New Mexico
Smoke Management Program

Guidance Document

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New Mexico Environment Department
Air Quality Bureau

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Appendices

New Mexico Smoke Management Program

Executive Summary

The New Mexico Environment Department's Air Quality Bureau (AQB) developed the state Smoke Management Program (SMP) to protect the health and welfare of New Mexicans from the impacts of smoke from all sources of fire. In addition, this SMP meets the requirements of the Clean Air Act and the Regional Haze Rule (40 CFR 51.309). This SMP is applicable in all of New Mexico, except for tribal lands and Bernalillo County, which are separate air quality jurisdictions. Burners must also comply with all city and county ordinances relating to smoke management and vegetation burning.

The SMP was developed over a six-month period, through a facilitated, multi-level stakeholder process. The stakeholder process involved representatives from federal, state and municipal land management agencies, other local government agencies, agriculture, tribes, neighboring states, private land ownership, environmental groups and other interested parties.

The intent of this process was to create a SMP that is equitable, reasonable, and implementable; is based on the best available science; and that provides all burners with the tools and information they need to manage impacts from smoke. Clarity, flexibility and ease of application were also fundamental principles of the SMP development process. The SMP is dynamic, and will be evaluated and revised as necessary on an annual basis, involving stakeholder review and input. Topics for evaluation could include SMP thresholds and requirements, time frames, fees, airshed boundaries, and other aspects of the program as appropriate.

The SMP requirements of burners are based on those required by the U.S. Environmental Protection Agency, and fall under two categories of burners. SMP I is primarily an information gathering level, with registration and tracking requirements for all burners at this level of emissions. SMP II has more stringent requirements related to smoke management and emissions reduction, in keeping with the higher level of emissions produced by these larger burns. These requirements make up the Smoke Management Regulation (20.2.65 NMAC, see Appendix A) that provides the enforcement mechanism for the SMP.

This document is comprised of three major sections. The first section provides background on the SMP; the second outlines the requirements of SMP I and II; the third offers additional information to assist users of the SMP including a chart showing the requirements, a glossary of terms and a listing of related documents. In addition to this document, there are a series of Appendices that further explain the rationale behind each of the elements of the SMP. The Appendices have been designed to function as stand-alone documents; therefore each Appendix includes its own glossary of terms and list of references. Forms, tables, worksheets and other resource material to assist the burner in complying with the SMP are also provided in the Appendices.

New Mexico Smoke Management Program

1. Introduction

1.1. Purpose and Objectives

The New Mexico Environment Department's Air Quality Bureau (AQB) has developed the Smoke Management Program (SMP) to protect the health and welfare of New Mexicans from the impacts of smoke from all sources of fire. Smoke from burning vegetation produces air pollutants that are regulated by both the U.S. Environmental Protection Agency (EPA) and the state of New Mexico because of their effects on health. According to the EPA, children with asthma, the elderly and people with cardiovascular or respiratory disease are especially at risk from fine particle pollution. Breathing fine particle matter can result in worsening of asthma, chronic bronchitis, and early death.

In addition, this SMP was developed to meet the requirements of the federal Regional Haze Rule (RHR). The RHR implements the Clean Air Act requirement that visibility at specific Class I areas be returned to natural visibility conditions by 2064. Particulate matter from smoke also reduces visibility in our national parks and wilderness areas.

The intent of the AQB in developing this program was to provide a SMP that is equitable, reasonable, and implementable; is based on the best available science; and that provides all burners with the tools and information they need to manage impacts from smoke. Toward this end, stakeholders worked with the AQB to develop this program. Clarity, flexibility and ease of application were fundamental principles of the smoke management program development process. Since this is a new endeavor, the AQB intends to evaluate this program with stakeholder input on an annual basis and revise it as needed.

The forests, rangelands and grasslands of New Mexico are fire-adapted ecosystems where long absence of fire has led to hazardous fuel and unhealthy forest conditions. The Environment Department recognizes that in order to return ecosystems to their natural condition, there is an increased need to use prescribed fire as a tool. Implementation of this program will assist in ensuring that both National and New Mexico Ambient Air Quality Standards are met in the face of increasing fire use on both public and private lands. This SMP allows fire to function, as nearly as possible, in its natural role in maintaining healthy wildland ecosystems. Fire is also an important tool for management of agricultural crops. Fire has been used in agriculture for weed abatement, residue disposal, pest management, and for other management purposes. This SMP encourages the consideration and use of alternatives to fire and emission reduction techniques and maintains communication between the AQB and burners.

1.2. Scope and Applicability

New Mexico's Smoke Management Program (SMP) applies to both wildland and agricultural lands regardless of ownership (i.e., federal, state, municipal, county, public, private), purpose of the fire (e.g., vegetative residue disposal, hazard reduction, maintain ecosystem health, etc.), or vegetation type (e.g., grass, forest, crops, orchard trimmings, etc.)

This SMP replaces the Memorandum of Understanding between the New Mexico Environment Department, federal land management agencies, and the New Mexico Energy, Minerals and Natural Resources Department's Forestry Division, and includes all sources of fire in New Mexico. This program applies to all lands in New Mexico except for Bernalillo County and tribal lands.[1] Burners must also comply with all city and county ordinances relating to smoke management and vegetation burning (see section 1.4.).

Wildland Fire Use is also addressed in this SMP. Wildfire emissions are included in the SMP for tracking purposes only. It is the intent that this SMP be applied equitably across all land types and sources.

This SMP allows only the burning of vegetative materials, with the following exceptions:

1. The minimum amount of incendiary devices and auxiliary fuel (but not heavy oil) will be used for igniting and conducting the burn project.
2. Polyethylene sheeting used to cover piles for drying; sheeting must be in place for at least one month.

The SMP does not apply to open burning activities on residential, commercial, or industrial property that are less than 10 acres or 1,000 cubic foot pile volume. These burning activities (e.g., backyard burning, garbage incineration, residential wood combustion, construction debris) are regulated under 20.2.60 NMAC Open Burning, which is explained in section 1.4.1 below. Nor does the SMP apply to Native American cultural burning for traditional, religious or ceremonial purposes (e.g., cremation, sweat lodge fires). Further, this SMP proposes coordination between the state of New Mexico and tribes/pueblos to address regional haze concerns, but does not seek to regulate smoke management on tribal lands.

1.3. New Mexico Airsheds, Non-attainment Areas, Class I Areas

To obtain a clearer understanding of the effects of smoke on the communities in New Mexico, watershed boundaries will be used as airshed boundaries in lieu of the established air quality control regions for the state. Watershed boundaries more closely approximate air movement than the established air quality control regions that often follow county line boundaries. A map of the watershed boundaries for New Mexico (New Mexico Water Quality Control Commission) is included in Appendix O.

There are currently two non-attainment areas and one maintenance area in New Mexico (see map of non-attainment areas in Appendix O).[2] Non-attainment Areas (NAA) in the state of New Mexico include the Sunland Park Ozone NAA and the Anthony PM_{10} NAA, both of which are located in Dona Ana County. The Maintenance Area in the state of New Mexico is in Grant County for Sulfur Dioxide.

[1] The New Mexico Environment Department has jurisdiction over air quality for the entire state of New Mexico, except for tribal lands and Bernalillo County, which are separate air quality jurisdictions.
[2] Not including Bernalillo County or Tribal lands as they are outside the Environment Department's jurisdiction.

1.3.1. Class I Areas

There are nine Class I areas in New Mexico. They are:

- Bandelier National Monument (National Park Service)
- Bosque del Apache National Wildlife Refuge (US Fish and Wildlife Service)
- Carlsbad Caverns (National Park Service)
- Gila Wilderness (Forest Service)
- Pecos Wilderness (Forest Service)
- Salt Creek Wilderness (US Fish and Wildlife Service)
- San Pedro Parks Wilderness (Forest Service)
- Wheeler Peak Wilderness (Forest Service)
- White Mountain Wilderness (Forest Service)

The state is within 62 miles (100 km) of nine other Class I areas located in Colorado, Arizona, and Texas. There are four Class I areas located in the northern region of the state and five in the southern. Within the northern region of the state, located on the Colorado Plateau, is the San Pedro Parks Wilderness. This is one of sixteen Class I areas that were included in the Grand Canyon Visibility Transport Commission study. (See Figure 1.)

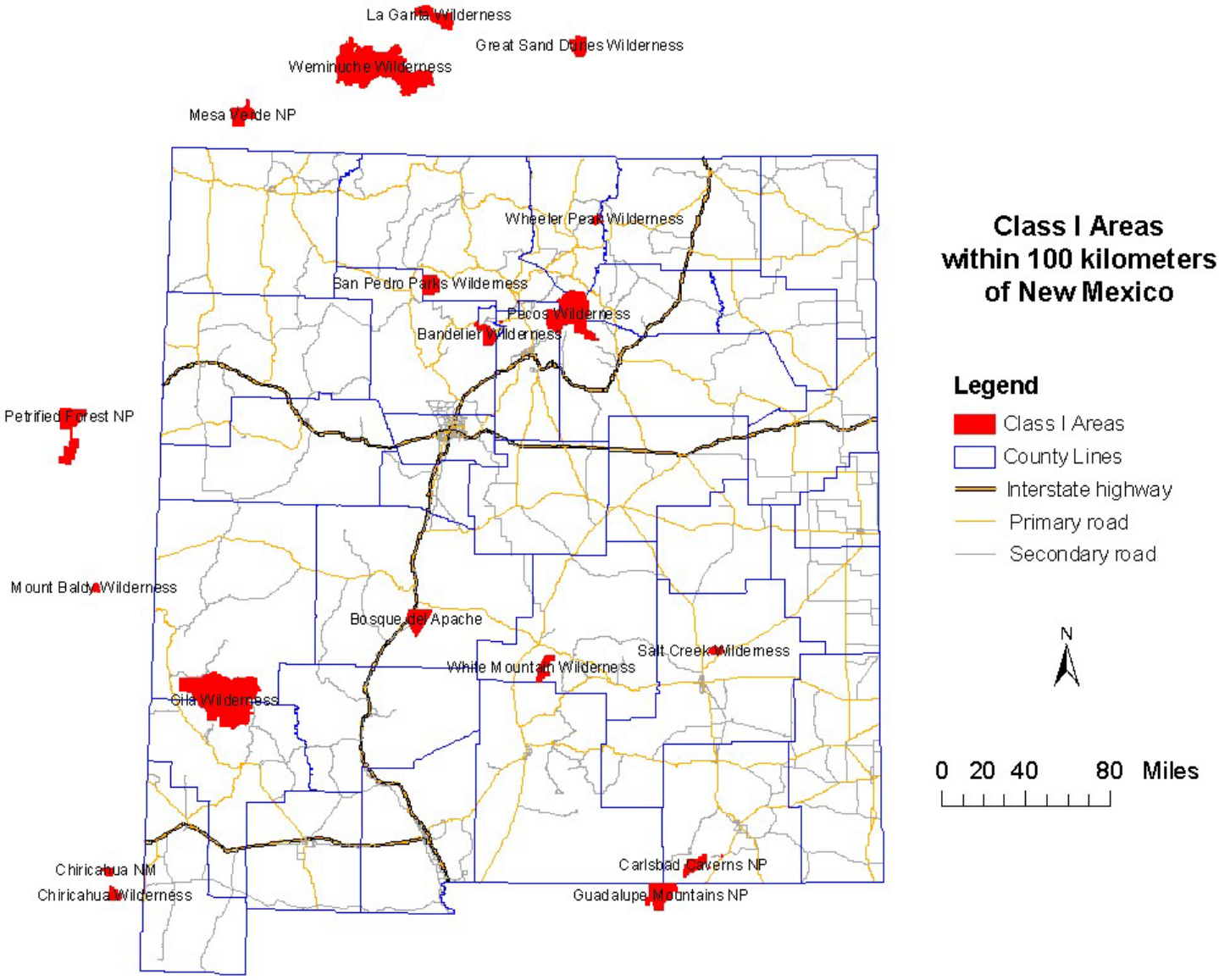


Figure 1. Class I areas within New Mexico and within 62 miles (100 kilometers) of New Mexico.

1.4. Relationship between the Smoke Management Program and NM Air Quality Regulations

1.4.1. Open Burning Regulation (20.2.60 NMAC)

The Open Burning Regulation (20.2.60 NMAC, see Appendix B) applies to those burns less than or equal to 10 acres per day or 1,000 cubic feet (cu ft) pile volume per day. These amounts are intended to capture most residential-type burning, which is expected to have minimal impacts on air quality. The Open Burning Regulation incorporates conditions to minimize impacts from these small burns. The New Mexico Environment Department (NMED) may revise the open burning requirements and thresholds if it is determined, through complaint tracking or other means, that they are not adequate to protect air quality.

The Open Burning Regulation is not a component of the SMP, but is discussed here because a continuum between it and the SMP is needed to address all smoke sources in New Mexico. The requirements in the Open Burning Regulation for vegetative burning are incorporated into the SMP to complete the continuum. Revisions to the Open Burning Regulation were made in tandem with the development of the SMP and the Smoke Management Regulation in order to provide a consistent increase in requirements based on burn size and the resulting emissions. If a burner is unable or chooses not to meet the conditions in the Open Burning Regulation, the burn is subject to the SMP and the Smoke Management Regulation.

1.4.2. Smoke Management Regulation (20.2.65 NMAC)

The Smoke Management Regulation (SMR) provides the enforcement mechanism for the Smoke Management Program (SMP). The SMR was approved by the New Mexico Environmental Improvement Board as a part of New Mexico's State Implementation Plan prior to submittal by the governor to the U.S. Environmental Protection Agency for its approval.

The SMR (20.2.65 NMAC, see Appendix A) is a permit-by-rule for burners in New Mexico. Permit-by-rule means that the burden of compliance with the requirements specified in the SMR is with the burner. The difference between permit-by-rule and case-by-case permitting is that, rather than making application for a permit to the Air Quality Bureau (AQB), the burner is allowed to burn as long as the requirements contained in the SMR are met.

The SMR includes a burn registration process, a burn authorization process, and a process to track fire activity and collect emissions information. Permit-by-rule gives the AQB the authority to make site inspections, audit burners' files, or request information as proof that requirements in the rule are met.

The intent of utilizing a permit-by-rule process is to provide one rule that covers all burning under the SMP that is equitable, clear and predictable. The permit-by-rule process also keeps administrative paperwork burdens to a minimum, while at the same time providing the necessary information and enforcement tools for the SMP.

Burners must comply with all city and county ordinances relating to smoke management and vegetation burning. Further, this SMP does not address fire safety. Fire safety falls under the jurisdiction of local fire authorities (Fire Departments, Fire Marshal, etc.). Burn authorization under the Smoke Management Regulation does not offer any protection from liabilities related to

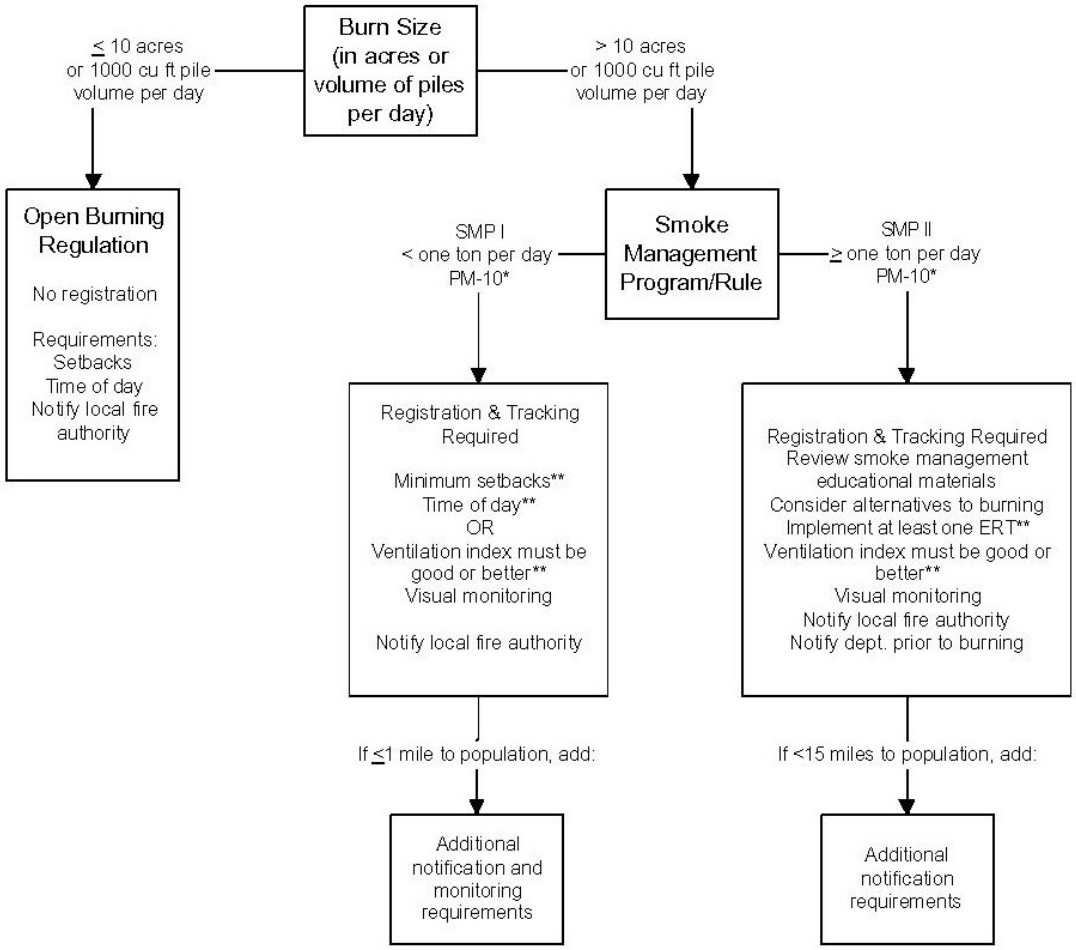
fire safety or property damage due to uncontrolled fire. Specifically, compliance with the SMR does not relieve the burner of civil or criminal liability associated with an uncontrolled or escaped fire.

1.4.3. Air Curtain Incinerators

Air curtain incinerators (ACI) are a method of burning that results in a more complete combustion process that produces little smoke and reduces emissions, including particulates. Air curtain incinerators can be used as an emission reduction technique (ERT) or an alternative to burning, and therefore are a technique that is addressed in the Smoke Management Program. However, the Environment Department is developing a General Construction Permit for ACIs to ensure that these are operated in accordance with applicable federal New Source Performance Standards. The intent of the Air Curtain Incinerator General Construction Permit is to facilitate their use as either an ERT or an alternative to burning. Although discussed in the SMP, ACIs must be used following the requirements as specified in the ACI General Construction Permit or as specified in an individual construction permit.

2. New Mexico Smoke Management Program

A graphic representation of the requirements of New Mexico's Smoke Management Program (SMP) is included in Figure 2 below.



*One ton of PM10 is equivalent to the emissions produced from burning a pile volume of 5000 cubic feet.
**A waiver may be obtained from the department for these requirements.
ERT = Emission Reduction Technique

Figure 2. Graphic Representation of SMP Requirements and Thresholds.

2.1. Implementation

The purpose of the New Mexico Smoke Management Program (SMP) is to provide a clear and equitable regulatory basis for smoke management in New Mexico. The Air Quality Bureau (AQB) of the New Mexico Environment Department administers the SMP, partnering with burners statewide to assure that fire remains a viable tool to achieve land management objectives while protecting New Mexico's air quality.

The SMP includes seven elements, under each of which are smoke management requirements for burn projects. Section 3.1 is a table of the SMP elements and applicable requirements. The program elements include:

- Alternatives to burning,
- Actions to minimize emissions (emission reduction techniques),
- Evaluation of smoke dispersion,
- Air quality monitoring,
- Public notification,
- Burn authorization, and
- Fire activity tracking.

These elements are taken from the following sources: the Regional Haze Rule, EPA's *Interim Air Quality Policy on Wildland and Prescribed Fires*, the Agricultural Air Quality Task Force's *Recommendation on Air Quality Policy on Agricultural Burning*, and the *WRAP Policy on Enhanced Smoke Management Programs for Visibility*.[3] Through the SMP development process, each of these elements was considered for its relevance and applicability to New Mexico, and implementation requirements of each were developed as appropriate for New Mexico.

The SMP requirements are based on emissions produced; i.e., the amount of emissions a burn project is estimated to produce determines the rigor with which the elements are applied to that specific burn project.

There are two thresholds in this SMP: one to determine which burn projects would fall within the SMP, and the second to distinguish between more minimal burns and those burns with more significant emissions projected. Therefore, under the SMP there are two categories.

The first category (SMP I) is for those burns likely to produce minimal impacts, but for which there is limited historical data. Information collected under SMP I will enable better quantification of those impacts. The implementation of most of the elements is voluntary for SMP I burns. The second (SMP II) is for those burns likely to produce more significant impacts, and for which implementation of all of the smoke management elements is necessary.

2.1.1. Thresholds

This SMP is applicable to burners who burn more than 10 acres per day or more than 1,000 cubic feet (for piles) of vegetative material per day. These thresholds are intended to ensure that the SMP addresses the burning that produces more significant emissions that may impact New Mexico's air quality. Smaller-scale burning of vegetative material is addressed under the Open Burning Regulation (20.2.60 NMAC, see Appendix B).

This threshold (10 acres/1,000 cubic feet) is expressed in terms of burn acreage (and the corresponding pile volume), rather than emissions, so that it will be simple and easy to apply. Simplicity and ease of application are important considerations because many burns in this threshold size range are conducted by small landowners without technical training.

Emissions per acre vary with vegetation type, fuel loading, and other factors. Equity in terms of emissions must be compromised somewhat so that most citizens who need to determine whether they are subject to the SMP and Smoke Management Regulation (as opposed to Open Burning)

[3] See section 3.4 for references to each of these documents.

can do so efficiently. Once in the SMP however, thresholds are based on emissions produced, rather than acreage, to promote equity among burn projects.

Best available current information was used to set these thresholds and achieve approximate equivalency between acreage and pile volume thresholds. Other western air quality agencies also use these thresholds. Emission factors from EPA's AP-42 and *Guidelines for Estimating Volume Biomass and Smoke Production for Piled Slash* (Hardy 1996) were used in setting the acreage threshold. Based on emission factor and pile volume calculations from Hardy, the 1,000 cubic-foot pile volume per day threshold is expected to be roughly equivalent to emissions from 10 acres. As emission factors are refined and improved, these thresholds may be re-considered as part of the annual program evaluation.

The threshold that determines if a burn falls under SMP II is greater than or equal to one ton of PM_{10} per day[4] or greater than or equal to 5,000 cubic-foot pile volume per day. The one ton per day PM_{10} threshold is meant to be roughly equivalent to permitting thresholds for stationary sources, recognizing that fire does not produce emissions 24 hours per day for 365 days per year. The AQB set this threshold expecting that it will be protective of human health and welfare (National Ambient Air Quality Standards, New Mexico Ambient Air Quality Standards and visibility). Impacts to air quality are expected to be minimal at an emission rate of less than one ton of PM_{10} per day. The relationship between PM_{10} emissions and pile volume was developed using Hardy's information. The threshold of 5,000 cubic feet of pile volume is roughly equivalent to one ton of PM_{10} emitted.

To assist burners in the determination of emissions, the table below translates one ton of PM_{10} into acreages of different vegetation types and pile volumes.

NM SMP Acreage/Emissions Conversion Table		
Vegetation Type	**One Ton PM_{10}**	
Field Crops	65	Acres
Shrub land	34	Acres
Forest	23	Acres
Grass	100	Acres
Piled material	5000	Cubic feet

Table 1. Method to determine, by general vegetation type, what acreage or pile volume produces one ton of PM_{10}.

[4] The current federal standards for particulate matter are for PM_{10} and $PM_{2.5}$. However, EPA has not, at the time of this writing, issued guidance on the implementation of $PM_{2.5}$. When this guidance is issued, this standard may be included in the SMP.

2.2. SMP I Requirements

Burn projects estimated to produce less than one ton of PM_{10} per day of non-piled material, or burn projects with a pile volume of less than 5,000 cubic feet of piled material per day, but greater than the Open Burning threshold.

For burns of this size, expected air quality impacts are not significant enough to justify the full complement of smoke management requirements needed for larger burns. Therefore, requirements for burning in this range are only minimally increased over those for open burning, with the additional requirements focused primarily on information gathering. The resulting information will assist the AQB and stakeholders in the evaluation of the SMP, including an assessment of the adequacy of the thresholds.

A full explanation of each of the SMP elements, their purpose and their requirements, as well as implementation guidance, tools and examples is provided in the Appendices.

The elements required for burning under the SMP I are:

1) Evaluation of Smoke Dispersion.

Option 1: To allow for better smoke dispersion, the time window for igniting burns is one hour after sunrise to one hour before sunset. Distance setbacks of at least 300 feet are required from the nearest occupied structure on other property, including dwellings, offices, hospitals, schools, or other places where people congregate.

Option 2: If the burner prefers, instead of the setback and time of day requirements, the burner may choose to adhere to the smoke dispersion requirements of SMP II; i.e., the use of Ventilation Category and Visual Monitoring. These requirements are explained in section 2.3 SMP II Requirements below.

A waiver may be requested from the AQB should the burner need to burn in conditions other than those described in the smoke dispersion requirements. (The waiver process is described in Appendices H and E.)

2) Air Quality Monitoring. If the burn project is within a one-mile radius of a population(s), visual monitoring must be conducted and documented. (See Appendix F for the Visual Monitoring Form and additional information.)

3) Public Notification. The burner must contact the local fire authority prior to igniting the burn. If there is a population(s) within a one-mile radius, at least one additional method of public notification must be conducted no earlier than 30 days prior and no later than two days in advance of the burn. (See Appendix G.)

4) Burn Authorization. The burner must submit the one-page Registration Form to the AQB no later than 10:00 a.m. one business day prior to the burn project. Once this form is submitted, the burner may proceed with the burn project according to the information provided on the Registration Form. Additional notice must be provided to the AQB for each day of burning beyond that provided on the Registration Form. The burner must not burn more acreage or pile

volume than the burner indicated on the Registration Form. (See Appendix H for additional information; see Appendix P for the SMP I Registration Form and Instructions.)

5) Fire Activity Tracking. The burner must submit the one-page Tracking Form within two weeks after the burn project is complete. The Tracking Form should include the actual acreage or pile volume that was burned. Further, burners must identify any emission reduction techniques they utilized on the burn project to assist in the development of the Annual Emission Goal[5]. (See Appendix I for additional information; see Appendix P for the Tracking Form and Instructions.)

SMP I burners are encouraged to voluntarily address the remaining SMP elements. In addition to the guidance and tools provided in Appendices C through K and P, the AQB will provide additional assistance for burners to voluntarily comply with the other SMP elements. This assistance will include providing information and training on the use of both alternatives to burning and emission reduction techniques, and on the determination of fuel loading. The AQB will also provide general smoke dispersion information to assist burners with burning under optimal conditions; e.g., providing weather information on a hotline or website.

2.3. SMP II Requirements

Burn projects estimated to produce greater than or equal to one ton PM_{10} per day for non-piled material, or burn projects with a pile volume greater than or equal to 5,000 cubic feet of piled material per day.

In this range, it is expected that emissions will be more significant and that air quality impacts are likely. Therefore, implementation of all SMP elements is mandatory, and the requirements under each are outlined below. The only documentation that must be submitted to the AQB is the Registration Form, the Notification Form and the Tracking Form; all other documentation the burner keeps on file for at least one year. Further explanation and discussion of each element and its requirements are included in the Appendices.

1) Alternatives to Burning. For the purposes of the SMP, an alternative to burning is any method of removing or reducing fuels by mechanical, biological, or chemical treatments that replaces the use of fire for at least three years. The burner must consider the use of alternatives to burning, and must document why alternatives were not used. The rationale for not using alternatives must be included by the burner on the Registration Form. (See Appendix C for more information on Alternatives to Burning.)

2) Actions to Minimize Emissions. The burner must consider actions to minimize emissions. Actions to minimize emissions, also known as Emission Reduction Techniques (ERTs), are any burning techniques that reduce the actual amount of emissions produced from fire. The burner must document the use of ERTs for each burn project on the Registration Form and on the Tracking Form. All burn projects under SMP II must use at least one ERT. For those burns on which no ERTs can be used, the burner must consult with AQB for a waiver (see Appendix H for a description of the waiver process). The burner's planned ERTs must be included on the SMP II

[5] The Annual Emission Goal is a requirement of the RHR. It is a statewide goal for the reduction of fire emissions to the maximum extent feasible. For an explanation of this, see Appendix L.

Registration Form, and the actual ERTs used are reported on the Tracking Form.[6] (See Appendix D for additional information on ERTs.)

3) Evaluation of Smoke Dispersion. Burning must only be conducted under ventilation categories of "Good" or better. Burners will use the Ventilation Categories and Values Table in Appendix E to determine this. If this requirement cannot be met, the burner must request a waiver from the AQB that may allow the burner to burn under Ventilation Categories of less than "Good." (See Appendix H for more information on waivers.)

4) Air Quality Monitoring. The burner must conduct and document visual monitoring of all burn projects. Burners may use the Visual Monitoring Form in Appendix F to satisfy the documentation requirement. For burn projects with a downwind population within 15 miles, or within a 15-mile radius of a population if wind direction is not specified, the AQB may consider instrument monitoring. In such cases, the AQB may require the burner to notify AQB no later than two business days prior to conducting the burn.

5) Public Notification. The burner must contact the local fire authority prior to igniting the burn. If there is a population(s) within a 15-mile radius, or 15 miles downwind if wind direction is prescribed, at least one additional method of public notification must be conducted no earlier than 30 days prior and no later than two days in advance of the burn. (See Appendix G.)

6) Burn Authorization. Burn authorization under the SMP facilitates the coordination of airshed impacts from smoke.

a. Smoke Management Education. All SMP II burners are required to have some smoke management education prior to initiating burning. AQB establishes the smoke management education curriculum and provides educational materials to burners. Review of this material satisfies this requirement. Other training (e.g., the National Wildfire Coordinating Group training) that covers the same subject matter also meets this requirement.

b. Registration. Burn projects under SMP II must be registered with the AQB a minimum of two weeks prior to ignition. The AQB encourages all burners to provide registration information as early as possible, and preferably by November 1st to aid in the establishment of the Annual Emission Goal[7] and other smoke management planning. The burner must not burn more acreage or pile volume than is included in the Registration Form information. A Registration Form is provided in Appendix P.

c. Notification. Burners under SMP II must notify the AQB by phone, fax or email no later than 10:00 a.m. one business day prior to ignition. A form is provided in Appendix P. The AQB will verify the receipt of notification by 11:00 a.m. Should the burner not receive this verification by 11:00 a.m., then the burner must make a good

[6] The burner's projected and actual use of ERTs allows the AQB to develop Annual Emissions Goals (see Appendix L for a discussion of Annual Emission Goals).
[7] The Annual Emission Goal is a requirement of the RHR. It is a statewide goal for the reduction of fire emissions to the maximum extent feasible. For an explanation of this, see Appendix L.

faith effort to again contact AQB. After the good faith effort, should the burner not receive verification by 3:00 p.m., the burner may proceed as planned.

The burner must not burn more than the acreage or volume for that day given in the notification to the AQB. Should the conditions on that day be such that there is an opportunity to burn additional acreage/volume, the burner must first consult with the AQB to obtain a waiver. The burner must not proceed with the additional acreage/volume without the waiver being granted. (See Appendix H.)

d. Airshed/Cumulative Effects Assessment. The AQB conducts a daily airshed assessment. Should the AQB determine that airshed capacity is not available, the burner may be requested to modify or postpone the burn project for that day. Modification will be determined in consultation with the burner. If modification/ postponement is needed, burn project prioritization will be based on registration date and number of ERTs planned, as indicated on the Registration Form. (See Appendix H for more information on the airshed assessment.)

7) Fire Activity Tracking. The burner must submit the Tracking Form within two weeks after the burn project is complete. The Tracking Form should include the actual acreage or pile volume that was burned. Further, burners must identify any ERTs they utilized on the burn project to assist in the development of the Annual Emission Goal[8]. (See Appendix I for more information on tracking and Appendix P for the Tracking Form and Instructions.)

2.3.1. Wildfire

2.3.1.1. Wildfire Under Suppression

The only SMP element that applies to wildfire is Fire Activity Tracking, as required by the Regional Haze Rule. For all wildfires greater than 100 acres in size, the land manager/owner (or the appropriate delegated authority) must submit a summary of the total blackened acres and other information as indicated on the Tracking Form, for the entire wildfire. This information must be submitted to the AQB within six weeks after firefighting activity has been completed, or by November 1st, whichever comes first. (See Appendix I.)

The AQB staff will obtain daily updates from the Southwest Area Wildland Fire Operations website for their use in evaluating airshed capacity.

2.3.1.2. Wildland Fire Use

Wildland Fire Use is the management of naturally ignited (i.e., lightning) fire to accomplish specific pre-stated resource objectives in predefined geographic areas. Wildland Fire Use is subject to the SMP II requirements as listed above, with the following modifications:

1) Alternatives to Burning. Consideration of alternatives to burning is not applicable.

[8] The Annual Emission Goal is a requirement of the RHR. It is a statewide goal for the reduction of fire emissions to the maximum extent feasible. For an explanation of this, see Appendix L.

2) Actions to Minimize Emissions. Use of ERTs is not required. However, ERTs should be used when possible, and, if used, should be documented on the Registration Form and/or Tracking Form.

3) Evaluation of Smoke Dispersion. Ventilation category requirements do not apply to Wildland Fire Use.

4) Air Quality Monitoring. The burner must conduct visual monitoring and document the observations. The burner must keep these records for one year.

5) Public Notification. Notification of the appropriate authorities must take place the day of the decision to manage the fire as wildland fire use. Public Notification of populations within a 15-mile radius must take place no later than one day following the decision to manage the fire as wildland fire use.

6) Burn Authorization. Registration for burns must be submitted once the fire exceeds 10 acres in size. Daily notification to the AQB is required and can be accomplished by using the SMP Notification Form or federal land managers may use Form ICS 209.

7) Fire Activity Tracking. The land owner/manager must submit the Tracking Form within two weeks following the end of the burn project.

3. Reference Material

3.1. SMP Requirements Matrix

Element	SMP I <1 ton PM_{10} per day*	SMP II ≥ 1 ton PM_{10} per day*	Wildfire, Wildland Fire Use
Alternatives to Fire	Voluntary	Required Document rationale on Registration Form.	N/A
Actions to Minimize Emissions (ERTs)	Voluntary Document any used on Tracking Form.	Required Document on Registration and Tracking Forms.	Wildfire: N/A Wildland Fire Use: if used, document on tracking form
Evaluation of Smoke Dispersion	Ignition only from one hour past sunrise to one hour before sunset, and no burning within 300 ft of dwellings. Or, follow SMP II requirements for Smoke Dispersion & Monitoring.	Burn only in "Good" to "Excellent" ventilation categories.	N/A
Air Quality Monitoring	If less than one mile from a population(s), then conduct and document visual monitoring.	Visual monitoring and documentation required on all burn projects.	Wildfire: N/A Wildland Fire Use: see SMP II
Public Notification	Notify local fire authority. Additional requirements if less than one mile from a population(s).	Notify local fire authority. Additional requirements if less than 15 miles from a population(s).	Wildfire: N/A Wildland Fire Use: see SMP II
Burn Authorization	Submit Registration Form to AQB by 10 am one business day prior to burning.	Submit Registration Form to AQB by November 1st if possible, but at least 2 weeks prior to burning. Notify AQB by 10 am one business day prior to burning. Smoke Management Education required.	Wildfire: N/A Wildland Fire Use: Submit Registration Form to AQB once reaches 10 acres in size. Update AQB daily by 10 am. ICS 209 may be used. Smoke Management Education required.
Fire Activity Tracking	Submit Tracking Form two weeks after project completion.	Submit Tracking Form two weeks after project completion.	Wildfire: Submit Tracking Form six weeks after fire suppression ends. Wildland Fire Use: see SMP II

* One ton of PM_{10} is equivalent to the emissions produced from burning a pile volume of 5,000 cubic feet.

3.2. Glossary of Terms

Agricultural Land – includes croplands, pasture, and other lands on which crops or livestock are produced.

Air Curtain Incinerator – an incinerator that operates by forcefully projecting a curtain of air across an open chamber or pit in which combustion occurs. This results in a more complete combustion process that produces little smoke and reduces emissions and particulates.

Air Quality Impacts – the undesirable addition to the atmosphere of substances (gases, liquids, or solid particles) that are foreign to the natural atmosphere or are present in quantities exceeding natural concentrations.

Airshed – a geographic area based on watershed boundaries that, because of topography, meteorology, and/or climate, is frequently affected by the same air mass.

Alternatives to Burning – non-burning alternatives is broadly defined as treatments employing manual, mechanical, chemical, or biological methods to manage vegetation and/or fuel loads or land management practices that treat vegetation (fuel) without using fire. For the purposes of the NM Smoke Management Program, if a technique is used and the area is fire-free for three years or more, the technique is an alternative; if fire is used within three years, the technique is an emission reduction technique (ERT).

Burn Authorization – the management approach used to facilitate burn decision-making in relation to air quality impacts; this is not the same as the go/no-go used by federal land managers.

Burn Project – in prescribed burning and wildland fire use, an area that is contiguous and is being treated for the same land management objective(s).

Burn Project Modification – a burner may be asked to modify their burn project on a particular day in order to avoid air quality impacts. Modification, determined in consultation between the AQB and the burner, could include a reduction in acreage or volume, instrument monitoring, or postponement.

Burner – that person who is responsible for a prescribed fire project, regardless of land ownership.

Class I Area (Mandatory) – an area set aside under the Clean Air Act (CAA) to receive the most stringent protection from air quality degradation. Mandatory Class I Federal Areas are (1) international parks, (2) national wilderness areas and memorial parks larger than 5,000 acres in size, (3) national parks that exceed 6,000 acres in size and which were in existence when the 1977 CAA amendments were enacted. The extent of a mandatory Class I Federal area includes subsequent changes in boundaries, such as park expansions.

Clean Air Act (CAA) – a federal law enacted to ensure that air quality standards are attained and maintained. Initially passed by Congress in 1963, it has been amended several times.

Criteria Pollutants – pollutants deemed most harmful to public health and welfare and that can be monitored effectively. They include carbon monoxide (CO), lead (Pb), nitrogen oxides (NO_x), sulfur dioxide (SO_2), ozone (O_3), particulate matter (PM) of aerodynamic diameter less than or equal to 10 micrometers (PM_{10}) and particulate matter of aerodynamic diameter less than or equal to 2.5 micrometers ($PM_{2.5}$).

Cultural Fire – the use of fire by Native Americans for cultural, tribal, ceremonial or religious purposes (e.g., cremation, sweat lodges).

Emission Reduction Technique (ERT) – a strategy for controlling smoke from prescribed fires that minimize the amount of smoke output per unit of area treated or other objective unit of accomplishment, this strategy is used in conjunction with fire and is not a replacement for fire. For the purposes of the NM Smoke Management Program if a technique is used within three years of a burning operation, the technique is an ERT. If that same technique replaces fire for three years or more, the technique is considered an alternative to burning.

Environmental Improvement Board (EIB) – as it pertains to this document, the appointed New Mexico body with the statutory authority to approve state implementation plans and to promulgate regulations with respect to air quality.

Environmental Protection Agency (EPA) – as it pertains to this document, the federal agency responsible for regulating air quality.

Fire Use – see Wildland Fire Use.

Fuel loading – the amount of fuel present expressed quantitatively in terms of weight of fuel per unit area usually tons per acre.

Ignition – to set a fire; to cause a fuel to burn.

Maintenance Area – see Non-Attainment Area.

Monitoring – the collection and analysis of repeated observations or measurements to evaluate changes in condition and progress toward meeting an objective.

National Ambient Air Quality Standards (NAAQS) – maximum recommended concentrations of criteria pollutants to maintain reasonable standards of air quality.

National Wildfire Coordinating Group (NWCG) – a group formed under the direction of the Secretaries of Interior and Agriculture to improve the coordination and effectiveness of wildland fire activities and provide a forum to discuss, recommend appropriate action, or resolve issues and problems of substantive nature.

New Mexico Ambient Air Quality Standards (NMAAQS) – maximum allowable concentrations of air pollutants in the ambient air as specified in 20.2.3 NMAC.

Non-Attainment Area (NAA) – a geographic area in which the level of a criteria air pollutant is higher than the level allowed by the federal standards. A Maintenance Area is an area that was designated non-attainment, but for which EPA has determined that the NAAQS have been attained and has fully approved an applicable implementation plan.

Open Burning – any manner of burning not in a device or chamber designed to achieve combustion, where the products of combustion are emitted, directly or indirectly, into the open air.

Particulate Matter – any liquid or solid particles suspended in or falling through the atmosphere, ranging in size from 0.1 to 100 microns.

PM_{10} – particulate matter of aerodynamic diameter less than or equal to 10 microns, approximately one-seventh the diameter of a human hair. Emissions of PM_{10} are significant from fugitive dust, power plants, commercial boilers, metallurgical industries, mineral industries, forest and residential fires, and motor vehicles.

$PM_{2.5}$ – particulate matter of aerodynamic diameter less than or equal to 2.5 microns. A measure of fine particles of particulate matter that comes from fuel combustion, agricultural burning, woodstoves, etc.

Permit-by-Rule – a regulation in which the burden of compliance with its specified requirements is with the user; if the user is in compliance, then the activity is permitted.

Pile – materials that have been relocated either by hand or machinery and heaped together.

Populations – the total of individuals occupying an area. This includes open campgrounds, single family dwellings, hospitals, schools in use, villages, open places of employment, etc.

Prescribed fire – any fire ignited by management actions under specified conditions to meet explicit objectives, e.g., wildlife habitat improvement, hazardous fuel reduction, non-native vegetation eradication, removal of crop residue, etc.

Regional haze – visibility impairment caused by the cumulative air pollutant emissions from numerous sources over a wide geographic area.

Regional Haze Rule (RHR) – following the issuance of the GCVTC Report, the EPA issued the Regional Haze Rule (RHR) in July 1999 to improve visibility in 156 national parks and wilderness areas across the country. The RHR outlines the requirements for states and tribes to address regional haze in these mandatory Class I areas. The RHR provides two pathways for western states to follow as they implement the requirements of the RHR: 1) develop their regional haze implementation plans per the nationally applicable provisions of Section 308, or 2) Transport Region states may choose to incorporate the GCVTC recommendations into their regional haze implementation plans under Section 309 of the RHR.

Smoke Management Program (SMP) – requirements and procedures for managing smoke from prescribed fires and wildland fire use, typically developed by States or Tribes with cooperation from stakeholders.

Smoke Management Regulation – The New Mexico Smoke Management Regulation (SMR) is derived from this SMP and includes all the requirements of the SMP. The SMR (20.2.65 NMAC) is a "permit-by-rule" for burners in New Mexico. It allows burners to burn in accordance with the requirements of the regulation.

State Implementation Plan (SIP) – a plan devised by states to carry out their responsibilities under the CAA. SIPs must be approved by the EPA and include public review.

Ventilation – the product of the mixing height and transport wind speeds.

Ventilation Category – a classification that describes the potential for smoke or other pollutants to ventilate away from its source, and that is expressed in terms of Excellent, Very Good, Good, Fair, or Poor.

Visibility Impairment – any perceptible change in visibility (light extinction, visual range, contrast, coloration) resulting from human activities.

Western Regional Air Partnership (WRAP) – The Western Regional Air Partnership (WRAP) was established in 1997 as the successor organization to the GCVTC. The WRAP is a voluntary organization comprised of western governors, including New Mexico, tribal leaders and federal agencies, and is charged "to identify regional or common air management issues, develop and implement strategies to address these issues, and formulate and advance western regional policy positions on air quality."

Wildfire – any unplanned, non-structural fire that occurs on wildland.

Wildland Fire Use – the management of naturally ignited (i.e., lightning) wildfire to accomplish specific pre-stated resource objectives in predefined geographic areas, also known as fire use, wildfire use, prescribed natural fire, and fire for resource benefit.

Wildland – an area in which development is essentially non-existent, except for roads, railroads, power lines, and similar transportation facilities. Structures if any are widely scattered.

3.3. Acronyms

AAQTF – Agricultural Air Quality Task Force
ACI – Air Curtain Incinerator
AEG – Annual Emission Goals
AQB – New Mexico Environment Department, Air Quality Bureau
CAA – Clean Air Act
CO – Carbon Monoxide
EIB – Environmental Improvement Board
EPA – Environmental Protection Agency
ERT – Emission Reduction Technique
ESMP – Enhanced Smoke Management Program
FLM – Federal Land Manager
FS – Forest Service
GCVTC – Grand Canyon Visibility Transport Commission
ICS – Incident Command System
INT – Intermountain
MOU – Memorandum of Understanding
NAA – Non-Attainment Area
NAAQS – National Ambient Air Quality Standards
NFDRS – National Fire Danger Rating System
NM – New Mexico
NMAAQS – New Mexico Ambient Air Quality Standards
NMAC – New Mexico Administrative Code
NMED – New Mexico Environment Department
NM-NRCS – New Mexico Natural Resource Conservation Service
NMSA – New Mexico Statutes Amended
NWCG – National Wildfire Coordinating Group
PM – Particulate Matter
PNW-GTR – Pacific Northwest-General Technical Report
RHR – Regional Haze Rule
SIP – State Implementation Plan
SMP – Smoke Management Program
SMR – Smoke Management Regulation
USDA – United States Department of Agriculture
USDOI – United State Department of the Interior
USGS – United States Geologic Survey
WESTAR – Western States Air Resources Council
WRAP – Western Regional Air Partnership

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3.5. NMED Air Quality Bureau Contact Information

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