

10. LONG-TERM STRATEGY FOR FIRE PROGRAMS

10.1. Regulatory History and Requirements

In its 1996 final report, the GCVTC recognized that past land management practices, including decades of fire suppression, have led to an increase of accumulated forest fuels. Wildfires are becoming larger in size, unnaturally destructive, and more dangerous and costly to control. Fire, however, is a component of most natural ecosystems in the West and therefore must be a component of processes to meet land management, human health and visibility objectives. The GCVTC recognized that prescribed fire and wildfire levels are projected to increase significantly for decades to come, and that programs to minimize emissions and visibility impacts, and to educate the public, should be implemented.

The Regional Haze Rule (40 CFR 51.309(d)(6)) requires documentation that all federal, state and private prescribed fire programs in the state evaluate and address the degree of visibility impairment from smoke. In addition, a statewide inventory and emissions tracking system must be established for volatile organic compounds, nitrogen oxides, elemental and organic carbon, and fine particle emissions from fire. Any administrative barriers to the use of alternatives to burning should be identified and removed where possible along with an enhanced smoke management program based on specific criteria that addresses visibility as well as health and nuisance objectives. Finally, annual emission goals for fire shall be established, in cooperation with states, tribes, federal land managers and private entities, to minimize emissions increases from fire to the maximum extent feasible.

The WRAP's effort to document and understand the incidence of fire and its effect on visibility in Class I areas has been extensive and productive. Chapter 6 of the WRAP TSD, "Assessment of Fire Programs," details the results of WRAP's analyses of fire on visibility to date. Different emission reduction scenarios for the 2018 projected inventories were the basis for the analyses. WRAP modeling shows that emissions from fire will continue to affect visibility for some time on an episodic basis.

10.2. Prescribed Fire Program Evaluation

Pursuant to 40 CFR 51.309(d)(6)(i), the State of Arizona evaluated the State's Enhanced Smoke Management Plan and all Federal, State, and private prescribed fire smoke management programs in the State, based on the potential to contribute to visibility impairment in the 16 Class I areas of the Colorado Plateau, and how visibility protection from smoke is addressed in planning and operation. The State of Arizona relied upon the WRAP report *Assessing Status of Incorporating Smoke Effects into Fire Planning and Operations* (see Appendix A-10a) as well as EPA's *Interim Air Quality Policy on Wildland and Prescribed Fires* (see Appendix A-10b) as a guides for making this evaluation along with input from a stakeholder-based work group familiar with the policies and regulations related to fire and land management within the State. The State of Arizona also evaluated whether the State's existing fire regulations as part of an Enhanced Smoke Management Plan contained the following elements: actions to minimize emissions; evaluation of smoke dispersion; alternatives to fire; public notification; air quality monitoring; surveillance and enforcement; and program evaluation. The result of this evaluation process was the determination that revisions to Arizona's existing fire regulations, R18-2-602, "Unlawful Open Burning," and Article 15, "Forest and Range Management Burns," would be necessary.

10.3. Emission Inventory and Tracking System

The State of Arizona has made revisions to R18-2-602, "Unlawful Open Burning," and Article 15, "Forest and Range Management Burns," to allow for the tracking of all types of fire in the State.

These state-approved rules along with the related public participation and review process, can be found in Appendix A-10c, with Appendix A-10d containing supporting information related to the promulgation of these rules. Most of the changes made to Article 15 relate directly to the requirement of Section 309(d)(6), including to the collection and recording of burn data. Changes to R18-2-602 allow Arizona to meet the tracking requirements in 12 counties throughout the state. The three remaining counties, Maricopa, Pima and Pinal, have their own fire rules (Maricopa County Rule 341; Pima County Rule 17.12.480, et seq.; and Pinal County Rule 3-8-700 and 3-8-710.). The three counties will revise their existing rules to comply the requirements of R18-2-602. The State of Arizona commits to submit updated county rules based on the revised Arizona rules in a SIP revision by December 31, 2004.

In addition to its own emissions tracking, the State of Arizona will review the WRAP data on post-burn activity and utilize the WRAP's regional emission tracking system. In addition, fire emission inventory updates will be provided in future progress reports, as part of the periodic SIP revisions, pursuant to 40 CFR 51.309(d)(10). See Appendix A-10e, entitled, *Policy on Fire Tracking Systems* for further information on the emissions inventory and tracking system to be utilized by Arizona.

10.4. Strategy for Use of Non-burning Alternatives

The State of Arizona is continuing to develop a process with key public and private entities, including the State Department of Agriculture, State Land Department, Federal Land Managers', farming and forestry associations, etc. to identify and remove administrative barriers to the use of non-burning alternatives to prescribed fire on federal, state, and private lands, pursuant to 40 CFR 51.309(d)(6)(iii). The process is collaborative and provides for continuing identification and removal of administrative barriers, and considers economic, safety, technical and environmental feasibility criteria, and land management objectives. This process is outlined in the related sections of the Arizona fire rules (see Table 10.1, "Alternative to fire"). In developing this process, the State of Arizona will rely on two documents: (1) *Nonburning Alternatives for Vegetation and Fuel Management* (see Appendix A-10f), and (2) *Burning Management Alternatives on Agricultural Lands in the Western United States* (see Appendix A-10g), prepared by the WRAP that describe a variety of non-burning alternatives and methods of assessing their potential applicability.

10.5. Enhanced Smoke Management Program

Pursuant to 40 CFR 51.309(d)(6)(iv), the smoke management programs that operate within Arizona are consistent with the WRAP *Enhanced Smoke Management Programs for Visibility* (see Appendix A-10h). This approach calls for programs to be based on the criteria of efficiency, economics, law, emission reduction opportunities, land management objectives, and reduction of visibility impacts. The WRAP *Enhanced Smoke Management Programs for Visibility* lists the previously identified elements under 40 CFR 51.309(d)(6)(i) as well as adding "burn authorization" and "regional coordination" elements to ensure visibility protection and to meet the designation of "enhanced."

An Enhanced Smoke Management Plan (ESMP) comprises a series of key policies and management practices. In general the ESMP must specifically address visibility effects and apply to all fire sources as do all smoke management plans in the State of Arizona. The ESMP should also apply uniformly to source sectors or be tailored to source sectors and/or geographical areas. In addition, the ESMP must provide the opportunity to work collaboratively with state, tribal, local, and federal agencies, and private parties while considering the criteria of efficiency, economics, law, emission reduction opportunities, land management objectives, and reduction of visibility impact. The State of Arizona

ESMP meets all of these requirements. The State of Arizona will conduct annual meetings of all affected parties to discuss smoke management issues and objectives.

Arizona’s Article 15 (R18-2-1501-1515), Forest and Range Management Burns, and R18-2-602 (Section 602), Unlawful Open Burning, upon revision now includes the following specific elements required of an ESMP, and are enumerated in the Table 10-1.

Table 10-1. Inclusion of ESMP Elements Into Arizona Regulations

Enhanced Smoke Management Plan Element	Rule Citation
Actions to minimize emission from fire	R18-2-1509 R18-2-602(D)(3)(e)
Evaluation of smoke dispersion	R18-2-1506 and 1510 R18-2-602(D)(3)(m) and (o) R18-2-602(B)(3)(d)
Alternative to fire	R18-2-1503(C)(8), 1503(D) and 1503(G) R18-2-602(H)*
Public notification of burning	R18-2-1513 R18-2-602(D)(3)(g)
Air quality monitoring	R18-2-1508 and 1511 R18-2-602(H)*
Surveillance and enforcement	R18-2-1514 R18-2-602**
Program evaluation	R18-2-1503 R18-2-602(H)*
Burn Authorization	R18-2-1505 and 1508 R18-2-602(D)(3)(g)
Regional Coordination	R18-2-1513 and 1515 R18-2-602(H)*

* R18-2-602(H) allows the State of Arizona to examine at its annual meeting any need to address monitoring, regional coordination, or alternatives to burning as they arise in an overall discussion of program evaluation for unlawful opening burning. Issues that could arise in these areas are difficult to determine ahead of time, and are driven by proximity and volume.

** Any violations under R18-2-602 have penalty authority under Arizona Revised Statute 49-501. A copy of ARS 49-501 can be found in Appendix A-10i.

10.6. Annual Emission Goal

Pursuant to 40 CFR 51.309(d)(6)(v), efforts will be made within the State of Arizona to minimize emission increases in fire, excluding wildfire, to the maximum extent feasible, through the use of annual emission goals, in accordance with the WRAP *Annual Emission Goals for Fire* (see Appendix A-10j).

The *Annual Emission Goals for Fire* recognizes that Emission Reduction Techniques (ERTs) can be used to minimize emissions from fire. The State of Arizona commits to the establishment of a collaborative mechanism for setting annual emission goals, and development of a process for tracking their attainment on a yearly basis. The authority to proceed with this commitment can be found in Arizona’s revised Article 15, subsection 1503 and 1509. It can also be found in the tracking timeline

contained within Arizona's revised R18-2-602 rule. A list of current ERTs is contained in the rule appendix to R18-2-602.

The projection and tracking of ERT use is a minimum element of the quantifiable annual emission goal. The Annual Emissions Goal will utilize the projection of total emissions inventory for prescribed fire and agricultural burning, as provided by the emissions inventory and tracking systems outlined in Section 10.3 of this chapter, such that the effect of projected emission reduction techniques or percentage of ERT use is shown in relation to projected total emissions. Should projected annual emissions not be available, the State commits to submit a timeline to develop the necessary inventory. Where ERT use or other emission reduction methods cannot be quantified with confidence due to the current state of the science (such as for agricultural burning), the State of Arizona commits to participate in the development of further refinements in emission reduction or emissions averted calculation methodologies.

The use of ERTs to meet the 51.309(d)(6)(iv) requirement, as with the ESMP, is subject to economic, safety, technical and environmental feasibility, and land management objectives.