emissions inventory. For more information on measuring and reporting emissions, see EPA's Emission Measurement Center at www.epa.gov/ttn/emc/.

Your regional EPA office can also provide assistance (see Appendix A, *Tribal Contacts at EPA*).

Developing an Enforcement Program

Why is an enforcement program needed?

It is very important that tribes establish the authority and procedures necessary to ensure compliance with the emission limitations, control technology requirements, and other requirements in their TIP. One basic purpose of regulations is to list the actions that the owners and operators of sources must take to help achieve your tribe's air quality goals. The second basic purpose is to specify the penalties that sources will incur for failing to comply with the regulations. Two appendices in this document can help your tribe write enforceable regulations: *TIP Enforceability Checklist* (Appendix H) and *Regulation Development* (Appendix J).

What are the elements of an enforcement program?

A demonstration that the tribe can enforce the regulations it adopts must accompany a TIP. And, a TIP should include an enforcement program for its regulations. For example, the tribe must have the authority to enforce any regulation included in the attainment or maintenance strategy or preconstruction permit program to assure compliance. An enforcement program should include all of the following elements:

- » Resolutions and laws passed by the tribal government to establish authority to do inspections and enforce laws
- » Procedures as to how emission sources monitor their emissions and periodically report emissions data and other information needed to determine compliance to the tribe
- » Procedures for inspecting sources to verify that emission limits are met, issuing notices of violations, and assessing fines
- » Evidence that the authority to require owners and operators of emission sources subject to tribal regulations to monitor processes, measure emissions, keep records, make reports, etc., similar to EPA's

authorities under section 114 of the CAA has been adopted

- » Evidence that trained staff are available and maintained to perform inspections (described below)

Limitations on a tribe's criminal enforcement authority will not prevent TIP approval. In some cases it may be appropriate for the tribe to enter into a Memorandum of Agreement with EPA to cover certain elements of its enforcement program as described in 40 CFR 49.7(a) and 49.8. (Memorandum of Agreement is discussed in the "Must your tribe possess criminal enforcement authority?" section.)

How is tribal enforcement authority established for a TIP?



Haze on the Fort Hall Reservation, home of the Shoshone-Bannock Tribes. A major stationary source on the reservation contributes to the PM₁₀ nonattainment designation (see Chapter 1). (Photo courtesy of the Shoshone-Bannock Tribes.)

What enforcement actions must your tribe be prepared to take?

The CAA requires your tribe to demonstrate that you have adequate authority under tribal law to carry out the TIP.⁷ The tribal government must make the emissions reductions and limits that are included in the TIP part of the tribal code. Acting pursuant to tribal law, your tribe's governing body must provide a tribal agency, such as the environmental agency, with the authority for enforcing the requirements in its TIP. To demonstrate enforcement authority to EPA, your tribe may need to adopt rules providing for the authority to enter a regulated facility and inspect it, conduct stack tests and opacity tests, issue violation notices and fines, and pursue other enforcement actions described below. These rules support the TIP but would be separate from it. Of course Tribal governments already have their own authority to adopt tribal law.

In order for your tribe to be approved to administer a federal program (such as the Prevention of Significant Deterioration, or PSD, program), the tribal government must request formal approval from the EPA of enforcement authority as one part of the overall approval of authority to administer the program. Again, your tribe must adopt rules to demonstrate enforcement authority.

There are several enforcement actions your tribe must incorporate into its program for enforcing EPA-approved regulations, including:⁸



*Timucuan Ecological and
Historic Preserve, FL*

This preserve was established to protect one of the last unspoiled coastal wetlands on the Atlantic Coast and to preserve historic and prehistoric sites within the area. The area was inhabited by the native Timucuan people over four thousand years before the arrival of the first Europeans.

(Photo courtesy of the
National Parks Service)

- » Performing compliance evaluations
- » Issuing administrative sanctions
- » Taking civil action
- » Issuing sanctions
- » Issuing field citations
- » Taking emergency action

Compliance evaluations can be full evaluations, partial evaluations or investigations at a facility.⁹ A full compliance evaluation would determine the current compliance status of all regulated pollutants from all regulated emission units within a facility. It would also assess the facility's ability to maintain compliance at each regulated emission unit. A full compliance evaluation could take a year to complete (up to three years for a very large facility) and should include a review of all required reports (e.g., periodic monitoring and excess emissions reports, malfunction reports), a review of facility records and operating logs, assessments of control device operating conditions and performance, assessments of process parameters and operating conditions, visible emissions observations, and emissions measurements where necessary or appropriate. A partial compliance evaluation would focus on a subset of regulated pollutants, regulatory requirements, or regulated emission units at the facility. An investigation is a more in-depth assessment of a particular issue at a portion of a facility that is usually undertaken based on information discovered during a full or partial compliance evaluation.

If someone has complained about an emission source, the tribe should inspect it promptly to evaluate compliance. The tribe should have both planned and unplanned inspections. If sources know the tribe will be inspecting regularly for excess emissions, they have a greater incentive not to emit illegally. Inspectors should receive basic inspector training in health, safety and respiratory protection, and training in legal, technical, and administrative subjects, and communication skills. Inspectors should also receive specific training regarding air pollution sources, controls, regulations, and monitoring and testing techniques. Inspectors should receive medical monitoring, if needed.¹⁰ Inspectors from the regional EPA



*Natchez Trace Parkway,
Mississippi*
Established May 18, 1938,
the parkway follows a
historic Indian trail between
Nashville, TN and Natchez,
MS. Significant historical
sites such as Emerald Mound,
the second largest ceremonial
mound in the United States,
are found throughout the
parkway.
(Photo courtesy of the
National Parks Service)

*Are there any occasions that
warrant exceptions to
enforcement actions?*

office will accompany newly trained inspectors at the
tribe's request.

Administrative sanctions can be written letters to a source
indicating that it is violating a regulation. These sanctions
could take the form of warning letters, violation notices,
and orders requiring the source to come into compliance.
These sanctions should include how the source must come
into compliance and the schedule by which it must do so.
The source can discuss the violation and sanction with the
enforcement authority; however, if the order is disregarded,
it may be followed by a civil action.

A **civil action** is the process by which the enforcement
authority assesses a civil penalty against a source. Civil
penalties may be up to \$27,500 per day (adjusted for
inflation) of a violation.¹¹

Sanctions could include restraining orders or orders
prohibiting businesses from functioning normally until they
comply with regulations. Sanctions could also lead to
criminal proceedings.

For a "knowing" violation of the CAA, violators may be
charged with felonies. They may be **criminally
prosecuted**, fined, and imprisoned. A "knowing" violation
is one in which the responsible party is aware of an
environmental regulation, yet still takes an action that
causes the regulation to be violated. (Additional
information on criminal enforcement is provided below in
the section "Must your tribe possess criminal enforcement
authority?"). **Emergency actions** can also be taken against
a source when emissions pose an immediate danger.

Yes, there may be. Short and infrequent periods of excess
emissions may occur during periods of startup and
shutdown. Sometimes a piece of equipment will
malfunction and it will be necessary for the operator to
bypass pollution control equipment in order to prevent
injury to the people working at the facility. Although EPA
views all excess emissions as violations of the applicable
emission limitation, it recognizes that the imposition of a
penalty for a sudden and unavoidable malfunction caused

by circumstances beyond the control of the owner or operator may not be appropriate. Accordingly, the enforcement authority can use its "enforcement discretion" during these episodes to refrain from taking an enforcement action. These types of situations should be examined on a case-by-case basis. The enforcement authority should consider whether the source can adequately demonstrate that the excess emissions could not have been prevented through careful planning and design, and that bypassing of control equipment was unavoidable to prevent loss of life, personal injury, or severe property damage.¹²

Must your tribe possess criminal enforcement authority?

EPA recognizes that, in certain circumstances, Indian Tribes have limited criminal enforcement authority. Such limitations will not prevent EPA from approving a TIP if the tribe and the EPA Region enter a Memorandum of Agreement that will allow EPA to investigate and prosecute environmental crimes. Therefore, if the program for which your tribe is seeking approval for requires it to assert criminal enforcement authority, but the tribe is precluded from asserting such authority, your tribe and the EPA Region must agree to procedures by which the tribe will provide potential investigative leads to EPA and/or other appropriate Federal agencies in an appropriate and timely manner. The procedure must cover all circumstances in which the tribe cannot exercise applicable enforcement requirements.¹³

Does EPA have enforcement power on reservations?

Yes, EPA has the responsibility and authority, under the CAA, to enforce the regulations in an approved TIP. The EPA would exercise its enforcement authority if for some reason your tribe's environmental agency does not or cannot enforce the EPA approved regulations in your tribe's TIP. The EPA will work cooperatively with your tribe to develop a means to enable the facilities to comply, providing technical support and consultation as necessary and consistent with EPA policies. In those situations where such assistance does not result in compliance, EPA may, consistent with EPA policies, take criminal, civil, judicial and/or administrative enforcement actions against the facilities (whether they are owned or managed by the tribe or by private parties) in order to protect human health and the environment. The EPA will notify your tribal

How does a tribe start developing an enforcement program?



*The Cherry Creek
Reservation of the Cheyenne
River Sioux in North Central
South Dakota.*

(Photo courtesy of the
Cheyenne River Sioux.)

government of any anticipated enforcement action and consult with them on a government-to-government basis prior to initiating any enforcement action.¹⁴

The EPA provides several sources that can assist your tribe in developing an enforcement program.¹⁵

- » The Office of Enforcement and Compliance Assurance (OECA) has many resources that may help the tribe develop and implement enforcement measures.
- » The National Enforcement Training Institute (NETI), run by OECA.
- » The American Indian Lands Environmental Support Project (AILESP), developed by OECA.
- » Two appendices in this document can help your tribe write enforceable regulations: *Enforceability Checklist* (Appendix H) and *Regulation Development* (Appendix J). Your regional EPA office can also provide assistance (Appendix A).

Conclusion

Adoption and implementation of adequate enforcement authorities (authorities to collect information, monitor emissions, perform compliance evaluations, issue sanctions, assess fines, etc.) is vital to the success of achieving the emission reductions necessary to reach the air quality goals your tribe set in their TIP. Once your tribe has developed its enforcement authorities, it can hold public hearings, adopt the TIP, and submit it to EPA for approval as described in Chapter 6.

Endnotes

1. See the CAA section 110(a)(2)(F) for emissions monitoring and reporting requirements for stationary sources. See 40 CFR 51.210 through 51.214 for monitoring and record-keeping regulations.
2. More precisely, this limitation is one component of the presumptive norm for RACT for wood furniture manufacturing operations.

3. EPA also has approved test methods for other pollutants in 40 CFR 60 Appendix A, 40 CFR 61 Appendix B, and 40 CFR 63 Appendix A.
4. Image provided courtesy of Air Resource Specialists, Fort Collins, CO.
5. The requirement for states to establish opacity limits in SIPS is given in 40 CFR 51.212(b).
6. Visible emission limits can be determined by following EPA Methods 9 and 22, available at 40 CFR 60 Appendix A and at the Emission Measurement Center's promulgated test methods site (www.epa.gov/ttn/emc/promgate.html).
7. For more information on tribal enforcement authority, see CAA section 110(a)(2)(E).
8. See the CAA section 120 for more information on noncompliance penalties.
9. See the *Clean Air Act Stationary Source Compliance Monitoring Strategy*, Memorandum from Michael Stahl, Director of the Office of Compliance, April, 2001.
10. For more information on standards for inspectors, see the Office of Enforcement and Compliance Assurance guidance document titled, *Authorization Criteria for State, Tribal, and Territorial Inspectors*, at <http://es.epa.gov/oeca/main/statetribal/stateandtribalinsp.pdf>. For more information on training inspectors, contact your regional EPA office (see Appendix A).
11. OECA's description of noncompliance penalties regarding enforcement of Clean Air Act Amendment programs can be found at <http://www.epa.gov/compliance/civil/programs/caa/caaenfstatreq.html>.
12. For more information on EPA guidelines on emissions during malfunctions, startups, and shutdowns, see the memorandum from S. Herman (EPA Office of Enforcement and Compliance Assurance) and R. Perciasepe (EPA Office of Air and Radiation), "State Implementation Plans (SIPs): Policy Regarding Excess Emissions During Malfunctions, Startup, and Shutdown," September 1999 (www.epa.gov/ttn/oarpg/t1pgm.html).
13. For information on criminal enforcement authority and the Memorandum of Agreement, see 40 CFR Part 49.7(a)(6) and 49.9.
14. Federal power to enforce approved implementation plans is established in the CAA section 113. The EPA's *Guidance on the Enforcement Principles Outlined in the 1984 Indian Policy* (Steve Herman, January 17, 2001), provides information on EPA's enforcement policies against Tribal facilities.
15. This chapter gives the following references for developing an enforcement program:
 - » The Office of Enforcement and Compliance Assurance (OECA) has many

enforcement resources, including "virtual" (telecommunications-based) Compliance Assistance Centers for specific industry sectors that have large numbers of small businesses and entities that face federal regulation (<http://es.epa.gov/oeca/main/compasst/compcenters.html>). The sectors include printing, metal finishing, automotive services and repair, printed wiring boards, small chemical manufacturers, and agriculture. The centers are designed to provide comprehensive, easy-to-understand compliance information, fact sheets, and other tools.

- » OECA also runs NETI, the National Enforcement Training Institute, which is responsible for training federal, state, local, and tribal lawyers, inspectors, civil and criminal investigators and technical experts in the enforcement of environmental laws. The NETI provides courses on case support, statute enforcement, compliance assistance, and environmental criminal enforcement. Training is provided at EPA Regional offices, other state sites, and NETI training centers in Washington, DC, Colorado, and Georgia. For more information, see www.epa.gov/oeca/neti or call 1-800-EPA-NETI.
- » OECA has also developed the American Indian Lands Environmental Support Project (AILESP) which includes a database with recent multi-media point-source releases, the potential impacts of contaminants, and recent compliance and enforcement histories for facilities located on and within five kilometers of tribal lands (<http://es.epa.gov/oeca/ailesp>). The AILESP database assimilates and synthesizes disparate data sources and integrates them into a geographic information system (GIS) that is publicly available.

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Chapter 6

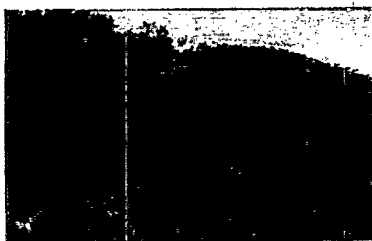
TIP Adoption & Submission

After your tribe has developed your Tribal Implementation Plan (TIP), your tribe needs to have it adopted by your tribal government and approved by the Environmental Protection Agency (EPA). There are several steps your tribe needs to follow to adopt your TIP and submit it to EPA for approval, including public notice, public hearings, and formal adoption. This chapter will help guide your tribe through the public outreach process and the requirements for public notification and hearings. It also presents information on how your tribal government must formally adopt your TIP and what happens once your TIP is submitted to EPA.

Adopting Your TIP

What is public outreach and how does your tribe prepare an outreach strategy?

Public outreach involves communication with all affected parties about the development of your TIP. The CAA requires that your tribe provide reasonable notice and conduct public hearings prior to adopting your TIP. These



The Oneida Creek on the Reservation of the Oneida Tribe of Indians of Wisconsin. The Tribe is in the process of building its air program, beginning with an emissions inventory.

(Photo courtesy of the Oneida Tribe of Indians of Wisconsin.)

requirements are discussed later in this Chapter. In addition to these minimum requirements, it may also be useful to conduct other public outreach efforts even earlier in the TIP development process. Such outreach is not required; however, it is likely to benefit both your tribe and potentially affected parties. Affected parties (including, for example, residents within the exterior boundaries of your reservation and in adjacent counties, business owners and operators, and air quality managers in adjacent jurisdictions) are likely to be more helpful if they have been included in the entire process. They may have ideas, viewpoints, or concerns to contribute that your tribe may not have considered otherwise. Your early outreach may also enhance their ability to contribute to the TIP development process.

The first step in organizing your outreach strategy is to identify the main issues and how your tribe will address them. One way to accomplish this task is to hold a brainstorming session with your staff and/or other individuals who may be able to provide ideas or guidance. In the *It All Adds Up to Cleaner Air* initiative, EPA used the set of questions found in Table 6-1 to begin their brainstorming on ways to effectively communicate with the public. These questions may help your tribe begin thinking about your TIP outreach strategy. The examples have been altered to reflect a TIP development scenario.

Table 6-1. Brainstorming Questions for Developing a TIP Outreach Strategy

Questions	Possible Answers
What is the issue your tribe wants to address?	<ul style="list-style-type: none"> » Unacceptable air pollution in the community » Nonattainment status for a criteria air pollutant » Permitting new major sources of emissions » Fill regulatory gaps
What is the overall goal?	<ul style="list-style-type: none"> » Explain the current or potential air quality problem and your approach to resolving it
What are the desired outcomes?	<ul style="list-style-type: none"> » Widespread support for TIP
Which groups are most affected by the issue?	<ul style="list-style-type: none"> » General public, driving public, people with respiratory disorders, the elderly, children » Health professionals » Tribal government and agencies » Federal, state, and local government agencies (e.g., the Bureau of Indian Affairs) » Business owners/employees
What can your tribe do?	<ul style="list-style-type: none"> » Meet with people » Conduct media outreach » Hold public hearings » Make the proposed TIP and supporting information readily available
Does your organization have the capacity to address the issue and affect change?	<ul style="list-style-type: none"> » Determine any barriers to adopting the TIP, e.g., tribal council members, tribal laws and customs, jurisdiction disputes, resources » Assess current resources, e.g., staffing, funding, information, time
What strategy will your tribe use?	<ul style="list-style-type: none"> » Develop a plan, including all program tasks, a timetable, staffing and budget issues, evaluation methods, and partnerships

What kind of information can your tribe provide to interested parties to enhance their ability to participate in the TIP development process?

In general, so that any interested person may be informed about the air quality on the reservation, the need to develop a TIP, and the procedures that will be used to manage air quality, EPA suggests that your tribe provide the following support information, as appropriate:

- » Ambient monitoring data with comparisons to the National Ambient Air Quality Standards (NAAQS), if available
- » Air quality trends and forecasts (this is especially important if new sources of emissions plan to begin operating on the reservation)
- » Emission limits and regulations needed to attain and/or maintain the NAAQS
- » A demonstration that the proposed regulations will resolve the air quality problem
- » Documentation that the emission limits and regulations will require the use of Reasonably Available Control Measures, including reasonably available control technology, on sources in nonattainment areas (if applicable)
- » Procedures that will be followed to enforce regulations
- » Budgets for the air quality program and/or the tribal environmental agency

Whom should you try to reach with the outreach strategy?

Many people will be interested in your TIP because it may affect their business costs, jobs, and air quality. You might want to meet with tribal leaders and/or other tribal members, individually or as a group, to present the TIP before presenting the TIP to other interested parties. Others who may wish to participate and have their views heard include owners and operators of businesses that emit air pollutants, their employees, residents, and environmental groups. Additional groups that may be interested in your TIP include:

- » Community, civic, neighborhood, and public health groups
- » Homeowner and resident organizations
- » Media/Press
- » Spiritual communities

Additionally, if your reservation borders Mexico or Canada, your tribe may need to consider informing foreign governments about your TIP, especially if your tribe is considering adopting a Prevention of Significant Deterioration, or PSD, program. The EPA tribal air coordinator for your region can provide your tribe with guidance about whom to inform and which interest groups and businesses your tribe should try to reach (see Appendix A).

How can your tribe effectively communicate with all interested parties?

Means of communicating to the public about your proposed TIP include:

- » Speeches
- » Presentations
- » Newspaper articles
- » Editorials
- » Brochures
- » Meetings
- » Letters to the editor
- » Public service announcements

The tribal air program training manual developed by Northern Arizona University describes five steps to effectively communicate with the public.¹

- » **Problem/Issue Analysis:** Examine your problem or issue and determine your goals; for example, educating the community about the air quality situation so that they can contribute to identifying air quality goals.
- » **Audience:** Determine who your audience is and its characteristics
- » **Medium Determination:** Determine what media or channels of communication your tribe will use to reach your audience
- » **Message Development:** Select the appropriate message for each communication method
- » **Evaluation:** Devise a method of evaluating whether or not your campaign was successful; for example, your tribe can count the number of people who attend educational meetings about air quality and their reactions to your suggested air quality goals

The communication methods your tribe can use range from speeches and presentations, to newspaper articles, editorials, the internet, brochures, and community meetings. Your tribe can write news releases and public service announcements which newspapers and radios will often run for free. Letters to the editor are another good way to gain exposure. Your tribe can also use these forums to update the public on the status of TIP development and any



*The Quarry Lake on the
Reservation of the Oneida
Tribe of Indians of Wisconsin.*

(Photo courtesy of the Oneida
Tribe of Indians of
Wisconsin.)

***What are the minimum
requirements for notice and
public hearings?***

changes that may occur. For example, a weekly or monthly column in a local newspaper or newsletter would enable many people to stay up-to-date on air quality issues while your tribe is developing the TIP. Check with area newspapers or radio stations before submitting any press release or public service announcement as there may be guidelines on how to prepare them.

When preparing documents or statements to reach stakeholders, use clear, concise language; explain complicated scientific terms; and use acronyms sparingly. It is also helpful to discuss the various impacts that may arise from implementing a TIP.

When communicating with local citizens groups, it may be helpful to relate air quality issues to the more familiar issues of water quality, natural resource quality, and even quality of life. Referencing these more familiar issues can help people understand that air quality is an important part of everyday life. Your tribe may need to give speeches or presentations to different groups of stakeholders and choose to alter your presentation to suit their interests. For example, tribal members may want to know more about the importance of good air quality for long-term human health, the health of farm crops and natural vegetation, and the tribe's culture, while representatives from business and industry may want more technical explanations of proposed emissions reductions.

Public notice allows interested parties to review your plan and offer comments at a meeting to be held later in the process. Your tribe must make the TIP available for public review by having it accessible in public locations on and off the reservation, and provide information about how, when, and where the public can access it in a prominent advertisement in a general circulation newspaper. This advertisement can also provide information about the public hearing(s) for the TIP. Notice should be provided at least 30 days prior to the date of the hearing.

Public hearings are required so that all those that are affected by the proposed law have an opportunity to review



*Ocumulgee National
Monument, GA*

The National Monument preserves a continuous records of human life in the Southeast from the earliest times to the present. From Ice-Age hunters to the Muscogee (Creek) people of historic times, there is evidence here of 12,000 years of human habitation. (Photo courtesy of the National Park Service)

the plan and make comments. The CAA requires that public hearings are held before an implementation plan is sent in for EPA's approval.² There are certain requirements for holding public hearings. These requirements are outlined in 40 CFR Part 51.102(d) and are as follows:

- » Notice should be given to the public by prominent advertisement in the area affected announcing the date(s), time(s), and place(s) of such hearing(s);
- » The proposed plan should be available for public inspection in at least one location in each region to which it will apply;
- » The EPA Administrator should be notified (through the appropriate Regional Office);
- » Notification should be provided to each local air pollution control agency which will be significantly impacted by such plan, schedule, or revision;
- » In the case of an interstate region, notification should be given to any other states included, in whole or in part, in the regions which are significantly impacted by such plan or schedule or revision.

A tribe may request approval from EPA to utilize procedures different from those listed above, however such alternative procedures would have to ensure public participation in matters for which hearings are required and provide adequate public notification of the opportunity to participate.³ In addition to the above requirements, there are suggestions on how to make the process run more smoothly. These suggestions are listed below.

- » Consider holding a hearing in the evening to accommodate those people that cannot attend a daytime hearing.
- » Include in the notice how the public can obtain a copy of the TIP. Make the plan available on and off your reservation.

- » Try not to make changes to the TIP between the time of advertising and the hearing, if possible. If significant changes are made to the TIP during this time, the TIP may need to be "re-proposed" to the public through additional advertising.
- » In the notice for the hearing, explain the air quality goals to be achieved and how the TIP will help to meet those goals.
- » Allow everyone to speak during the hearing, if possible. If there is a large number of people interested in speaking, your tribe may want to have time limits on comments to ensure there is time to hear from everyone.
- » Make the hearing transcripts available to the public. These transcripts need to include a list of speakers and their remarks.

After the public hearing, your tribe should prepare a summary of the public's comments and your responses, showing how they may have influenced the final version of the TIP.

Are there other consultation requirements?

Under Section 121 of the CAA, consultation with certain governmental entities (e.g., Federal land managers) may be necessary before you adopt your TIP. You should consult with your EPA regional contact to determine whether or not such consultation will be required.

How does your tribal government formally adopt the TIP?

After the consultation process, public notice period, public hearings, and any revisions resulting from public comment, the tribal government can adopt the TIP. The tribal government must adopt the TIP in the tribal code or body of regulations. Your tribe's laws and constitution may include procedural requirements that you will also need to follow in conducting and completing the adoption of the TIP.

Submitting Your TIP to EPA for Approval

What needs to be submitted to EPA along with the TIP?

Once your tribe has adopted the TIP, it should be submitted to EPA for approval. Appendix H, *TIP Enforceability Checklist*, provides criteria that can be used to determine if your regulations are clearly written before your TIP is submitted. Appendix K, *TIP Completeness Checklist*, provides an example of one Region's criteria for deeming a TIP submission complete.

The EPA has specified in the Code of Federal Regulations (40 CFR 51, Appendix V), the information that must be submitted with your TIP in order for it to be deemed a complete submission.⁴ The list is broken down into administrative requirements, technical requirements, and exceptions to the requirements.

The administrative requirements are:

- » A formal letter from your tribe's Chair/President/Chief to EPA requesting approval of the plan
- » Evidence that the TIP was adopted into tribal code
- » Evidence of your tribe's legal authority to adopt and implement the TIP
- » Evidence that your tribe is eligible to implement the TIP, including evidence that your tribe has adequate personnel and funding
- » A copy of the tribal air code and the date the TIP is effective and enforceable
- » Certification that public hearings were held
- » A copy of the public comments and your tribe's response



A major stationary source located on the Fort Hall Reservation on a winter day. A portion of the reservation was designated nonattainment for the PM_{10} NAAQS in 1990. The Shoshone-Bannock Tribes and the EPA worked together to address pollution from the source (see Chapter 1). (Photo courtesy of Shoshone-Bannock Tribes.)

The technical requirements include, as applicable:

- » A list of regulated pollutants affected by the plan
- » Locations of affected sources and the air quality designation of their locations (i.e., attainment, unclassifiable, nonattainment)
- » Projected estimates of changes in current actual emissions from affected sources
- » Modeling information (i.e., input and output data, justification of models used, data and assumptions used)
- » Evidence that the plan contains emission limitations, work practice standards, and record-keeping/reporting requirements

Since the Tribal Authority Rule (TAR) allows tribes to adopt severable TIP elements and build a TIP in a modular fashion, it may not be necessary to meet every requirement listed. Consult with EPA's tribal air coordinator in your region before submitting your TIP to determine which requirements will apply to your submission (see Appendix A).

In addition to the documents listed above, your tribe may also need to provide additional supporting materials. Examples of these materials include air quality data summaries, current and projected emissions inventories, and dispersion modeling analyses. Any documents that support your use of certain control technologies, inventory development, and other air quality documents should be submitted along with your TIP.

If your tribe has not already requested and received approval for "treatment as a state" for purposes of adopting a TIP, then this request should also be submitted with your TIP (see Chapter 1 for a more detailed discussion regarding this submission). Please note that the statutory timeframes discussed in the next section regarding completeness

What does EPA do after your tribe has submitted your TIP?

determinations and TIP approval would not apply unless your tribe has received approval for "treatment as a state" for purposes of those provisions.

After your tribe has submitted the TIP to your regional EPA office, they will review it for completeness within 6-months. If your TIP submission is incomplete, EPA will return it for revision. Your tribe can resubmit the TIP when appropriate changes have been made. If EPA does not make a completeness or incompleteness finding within 6 months from the date the TIP was received, the TIP submission will automatically be deemed complete.

Partial approval/partial disapproval of your TIP may occur if some sections of your TIP are approvable but other sections are not approvable. Plans may also be approved conditionally if it is necessary for the tribal government to make certain revisions to the TIP before the TIP can be fully approved by EPA. If your TIP is partially or conditionally approved, your tribe will need to revise it and resubmit it to EPA for approval. If EPA finds that the TIP meets the requirements of the CAA, the Agency will approve it. If a tribe's reservation boundary or other areas under the tribe's jurisdiction are under dispute, EPA may approve the plan for the undisputed areas and request more information to resolve the conflict. Within 12 months of a TIP being deemed complete, EPA must approve or disapprove the TIP.

The EPA will notify your tribe prior to making any final decision to fully or partially approve or disapprove your TIP. EPA must take public comment on its intention to approve or disapprove your TIP in the Federal Register.

Revising Your Approved TIP

Why would your TIP need revising once it has been approved?

If the NAAQS change or if EPA revises regulations pertaining to a program that a tribe has adopted, the tribe may have to revise its regulations and submit those regulations as TIP revisions.

In addition, if tribal laws change or if your tribe finds that your TIP is not as effective as it could be in certain areas, your tribe may wish to revise it. For example, if a source has altered its production methods it may require a different emission limit. Your tribe may also wish to change the air quality designation of your reservation and this would also require a revision in your TIP.

When the TIP needs to be revised, the same procedures must be followed as with the original TIP, and EPA applies the same completeness criteria when reviewing it for approval.⁴

Conclusion

A TIP is a flexible tool your tribe can use to address its air quality goals. Your tribe can choose to develop and implement only those TIP elements - maintenance plans, attainment plans, preconstruction permitting program, and regional haze plans - it considers important for addressing air quality problems due to criteria pollutants. If your tribe chooses to adopt a TIP, your regional EPA tribal air coordinator and the references provided in this document can help your tribe develop one.

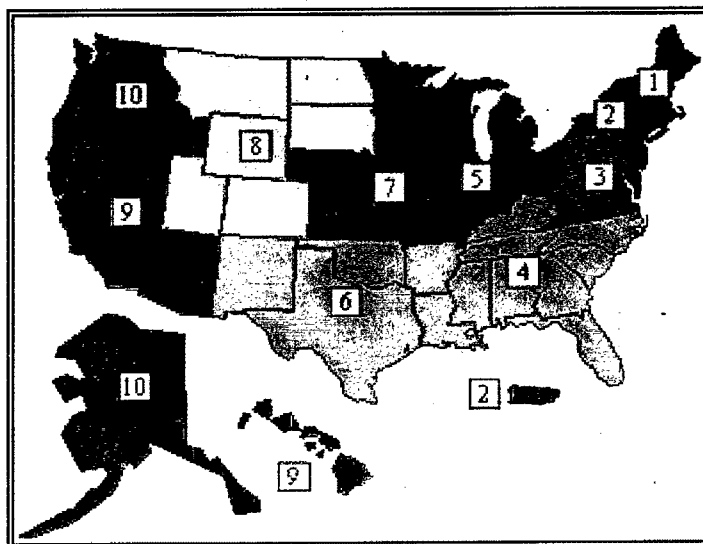
Endnotes

1. For more information on communicating with the public and other topics relating to air program development, see *Developing a Tribal Air Program, Training Manual* (April 1999) by the Institute for Tribal Environmental Professionals, Northern Arizona University, and US EPA Region 6.
2. The requirements for public participation are established in the CAA section 110 and codified in 40 CFR 51.102.
3. Requirements for public hearings can be found in 40 CFR 51.102. Under 40 CFR 51.102(g) a Tribe may request alternative procedures.
4. 40 CFR 51, Appendix V identifies the criteria for determining the completeness of an implementation plan submission. Only a submission that is found or deemed complete triggers the requirement for EPA to decide whether to approve or disapprove the TIP.

Appendix A

Tribal Contacts at EPA

EPA Regional Office Jurisdictions



EPA Regional Offices Tribal Programs Web Sites

Region 1	www.epa.gov/region01/govt/tribes/index.html
Region 2	www.epa.gov/region2/nations/indian1.htm
Region 3	www.epa.gov/region03/
Region 4	www.epa.gov/region4/ead/GovPartners/tribal.htm
Region 5	www.epa.gov/reg5oop/tribes
Region 6	www.epa.gov/earth1r6/6xa/tribal/tribal.htm
Region 7	www.epa.gov/region07/
Region 8	www.epa.gov/region8/tribes/
Region 9	www.epa.gov/region09/cross_pr/indian/index.html
Region 10	http://yosemite.epa.gov/r10/tribal.NSF/webpage/tribal+office+homepage?opendocument

EPA Tribal Contacts

Region	Name & Address	Phone & Fax	Email
1	Ida Gagnon Environmental Engineer Air Permits Program 1 Congress Street Suite 1100 (CAP) Boston, MA 02114-2023	(617) 918-1653 (P) (617) 918-1505 (F)	gagnon.ida@epa.gov
2	Mazeeda Khan 290 Broadway, 26 th Floor New York, NY 10007-1866	(212) 637-3517 (P)	kahn.mazeeda@epa.gov
3	Air Protection Division	(215) 814-2100	
4	Darren Palmer Environmental Scientist Air Permits Section Atlanta Federal Center 61 Forsyth Street Atlanta, GA 30303-3104	(404) 562-9052 (P)	palmer.darren@epa.gov
5	Ben Giwojna (Dino Blathras) AR-18J 77 West Jackson Blvd. Chicago, IL 60604-3507	(312) 886-0247 (P)	giwojna.benjamin@epa.gov
6	Dick Thomas (Tony Talton) Air Tribal Coordinator Fountain Place 1445 Ross Ave. Dallas, TX 75202-2733	(214) 665-8528 (P) (214) 665-6762 (F)	thomas.richardm@epa.gov
7	Judith Robinson ARTD/APDB Tribal Air Program Coordinator 726 Minnesota Kansas City, KS 66101-2728	(913) 551-7825 (P) (913) 551-7844 (F)	robinson.judith@epa.gov

Region	Name & Address	Phone & Fax	Email
8	Monica Morales (Bernadette Gonzalez) 8P-AR Environmental Engineer/ Tribal Air Coordinator Air and Radiation Program 999 18 th St., Suite 300 Denver, CO 80202	(303) 312-6936 (P) (303) 312-6064 (F)	morales.monica@epa.gov
9	Doug McDaniel (Sara Bartholomew) Tribal Team Leader Air Division 75 Hawthorne St. (AIR-8) San Francisco, CA 94105	(415) 744-1246 (P) (415) 744-1076 (F)	mcdaniel.doug@epa.gov
10	Regina Thompson (Mary Manous) Tribal Air Program Development 1200 Sixth Ave (OAR-107) Seattle, WA 98101	(206) 553-1498 (P) (206) 553-1059 (P)	thompson.regina@epa.gov
National	Darrel Harman Office of Air and Radiation National Tribal Coordinator 401 M Street SW - 6101 Washington, DC 20460	(202) 564-7416 (P)	
National	Laura McKelvey Office of Air Quality Planning and Standards Tribal Coordinator C504-01 Research Triangle Park, NC 27713	(919) 541-5477 (P)	mckelvey.laura@epa.gov
National	Julie McClintock Office of Air Quality Planning and Standards Tribal Programs C539-02	(919) 541-5339 (P)	mcclintock.julie@epa.gov

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Appendix B

Informational Resources

Description	Website and/or Other Sources of Information
Starting Points	
American Indian Environmental Office (AIEO)	www.epa.gov/indian
Institute for Tribal Environmental Office	www.cet.nau.edu/itep/
American Indian Science and Engineering Society (AISES)	www.aises.org
General Law	
The Clean Air Act (CAA)	www.epa.gov/oar/caa/contents.html
Plain English Guide to the CAA	www.epa.gov/oar/oaqps/peg_caa/pegcaain.html
Code of Federal Regulations (CFR)	www.access.gpo.gov/nara/cfr/index.html
Text of 40 CFR (environmental regulations)	www.epa.gov/docs/epacfr40
Tribal Authority Rule (TAR)	63 Federal Register 7254 40 CFR parts 9, 35, 49, 50, and 81 www.epa.gov/oar/tribal/airprogs/authrule/http://laws.findlaw.com/dc/981196a.html
Laws, regulations, and guidance of special interest to tribes	www.epa.gov/indian/regulate.htm
National Ambient Air Quality Standards (NAAQS)	40 CFR 50 www.epa.gov/airs/criteria.html www.epa.gov/ttn/oarpg/t1main.html
Memoranda for NAAQS - Policy & Guidance Memos	www.epa.gov/ttn/oarpg/t1pgm.html
Reports for NAAQS - Background Information Documents	www.epa.gov/ttn/oarpg/t1bid.html

Description	Website and/or Other Sources of Information
State implementation plan (SIP) requirements	CAA Section 110(a) 40 CFR parts 51 and 52
Criteria used to determine the administrative completeness of implementation plans	40 CFR 51 Appendix V
Ozone nonattainment area requirements	CAA Sections 181 through 185
Carbon monoxide nonattainment area requirements	CAA Sections 186 and 187
PM nonattainment area requirements	§188 to §190
Sulfur oxide, lead, or nitrogen oxide nonattainment area requirements	CAA Sections 191 and 192
Nonattainment areas	www.epa.gov/airs/nonattn.html www.epa.gov/oar/oaqps/greenbk/index.html
Section 126 petitions to EPA to find that sources outside your reservation are contributing to NAAQS violations	www.epa.gov/ttn/rto/126/
Redesignation from nonattainment to attainment	CAA Section 107(d)(3)(E)
Emissions Inventories	
Emissions Inventory Improvement Program (EIIP)	www.epa.gov/ttn/chief/eiip/
<i>EIIP Document Series, Volumes I-IX</i> - the primary guidance on inventory development	www.epa.gov/ttn/chief/eiip/ or the National Technical Information Service (www.ntis.gov/ or (703) 605-6000)
ClearingHouse for Inventories and Emissions Factors (CHIEF)	www.epa.gov/ttn/chief
<i>Handbook for Criteria pollutant Inventory Development: A Beginner's Guide for Point and Area Sources</i>	www.epa.gov/ttn/chief (reference number EPA-454/R-99-037)
The Institute for Tribal Environmental Professionals	www.cet.nau.edu/itep

Description	Website and/or Other Sources of Information
<i>The Emissions Inventory Guidance for Implementation of Ozone and Particulate Matter NAAQS and Regional Haze Regulations, April 1999</i>	www.epa.gov/ttn/chief/txt/eidocfml.pdf (reference number EPA-454/R-99-006)
<i>AP-42, Emission Factors Handbook</i> - includes brief descriptions of processes used, potential sources of air emissions from the processes, common methods used to control these air emissions, and methodologies for estimating the quantity of air pollutant emissions via emission factors	www.epa.gov/ttn/chief/ap42.html#chapter
Air Quality Monitoring	
Information on existing air quality monitoring stations	www.epa.gov/oar/oaqps/qa/monprog.html
The Aerometric Information Retrieval System - Air Quality System (AIRS-AQS) - a database with information on the levels of the criteria pollutants in all areas of the country	www.epa.gov/airs/
Ambient Monitoring Technology Information Center	www.epa.gov/ttn/amtic
Air Pollutant Monitoring website	www.epa.gov/oar/oaqps/montring.html
The Tribal Air Monitoring Support Center	www.cet.nau.edu/itep/TAMS/TAMS_default.htm
<i>Quality Assurance Handbook for Air Pollutant Measuring Systems: Volume 1-Principles</i>	Ordering information: www.epa.gov/ncepihom/Catalog/EPA600R94038A.html or 1-800-490-9198
<i>Quality Assurance Handbook for Air Pollutant Measuring Systems: Volume 3-Stationary Source-Specific Methods</i>	Ordering information: www.epa.gov/ncepihom/Catalog/EPA600R94038C.html or 1-800-490-9198
Data analysis requirements	40 CFR 50 www.epa.gov/ttn/oarpg/tlpgm.html
Control Measures	

Description	Website and/or Other Sources of Information
Clean Air Technology Center (CATC) - a resource on all areas of emerging and existing air pollution prevention and control technologies, and information on their use, effectiveness, and cost	www.epa.gov/ttn/catc/
NSR RACT/BACT/LAER Clearinghouse	http://209.42.208.109/rblc/htm/bl02.htm
<i>Procedures for Identifying Reasonably Available Control Technology for Stationary Sources of PM₁₀</i> (EPA 452/R-93-001), September 1992	www.epa.gov/ttn/catc/products/html
Air Quality Modeling	
Support Center for Regulatory Air Models	www.epa.gov/ttn/scram/
Emissions Measurement	
Emission Measurement Center (EMC)	www.epa.gov/ttn/emc/ or the EMC 24-hr automated telephone information hotline: (919) 541-0200
EMC's promulgated test methods site	www.epa.gov/ttn/emc/promgate.html
Enforcement	
Office of Enforcement and Compliance Assurance (OECA)	http://es.epa.gov/oeca/
OECA's Compliance Assistance Centers for specific industry sectors	http://es.epa.gov/oeca/main/compasst/compcenters.html
National Enforcement Training Institute (NETI)	www.epa.gov/oeca/neti or call 1-800-EPA-NETI
American Indian Lands Environmental Support Project (AILESP) - a database with release, compliance and enforcement histories for facilities located on and within five kilometers of tribal lands	http://es.epa.gov/oeca/ailesp/

Description	Website and/or Other Sources of Information
BEN - a computer model for determining the economic benefits gained by a source for avoiding or delaying required environmental expenditures	http://es.epa.gov/oeca/models/ben.html
Miscellaneous	
Criteria pollutants - general information	www.epa.gov/oar/aqtrnd97/brochure/sixprin.html
New Source Review	www.epa.gov/ttn/nsr/
Visibility / Regional Haze Program	www.epa.gov/oar/vis/index.html
<i>Tribal Environmental and Natural Resources Assistance Handbook</i> - a central location of federal resources of both technical and financial assistance available to tribes for environmental management	www.epa.gov/indian/tribook.pdf
<i>Developing a Tribal Air Program, Training Manual</i> (April 1999) - information on public relations campaigns and other topics relating to air program development	Institute for Tribal Environmental Professionals at Northern Arizona University at (520) 523-9555 and ITEP-L@lists.nau.edu (e-mail); US EPA Region 6
Office of Air and Radiation, TribalAIR	www.epa.gov/oar/tribal/
State and Territorial Air Pollution Program Administrators (STAPPA) and Association of Local Air Pollution Control Officers (ALAPCO) - national associations representing air pollution control agencies across the United States	www.4cleanair.org
National Tribal Environmental Council (NTEC) - a membership organization dedicated to working with and assisting tribes in the protection and preservation of the reservation environment	www.ntec.org

Description	Website and/or Other Sources of Information
National Service Center for Environmental Publications (NSCEP) - has over 5000 EPA publications available in hard copy and multimedia product, free of charge	www.epa.gov/ncepihom/

Appendix C
Education and Training Resources

Resource	Contact Information
Air Pollution Training Institute (APTI) - offers classroom, telecourse, self-instructional courses, and web-based learning, links to some of which are provided below	www.epa.gov/oar/oaqps/eog/apti.html (919) 515-4265 (phone) (919) 541-5678 (fax)
APTI Area Training Centers - classroom courses and training opportunities	www.epa.gov/oar/oaqps/eog/atcacad.html <u>Area Training Centers</u> Rutgers (Univ. of NJ), New Brunswick: (732) 932-8065 Univ. of IL, Chicago: (312) 996-2094 CA Polytechnic State, San Luis Obispo: (805) 756-2559 Univ. of So. FL, Tampa: (813) 974-5815 <u>Specialized Training Centers</u> Environmental & Occupational Health Sciences Institute, Piscataway, NJ: (732) 445-0220 Environmental Training Institute, Univ. of OH, Cincinnati: (513) 556-2542 Air Pollution Training Academy, Univ. of TX, Arlington: (817) 272-2915
APTI OL:2000 - an online reference manual with reading material and problems on fundamental engineering principles and concepts, permit review, compliance monitoring and inspection, and CAA regulatory requirements	www.epin.ncsu.edu/apti/ol_2000/home/homefram.htm
EPA Education and Outreach Group (EOG) - provides APTI courses and a variety of other air training events, links to some of which are provided below	www.epa.gov/oar/oaqps/eog/catalog/ccs2.html

Resource	Contact Information
EOG Air Pollution Distance Learning Network (APDLN) - provides seminars and telecourses via satellite broadcasts to over 100 governmental and university affiliates	www.epa.gov/oar/oaqps/eog/apdln.html (919) 541-5455 (phone) (919) 541-5678 (fax)
EOG self-instructional courses - both introductory and advanced courses are available	www.epa.gov/oar/oaqps/eog/catalog/catsic.html (919) 515-5875
Institute for Tribal Environmental Professionals (ITEP) - provides technical and administrative training (the <i>American Indian Air Quality Training Program</i>), a resource center and database (the <i>Tribal Environmental Resource Center</i>), outreach to schools, and professional and student internships	www.cet.nau.edu/itep/default.htm (520) 523-9555
Tribal Air Monitoring Support Center (TAMS) - provides hands-on training and support services for tribal air professionals on the topic of air quality monitoring	www.cet.nau.edu/itep/TAMS/TAMS_default.htm (702) 798-2559

Appendix D

Information on Criteria Pollutants

SO ₂	What is it?	<ul style="list-style-type: none"> » Sulfur dioxide (SO₂) belongs to a family of gases called sulfur oxides (SO_x). » SO₂ is released during the burning or processing of sulfur-containing ores and fossil fuels.
	Health Effects	<ul style="list-style-type: none"> » SO₂ contributes to respiratory illness. » SO₂ aggravates asthma, bronchitis, emphysema, cardiovascular problems.
	Environmental Effects	<ul style="list-style-type: none"> » Acid rain occurs when SO₂ and NO_x react with water and oxygen; Acid rain harms lakes and streams, and damages trees, crops, historic buildings, and monuments. » SO₂ contributes to visibility impairment in large parts of the country by contributing to haze.
	Common Emission Sources	<ul style="list-style-type: none"> » Utility & industrial boilers » Primary and secondary copper & lead smelters » Petroleum refineries » Aluminum smelters » Phosphate fertilizer manufacturing » Diesel vehicles » Iron & steel mills » Crude petroleum & natural gas extraction processes » Carbon black manufacturing » Sulfuric acid plants » Portland cement manufacturing » Pulp and paper mills
NO ₂	What is it?	<ul style="list-style-type: none"> » Nitrogen dioxide (NO₂) belongs to a family of gases called nitrogen oxides (NO_x). » NO₂ is released when fossil fuels are burned and from high temperature processes. » NO₂ can react in the presence of water and sunlight to become ozone (O₃).
	Health Effects	<ul style="list-style-type: none"> » O₃ causes damages lung tissue, reduces lung function and sensitizes the lungs to other irritants; it also irritates the eyes, nose, throat. » O₃ is especially bad for those with chronic heart and lung disease, as well as the very young and old, and pregnant women.

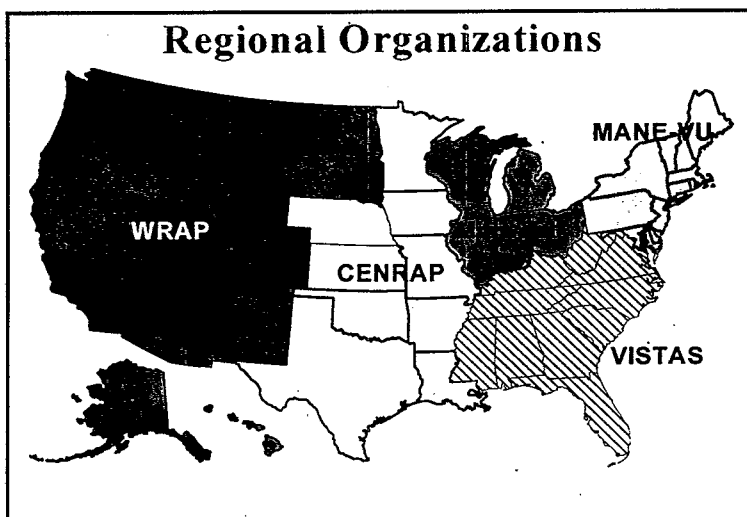
NO ₂ , cont.	Environmental Effects	<ul style="list-style-type: none"> » Acid rain occurs when SO₂ and NO_x react with water and oxygen; Acid rain harms lakes and streams, and damages trees, crops, historic buildings, and monuments. » O₃ is the main pollutant in smog. » NO_x can cause damage to plant foliage.
	Common Emission Sources	<ul style="list-style-type: none"> » Metallurgical furnaces » Blast furnaces » Plasma furnaces » Kilns » Fossil fuel power generation » On-road vehicles
O ₃	What is it?	<ul style="list-style-type: none"> » Ozone (O₃) is found in two layers of the atmosphere, the stratosphere and the troposphere. In the stratosphere (the atmospheric layer 7 to 10 miles or more above the earth's surface), ozone is a natural form of oxygen that provides a protective layer shielding the earth from ultraviolet radiation. In the troposphere (the layer extending up 7 to 10 miles from the earth's surface), ozone is formed through chemical reactions and is a major component of smog. Ozone in the troposphere is produced through complex chemical reactions of NO_x and volatile organic compounds (VOC) and sunlight. » Volatile organic compounds (VOC) are found in everything from paints and coatings to underarm deodorant and cleaning fluids. Areas in nonattainment for O₃ regulate NO_x and VOC emissions.
	Health Effects	<ul style="list-style-type: none"> » O₃ causes damages lung tissue, reduces lung function and sensitizes the lungs to other irritants; it also irritates the eyes, nose, throat. » O₃ is especially bad for those with chronic heart and lung disease, as well as the very young and old, and pregnant women.
	Environmental Effects	<ul style="list-style-type: none"> » O₃ is the main pollutant in smog. » VOC and NO_x can cause damage to plant foliage.
	Common Emission Sources	<ul style="list-style-type: none"> » Transportation sources » Power plants » Industrial boilers and industrial processes utilizing solvents, such as surface coating (paints) and printing (inks) » Petrochemical processing » Chemical manufacturing » Dry cleaners » Paint shops » Gasoline storage and transfer

CO	What is it?	<ul style="list-style-type: none"> » Carbon monoxide (CO) is a poisonous gas formed when carbon in fuels is not burned completely. » CO is a product of vehicle exhaust, which contributes about 77% of all CO emissions nationwide.
	Health Effects	<ul style="list-style-type: none"> » CO reduces oxygen delivery to organs and tissues. » CO affects cardiovascular and central nervous systems. » CO causes headaches, dizziness, nausea, and listlessness. » CO is associated with visual impairment, reduced work capacity and manual dexterity, poor learning ability, difficulty performing complex tasks, inability to discriminate time intervals, and in high doses, may cause death.
	Environmental Effects	<ul style="list-style-type: none"> » CO is believed to contribute to global climate change.
	Common Emission Sources	<ul style="list-style-type: none"> » On-road vehicles » Non-road sources (lawn & garden equipment, recreational marine equipment) » Non-transportation fuel combustion (i.e., wood burning) » Chemical & allied product mfg. (i.e., carbon black manufacturing) » Metals processing (i.e., ferrous metals)
Pb	What is it?	<ul style="list-style-type: none"> » Lead (Pb) is a naturally occurring substance. » Historically, the primary source of Pb emissions was lead additives in gasoline.
	Health Effects	<ul style="list-style-type: none"> » Pb causes damage to kidney, liver, brain, nervous system, and causes malformation of an embryo or fetus. » Pb is associated with heart disease, high blood pressure, anemic disorders, osteoporosis, reproductive disorders, memory problems, fatigue, and mood changes. » Infants and young children are especially susceptible to low doses of Pb, and this age group still shows the highest levels.
	Environmental Effects	<ul style="list-style-type: none"> » Pb can inhibit photosynthesis and reduce growth in plants. » Pb can lead to changes in species composition as plant and microbial communities become lead-tolerant. » Pb can accumulate in the environment and travel up the food chain and be ingested by humans.

	Common Emission Sources	<ul style="list-style-type: none"> » Lead smelters » Iron & Steel production » Mining » Waste incineration » Lead alkyl manufacturing » Battery manufacturing » Pigment manufacturing » Fuel combustion (i.e., utility, industrial, other)
PM	What is it?	<ul style="list-style-type: none"> » Particulate matter (PM) is solid or liquid material suspended in the atmosphere (i.e., pieces of ash, smoke, soot, dust, and liquid droplets). » PM is directly emitted or formed in the air. » PM is characterized by coarse and fine size fractions: <ul style="list-style-type: none"> › PM₁₀ includes particles $\leq 10 \mu\text{m}$ in diameter › PM_{2.5} includes particles $\leq 2.5 \mu\text{m}$ in diameter
	Health Effects	<ul style="list-style-type: none"> » PM causes eye irritation and accumulates in lungs, contributing to damaged lung tissue, decreased lung function, aggravated asthma, acute respiratory symptoms, increased hospital visits, increased frequency in childhood illness such as chronic bronchitis, premature death » Children, asthmatics, elderly, and individuals with pre-existing cardiovascular and respiratory illness are especially sensitive populations.
	Environmental Effects	<ul style="list-style-type: none"> » PM contributes to visibility impairment in large parts of the country by contributing to haze.
	Common Emission Sources	<ul style="list-style-type: none"> » Paved and unpaved roads » Construction activities » Burning » Mineral product manufacturing » Waste disposal and recycling » Fuel combustion (utilities, industrial) » Industrial processes (metals processing, oil refining)

Appendix E

A Guide to Regional Air Quality Planning Organizations



Name	Contact Information	Member Governments
Mid-Atlantic/Northeast Visibility Union (MANE-VU)	<p>Bruce Carhart 444 N. Capitol St. NW Suite 638 Washington, DC 20001 (202) 508-3840</p> <p>http://www.sso.org/otc/regional_haze/regionalhaze.htm#Formal%20Actions</p>	<p>Connecticut Delaware Maine Maryland Massachusetts New Hampshire New Jersey New York Pennsylvania Penobscot Indian Nation Rhode Island St. Regis Mohawk Tribe U.S. Environmental Protection Agency U.S. Fish and Wildlife Service U.S. Forest Service U.S. National Park Service Vermont Washington, DC</p>

Name	Contact Information	Member Governments
Visibility Improvement State and Tribal Association of the Southeast (VISTAS)	William P. (Phil) Brantley 2600 Bull St. Columbia, SC 29201 (803) 898-4116 http://www.vistas-sesarm.org/	Alabama Catawba Indian Nation Eastern Band of the Cherokee Indians Florida Georgia Kentucky Miccosukee Tribe of Indians of Florida Mississippi Mississippi Band of Choctaw Indians North Carolina Seminole Indian Tribe of Florida South Carolina Tennessee U.S. Environmental Protection Agency U.S. Fish and Wildlife Service U.S. Forest Service U.S. National Park Service Virginia West Virginia

Name	Contact Information	Member Governments
Midwest RPO	<p>Mike Koerber 2250 East Devon Ave. Suite 216 Des Plaines, IL 60018 (847) 296-2181</p> <p>http://www.ladco.org/rpo/rpo.html</p>	<p>Bad River Band of Lake Superior Chippewa Bay Mills Indian Community Bois Forte Reservation Business Committee Fond du Lac Reservation Business Committee Forest County Potawatomi Community Grand Portage Reservation Business Committee Grand Traverse Band of Ottawa and Chippewa Great Lakes Indian Fish & Wildlife Great Lakes Inter-Tribal Council Hannahville Indian Community Ho Chunk Nation Illinois Indiana Intertribal Council of Michigan Keweenaw Bay Indian Community Lac Courte Oreilles Band of Lake Superior Chippewa Lac du Flambeau Band of Lake Superior Chippewa Lac Vieux Desert Band of Lake Superior Chippewa Leech Lake Reservation Business Committee Little River Band of Ottawa Little Traverse Bay Bands of Odawa Lower Sioux Indian Community Match-E-Be-Nash-She-Wish Band of Potawatomi Menominee Indian Tribe Michigan Mille Lacs Reservation Business Committee Minnesota Chippewa Nottawaseppi Huron Potawatomi Ohio Oneida Tribe Pokagon Band of Potawatomi</p>

Name	Contact Information	Member Governments
Midwest RPO (cont.)		Shakopee Mdewakanton Sioux Community Sokaogon Chippewa (Mole Lake) Community St. Croix Chippewa Stockbridge-Munsee Community Upper Sioux Community U.S. Environmental Protection Agency U.S. Fish and Wildlife Service U.S. National Park Service White Earth Reservation Business Community Wisconsin
Central Regional Air Planning Association (CENRAP)	10015 S. Pennsylvania Suite A Oklahoma City, OK 73159 Larry Byrum (Virginia) (405) 378-7377 Bob Hanneschlager (214) 665-3188 http://www.cenrap.org/	Arkansas Iowa Kansas Louisiana Minnesota Missouri Nebraska Oklahoma Texas (Tribal membership in progress)

Name	Contact Information	Member Governments
Western Regional Air Partnership (WRAP)	<p>1515 Cleveland Pl. Suite 200 Denver, CO 80202</p> <p>Patrick Cummins, Western Governors' Association (303) 623-5635</p> <p>Bill Grantham, National Tribal Environmental Council (505) 242-2175 1-800-727-2175 www.wrapair.org</p>	<p>Arizona California Campo Band of Kumeyaay Indians Colorado Cortina Indian Rancheria Hopi Tribe Hualapai Nation of the Grand Canyon Idaho Jicarilla Apache Tribe Montana New Mexico North Dakota Northern Cheyenne Tribe Oregon Pueblo of Acoma Pueblo of San Felipe Salish and Kootenai Confederated Tribes Shoshone-Bannock Tribes of Fort Hall South Dakota U.S. Environmental Protection Agency U.S. Fish and Wildlife Service U.S. Forest Service U.S. National Park Service Utah Washington Wyoming</p>

Appendix F

Emission Inventories

This appendix provides additional information on emission inventory development, including:

- » Different approaches toward inventory development
- » The types of sources to include in an inventory
- » The types of emissions to include in an inventory
- » The types of data to include in an inventory
- » EPA resources for emissions data, emissions factors, and emissions estimation methods

What approaches can be taken toward inventory development?

There are two main approaches you can follow in estimating emissions: top-down and bottom-up. Both approaches can be used in one inventory for estimating emissions from different types of sources.

1. A Top-Down Approach means that you develop emissions estimates based on national or regional estimates. You scale the national or regional estimates to your inventory area using some measure of activity data thought to be related to the emissions on your reservation. Sales data (such as the total amount of gasoline sold at a gas station) or per capita emission factors are often used.

A top-down approach is typically used to inventory area sources (see below) and is used when local data are unavailable or when collection of local data is cost-prohibitive. One problem with this approach is that the emission estimates will lose some accuracy due to the uncertainties associated with extrapolating national or regional estimates to your area.

2. A Bottom-Up Approach means you estimate emissions for individual sources and sum all the sources to obtain a reservation-wide estimate. Bottom-up approaches are typically used to inventory point sources, although they can be used to inventory area sources when resources are available to collect local activity data through a survey effort. The bottom-up approach requires more resources to collect site-specific information, but also results in more accurate estimates than the top-down approach because data are collected directly from individual sources.

What types of sources are included in an inventory?

An emission source can be defined as an entire facility, such as a petroleum refinery with many emission sites caused by process activities, or just a particular emission site within the

facility, such as one stack. Sources can also be smaller facilities such as gas stations and mobile sources such as cars. There are five categories of sources to include in an inventory: point sources, area sources, mobile sources, biogenic sources, and geogenic sources.

1. Point sources are stationary facilities that emit air pollutants. Examples of point sources include manufacturing facilities or electric utility sites. Air pollutants may be emitted from process activities through exhaust stacks or as fugitive emissions. Fugitive emissions are emission sources that do not come from an exhaust stack or vent and are technically infeasible to collect and control. Fugitive emissions may escape from industrial buildings or come from unconfined activities such as outdoor materials storage piles swept by wind and surface mining activities.

Point sources can be major or minor sources of emissions. The definition of a major source under Title I of the CAA in most cases is a source that emits, or has the potential to emit, 100 tons/year of any criteria air pollutant except for lead (Pb); the cutoff for a major source that emits lead is 5 tons/year. Volatile organic compounds ("VOCs," an ozone precursor), nitrogen dioxide (NO₂), carbon monoxide (CO), and particulate matter (PM₁₀) have lower thresholds for major sources in serious, severe, and extreme nonattainment areas (see table below). Minor sources are sources that emit less than the emission rate that defines a major source.

Thresholds for Major Source Designation
(tpy = tons per year)

	VOC (ozone precursor)	CO	NO _x	PM ₁₀	SO ₂	Pb
General Cutoff	≥ 100 tpy	≥ 100 tpy	≥ 100 tpy	≥ 100 tpy	≥ 100 tpy	≥ 5 tpy
Serious Nonattainment Areas	≥ 50 tpy	≥ 50 tpy	≥ 50 tpy	≥ 70 tpy	n/a	n/a
Severe Nonattainment Areas	≥ 25 tpy	n/a	n/a	n/a	n/a	n/a
Extreme Nonattainment Areas	≥ 10 tpy	n/a	n/a	n/a	n/a	n/a

n/a = Not applicable; There are only serious nonattainment areas for ozone, CO, NO_x, and PM₁₀, and there are only severe and extreme nonattainment areas for ozone (VOCs are an ozone precursor).

2. **Area sources** are activities that cause emissions over a geographic area, such as vehicle traffic on unpaved roads, open burning, residential heating, and agricultural activities. Area sources are usually minor sources, but the combined emissions of a pollutant from one type of area source can be a large proportion of the total emissions of that pollutant in an area. Emissions from area sources are usually fugitive emissions.

3. **Mobile sources** include on-road and non-road sources. On-road mobile sources include vehicles designed for use on public roadways, such as cars, trucks, buses, and motorcycles. Non-road mobile sources are equipment or vehicles with internal combustion engines not generally for highway use. Examples of non-road mobile sources are lawn mowers, chain saws, airplanes, boats, and diesel locomotives.

4. **Biogenic sources** are non-manmade or natural emitters of air pollutants. For example, conifer trees emit terpenes which are volatile organic compounds, a precursor to ozone.

5. **Geogenic sources** are natural occurrences that create pollution, such as oil and natural gas seeps which emit ozone precursors (VOC and NO_x), volcanoes which emit PM and SO_2 , and wind that blows dust from natural areas, creating particulate matter.

What types of emissions can be inventoried?

Whether a top-down or a bottom-up approach is used, you can compile inventories using actual emissions, allowable emissions, or emissions based on a facility's potential to emit, depending on the purpose of the inventory.

- » **Actual Emissions** record the actual rate of emissions of a pollutant from a source, .. calculated using actual operating hours, production rate, and where applicable, fuel combusted during the period of interest. For example, base-year inventories developed by states in support of SIPs are compiled using actual emissions. Actual emissions are used to validate atmospheric models.
- » **Allowable Emissions** are the product of an enforceable emissions rate (e.g., pounds of NO_2 per unit of product), the anticipated operating rate or activity level (e.g., units of product produced per hour), and the anticipated operating schedule (e.g., hours per day). In general, allowable emissions are used when emission projections are being developed for use in atmospheric modeling.
- » **Potential Emissions** are the capability of a source, at maximum design capacity, to emit a pollutant after the application of air pollution control equipment. Potential to emit estimates are based on the maximum capacity of a source after taking into consideration enforceable permit conditions such as the type of materials combusted, the type of materials processed, and the annual hours of operation. In general, potential emissions are estimated and reported in inventories in support of permitting activities under Title V of the CAA.

What data are necessary for an emissions inventory?

You will need information on the activities causing emissions, the frequency or rate of the activity, the locations of emissions points, the hours of operation (i.e., hours per day and days per year), and the temperature, height, and speed at which emissions enter the atmosphere. You will also need information on the level of emissions control (percent reduction) initially used, if any, and the level required by your attainment strategy.

What types of resources are available from EPA for emissions data, emissions factors, and emissions estimation methods?

Resources for Emissions Data, Emissions Factors, and Emissions Estimation Models:

- » ***Air CHIEF CD-ROM*** provides access to: air emissions data specific to estimating the types and quantities of pollutants that may be emitted for a wide variety of sources; AP-42 emission factors for stationary, area, and mobile sources; FIRE (emissions estimation database, see description below); Standard Classification Codes (SCC); area and mobile source codes (AMS); 1997 North American Industrial Classification System (NAICS) matched to the 1987 Standard Industrial Codes (SIC); the *Handbook for Criteria Pollutant Inventory Development*; the National Emissions Inventory (NEI) database (see description below); and several types of emissions estimation models. More information about this CD-ROM is available at the Clearinghouse for Inventories and Emissions Factors (CHIEF) website (www.epa.gov/ttn/chief/airchief.html#order). It can be ordered at that website or through the Government Printing Office ((202) 512-1800).

Resources for Emissions Data:

- » ***The National Emission Inventory (NEI)*** is a national repository database that blends state, local and tribal supplied data with EPA derived data to form a comprehensive national inventory of criteria and toxic pollutants. The NEI is accessible at www.epa.gov/ttn/chief/net/index.html#dwnld, and from the AIRData web site at www.epa.gov/air/data/net.html.

Resources for Emission Factors:

- » ***Compilation of Air Pollutant Emission Factors (AP-42)*** contains criteria pollutant emission estimation factors for point and area sources. It is available at www.epa.gov/ttn/chief/ap42.html and the AirCHIEF CD-ROM (described above).
- » ***Factor Information Retrieval (FIRE) Data System*** is a database of EPA's recommended emission estimation factors for criteria and hazardous pollutants (including emission factors from AP-42). FIRE can be accessed at

www.epa.gov/ttn/chief/fire.html and on the Air CHIEF CD-ROM (described above).

Resources on Emission Estimation Models (can be downloaded free-of-charge):

- » **Landfill Gas Emissions Model** (www.epa.gov/ttn/catc/products.html#software).
- » **TANKS** to estimate emissions from fixed- and floating-roof storage tanks (www.epa.gov/ttn/chief/tanks.html).
- » **WATER8** and **CHEMDAT8** to estimate air emissions from wastewater collection and treatment systems (www.epa.gov/ttn/chief/software.html#water8).
- » **MECH** for estimating particulate emissions from paved roads, unpaved roads, materials handling, agricultural tilling, and construction and demolition, and PM for estimating PM_{2.5} emissions (www.epa.gov/ttn/chief/software.html#fugitive).

Appendix G

Air Quality Monitoring

This appendix provides additional information on air quality monitoring including:

- » The principle objectives of air quality monitoring
- » The types of pollutants that are monitored
- » The types of monitors that are available
- » The types of monitoring networks
- » EPA resources for monitoring network design, installing and operating monitors, and reporting air quality monitoring data

What are the principle objectives of air quality monitoring?

One way to protect and assess air quality is through the development of an Ambient Air Monitoring Program. Air quality samples are generally collected for one or more of the following purposes:

- » To judge compliance with and/or progress made towards meeting ambient air quality standards.
- » To activate emergency control procedures that prevent or alleviate air pollution episodes.
- » To observe pollution trends throughout the region, including non-urban areas.
- » To provide a data base for research evaluation of effects: urban, land-use, and transportation planning; development and evaluation of abatement strategies; and development and validation of diffusion models.

What types of pollutants are monitored?

Currently the air quality monitoring networks in the United States focus on the criteria pollutants, as well as the relevant ambient air pollution information for visibility impairment and acid rain. Although there is currently no national air toxics monitoring network, there are approximately 300 monitoring sites currently producing ambient data on some of the 188 hazardous air pollutants (HAPs) listed in the 1990 Clean Air Act amendments. EPA is working together with tribal, state and local air monitoring agencies to build upon the existing monitoring sites to develop a national air toxic monitoring network. It should be noted that many of the programs designed to reduce ambient concentration of the criteria pollutants also aid in reducing pollution that contributes to air toxics pollution, visibility impairment and acid rain. In terms of the six criteria pollutants, particulates and ozone are the pollutants most often monitored.

Criteria Pollutants

In some cases, proxy pollutants may be measured to better understand the criteria pollutant of interest. For instance, ozone concentrations may be monitored by measuring the actual level of ozone in a neighborhood, urban area or region or by monitoring for ozone precursors, NO_x and VOC. To monitor for $\text{PM}_{2.5}$, PM_{10} and PM_{TSP} (total suspended particulates), organic and elemental carbon, sulfur dioxide and sulfate, particle nitrate, ammonia or nitric acid may be measured. Lead may be monitored by measuring for PM and then determining the fraction that contains the pollutant (40CFR Part 50, Appendix G).

Acidic Deposition

Measurements of sulfate, nitrate, hydrogen ion, ammonia, chloride and base cations (calcium, magnesium and potassium) are taken to assess atmospheric deposition and determine the contribution of SO_2 and NO_2 to acid rain.

Visibility-Related Pollutants

Visibility-related characteristics and measurements can be partitioned into three groups:

Aerosol - The physical properties of the ambient atmospheric particles (chemical composition, size, shape, concentration, temporal and spatial distribution and other physical properties) through which a scene is viewed.

Optical - The ability of the atmosphere to scatter or absorb light passing through it. The physical properties of the atmosphere are described by extinction, scattering and absorption coefficients plus an angular dependence of the scattering known as the normalized phase function. Optical characteristics integrate the effects of atmospheric aerosols and gasses.

Scene - The appearance of a scene viewed through the atmosphere. Scene characteristics are more nearly in line with the simple definition of visibility than aerosol or optical characteristics. Scene characteristics include observer visual range, scene contrast, color, texture, clarity, and other descriptive terms. Scene characteristics change with illumination and atmospheric composition.

Aerosol and optical characteristics depend only on the properties of the atmosphere through which light passes. Scene characteristics, however, are also dependent on the scene and lighting conditions.

"Visual air quality" describes the air pollution aspects of visibility. Visual air quality is what must be monitored and preserved in class I areas, not the overall visibility which is influenced by nonpollution factors (i.e., clouds, snow cover, sun angle, etc.).

The distribution and extent of pollutants in the atmosphere relative to the observer's sight path has a large effect on the appearance of visibility impairment. If the pollutants are uniformly distributed from the ground to a height well above the highest terrain, it is known as a "uniform haze." If the top edge of the pollution layer is visible, as is often the case when pollution is trapped below an inversion, then it is called a "surface layer." A pollution distribution that is not in contact with the ground is an "elevated layer." "Plumes" can be thought of as a special case of an elevated layer, though from many vantage points it may not be possible to distinguish a plume from an elevated layer. It is possible to have combinations of pollutant distributions such as multiple elevated layers superimposed upon a uniform haze.

Uniform haze and surface layered haze can be monitored from the ground by a variety of methods. Elevated layers must be either remotely monitored from the ground or from instruments carried aloft.

What types of monitors are available?

Sampling equipment requirements are generally divided into three categories, consistent with the desired averaging times:

- A. **Continuous** - Pollutant concentrations determined with automated methods, and recorded or displayed continuously.
- B. **Integrated** - Pollutant concentrations determined with manual or automated methods from integrated hourly or daily samples on a fixed schedule.
- C. **Static** - Pollutant estimates or effects determined from long-term (weekly or monthly) exposure to qualitative measurement devices or materials.

Air monitoring sites that use automated equipment to continually sample and analyze pollutant levels may be classified as primary. Primary monitoring stations are generally located in areas where pollutant concentrations are expected to be among the highest and in areas with the highest population densities; thus, they are often used in health effects research networks. These stations are also designed as part of the air pollution episode warning system.

Particulate Monitoring

Particulate monitoring is usually accomplished with manual measurements and subsequent laboratory analysis. In this method, a filter-based high-volume sampler - a vacuum-type device that draws air through a filter or absorbing substrate - retains atmospheric pollutants for future laboratory weighing and chemical analysis. This type of sampler provides average concentrations over a period of up to 24 hours. The total air flow is determined by the difference in rotameter readings at the start and conclusion of the test.

Continuous monitoring methods for suspended particles are also available. Continuous measurement methods include Mass and Mass Equivalent (Tapered Element Oscillating Microbalance (TEOM), Piezoelectric Microbalance, Beta Attenuation Monitor (BAM) and

Pressure Drop Tape Sampler (CAMMS)), Visible Light Scattering (Nephelometer, Optical Particle Counter (OPC), Condensation Nuclei Counter (CNC), Aerodynamic Particle Sizer (APS) and Light Detection And Ranging (LIDAR)), Visible Light Absorption (Aethalometer and Particle Soot/Absorption Photometer and Photoacoustic Spectroscopy), Electrical Mobility (Electrical Aerosol Analyzer (EAA) and Differential Mobility Particle Sizer (DMPS)), Chemical Components (Single Particle Mass Spectrometers, Carbon Analyzer, Sulfur Analyzer, Nitrate Analyzer and Multi-Elemental Analyzer) and Precursor Gases (Ammonia Analyzer, Nitric Acid Analyzer, Fourier Transform Infrared (FTIR) Spectroscopy and Other Nitric Acid Instruments). Three continuous PM_{10} monitors based on inertial mass and electron absorption have been designated as equivalent methods that can be used to determine compliance with the PM_{10} NAAQS.

Federal Reference Method (FRM) or Federal Equivalent Method (FEM) samplers are to be used in $PM_{2.5}$ compliance monitoring networks (i.e., State and Local Air Monitoring Stations (SLAMS) and National Ambient Monitoring Stations (NAMS)). Interagency Monitoring of Protected Visual Environments (IMPROVE) samplers may also be used at regional background or regional transport sites in lieu of FRMs or FEMs. Continuous monitors can be tested and classified as Class III FEM for compliance monitoring.

Gaseous Pollutant Monitoring

Monitoring for gaseous pollutants, such as sulfur dioxide, is accomplished with dynamic samplers for average concentrations over a 24-hour period and with static samplers for longer periods, e.g., 30 days.

Visibility Monitoring

As indicated above, visibility-related characteristics and measurements can be partitioned into three groups: aerosol, optical and scene. Thus, visibility monitors are categorized in a similar way. Aerosol monitors are used to obtain concentration measurements of atmospheric constituents. Optical monitors are used to measure the light scattering and absorption properties of the atmosphere, independent of physical scene characteristics or illumination conditions. Scene monitors use still and/or time-lapse photography (including digital imagery) to provide a qualitative representation of the visual air quality in the area of interest.

The Interagency Monitoring of Protected Visual Environments (IMPROVE) monitoring protocol defines that, where possible, aerosol, optical, and scene monitoring shall be conducted at each site. Site logistics do restrict the operation of certain instruments at some sites. The instrumentation used to fulfill IMPROVE protocols include: "Aerosol" IMPROVE Modular Aerosol Sampler; "Optical" Transmissometer or Nephelometer (collocated with an air temperature/relative humidity sensor); and "Scene" Automatic Camera Systems.

Meteorological Data

Atmospheric considerations may include spatial and temporal variabilities of the pollutants and their transport. Effects of buildings, terrain, and heat sources or sinks on the air trajectories can produce local anomalies of excessive pollutant concentrations. Meteorology must be considered in determining not only the geographical location of a monitoring site but also such factors as height, direction, and extension of sampling probes. Wind speed, direction and variability can greatly influence the dispersal of pollutants.

Wind speed affects the travel time from the pollutant source to the receptor and the dilution of polluted air in the downwind direction. The concentration of air pollutants are inversely proportional to the wind speed.

Wind direction influences the general movements of pollutants in the atmosphere. Review of available data can indicate mean wind direction in the vicinity of the major sources of emissions.

Wind variability refers to the random motions in both horizontal and vertical velocity components of the wind. These random motions can be considered atmospheric turbulence, which is either mechanical (caused by structures and changes in terrain) or thermal (caused by heating and cooling of land masses or bodies of water). If the scale of turbulent motion is larger than the size of the pollutants plume, the turbulence will move the entire plume and cause looping and fanning; if smaller, it will cause the plume to diffuse and spread out.

Most ambient air monitoring programs include meteorological monitoring in order to obtain more information on pollutant trends. For instance, the Clean Air Status and Trends Network (CASTNet) records hourly meteorological parameters such as temperature, relative humidity, solar radiation, ozone, precipitation and wind speed/direction. The National Atmospheric Deposition Program (NADP) and IMPROVE programs monitor daily precipitation and relative humidity/temperature respectively. In some cases, temperature sensing at multiple elevations is used to monitor stability of the air mass.

What types of monitoring networks are available?

Monitoring networks are designed to meet their network objective (including both the appropriate spatial scale and pollutant(s)). Spatial scales range from micro to global. Pollutants can include the criteria pollutants, visibility impairing pollutants, acid deposition, and others. In addition to monitoring network objectives and spatial scale, three types of monitoring network are discussed in this section: the ambient monitoring network which measures the criteria pollutants, the IMPROVE network which characterizes visibility impairment, and two acidic deposition networks.

A monitoring network should be designed to meet one of six basic objectives listed below:

- A. to determine highest concentrations expected to occur in the area covered by the network;
- B. to determine representative concentrations in areas of high population density;
- C. to determine the impact on ambient pollution levels of significant sources or source categories;
- D. to determine general background concentration levels;
- E. to determine the extent of regional pollutant transport among populated areas, and in support of secondary standards; and
- F. to determine welfare-related impacts in more rural and remote areas.

These six objectives indicate the nature of the samples that the monitoring network will collect which must be representative of the spatial area being studied.

Spatial Scales

The goal in siting stations is to correctly match the spatial scale represented by the sample of monitored air with the spatial scale most appropriate for the monitoring objective of the station. The representative measurement scales of greatest interest are shown below:

Micro	Concentrations in air volumes associated with area dimensions ranging from several meters up to about 100 meters
Middle	Concentrations typical of areas up to several city blocks in size with dimensions ranging from about 100 meters to 0.5 kilometer
Neighborhood	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	Overall, citywide conditions with dimensions on the order of 4 to 50 kilometers. This scale would usually require more than one site for definition
Regional	Usually a rural area of reasonably homogeneous geography and extends from tens of hundreds of kilometers
National/Global	Concentrations characterizing the nation and the globe as a whole

The following table illustrates the relationships among the six basic monitoring objectives and the scales of representativeness that are generally most appropriate for that objective.

Monitoring Objective	Appropriate Siting Scale
Highest Concentration	Micro, middle, neighborhood, sometimes urban
Population	Neighborhood, urban
Source Impact	Micro, middle, neighborhood
General/background	Neighborhood, regional
Regional Transport	Urban/regional
Welfare-related	Urban/regional

Ambient Air Quality Monitoring Program

The EPA's ambient air quality monitoring program is carried out by State, tribal, and local agencies and consists of three major categories of monitoring stations, State and Local Air Monitoring Stations (SLAMS), National Air Monitoring Stations (NAMS), and Special Purpose Monitoring Stations (SPMS). Additionally, a fourth category of a monitoring station, the Photochemical Assessment Monitoring Stations (PAMS), which measures ozone precursors (approximately 60 volatile hydrocarbons and carbonyl) has been required by the 1990 Amendments to the Clean Air Act. Sensitive equipment measures the concentration of many different air pollutants to determine the ambient concentrations of the criteria pollutants. Some types of equipment run continuously, measuring pollutant concentrations every few minutes, and calculating an average concentration for each hour of the day and night. Other types of equipment operate intermittently, perhaps every other day or every sixth day. The equipment runs for a specified time period, often 24 hours, and subsequent laboratory analysis determines the average pollutant concentration during the measurement time.

State and Local Air Monitoring Stations (SLAMS)

The SLAMS consist of a network of ~ 4,000 monitoring stations whose size and distribution is largely determined by the needs of State and local air pollution control agencies to meet their respective State implementation plan (SIP) requirements.

National Air Monitoring Stations (NAMS)

The NAMS (1,080 stations) are a subset of the SLAMS network with emphasis being given to urban and multi-source areas. In effect, they are key sites under SLAMS, with emphasis on areas of maximum concentrations and high population density.

Special Purpose Monitoring Stations (SPMS)

Special Purpose Monitoring Stations provide for special studies needed by the State and local agencies to support State implementation plans and other air program activities. The SPMS are not permanently established and, can be adjusted easily to accommodate changing needs and priorities. The SPMS are used to supplement the fixed monitoring network as circumstances

require and resources permit. If the data from SPMS are used for SIP purposes, they must meet all QA and methodology requirements for SLAMS monitoring.

Photochemical Assessment Monitoring Stations (PAMS)

A PAMS network is required in each ozone nonattainment area that is designated serious, severe, or extreme. The required networks will have from two to five sites, depending on the population of the area. There will be a phase-in period of one site per year starting in 1994. The ultimate PAMS network could exceed 90 sites at the end of the 5-year phase-in period.

The individual measurements -- 1-hour and 24-hour average air pollutant concentrations -- are submitted to EPA and stored in the Aerometric Information Retrieval System (AIRS) database. They are called AIRS raw data. In addition, AIRS software creates and stores an annual summary of the air pollution measurements from each unit of monitoring equipment. The annual summary includes information such as the highest values reported, the average value, and the number of values above the NAAQS (health-based threshold levels).

Interagency Monitoring of Protected Visual Environments (IMPROVE)

The National Visibility Program established in 1980 requires the protection of visibility in 156 mandatory federal Class I areas across the country. In 1987, the IMPROVE visibility network was established as a cooperative effort between EPA, the National Oceanic and Atmospheric Administration, the National Park Service, the U.S. Forest Service, the Bureau of Land Management, the U.S. Fish & Wildlife Service, and state governments. The objectives of the network are to establish current conditions, to track progress toward the national visibility goal, by documenting long-term trends, and to provide information for determining the types of pollutants and sources primarily responsible for visibility impairment. Chemical analysis of aerosol measurements provides ambient concentrations and associated light extinction for PM₁₀, PM_{2.5}, sulfates, nitrates, organic and elemental carbon, crustal material, and a number of other elements. The IMPROVE program has established protocols for aerosol, optical, and photographic monitoring methods, and these methods are employed at more than 100 sites, most of which are Class I areas. In the calendar year 2000, an additional 80 monitoring sites using the IMPROVE aerosol monitoring protocol were scheduled for placement.

Acidic Deposition Monitoring Networks

Total atmospheric deposition is determined using both wet and dry deposition measurements. Wet deposition is the portion dissolved in cloud droplets and is deposited during rain or other forms of precipitation. Dry deposition is the portion deposited on dry surfaces during periods of no precipitation as particles or in a gaseous form. Although the term "acid rain" is widely recognized, the dry deposition portion can range from 20-60 percent of total deposition. The NADP and CASTNet were developed to monitor wet and dry deposition, respectively.

The National Atmospheric Deposition Program/National Trends Network (NADP/NTN)

NADP/NTN is a nationwide network of precipitation monitoring sites. The network is a cooperative effort between many different groups, including the State Agricultural Experiment Stations, U.S. Geological Survey, U.S. Department of Agriculture, and numerous other governmental and private entities. The NADP/NTN has grown from 22 stations at the end of 1978, our first year, to over 200 sites spanning the continental United States, Alaska, and Puerto Rico, and the Virgin Islands. The purpose of the network is to collect data on the chemistry of precipitation for monitoring of geographical and temporal long-term trends. The precipitation at each station is collected weekly according to strict clean-handling procedures. It is then sent to the Central Analytical Laboratory where it is analyzed for hydrogen (acidity as pH), sulfate, nitrate, ammonium, chloride, and base cations (such as calcium, magnesium, potassium and sodium). The NADP has also expanded its sampling to two additional networks. The Mercury Deposition Network (MDN), currently with over 35 sites, was formed in 1995 to collect weekly samples of precipitation which are analyzed by Frontier Geosciences for total mercury. The objective of the MDN is to monitor the amount of mercury in precipitation on a regional basis; information crucial for researchers to understand what is happening to the nation's lakes and streams. Another network, the Atmospheric Integrated Research Monitoring Network (AIRMoN), is operated by the National Oceanic and Atmospheric Administration (NOAA) and was formed for the purpose of studying precipitation chemistry trends with greater temporal resolution. Precipitation samples are collected daily from a network of nine sites and analyzed for the same constituents as the NADP/NTN samples.

Clean Air Status and Trends Network (CASTNET)

The CASTNet was primarily designed to measure dry acid deposition. Some monitors also record rural ozone data as well as the chemical constituents of $PM_{2.5}$. Established in 1987, CASTNET now comprises 79 monitoring stations across the U.S., 74 measuring dry deposition, 19 measuring wet-deposition, 68 measuring O_3 and eight measuring aerosols for visibility assessment. The longest data records are primarily at eastern sites.

CASTNET is considered the nation's primary source for atmospheric data to estimate dry acidic deposition and to provide data on rural ozone levels. Each dry-deposition station measures weekly average atmospheric concentrations of sulfate (SO_4), nitrate (NO_3), ammonium (NH_4), sulfur dioxide (SO_2), and nitric acid, hourly concentrations of ambient ozone levels and meteorological conditions required for calculating dry deposition rates. Dry deposition rates are calculated using atmospheric concentrations, meteorological data, and information on land use, vegetation, and surface conditions.

The CASTNET provides atmospheric data on the dry deposition component of total acid deposition, ground-level ozone and other forms of atmospheric pollution. Used in conjunction with other national monitoring networks, CASTNET is used to determine the effectiveness of national emission control programs. The majority of the monitoring stations are operated by

EPA's Office of Air and Radiation; however, approximately 20 stations are operated by the National Park Service in cooperation with EPA.

CASTNET complements the database compiled by NADP. Because of the interdependence of wet and dry deposition, NADP wet deposition data are collected at or near all CASTNET sites. Together, these two long-term databases provide the necessary data to estimate trends and spatial patterns in total atmospheric deposition.

Ozone data collected by CASTNET are complementary to the larger ozone data sets gathered by the State and Local Air Monitoring Stations (SLAMS) and National Air Monitoring Stations (NAMS) networks. Most air quality samples at SLAMS/NAMS sites are located in urban areas, while CASTNET sites are in rural locations. Hourly ozone measurements are taken at each of the 50 sites operated by EPA. Data from these sites provide information to help characterize ozone transport issues and ozone exposure levels.

What types of resources are available from EPA for monitoring network design, installing and operating monitors, and reporting air quality monitoring data?

Resources for Guidance, Measurement Equipment, and Network Design:

- » ***Ambient Monitoring Technology Information Center*** (www.epa.gov/ttn/amtic/) (AMTIC) is centered around the exchange of ambient monitoring related information. Established in 1991 as an electronic Bulletin Board System (BBS), AMTIC has evolved with changing technology into a page on the World Wide Web (WWW). AMTIC is operated by EPA's Office of Air Quality Planning and Standards (OAQPS) through the Monitoring and Quality Assurance Group (MQAG). AMTIC contains information on all the Reference and Equivalent methods for the Criteria pollutants, the TO Methods and other noncriteria pollutant methodologies, Federal Regulations pertaining to ambient monitoring, ambient monitoring QA/QC related information, information on ambient monitoring related publications, ambient monitoring news (including the AMTIC Newsletter), field and laboratory studies of interest, and updates on any new or developing EPA Ambient Air standards.
- » ***The Interagency Monitoring of Protected Visual Environments (IMPROVE)*** (<http://vista.cira.colostate.edu/improve/Data/GraphicViewer> website provides links to Monitoring Protocol and Information documents such as Quarterly Newsletters and Standard Operating Procedures as well as Regional Haze Guidance Documents. Information is also available on IMPROVE data gathering methods and measurement equipment Modules A, B, C and D. This site also provides an extensive list of publications, resources and links to Data Analysis (including analysis tools and algorithms), Gray Literature (unpublished analyses), Visibility and Aerosols Science and Policy documents. Monitoring Studies focusing on Class I and Urban areas are also available.

- » ***Tribal Air Monitoring Support Center (TAMS)*** (www4.nau.edu/itep/intro.html) was created through a partnership with ITEP and the United States Environmental Protection Agency. Located at the Radiation and Indoor Environments National Laboratory in Las Vegas, Nevada, the TAMS Center will provide instrument training and filter weighing services to all interested tribes.

Resources for Air Quality Data:

- » ***The Aerometric Information Retrieval System (AIRS)*** is EPA's repository of criteria air pollutant monitoring data since the 1970's. Considerably less data for hazardous air pollutants have been collected, mostly after 1995. The Monitors segment of AIRData deals with ambient air quality -- the prevailing levels of air pollution in cities and towns across the United States. Information presented in the Monitors segment of AIRData comes from the Air Quality Subsystem (AQS) of the AIRS database (www.epa.gov/ttn/airs/aqs/index.html). EPA updates the AIRS database every week. Most states submit their air monitoring data monthly, with different groups of states submitting data during any given week. After the individual measurements of hourly or daily pollutant concentrations have been stored in the AIRS database, calendar-year summary values are computed for each air monitor. Only these summary values are extracted from the AIRS database and presented in AIRData reports and queries. The individual hourly and daily monitoring values are not available at this AIRData website. To receive information directly from AIRS, you need to register for an account on the EPA mainframe computer. For information about obtaining an account, call 1-(800)-334-2405, (919)-514-5232, or call the National Technical Information Service at (703) 605-6000.

AIRData provides two ways to access Monitor data: AIRData Monitor Reports and AIRData Monitor Queries. AIRData Monitor Reports present annual summary data for criteria pollutants, and descriptive information about the monitoring sites for those pollutants. This option is preferred for a quick review of the most significant measures of air quality. The Reports database is updated monthly. AIRData Monitor Queries present annual summary data for all pollutants in the AIRS/AQS database. Queries include many more pollutants and data elements than Reports, and they display values in a more technical format. Queries are intended primarily for environmental professionals, but the information is available to all, of course. The interim database used for Queries is updated two to four times per year.

- » ***The Interagency Monitoring of Protected Visual Environments (IMPROVE)*** <http://vista.cira.colostate.edu/improve/Data/GraphicViewer/> website also offers Data Resources, Graphical Displays and Publications. Data Resources include metadata, (state by state information on all IMPROVE monitors, including latitude, longitude, elevation, sampling equipment, documented equipment/monitoring changes, data collection start and end dates and sponsor), raw data and data products such as Annual, Seasonal and Monthly Fine Mass Composition and Light Extinction Budgets,

aggregated over the period of March 1996 to February 1999 according to Class I Area. Light Extinction Diurnal Cycles, Annual Fine Mass/Light Extinction Group 10, 50, 90 Trends, raw Aerosol and Optical data, photographs and Monthly Regional Haze and RH Correction Factors are also available.

The IMPROVE Graphic Viewer allows browsing of interactive Spatial, Temporal, Variable and Frequency displays using the information from the Data Resources section. It also includes a report on Long-Term Trends of Fine Mass and its Major Aerosol Types for 1988-1998.

- » ***The Clean Air Status and Trends Network (CASTNET)***
(<http://www.epa.gov/castnet/>) provides atmospheric data on acid rain (specifically dry acid deposition), tropospheric (ground-level) ozone and other forms of atmospheric pollution. A Sampling Matrix, including state and site specific information, provides details of each CASTNET sampling station. CASTNET Annual Reports (1998 and 1999) may be accessed from this site as well as Data Reports, Charts and Graphs of hourly, diurnal, geographic and annual assessments of dry acid deposition, ozone and meteorological parameters.
- » ***The National Atmospheric Deposition Program/National Trends Network (NADP/NTN)*** (<http://nadp.sws.uiuc.edu/>) is the longest running national deposition monitoring network. Many data products are accessible from this website, including weekly and daily precipitation chemistry data, monthly, seasonal, and annual precipitation-weighted mean concentrations, annual and seasonal deposition totals, mercury deposition data, daily precipitation totals, color isopleth maps of precipitation concentrations and wet deposition, site photos, maps, and information and quality assurance data and information. In addition, publications such as brochures, manuals, committee meeting proceedings, annual program reports, annual summaries (1997-2000) and quality assurance reports (1996-1999) are available.

Appendix H

TIP Enforceability Checklist¹

This checklist provides general enforceability guidance applicable to all possible components of a TIP. However, TIPs do not need to contain all of these components. You need only to refer to those sections that apply to the provisions included in your tribe's TIP.

Enforceability Analysis	EPA Requirement
Applicability	
What sources are being regulated?	Clearly stated in the rule.
What are the criteria for exemptions?	Clearly stated in the rule.
Is the calculation procedure for exemptions clearly identified?	You must include an example calculation or clear explanation of how to determine exemption.
Where Is the emission inventory of affected sources listed in the document?	Allowable and actual emissions in the source category should be included in your TIP, for enforcement purposes and determination of any baselines in the regulation(s).
Is the averaging time(s) used in the rule different from that of the ambient standards?	The averaging and ambient standard times must be consistent . The averaging time is typically equal to or shorter than the ambient standard time. Longer term averaging is available only in limited instances, provided the ambient standard is not compromised.
What are the units of compliance (pounds VOC per gallon of solids applied less water, grains per dry standard cubic foot, etc)?	Clearly stated in the rule.

¹ This appendix is adapted from *Regulatory Development Enforceability on Regulations* by Susan E. Bromm, US EPA., no date.

Enforceability Analysis		EPA Requirement
Are there mechanisms for limiting multiple sources at one facility? Are they enforceable?		Explicit description of how overall total facility emissions are to be determined. VOC equivalency must be on a "solids applied" basis. Any method must be independently reproducible. Provision must be explicit as to whether case-by-case approval is required. If provision is intended to be generic, then bubble policy must be met.
If there is a redesignation will this change your emission limits? If yes, which ones and how?		Upon the redesignation of your area to attainment, the Regulation may not allow for self nullification. Maintenance demonstration required in order to drop regulation.
Compliance Dates		
What is your compliance date? What is the area's attainment date?		Your compliance date Must not be later than approved (or soon to be approved) date of attainment unless emission reductions are not necessary for attainment. In some cases, it will be necessary for the regulation to specify dates in compliance schedules.
Specificity of Conduct		
What test method is required?		Your Test method must be explicitly stated.
What is the averaging time in the compliance test method?		The Averaging time and application of your emission limit must be explicitly stated.
Is a compliance calculation or evaluation required?		Your formula, period of compliance, and/or evaluation method must be explicitly stated.
Incorporation by Reference		
What is your tribe's authority for rulemaking?		Demonstrate the legal mechanism to promulgate and enforce rules.
Are the methods/rules incorporated by reference in the right manner?		Clearly stated in the rule.

Enforceability Analysis	EPA Requirement
Recordkeeping	
What records are required to determine compliance?	Clearly stated in the rule.
In what form or units (lbs/gal, gr/dscf, etc.) must the records be kept? On what time basis?	Records to be kept must be consistent with units of compliance in the performance requirements, including the applicable time period.
Does the rule explicitly require the records to be kept?	There must be a clear, separately enforceable provision that requires records to be kept.
Exemptions	
What are the allowed exemptions?	All exemptions Must be clearly defined and distinguishable from what constitutes a violation.
Is the criteria for application clear?	Same as above.
Include malfunction provisions.	Rule must specify what exceedances may be excused, how the standard is to be applied, and who makes the determination.

Appendix I

Procedures for Area Redesignation to Class I

The procedures outlined in this appendix are for tribal governments seeking to have areas within their jurisdiction that are in attainment of NAAQS redesignated as a Class I attainment area. Tribes may also seek redesignation for areas other than their reservations. These procedures are based on requirements set forth in section 164 of the Clean Air Act, 40 CFR 51.166(g) and 40 CFR 52.21(g), and the Tribal Authority Rule, 63 Federal Register 7254 which is codified at 40 CFR 49.

The lands within the exterior boundaries of an Indian reservation may be redesignated only by the appropriate tribal government. Before proposing a redesignation, the tribe needs to prepare a discussion of the reasons for the proposed redesignation, including a satisfactory description and analysis of the health, environmental, economic, social, and energy effects of the proposal.

The tribe is required to hold public hearings on the proposed redesignation in the areas proposed to be redesignated and in areas that may be affected by the proposed redesignation. At least 30 days before the hearing, your tribe needs to issue a public notice of the hearing that includes:

- » A prominent advertisement in the area affected announcing the date, time, and place of the hearing
- » Information about the availability of the proposal and discussion document in at least one location in the area

The tribal government needs to submit a proposal to redesignate to the EPA Administrator through the appropriate EPA regional office. The tribe also needs to prepare and retain, for inspection by the EPA Administrator upon request, a record of the hearing that includes a list of witnesses together with the text of each presentation. Along with the proposal to redesignate, the tribe must submit to EPA a certification that the hearing was held in accordance with the requirements of 40 CFR 51.102. If federal lands are included in the proposed redesignation, the appropriate Federal Land Manager needs written notice and an opportunity to confer with the tribe regarding the redesignation.

The EPA Administrator will approve or disapprove the proposed redesignation within 90 days of submission. The proposal will be disapproved after notice and opportunity for public hearing only if it is found that it did not meet the procedural requirements in the EPA regulations or it was inconsistent with the Clean Air Act's restrictions on area classifications. If the EPA Administrator disapproves a proposed redesignation, it may be resubmitted after correcting the deficiencies noted by the Administrator.

References:

Section 164 of the CAA; 40 CFR 51.166(g); and 40 CFR 52.21(g).

Appendix J

Regulation Development¹

This is a check list of questions to help a tribe in developing an effective rule.

General Considerations

- » What is the problem that needs to be resolved by the rule?
- » Are the purpose, intent, and requirements as clear as possible in the actual provisions of the regulation?
- » Is the affected regulated community familiar with the program?
- » If the rule will bring a significant number of new facilities into the regulated universe, how will they find out that they are subject to the regulation?

Clarity

Clarity promotes compliance. Regulatory language that is clear and concise will help the regulated community understand its obligations under the regulation.

- » Does the rule contain complex language that could be interpreted in more than one way by parties acting in good faith?
- » Are ambiguous terms defined or clarified?
- » Does the rule contain inconsistencies or contradictions?
- » Is the date the rule goes into effect stated?
- » Are all events or activities that must occur prior to the effective date identified?
- » Have clarifying tools such as definitions, tables, or flowcharts been used as appropriate?

Specificity

If regulatory requirements, standards of performance, or decision-making criteria are left open to interpretation, regulated entities and enforcement personnel may be inconsistent in their implementation and application of the requirements.

- » Has non-specific language that may require clarification through guidance or policy been avoided?
- » Are performance standards defined in clear and measurable terms?
- » Has the latitude of an inspector's discretion in applying professional judgement been specified, if applicable?
- » Has the regulated community been identified and defined?
- » Have the exclusions from the regulation been clearly identified?

Enforcement Practicability

- » How will compliance or non-compliance be verified by inspectors or enforcement personnel?
- » What is the potential increase in the size of the regulated universe based on the rule?
- » What are the associated implementation and enforcement implications?
- » What professional qualifications will be needed to conduct inspections and evaluate compliance with the rule?
- » How will compliance with the regulation be monitored (field inspections, records review, facility reports, self-enforcing)?
- » Has self-reporting/self-monitoring by the regulated entity been used to the maximum extent possible?
- » Have EPA-approved or standardized test methods been incorporated to ensure data uniformity and comparability?
- » Have analytical methods that can be applied in the field or laboratory been incorporated to the extent feasible?
- » If a rule is self-implementing, is it practical to incorporate the requirements into the permit process?
- » Does adequate authority exist for entering, inspecting, and sampling at regulated facilities?

Burden of Proof

- » Is it clearly stated whether the burden of proof lies with the tribal authority or with the owner/operator?
- » Is adequate proof defined?

Notification, Recordkeeping, and Reporting

- » Is information that must be recorded and maintained specified?
- » Is the period of time for which information must be retained stated?
- » Does all information that will be submitted to tribal authorities serve a specific purpose?
- » Is notification required?
- » What information should be included in notification?
- » Do reporting requirements facilitate review for non-compliance?

Other Programs

- » Have you considered the rule's impact on other tribal environmental programs and offices?
- » Could compliance with the rule result in potential cross-media contaminant transfer?

- » Have other program offices been consulted regarding cross-program compliance issues?

Enforcement Mechanisms

There are numerous mechanisms that can be employed to evaluate and monitor compliance with regulations. Think about appropriate tools for compliance monitoring and enforcement as the regulation is being developed.

- » Has independent confirmation of compliance (e.g., by professional engineer) been considered as a means to add credibility to assessment of technical requirements?
- » Have self-certification measures such as verifying data accuracy with EPA-approved methods, training by certified hazardous materials trainers, or other certifications been considered?

Endnote

- 1 This appendix is adapted from *Regulatory Development Enforceability of Regulations* by Susan E. Bromm, US EPA., no date.

TIP Completeness Checklist

This TIP completeness checklist is an example used in Region V.

EPA REGION V COMPLETENESS REVIEW

A. Regulatory (Administrative Materials)

1. Is the submittal accompanied by a formal letter of submittal from the governor's designee? yes___ no___

The date of submittal is _____

2. Did the State provide evidence that it has incorporated the revision in the Wisconsin Administrative Code? yes___ no___

The month of publication in was _____

The effective date is _____

Are test methods/rules incorporated by reference correctly?

Has approval been obtained from the state Attorney General?
yes___ no___ not applicable___

3. Did the State provide evidence that it has the necessary legal authority under State law to adopt and implement the revision? yes___ no___ rule analysis which cites authorizing statutes submitted? yes___ no___
4. Does the submittal include a copy of the actual regulation or document submitted for review? yes___ no___
5. Did the State provide evidence that it followed all of the requirements of its Administrative Procedures Act in conducting and completing adoption/issuance of the revision? yes___ no___
6. Did the State provide evidence that Public Notice was given of the revision, including the date of publication? yes___ no___
7. Did the State provide certification that public hearings were held in accordance with the information provided in the public notice (notarized SIP Revision Certification)?
yes___ no___

8. Does the submittal contain a compilation of public comments and the State's response? yes___ no___

B. Technical Support

1. Does the submittal identify all regulated pollutants affected by the revision?
yes___ no___
2. Does the submittal identify the designation, status of the attainment plan and attainment date for the area(s)? yes___ no___
3. Does the submittal identify the location and types of affected sources?
yes___ no___
4. Does the submittal quantify the changes in SIP-allowable emissions and estimate or quantify the changes in actual emissions from affected sources?
yes___ no___
5. Has the State demonstrated that the NAAQS/PSD increment/RFP demonstration/visibility will be protected if the revision is approved and implemented? yes___ no___
- 5a. For any request to redesignate an area to attainment, has the State submitted a revision which provides for maintenance of the primary NAAQS for at least 10 years? yes___
no___ not applicable___
6. Has the State provided modeling information (if necessary) to support the revision?
yes___ no___ unnecessary___
7. Has the State provided evidence that emission limitations are based on continuous emission reduction technology? yes___ no___ NA___
8. Has the State provided evidence that the revision contains emission limitations, work practice standards and recordkeeping/reporting requirements, where necessary, to ensure emission levels? yes___ no___
9. Does the submittal contain enforcement/compliance strategies including how compliance will be determined in practice, and at what frequency? yes___ no___
10. Does the submittal contain special economic and technical justifications required by the USEPA policies, or explain why such justifications are necessary? yes___no___
not applicable___

United States Environmental Protection Agency

Office of Air and Radiation

**Review of Authorities Available for Tribal Air Program
Financial Assistance Grants**

April 19, 2002



Appendix L-1

Introduction

When EPA proposed its implementing regulations for §301(d) of the Clean Air Act (CAA) in August 1994, it recognized that tribes (to an even greater degree than states) would need financial assistance to support the development and implementation of tribal air programs. In the preamble to its proposal, EPA discussed at length the various mechanisms available to tribes for funding their air programs. Since that proposal was published, much has happened to stimulate interest in air programs in Indian country and many tribes have taken advantage of the authorities under the CAA and other statutes to begin developing programs.

This document is intended to reiterate the discussion EPA presented on financial assistance in the proposed rule (40 C.F.R. Parts 9, 35, 49, 50 and 81 Indian Tribes: Air Quality Planning and Management) and provides additional guidance on how these mechanisms might be used to advance the tribes' objectives in air quality management. However, this document is only a summary of available grant funds for CAA activities. EPA has developed formal procedures governing these activities and tribes should consult these procedures (see list at the end of this document) before they make formal application to EPA for a grant.

Background

As far back as the 1970's, a limited number of tribes were receiving funding from EPA to support air program development, usually focusing on air monitoring. With the proposal of the Tribal Authority Rule in 1994, the reaffirmation of the Agency's Indian policy, and more aggressive outreach to tribes on the opportunities available to them under the CAA, more tribes became interested in air quality management. However, the statutory requirements for tribes to provide a "match" on federal funding remained a significant barrier to tribes seeking funding. The elimination of the §103 match requirement in 1996 and the promulgation of the Tribal Authority Rule in 1998 (which reduced the match for §105 for eligible tribes from 40% to 5-10%) virtually eliminated the financial barriers to tribes with TAS seeking assistance to implement tribal air programs.

The elimination of these barriers and the aggressive training and outreach to tribes on air quality management has continued to increase the demand for federal resources to implement programs. More than one hundred tribes are already operating under CAA grants; many more have expressed interest in applying for new grants. EPA believes it is appropriate at this time to clarify in a single source document the various authorities for financial assistance available to tribes and factors that tribes might consider in choosing among these authorities.

Objectives of this overview

The objectives of this document are to:

- Describe the funding authorities available to provide grants for tribes to use to develop and implement tribal air programs;
- Explain the kinds of activities each of these authorities can fund;
- Promote national consistency on the use of these authorities, while continuing to respond flexibly to tribal needs; and
- Suggest strategies to tribes for optimizing the use of these authorities to develop and implement their programs.

National Consistency

Although EPA's Tribal Air Program is rooted in the principles of flexibility and decentralized management, it is important to make clear that a number of factors in the program are universally applicable and should be applied nationally.

- Since its first articulation in 1984, EPA's Indian Policy has always been that tribal governments should be viewed as the primary parties in managing their environments and should be consulted on any EPA action that affects the tribe. Tribal consortia are eligible for financial assistance if they meet the requirements outlined in 40 C.F.R. §35.504. Assistance is subject to the approval/concurrence of the consortium's member tribes, and eligibility requirements are different under the authorities for General Assistance Program and CAA §105.
- Financial assistance has been provided to tribes to begin conducting environmental assessments and to develop environmental program management capacity. As tribes develop a better understanding of their air quality problems and begin to consider the long term implications of managing air quality, they should become more interested in moving toward a long term commitment to an air quality management program.

Statutory authorities available

Eligible tribes may seek funding to develop tribal air programs under three separate authorities:

- Indian Environmental General Assistance Program (42 USC §4368b)
- Clean Air Act Project funding (CAA §103(b))
- Clean Air Act Program funding (CAA §105)
- Performance Partnership Grants (PL 104-134 and PL 105-65)

Each of these provisions offers opportunities and limitations that might affect a tribe's decision on the appropriate authority to use (in addition to the statutory limitations, tribal grants are subject to cost allowability limitations set forth in OMB Circular A-87). This document will attempt to outline those factors that tribes should consider as they look for financial assistance to develop air programs.

General Assistance Program

1. How can the General Assistance Program be used to undertake the development of an air quality program?

EPA's General Assistance Grant Program (GAP) provides resources to eligible tribes to plan, develop, and establish an environmental protection program. This includes building the administrative, technical, legal, enforcement, communications, and environmental education and outreach infrastructure.

Planning and development of an environmental protection program may include conducting a baseline assessment of environmental degradation for specific media (e.g., air, water, etc.). For instance, in developing an air pollution control program, a tribe could use GAP funds for a baseline assessment of air quality. A tribe could also use GAP funds for other activities in support of building its air quality program such as completing an air pollution emissions inventory or setting up an ambient air quality monitoring network to characterize the air quality of an Indian country area as part of building the capacity to operate and manage an environmental program. The GAP grant may include the funds necessary to complete the tasks (staffing, travel, training, etc.) including the purchase of equipment consistent with EPA's regulations at 40 C.F.R. Parts 31 and 35 and OMB Circular A-87. EPA regional offices should work closely with tribal governments as they develop their GAP grant work plans to incorporate media-specific activities as appropriate.

2. Are GAP grants competed?

Although GAP grants are not formally competed at the national level, the limited availability of GAP funding requires some Regional Offices to establish competitive processes for awarding GAP grants. In these cases, the Regional Office may require that all grant proposals be submitted within a certain time frame so that the work plans can be evaluated simultaneously. Although it is EPA's goal to be able to award a GAP grant to every tribe requesting one, it is sometimes necessary to negotiate work plans to reduce the level of effort and the funding required so that all tribes who apply can receive some form of assistance.

3. Why might a tribe choose the GAP authority rather than a CAA authority?

This funding might be of particular interest to tribes concerned about committing to an air pollution program infrastructure before they have a complete understanding of the air quality conditions within Indian country. Including a baseline multi-media assessment of Indian country in a GAP grant provides an avenue for a tribe to collect the data needed to make media-specific decisions about media program implementation without taking on the burden of managing a number of media program grants. For example, a tribe may have concerns about its aquatic resources and suspect air deposition as a pollution pathway. It may also be reluctant to take on multiple grants and a large staff just to find out if there is a problem. In this case, it might be appropriate for the tribe to work with EPA to develop a GAP work plan that would enable the tribe to build an environmental protection program that addresses both air and water pollution. A baseline assessment of both water quality and air quality could be conducted if it is in support of planning, developing, or establishing such a program.

4. Are there any limitations on a tribe's choosing the GAP authority?

Tribes should be aware that this authority is not appropriate "for the principal purpose of solving particular problems at particular places," because they are not in support of planning, developing or establishing an environmental protection program. For instance, if a tribe has a concern about the transport of air pollution from a specific off-reservation source and wants to gather data on the impact of that source on its ambient air quality, it may be more appropriate to use one of the other available CAA grant authorities to complete the assessment.

Section 103 Authority

1. How can the Clean Air Act §103 authority be used to build tribal air programs?

CAA §103(a) establishes EPA's authority to "conduct, and promote the coordination and acceleration of, research, investigations, experiments, demonstrations, surveys, and studies relating to the causes, effects (including health and welfare effects), extent, prevention, and control of air pollution." CAA § 103(b)(3) authorizes EPA to "make grants to air pollution control agencies, to other public or nonprofit private agencies, institutions, and organizations, and to individuals, for [these] purposes." This broad authority has been used by many tribes to begin work on tribal air programs. Tribes have used the CAA §103 authority to begin air quality assessments, develop emissions inventories, and set up air quality monitoring networks to collect data on ambient air quality. A number of tribes have hired and trained air quality specialists to oversee the implementation of these activities.

2. Are there any limitations on the tribes' use of the §103 authority?

CAA §103 grants are project grants, and it is EPA's policy that these grants will not be approved for a performance period greater than five years. This limitation should not constrain tribes interested in assessing air quality and undertaking initial developmental activities since this kind of activity should generally not take more than five years to complete. It is also possible for tribes to seek multiple project grants under this authority as long as no single grant activity extends beyond five years in a single grant's cycle, and multiple grants are for distinctly different purposes. However, a §103 grant provides no guarantee of on-going funding beyond the project period.

The authority is not limited to "air pollution control agencies" or "an agency of an Indian tribe," which would narrow the field of eligibility (as with the 105 authority). As a project authority, §103 provides discretion to the Administrator to select those activities for funding that advance knowledge on the "causes, effects [. . .], extent, prevention, and control of air pollution." (CAA §103(a)(1)). Although EPA has established no formal evaluation and selection criteria for tribes applying for grants under this authority, it may be necessary to do so as resources become more limited.

Section 105 Authority

1. What is the purpose of CAA §105 grants?

EPA has been providing financial assistance to state pollution control agencies under the CAA §105 authority since the CAA was first authorized in 1970. The authority, however, has always limited the extent to which the federal government will fund a CAA program and required states to provide matching funds. Under the initial authorization, federal funding was limited to 75% of the total program; that requirement was changed by the 1990 amendments to limit the federal share of a CAA program to 60%. This authority provides for "implementing programs for the prevention and control of air pollution or implementation of national primary and secondary ambient air quality standards." (CAA §105(a)(1)(A)). The CAA further defines implementation as "any activity related to the planning, developing, establishing, carrying-out, improving, or maintaining of such programs." (CAA §105(a)(1)(A)). The authority is further restricted to state and regional air pollution control agencies as well as agencies of an Indian tribe, which have been eligible to receive funding under this authority in the same manner as states since the 1990 Clean Air Act amendments.

Eligible tribes have authority, if they choose to take it on, to develop and implement federally enforceable CAA programs. In addition, tribes who seek eligibility to receive a CAA §105 grant under the 40 C.F.R. §35.573(a) are also eligible for a reduced matching requirement (5% to 10%, depending on the situation). It is important to note that without the eligibility determination under 40 C.F.R. §49.6, tribes are required to provide a 40%

match and the tribes' must expend the same amount of tribal funds for recurrent CAA §105 activities as it expended in the previous year (maintenance of effort requirement CAA §105(c)), with no formal waiver provisions, in order to continue receiving §105 funds each ensuing year.

Tribes are generally eligible to receive §105 funding for operating ongoing air quality programs subject to certain limitations. Proposed programs must satisfy the requirements in 40 C.F.R. §35.511 including:

- Be consistent with 40 C.F.R. Part 31 (requirements involving grants);
- Be consistent with all applicable federal statutes; regulations; circulars; executive orders; and EPA delegations, approvals, or authorizations;
- Be feasible, considering the applicant's existing circumstances, past performance, program authority, organization, resources, and procedures (40 C.F.R. part 35.511(a)(4)).

A tribe seeking funding under §105 would have to work with the Regional Office to ensure that these requirements are fulfilled. These requirements are not intended to act as obstacles, but provide assurance that funding is being used as intended by Congress.

2. Must a tribe address additional requirements to receive the reduced match?

A tribe seeking eligibility to receive a CAA §105 program grant with a reduced match must apply for eligibility under 40 C.F.R. part 49.6. A tribe must document that:

- (1) The applicant is an Indian tribe recognized by the Secretary of the Interior;
- (2) The Indian Tribe has a governing body carrying out substantial governmental duties and functions;
- (3) The functions to be exercised by the Indian Tribe pertain to the management and protection of air resources within the exterior boundaries of the reservation or other areas within the tribe's jurisdiction; and
- (4) The Indian Tribe is reasonably expected to be capable, in the EPA Regional Administrator's judgment, of carrying out the functions to be exercised in a manner consistent with the terms and purposes of the Clean Air Act and all applicable regulations.

If a tribe has already been determined "eligible" under another environmental statute or under the CAA for another program, it need only identify the prior authorization and provide the required information which has not been submitted in the previous application (40 C.F.R. 49.7(a)(8)).

3. May a tribe seek a waiver for the CAA §105 match requirement?

Even with the reduced match, EPA recognizes that the economic circumstances of some tribes may preclude them from providing this small match. The Agency's regulation at 40 C.F.R. §35.575(a) provides discretion to the Regional Administrator to "increase the maximum federal share if the Tribe or Intertribal Consortium can demonstrate in writing that the fiscal circumstances within the Tribe or within the member Tribes of the Intertribal Consortium are constrained to such an extent that fulfilling the match requirement would impose undue hardship." This applies only to tribes found eligible under 40 C.F.R.49.6.

4. What are the advantages of §105 funding to tribal governments?

The principal advantage to a tribe is some assurance of continued funding in the future. As indicated above, tribes have access to this authority in two ways, through the statute itself as an "agency of a tribe" or through the TAS eligibility determination process. The CAA statute provides that "no application by a State [or a tribe] for a grant under this section may be disapproved by the Administrator without prior notice and opportunity for a public hearing in the affected State, and no commitment or obligation of any funds under any such grant may be revoked or reduced without prior notice and opportunity for a public hearing in the affected State." (CAA §105(e)).

EPA has provided in its recently promulgated revisions to the grant regulations similar assurances of continued financial assistance. That provision reads: "The Regional Administrator will not disapprove an application for, or terminate or annul an award of, financial assistance under §35.573 without prior notice and opportunity for a public hearing with the appropriate jurisdiction. . . ." (40 C.F.R. §35.578). Unlike the CAA §103 authority, which is project oriented and time limited, the §105 authority provides financial assistance for ongoing programs and will not be terminated without notice and an opportunity for public hearing.

Another advantage for a tribe pursuing a CAA §105 grant is that this kind of financial assistance can be incorporated into a Performance Partnership Grant.

Performance Partnership Grants (PPGs)

1. What is the role of Performance Partnership Grants?

EPA is authorized to award Performance Partnership grants (PPGs) to tribes and tribal consortia. PPGs enable Tribes and Tribal Consortia to combine funds from more than one environmental program grant into a single grant with a single budget under streamlined administrative requirements (40 C.F.R. §35.530(b)). Environmental program grant funds eligible for a PPG include the General Assistance Program (GAP) and Clean

Air Act §105 funds. CAA §103 grant funds are not available for inclusion in a PPG (see 40 C.F.R. §35.553).

PPGs offer many benefits to tribes. They offer opportunities to strengthen their partnership with EPA through joint planning and priority setting. They allow tribes to direct resources to those areas with the highest priority. They allow tribes to link program activities more effectively with their environmental and public health goals. And, by consolidating several programs, PPGs reduce the administrative burden of managing several grants on the tribe. A tribe looking to develop an integrated environmental management program that includes an air quality protection program might apply for CAA §105 funding (rather than a CAA §103 grant) in order to be able to include it in a PPG with funds from other eligible programs.

For tribes eligible for §105 grants that have not established eligibility for Treatment as a State, PPGs offer an option to receive funding under §105 with a reduced match. The PPG cost share (match plus maintenance of effort) is the sum of the cost shares required for all individual program grants included in the PPG, but for funds from programs with a required cost share of greater than 5%, EPA will only require a 5% cost share. However, after the first two years, it may be raised to 10%. All tribes eligible for §105 grants may be eligible for a waiver of the cost share in a PPG (see 40 C.F.R. §35.536). This affords an additional opportunity for tribes unwilling or unable to apply for a grant as an eligible tribe under 40 C.F.R. §35.573(a).

Source Documents:

Indian Tribes: Air Quality Planning and Management (40 C.F.R. Part 49)

Environmental Program Grants for Tribes (40 C.F.R. Part 35 subpart B)

Office of Air and Radiation FY 2002 National Program Guidance

Office of Air and Radiation FY 2002 Grant Guidance

OMB Circular A-87: Cost Principles for State, Local, and Indian Tribal Governments

OMB Circular A-102: Uniform Administrative Requirements for Grants and Agreements with State and Local Government. 40 C.F.R. Part 31.

Frequently Asked Questions

1. What are the key differences between the CAA §103 and §105 authorities?

Section 103 authority is a project-oriented grant. Activities under this authority are for efforts like research, investigations and surveys, and tribes have used §103 grants for activities associated with setting up air quality programs. These activities include initial air quality assessments, emission inventories, gathering monitoring data to understand air quality within Indian country, attending air quality training courses, preparing outreach to tribal members and becoming involved with local, regional and national planning and policy efforts. Section 105 grants are program grants provided to tribes to carry out ongoing air quality programs. The key difference is that ongoing activities like long term monitoring networks, inspections and enforcement, regulatory development and similar activities which are part of an ongoing air program should be funded by §105. Another key difference is that a §105 grant typically requires that a Tribe share some of the cost of the work plan budget.

2. When should a tribe consider moving from a §103 grant to a §105 grant? Can a tribe be granted a §103 grant and a §105 grant at the same time?

Tribes typically should move to §105 funding when their research and investigation under §103 funding enables them to determine that an ongoing air quality program is needed or desired by the tribe. A number of factors could be important in making this decision, and a primary factor would likely be the quality of the air within Indian country. Tribes in areas not meeting national or tribal standards would likely want to carry out a §105 program to address air quality issues both on the reservation and in non-reservation areas within their jurisdiction. In many cases, a tribe may have good air quality but still be concerned with impacts from sources outside of Indian country as well as issues such as long range transport and regional haze. The tribe might wish to maintain some ongoing air quality expertise and capacity in order to review and comment on permits for sources affecting their airshed, carry out an outreach program for tribal and neighboring communities, and participate in local, regional and national planning and policy efforts.

It is possible and not unusual for tribes (and other eligible grantees) to be funded under both authorities at the same time. In some instances, as a tribal air program develops, the tribe might choose to fund their ongoing activities under §105 while retaining funding for project activities under §103 until they are completed. In addition, a tribe being funded under §105 that wishes to carry out a new project, can apply for §103 funding for that project while continuing with ongoing §105 activities. These activities can be carried out concurrently but should be accounted for and reported as separate grants.

3. How can a tribe meet the match requirement under a §105 grant?

There are three options for meeting the match requirements under §105. The most common way is to provide 5 or 10% of the grant (if required) from tribal funding sources. This would often be drawn from a "general" fund maintained by the tribe, but could be provided from any source of tribal revenue excluding all funds provided to the tribe by the federal government, with the exception of federal funds specifically allowed by statute to be used for match. See 40 C.F.R. §31.24(b)(1) (e.g. funds provided under PL 638). A tribe may also provide a match through "in kind" sources, commonly contributions to the program from other tribal personnel, or through the provision of office space, supplies or overhead costs. This type of contribution would need to be supported by documentation quantifying its value. The third option available to tribes is to demonstrate hardship in providing match and apply to the Regional Administrator for a waiver. This generally takes the form of a letter describing to the Regional Administrator how the fiscal situation of the tribe prohibits the provision of matching funds.

Note that for tribes choosing not to seek TAS eligibility to receive §105 funds under 40 C.F.R. §35.573(a), the statutory requirement to provide a 40% match remains in effect. However, those tribes without TAS may reduce the match requirement by including the §105 funds in a PPG.

4. Under what circumstances can the match requirement for §105 grants under 40 C.F.R. §35.575(a) be waived?

Tribes are eligible for a waiver of the 5 or 10% match requirement at the discretion of the Regional Administrator. A tribe would write to the Regional Administrator and present information to demonstrate that providing the matching amount would cause the tribe undue hardship.

5. For a tribe applying for CAA §105 funds as an eligible tribe under 40 C.F.R. §49.6, how can it meet the "reservation or other areas within the tribe's jurisdiction" requirement?

To show that the tribe meets the "reservation" requirement, a tribe needs to show "with clarity and precision the exterior boundaries of the reservation including, for example, a map and a legal description of the area." 40 C.F.R. §49.7(a)(3). For applications concerning "other areas within the tribe's jurisdiction," the tribe should include a map or legal description of the area covered by the application and a statement by the applicant's legal counsel that describes the basis for the tribe's assertion of authority over that area for purposes of the grant.

To satisfy the capability requirement, the tribes must be reasonably expected to be capable of carrying out the functions to be exercised in a manner consistent with the terms and purposes of the Clean Air Act and all applicable regulations. A tribe should

include a narrative statement describing the capability of the tribe to carry out the functions to be exercised under the grant. The narrative statement may include a description of: (1) the Tribe's previous management experience; (2) existing environmental or public health programs administered by the Tribe; (3) the agency or office that will carry out the primary functions to be exercised under the grant; and (4) the technical and administrative capabilities of the staff to administer and manage the functions to be exercised or a plan which proposes how the tribe will acquire administrative and technical expertise. EPA recognizes that certain tribes may not have substantial experience administering environmental programs. A lack of experience will not preclude a Tribe from demonstrating the required capability. Rather, Tribes should show that they either have the necessary management and technical skills or submit a plan detailing steps for acquiring those skills.

6. Are there specific activities that are allowed or not allowed under the authorities for §103 and §105?

While specific activities are generally decided by the Regional Offices, there are some principles required by OMB Circulars that apply to all granting offices. As discussed earlier, §103 activities should be research and demonstration projects with a distinct duration and result. As part of a project, a tribe would generally be investigating their air quality through inventories, assessments and monitoring. In addition, the tribe could be developing their capacity to operate an air quality program by attending training, and networking with their peers at local, regional and national meetings and events involving the discussion and creation of air quality policies such as regional haze planning.

Under the §105 authority, many of these same activities would be allowable, as well as additional activities such as regulatory development, inspection of sources, major and minor source permitting, and ongoing monitoring efforts. The principle difference is an air quality project compared to an ongoing air quality program, and the activities may be similar, but have a different objective.

Please note that these lists are not inclusive and Regional Offices have some flexibility in allowing tasks that they find appropriate to be performed under either grant authority.

7. What are the requirements to assure the quality data being developed by tribes?

Many tribal programs are expected to undertake projects or programs which involve the collection or creation of environmental data, (an example is ambient monitoring). While there is some flexibility in the Regional offices regarding how this requirement is implemented, in general, tribes must have an approved quality assurance project plan (QAPP) to assure the quality of data being collected or created, prior to beginning the part of the project or program that involves data collection (40 C.F.R. §31.45). An EPA guidance document is available at <http://www.epa.gov/quality/qs-docs/r5-final.pdf>, and the Institute For Tribal Environmental Professionals and Northern Arizona University offers regular workshops for tribes to learn how to develop these plans.

8. Can a tribe use federal financial assistance to defend itself in court?

Reimbursement of legal expenses is governed by the cost principles in OMB Circular A-87. Funds from either §103 or §105 should be used for activities stated and approved as part of the project workplan. In addition, consistent with the Agency's annual appropriation act, a chief executive officer of every assistance recipient is required to certify that none of the federal funds were used to lobby the federal government or in litigation against the United States unless authorized under existing law.

Acronym List

AIRS-AQS	Aerometric Information Retrieval System - Air Quality System database (EPA)
AILESP	American Indian Lands Environmental Support Project (EPA)
BACT	Best Available Control Technology
BACM	Best Available Control Measures
CAA	Clean Air Act
CATC	Clean Air Technology Center (EPA)
CEMS	Continuous Emission Monitoring System
CFR	Code of Federal Regulations
CHIEF	Clearinghouse for Inventories and Emissions Factors (EPA)
C/MSA	Consolidated Metropolitan Statistical Area
CO	Carbon Monoxide
EIIP	Emissions Inventory Improvement Program (EPA)
EMC	Emissions Monitoring Center (EPA)
EPA	Environmental Protection Agency
FIP	Federal Implementation Plan
GCVTC	Grand Canyon Visibility Transport Commission
HAPs	Hazardous Air Pollutants
IPP	Inventory Preparation Plan
LAER	Lowest Achievable Emission Rate
MACT	Maximum Achievable Control Technology
minor NSR	Minor Source New Source Review
MSA	Metropolitan Statistical Area
NA	Nonattainment
NAAQS	National Ambient Air Quality Standards
NESHAPs	National Emissions Standards for Hazardous Air Pollutants
NET	National Emissions Trends database (EPA)
NETI	National Enforcement Training Institute (EPA)
NO ₂	Nitrogen Dioxide
NSPS	New Source Performance Standards

NSR	New Source Review (for major sources in either attainment or nonattainment areas)
NTIS	National Technical Information Service
OECA	Office of Enforcement and Compliance Assurance (EPA)
O ₃	Ozone
Pb	Lead
PM ₁₀	Particulate Matter with a diameter less than or equal to 10 micrometers
PM _{2.5}	Particulate Matter with a diameter less than or equal to 2.5 micrometers
ppm	Parts per million (a unit of measurement)
PSD	Prevention of Significant Deterioration program (New Source Review for attainment areas)
QA/QC	Quality Assurance / Quality Control
RACM	Reasonably Available Control Measures
RACT	Reasonably Available Control Technology
RFP	Reasonable Further Progress
SIP	State Implementation Plan
SO ₂	Sulfur Dioxide
TAMS	Tribal Air Monitoring Support Center
TAR	Tribal Air Rule
TIP	Tribal Implementation Plan
μg/m ³	Micrograms per cubic meter of air (a unit of measurement)
VOC	Volatile Organic Compounds
WRAP	Western Regional Air Partnership

Glossary

acid deposition - the process by which acidic particles, gases, and precipitation leave the atmosphere. Although it is more commonly referred to as acid rain, acid deposition has two components: wet deposition (through snow, rain, and fog) and dry deposition (through the settling of gases and particles out of the atmosphere).

acid rain - primarily the result of sulfur dioxide (SO₂) and nitrogen oxides (NO_x) reacting in the atmosphere with water and returning to earth as rain, fog, or snow. This term is broadly used to include both wet deposition and dry deposition (through the settling of gases and particles out of the atmosphere).

Aerometric Information Retrieval System (AIRS-AQS) - a database with easily-retrieved information on the levels of the criteria pollutants in all areas of the country. The EPA's procedures for reporting and using data ensure timely and widespread access to accurate information. The public may browse and obtain reports from AIRS-AQS at www.epa.gov/airs/.

ambient air - any unconfined portion of the atmosphere; open air, surrounding air.

area source - any small source of non-natural air pollution that is released over a relatively small area but which is not classified as a point source. Such sources may include vehicles and other small engines, small businesses, and household activities.

attainment area - an area considered to have air quality as good as or better than the national ambient air quality standards as defined by the Clean Air Act. An area may be an attainment area for one pollutant and a nonattainment area for others.

baseline - the ambient concentration level of a pollutant that exists at the time of the first application for a PSD permit. The baseline concentration is established for each pollutant (and relevant averaging time). In areas with a PSD program, ambient air concentration levels may not exceed the baseline plus an established increment.

Best Available Control Measures (BACM) - a term used to refer to the most effective measures (according to EPA guidance) for controlling small or dispersed particulates from sources such as roadway dust, soot and ash from woodstoves and open burning of brush, timber, grasslands, or trash.

Best Available Control Technology (BACT) - an emission limitation based on the maximum degree of emission reduction (considering energy, environmental, and economic impacts) achievable through application of production processes and available methods, systems, and techniques. BACT does not permit emissions in excess of those allowed under any applicable CAA provisions. Use of the BACT concept is allowable on a case by case

basis for major new or modified emission sources in attainment areas (used under the Prevention of Significant Deterioration program) and applies to each regulated pollutant.

biogenic source - non-manmade or natural emitter of air pollutants. For example, conifer trees emit terpenes which are volatile organic compounds, a precursor to ozone.

carbon monoxide (CO) - a colorless, odorless, poisonous gas produced by incomplete fossil fuel combustion. CO is a criteria pollutant regulated under NAAQS.

Class I, II, and III attainment areas - classifications of attainment/unclassifiable areas established in the CAA. Class I areas are held to the strictest air pollution standards; Class III areas allow for the greatest amount of emissions of criteria pollutants. "Federal Class I" areas are the Class I areas created in the CAA: national wilderness areas and national memorial parks greater than 5,000 acres, national parks greater than 6,000 acres, and international parks. Additional areas have since been reclassified as Class I areas. Class II areas initially were all those areas that were in attainment or unclassifiable that were not established as Class I areas. Class II areas can be redesignated as Class I or Class III areas.

Clean Air Act (CAA) - the basis of U.S. clean air programs. The original CAA passed in 1970 and was amended in 1977 and 1990. It is comprised of nine sections or Titles that cover, in order, the National Ambient Air Quality Standards, mobile sources, hazardous air pollutants, acid-deposition control, stationary source operating permits, stratospheric ozone and global climate protection, enforcement, miscellaneous provisions, and clean air research.

continuous emission monitoring systems (CEMS) - the total equipment necessary for determining the gas or particulate matter concentration or emission rate using pollutant analyzer measurements and a conversion equation, graph, or computer program to produce results in units of the applicable emission limitation or standard. CEMS are required under some of the EPA regulations for either continual compliance determination or determination of exceedances of the standards.

Code of Federal Regulations (CFR) - a codification of the general and permanent rules published in the *Federal Register* by the executive departments and agencies of the federal government. The CFR is divided into 50 titles which represent broad areas subject to Federal regulation. Title 40 consists of regulations related to protection of the environment. The CFR is available online at www.access.gpo.gov/nara/cfr/index.html.

Clearinghouse for Inventories and Emissions Factors (CHIEF) - an on-line resource (www.epa.gov/ttn/chief/) with information on emissions factors, emissions inventories, and emissions estimation software.

contingency measures - the part of an attainment strategy that provides extra emission reductions if your basic control strategy fails to achieve reasonable further progress or fails to attain

the primary NAAQS on schedule. Contingency measures should accomplish about one year's worth of progress toward meeting the NAAQS or an additional 20 to 25% of the emissions being reduced.

criteria pollutants - pollutants known to be hazardous to human health for which the 1970 amendments to the Clean Air Act required EPA to set National Ambient Air Quality Standards (NAAQS). EPA has identified and set standards to protect human health and welfare for six pollutants: ozone (O₃), carbon monoxide (CO), total suspended particulates (also known as particulate matter or PM), sulfur dioxide (SO₂), lead (Pb), and nitrogen dioxide (NO₂). The term, "criteria pollutants," derives from the requirement that EPA must describe the characteristics and potential health and welfare effects of these pollutants. It is on the basis of these criteria that standards are set or revised.

design value - the ratio of current pollutant concentration to the National Ambient Air Quality Standards (NAAQS). A design value greater than one indicates the area is in violation of the NAAQS for that pollutant.

eligible tribe - a tribe that has received a determination of eligibility to run CAA programs (formerly known as "treatment in the same manner as a state"). To become eligible, your tribe must demonstrate federal recognition, have a governing body carrying out substantial governmental duties and powers, provide evidence it will perform functions pertaining to the management and protection of air resources within its jurisdiction, and demonstrate the capability to implement the programs for which it is seeking approval.

emission - pollution discharged into the atmosphere from smokestack, other vents, and surface areas of commercial or industrial facilities; from residences; and from motor vehicle, locomotive, or aircraft exhausts.

emissions factor - a ratio that relates emissions of a pollutant to an activity level at a plant that can be easily measured, such as the amount of material processed or an amount of fuel consumed. Given an emissions factor and a known activity level, multiplication yields an estimate of emissions.

emissions inventory - a listing, by source, of the amount of air pollutants discharged into the atmosphere of a geographic area.

Emissions Inventory Improvement Program (EIIP) - a jointly sponsored effort of the State and Territorial Air Pollution Program Administrators/Association of Local Air Pollution Control Officials and EPA. The goal of EIIP is to provide cost-effective, reliable inventories by improving the quality of emissions information and developing systems for collecting, calculating, and reporting emissions data. The primary guidance on inventory development is summarized in the *EIIP Document Series, Volumes I-X*, accessible through the EIIP website (www.epa.gov/ttn/chief/eiip/).

emission standard - the maximum amount of air polluting discharge legally allowed from a single source, mobile or stationary.

emissions trading - EPA policy that allows a plant complex with several facilities to decrease pollution from some facilities while increasing it from others, so long as total results are equal to or better than previous limits. Facilities where this is done are treated as if they exist in a bubble in which total emissions are averaged out. Complexes that reduce emissions substantially may "bank" their "credits" or sell them to other industries.

enforcement - EPA, state, tribal, or local legal actions to obtain compliance with environmental laws, rules, regulations, or agreements and/or obtain penalties or criminal sanctions for violations. Enforcement proceedings may vary, depending on the requirements of different environmental laws and related implementing regulations.

Federal Implementation Plan (FIP) - under current law, a federally implemented plan to achieve attainment of air quality standards, used when a state or a tribe is unable to develop an adequate plan.

federal land manager - with respect to any lands owned by the government of the United States, the Secretary of the department with authority over such lands. Four agencies administer the majority of this land: the Forest Service (in the Department of Agriculture), the Bureau of Land Management, the Fish and Wildlife Service, and the National Park Service (in the Department of the Interior). Management authority may be delegated to regional or local officials, such as the Regional Forester or the individual Forest Supervisor for Forest Service lands.

fugitive emissions - sources of emissions that do not come from an exhaust stack or vent and are not collected or controlled. Fugitive emissions may escape from buildings or come from unconfined activities such as outdoor materials storage piles swept by wind and surface mining activities.

geogenic sources - natural sources that create pollution, such as oil and natural gas seeps which emit ozone precursors (VOCs and NO_x), volcanoes which emit PM and SO_2 , and wind that blows dust from natural areas, creating PM.

Grand Canyon Visibility Transport Commission (GCVTC)- a regional planning group that developed a strategy for dealing with visibility impacts in the national parks and wilderness areas on the Colorado Plateau. The GCVTC was comprised of tribal, state, and federal representatives. Once the GCVTC made its recommendations, the Western Regional Air Partnership (WRAP) was formed to implement them.

Hazardous Air Pollutants (HAPs) - 188 air pollutants that are not covered by ambient air quality standards, but which, as defined in Title III of the Clean Air Act, may reasonably be expected to cause or contribute to irreversible illness or death. Such pollutants include

asbestos, beryllium, mercury, benzene, coke oven emissions, radionuclides, and vinyl chloride.

increment - the maximum allowable increase in concentration that is allowed to occur above a baseline concentration for a pollutant in areas with a PSD program. Class I areas have the smallest increments and thus allow only a small degree of air quality deterioration. Class III areas have the largest increments and therefore allow for a larger amount of development than either Class I or Class II areas.

inventory preparation plan (IPP) - a concise, prescriptive document that states exactly how you intend to develop and present your inventory. The IPP should include inventory objectives and general procedures, and should clearly describe how you will present and document the inventory for submission to EPA and/or others.

knowing violation - a violation in which the responsible party is aware of an environmental regulation, yet still takes an action that causes the regulation to be violated.

lead (Pb) - a heavy metal that is hazardous to health if breathed or swallowed. Its use in gasoline, paints, and plumbing compounds has been sharply restricted or eliminated by federal laws and regulations. Lead is a criteria pollutant regulated under NAAQS.

Lowest Achievable Emission Rate (LAER) - under the Clean Air Act, the rate of emissions that reflects (a) the most stringent emission limitation in the implementation plan of any state for such source unless the owner or operator demonstrates such limitations are not achievable; or (b) the most stringent emissions limitation achieved in practice, whichever is more stringent. A proposed new or modified source may not emit pollutants in excess of existing new source standards. LAER is usually required in nonattainment areas under the New Source Review program.

major modification - any physical change in or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant subject to regulation under the CAA. See 40 CFR 51.165(a)(1)(v)(A).

major stationary source - a source that emits, or has the potential to emit, 100 tons per year or more of any pollutant subject to regulation under the CAA. See 40 CFR 51.165(a)(1)(iv)(A).

minor stationary sources - any stationary source of air pollutants that does not meet the definition of a major stationary source.

mobile source - any non-stationary source of air pollution such as cars, trucks, motorcycles, buses, airplanes, and locomotives.

minor New Source Review (minor NSR) program - applies in both attainment and nonattainment areas to smaller new facilities and expanding facilities that are not large enough to qualify as major new sources or major modifications.

National Ambient Air Quality Standards (NAAQS) - national standards for pollutants considered harmful to public health and the environment. The Clean Air Act requires EPA to set NAAQS and established two types of national air quality standards. Primary standards set limits to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly. Secondary standards set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings. The EPA Office of Air Quality Planning and Standards (OAQPS) has set NAAQS for six principal pollutants, which are called "criteria" pollutants: ozone, carbon monoxide, total suspended particulates (also known as particulate matter), sulfur dioxide, lead, and nitrogen dioxide.

National Emissions Standards for Hazardous Air Pollutants (NESHAPs) - emissions standards set by EPA for an air pollutant not covered by the National Ambient Air Quality Standards (NAAQS) that may cause an increase in fatalities or in serious, irreversible, or incapacitating illness.

New Source Performance Standards (NSPS) - uniform national EPA air emission and water effluent standards which limit the amount of pollution allowed from new sources or from modified existing sources.

National Emissions Trends (NET) Database - a national database that blends state and locally supplied data with EPA derived data to form a comprehensive national inventory of criteria and toxic pollutants. The NET inventory does not necessarily include state data for any particular source or pollutant. However, in the 1996 NET inventory, EPA intends to provide statewide emissions inventory data on a county level basis to every state in the country. The NET is accessible at www.epa.gov/ttn/chief/net/index.

new source - any stationary source built or modified after publication of final or proposed regulations that prescribe a given standard of performance.

New Source Review (NSR) preconstruction permitting program - requires all new major sources or existing sources with major modifications in both nonattainment areas and attainment areas to obtain preconstruction permits. The nonattainment NSR and the Prevention of Significant Deterioration (PSD) programs, collectively known as major NSR, are federal regulations under the CAA. The programs focus primarily on the criteria pollutants regulated by the NAAQS. See also "minor New Source Review," "nonattainment New Source Review," and "Prevention of Significant Deterioration."

nitrogen dioxide (NO₂) - the result of nitric acid combining with oxygen in the atmosphere; major component of photochemical smog; a criteria pollutant regulated under NAAQS.

nonattainment area - an area that does not meet one or more of the National Ambient Air Quality Standards for the criteria pollutants designated in the Clean Air Act.

noncriteria pollutant - an air pollutant other than one of the six criteria pollutants [ozone (O_3), carbon monoxide (CO), particulate matter (PM), sulfur dioxide (SO_2), lead (Pb), and nitrogen dioxide (NO_2)].

nitrogen oxide (NO_x) - a product of combustion from transportation and stationary sources and a major contributor to the formation of ozone in the troposphere and to acid deposition.

nonattainment New Source Review (nonattainment NSR) preconstruction permitting program - in areas where air quality is worse than the NAAQS, this program prevents increases in emissions from major new sources and major modifications of existing sources and thus ensures progress toward meeting the standards. To obtain a permit under NSR, a facility must install control equipment ensuring the Lowest Achievable Emission Rate (LAER) and obtain emission "offsets" or reductions from other sources equal to the increased pollutant emissions.

offsets - emissions reductions obtained from existing source(s) by a prospective major new stationary source, or a source planning major modifications, in order to offset the increase in pollutant emissions caused by the new or modified source (thereby creating no net increase in emissions). Offsets are generally secured from other sources in the vicinity of the new source or modification. However, in the case of modifications, offsets can also be obtained, with limitations, from the source itself.

opacity - the amount of light obscured by particulate pollution in the air; clear window glass has zero opacity, a brick wall is 100 percent opaque. Opacity is an indicator of changes in performance of particulate control systems.

ozone (O_3) - found in two layers of the atmosphere, the stratosphere and the troposphere. In the stratosphere (the atmospheric layer 7 to 10 miles or more above the earth's surface), ozone is a natural form of oxygen that provides a protective layer shielding the earth from ultraviolet radiation. In the troposphere (the layer extending up 7 to 10 miles from the earth's surface), ozone is a major component of smog. It can seriously impair the respiratory system and is one of the most widespread of all the criteria pollutants for which the Clean Air Act required EPA to set standards. Ozone in the troposphere is produced through complex chemical reactions of nitrogen oxides, which are among the primary pollutants emitted by combustion sources; hydrocarbons, released into the atmosphere through the combustion and processing of petroleum products; and sunlight.

particulates - fine liquid or dust particles such as dust, smoke, mist, fumes, or smog, found in air or emissions; particulate matter is a criteria pollutant regulated under NAAQS.

permit - an authorization, license, or equivalent control document issued by EPA or an approved state or tribal agency to implement the requirements of an environmental regulation; e.g., a permit to operate a wastewater treatment plant or to operate a facility that may generate emissions.

particulate matter (PM) - (1) PM_{10} - a standard for measuring the amount of solid or liquid matter suspending in the atmosphere, i.e., the amount of particulate matter over 10 micrometers (μm) in diameter; smaller PM_{10} particles penetrate to the deeper portions of the lung, affecting sensitive populations groups such as children and individuals with respiratory ailments. (2) $PM_{2.5}$ - particulate matter greater than or equal to $2.5 \mu m$ in diameter. PM is a criteria pollutant regulated under NAAQS.

point source - a stationary location or fixed facility from which pollutants are discharged; any single identifiable source of pollution, e.g., a pipe, ditch, ship, ore pit, factory smokestack.

potential to emit - emission estimates for a source based on the maximum capacity of that source, taking into consideration enforceable permit conditions, such as the type of materials combusted, the type of materials processed, and the annual hours of operation.

precursor - a substance from which another substance is formed; ozone precursors, such as NO_2 and VOC, react in sunlight to form ozone.

Prevention of Significant Deterioration preconstruction permitting program (PSD) - an EPA program in which state, tribal, and/or federal permits are required in order to restrict emissions from new or modified sources in places where air quality already meets or exceeds primary and secondary ambient air quality standards.

public comment period - the time allowed for the public to express its views and concerns regarding an action by the EPA or other regulating authority (e.g., a *Federal Register* notice of proposed rule-making or a public notice of a draft permit).

quality assurance/quality control (QA/QC) - a system of procedures, checks, audits, and corrective actions to ensure that all EPA research design and performance, environmental monitoring and sampling, and other technical and reporting activities are of the highest achievable quality.

reasonably available control measures (RACM) - a broadly defined term referring to technological and other measures for pollution control.

reasonably available control technology (RACT) - control technology that is both reasonably available, and both technologically and economically feasible. RACT is usually applied to existing sources in nonattainment areas; in most cases it is less stringent than new source performance standards.

reasonably severable - means that the TIP elements selected for the TIP must be able to stand alone and meet applicable CAA and regulatory requirements

source - any activity that causes pollutants to be emitted into the air. A stationary source is a fixed-site producer of pollution, such as power plants, industrial facilities, and gas stations. A mobile source is any non-stationary source of air pollution such as cars, trucks, motorcycles, buses, airplanes, and locomotives. A major source is one that emits, or has the potential to emit, pollutants over a major source threshold. A minor source is any source which emits less pollutants than the major source threshold.

State Implementation Plan (SIP) - EPA approved state plans for the establishment, regulation, and enforcement of air pollution standards. A detailed description of the programs a state will use to carry out its responsibilities under the *Clean Air Act*. Collections of regulations used by the state to reduce air pollution.

sulfur dioxide (SO₂) - a pungent, colorless, gaseous pollutant formed primarily by the combustion of fossil fuels.

stationary source - a fixed-site producer of pollution, such as power plants, industrial facilities, and gas stations.

synthetic minor - a source with major source potential to emit that agrees to enforceable emission limits below the major source threshold. Synthetic minor provisions can be included in minor New Source Review programs.

tribal air program - a program that incorporates technical, administrative, and outreach elements to address air quality concerns on a reservation or other area under a tribe's jurisdiction. Technical elements in a tribal air program may include identifying emission sources, establishing and maintaining an emissions inventory, collecting meteorological data, monitoring air quality, rule-making, and enforcing rules.

Tribal Authority Rule (TAR) - The TAR identifies eligibility criteria for tribes seeking to implement CAA programs and defines the process for EPA approval of tribal CAA programs. The TAR was issued on February 12, 1998 (63 Federal Register 7254) and the regulatory provisions codified at 40 CFR Section 49.

Tribal Implementation Plan (TIP) - a practical and enforceable plan, the primary purpose of which is to ensure that the National Ambient Air Quality Standards (NAAQS) are not violated. Tribes may choose to develop TIPs, whereas states are required to develop state implementation plans (SIPs). The EPA may develop and implement a federal implementation plan (FIP), where necessary or appropriate, for areas of Indian Country where the tribe is unable to or chooses not to develop an implementation plan that meets EPA approval.

volatile organic compounds (VOCs) - any organic compound that participates in atmospheric photochemical reactions, except those designated by EPA as having negligible photochemical activity. Atmospheric photochemical reactions can transform VOCs into ozone.

Western Regional Air Partnership (WRAP) - the organization created to implement the Grand Canyon Visibility Transport Commission's (GCVTC) recommendations for dealing with visibility impacts in the national parks and wilderness areas on the Colorado Plateau. The WRAP's goal is to "promote and monitor the implementation of the recommendations from the GCVTC and, with the concurrence of its members, engage in other common regional air quality issues." The members of WRAP include governors from western states, western tribal leaders, and representatives of the Departments of Agriculture and Interior, and EPA.

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16. ABSTRACT This document was written to help tribal environmental staff. The Environmental Protection Agency's Tribal Authority Rule [see 63 Federal Register 7254] says that Indian tribes that meet certain eligibility requirements can develop implementation plans for national ambient air quality standards (NAAQS). The EPA has established NAAQS for six air pollutants, particulate matter, ozone, sulfur dioxide, nitrogen dioxide, carbon monoxide, and lead. The document discusses air quality management in general, the information and benefits that tribes should consider before developing implementation plans, the elements of state and tribal implementation plans, the regional haze program, emission inventories, air quality monitoring, enforcement program considerations, and what should be submitted to EPA with a TIP.		
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