POLICY FOR
CATEGORIZING FIRE EMISSIONS

APPROVED BY CONSENSUS:
WESTERN REGIONAL AIR PARTNERSHIP - NOVEMBER 15, 2001

APPROVED BY CONSENSUS:
FIRE EMISSIONS JOINT FORUM - AUGUST 30, 2001

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EXECUTIVE SUMMARY

The Western Regional Air Partnership (WRAP), as the successor to the Grand Canyon Visibility Transport Commission (GCVTC), is charged with implementing the GCVTC Recommendations as well as addressing broader air quality issues, such as the Regional Haze Rule. The Regional Haze Rule (Rule), issued by the Environmental Protection Agency (EPA) in July 1999, outlines the requirements for states and tribes to address regional haze in Federal Class I areas, and sets the goal of reaching natural background conditions in Federal Class I areas by 2064. EPA recognizes the WRAP as the Regional Planning Organization that is developing the guidance and means to implement the Rule in the WRAP region.

There are a number of sources that the EPA has identified as potential contributors to natural background conditions, one of which is fire. The Regional Haze Rule Preamble stipulates that fire of all kinds contributes to regional haze and that fire can have both natural and human-caused sources. The Preamble further states that some fire that is human ignited may be included in a state's or tribe's determination of natural background conditions.

The WRAP Fire Emissions Joint Forum (FEJF) was established to develop policy and technical tools to address smoke effects caused by wildland and agricultural fire on public, tribal, and private lands. Due to the limitations of the current visibility monitoring technology to determine fire impacts, the FEJF was charged with addressing fire emissions' contribution to natural background conditions. The FEJF formed the Natural Background Task Team (NBTT) to develop a methodology to categorize fire emissions as either "natural" or "anthropogenic"; thus providing the basis for fire's inclusion in natural background condition values and ultimately, the tracking of reasonable progress.

This Policy has been developed over an 18-month period by the NBTT; a group made up of state, tribal, and federal agency representatives, as well as those from industry, agriculture, academia, and environmental organizations. During this process, the NBTT solicited public input regarding both technical and policy issues. The resulting *Recommended Policy for Categorizing Fire Emissions* was granted consensus approval by the FEJF on August 30, 2001. The WRAP granted consensus approval for the Policy on November 15, 2001. As part of the WRAP consensus approval action, the Initiatives Oversight Committee (IOC) Transmittal Letter to the WRAP was modified and incorporated into this Policy as Appendix C.

The Policy is comprised of two main sections: Classification Criteria and Classification Program Management. The Classification Criteria section determines the "natural" and "anthropogenic" sources of fire that contribute to regional haze, as stated in the Preamble to the Rule. The Program Management section expresses the prerequisites that enable classification to be effective and equitable. Although the Program Management section addresses prerequisites that need to exist, it does not describe how they will be brought about. This work is currently underway in the FEJF as well as in other WRAP Forums.

The Classification Criteria clarify the relationship between what would be defined as a "natural" fire emissions source and what would be defined as an "anthropogenic" fire emissions source, thereby addressing the complex relationship EPA acknowledges in the Preamble to the Rule. Under the Policy, most fire emissions sources are classified "anthropogenic", which is in keeping with the Rule's primary objective of the development of long-term strategies for reducing emissions of visibility impairing pollutants. However, some fire emissions sources are classified as "natural" in recognition of fire's inherent occurrence as part of the landscape.

The Program Management section supports the classification process by iterating that all types of fires must be managed to minimize visibility impacts in order to assure equity among the different fire source types and other air pollution sources. In cases where a fire is classified as "anthropogenic", its emissions will be controlled in order to demonstrate reasonable progress toward the 2064 natural conditions goal. The Program Management section also recognizes that to determine fire emissions' contribution to visibility impacts, emissions from all fires will be tracked. This across-the-board tracking is also necessary to allow the classification process to function uniformly across the WRAP region.

The Policy will provide states and tribes an equitable and practical method for determining which fire emissions will be considered part of the natural background conditions in Federal Class I areas. In so doing, the Policy will enable states and tribes to address natural reductions of visibility from fire as well as identify those fire emissions that need to be controlled to achieve progress toward the 2064 natural conditions goal. The FEJF is developing policy and technical tools that will support this Policy and its implementation, such as guidance on Enhanced Smoke Management Plan elements, recommendations for creation of an annual emissions goal, availability and feasibility of alternatives to burning, recommendations for managing fire emissions sources, guidance for feasibility determinations, a methodology for tracking fire emissions, and a stepwise progression for the Program Management elements of the Policy.

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1. INTRODUCTION

1.1. BACKGROUND

In 1990, Congress amended the Clean Air Act, and as part of these amendments created the Grand Canyon Visibility Transport Commission[1] (GCVTC). The GCVTC was charged with assessing the current scientific information on visibility impacts and making recommendations for addressing regional haze in the western United States. The GCVTC signed and submitted more than 70 Recommendations to the Environmental Protection Agency (EPA) in a report dated June 1996 that indicated that visibility impairment was caused by a wide variety of sources and pollutants, and that a comprehensive strategy was needed to remedy regional haze.

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, tribal leaders and Federal agencies,[2] and is charged with implementing the GCVTC Recommendations, as well as addressing broader air quality issues, such as the Regional Haze Rule (Rule). The WRAP is designed as a stakeholder-based organization, which uses consensus for development of policy and technical tools. WRAP participants include state air quality agencies, tribes, Federal/state/private land managers, the EPA, environmental groups, industry, academia and other interested parties.

Following the issuance of the GCVTC Recommendations, the EPA issued the Regional Haze Rule[3] in July 1999 to improve visibility in 156 national parks and wilderness areas across the country. The Rule outlines the requirements for states and tribes to address regional haze in Federal Class I areas. EPA incorporated all of the GCVTC Recommendations into Section 309 of the Rule, which may be used by some of the WRAP states. The remaining WRAP states must utilize the nationally applicable Section 308 provisions of the Rule.

> "The State must identify all anthropogenic sources of visibility impairment considered by the State in developing its long-term strategy. The State should consider major and minor stationary sources, mobile sources, and area sources."[4]

EPA recognizes the WRAP as the Regional Planning Organization that is developing the necessary policy and technical tools to implement the Regional Haze Rule in the WRAP region[5].

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1 The GCVTC was composed of the governors of eight western states (AZ, CA, CO, NM, NV, OR, UT, WY), four tribes (Acoma Pueblo, Hopi, Hualapai, and Navajo), four Federal land management agencies (Bureau of Land Management, U.S. Fish and Wildlife Service, U.S. Forest Service, National Park Service), the Columbia River Inter-Tribal Fish Commission, and the Environmental Protection Agency.

2 The WRAP members include the governors of twelve western states (AZ, CA, CO, ID, MT, ND, NM, OR, SD, UT, WA, and WY). Tribal nations selected as WRAP members to represent the 247 tribes within the WRAP region include Pueblo of Acoma, Campo Band of Kumeyaay Indians, Cortina Indian Rancheria, Hopi Tribe, Hualapai Nation of the Grand Canyon, Nez Perce Tribe, Northern Cheyenne Tribe, Salish and Kootenai Confederated Tribes, Pueblo of San Felipe, and Shoshone-Bannock Tribes of Fort Hall. Federal WRAP members are the Department of the Interior, the Department of Agriculture, and the Environmental Protection Agency.

3 Published in the Federal Register on July 1, 1999 (64 FR 35714).

4 64 FR 35767, Regional haze program requirements §51.308(d)(3)(iv).

5 The states of AZ, CA, CO, ID, MT, ND, NM, OR, SD, UT, WA, WY and 247 tribes.

1.2. CONTEXT

1.2.1. Current Condition and Future Fire Emissions

The GCVTC recognized fire (wildfire, prescribed fire and agricultural burning) as playing a major role in ecosystem health in the West, and at the same time, contributing to regional haze.

> "Emissions from fire (wildfire and prescribed fire) are an important contributor to visibility-impairing aerosols,…Agricultural burning emissions and their effects have [also] been identified as a concern of the GCVTC…"[6]

Throughout the WRAP region, fire is occurring as part of the natural landscape. Prescribed fire is used for a wide variety of purposes on both wildlands and agricultural land in the region. In addition, fire has been an integral part of tribal communities in their practice of religion and traditional cultural activities. Tribal communities also utilize prescribed fire on wildlands and for agricultural purposes.

All sources of fire can have an effect on air quality and visibility. Although there is uncertainty as to the amount and apportionment of emissions from these sources vis-à-vis regional haze, it is agreed that fire and its emissions contribute to regional haze.

The use of fire, as well as alternative treatments, is intended to provide more effective fire suppression, predictable fire effects and management of air pollutant emissions.

> "Prescribed fire promotes better fire control, predictable fire effects and allows for management of emissions as compared to wildfire."[7]

Despite the use of alternative treatments, it is recognized that prescribed fire use and resulting emissions will increase on Federal, state, tribal and private land. These emissions will contribute to regional haze. However, it is anticipated that the implementation of the Regional Haze Rule can accommodate the increased use of fire on wildlands as well as the maintenance and opportunity for continued use of fire in agricultural management.

Wildland

The GCVTC Recommendations indicated that wildfire and prescribed fire emissions could potentially overwhelm the visibility effects of all other sources on an episodic basis, due to the unnatural condition of vegetative fuel build-up, projected increased use of prescribed fire and the current likelihood of catastrophic wildfire. This is true across all land ownership types.

6 Grand Canyon Visibility Transport Commission, Recommendations for Improving Western Vistas, Report to the U.S. EPA, June 10, 1996 (hereafter referred to as "GCVTC Report"), page 47.
7 GCVTC Report, page 47.

> "In fact, land managers propose aggressive prescribed fire programs aimed at correcting the buildup of biomass due to decades of suppression. Therefore, prescribed fire and wildfire levels are projected to increase significantly during the studied period [1995-2040]. The Commission recommends the implementation of programs to minimize emissions and visibility impacts from prescribed fire, as well as to educate the public."[8]

EPA's *Interim Air Quality Policy on Wildland and Prescribed Fires* was "…prepared in response to plans by some Federal, Tribal and State wildland owners/managers to significantly increase the use of wildland and prescribed fires to achieve resource benefits in the wildlands."[9] Under the EPA Policy, it was acknowledged that "Many wildland ecosystems are considered to be unhealthy as a result of past management strategies…. Wildland owners/managers plan to significantly increase their use of fires to correct these unhealthy conditions and to reduce the risk of wildfires to public and firefighter safety."[10]

Recognition of the current ecological state of the wildlands and increased wildfire severity has led to the development of the National Fire Plan that has begun to be addressed through recent Federal appropriations[11]. It represents a long-term commitment based on cooperation and communication among Federal agencies, states, local governments, tribes, and concerned publics. The Federal wildland fire management agencies have worked in close consultation with states, governors, and interested partners to prepare a collaborative ten-year strategy[12] for implementation of the National Fire Plan.

This ten-year strategy is predicated on a commitment to the reduction of hazardous fuel loads, with current priority in the urban-interface area. Addressing the wildland fire and hazardous fuels situation, as well as the needs to restore and maintain forest and rangeland ecosystem health and to ensure human safety, will necessitate a range of fuel management options. The fuel management options include mechanical, chemical, biological, and prescribed fire treatments.

The GCVTC emphasized the need for alternatives to fire in order to address regional haze concerns and equity among the many sources of visibility impairment. The Preamble to the Rule cites the GCVTC Recommendation of "full consideration of alternatives to fire."[13]

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8 GCVTC Report, page iii.
9 U.S. EPA, Office of Air Quality Planning and Standards, Interim Air Quality Policy on Wildland and Prescribed Fires, April 23, 1998, page 1.
10 U.S. EPA, Office of Air Quality Planning and Standards, Interim Air Quality Policy on Wildland and Prescribed Fires, April 23, 1998, page 1.
11 2001 Interior and Related Agencies Appropriations Act (Public Law 106-291), Making Appropriations for the Department of Interior and related agencies for the fiscal year ending September 30, 2001, and for other purposes.
12 A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment, 10-Year Comprehensive Strategy, August 2001.
13 64 FR 35736.

Agricultural Land

The *Air Quality Policy on Agricultural Burning* prepared by the Agricultural Air Quality Task Force (AAQTF) asserts that "Fire has been an integral part of agricultural management as long as man has systematically grown crops. Modern technologically based agriculture still utilizes burning and for some crops it is the only economical means available to deal with residue."[14]

Agricultural burning is utilized for a variety of purposes, the most common of which is to reduce pre- and post-harvest vegetation that interferes with harvest, tillage or subsequent seedbed preparation. Burning is also used for pest and weed control, as well as to reduce fire hazard from weed infestation and clogging of ditches and irrigation canals. Tribal communities also utilize fire for agricultural management, including weed abatement and ditch and canal clearing.

> "The burning of vegetative matter associated with agricultural land management produces a range of particulate emissions and ozone precursors. Therefore, it has the potential to impact visibility in mandatory Class I Federal areas."[15]

One of the goals of the AAQTF Policy is "to protect public health and welfare by mitigating the impacts of air pollution emissions on air quality and visibility."[16] Toward this end, the AAQTF Policy encourages alternatives to burning, as well as "…identifying burning methods and determining alternative treatment strategies that can effectively reduce emissions…."[17]

The use of fire by agriculture is well documented. However, the extent of the fire use is not well known in some areas, and is the cause of uncertainty as to the contribution of agricultural burning sources on regional haze. Accordingly, the AAQTF Policy states that "…the contribution from agriculture, specifically the impact of burning practices on regional air quality, must be accurately assessed in relative proportion to the region's total emissions."[18] Acknowledging this uncertainty, both the GCVTC and the Rule include agricultural burning as a contributor to regional haze that needs to be addressed.

1.2.2. Natural Background Conditions

The Regional Haze Rule outlines the requirements for addressing regional haze in Federal Class I park and wilderness areas, a critical element of which is the establishment of natural background condition values. When established, these values will provide the basis by which a state or tribe may demonstrate reasonable progress toward attaining the 2064 natural conditions goal, as required in the Rule under both Sections 308 and 309.

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14 Agricultural Air Quality Task Force, Air Quality Policy on Agricultural Burning, Recommendation to the U.S. Department of Agriculture, November 10, 1999 (hereafter "AAQTF Air Quality Policy on Agricultural Burning"), Section IV, A.
15 AAQTF Air Quality Policy on Agricultural Burning, Section IV, E.
16 AAQTF Air Quality Policy on Agricultural Burning, Section II.
17 AAQTF Air Quality Policy on Agricultural Burning, Section VI, B, 2.
18 AAQTF Air Quality Policy on Agricultural Burning, Section VII.

There are a number of sources that EPA has identified as potential contributors to natural background conditions, one of which is fire. The determination of natural background conditions may take into account impacts from potential natural sources of visibility impairing pollutants such as natural vegetative hydrocarbon emissions (e.g., terpines from trees), oceanic sulfates, natural wind suspended dust, fire, and sulfate and nitrate from volcanoes.

Due to climatic variations that affect the role of fire on the landscape, natural background conditions are anticipated to fluctuate. The use of tree ring analysis has scientifically demonstrated this phenomenon. For example, an increase of fire scars is indicative of higher fire occurrence during times of drought. To this end, climatic changes will have a direct effect on the variability of natural background conditions as influenced by fire.

The Regional Haze Rule Preamble stipulates that fire of all kinds contributes to regional haze and that fire can have both natural and human-caused sources. The Preamble further states that some fire that is human ignited may be included in a state's or tribe's determination of natural background conditions.

> "EPA believes that States [and Tribes] must take into account the degree to which fire emissions cause or contribute to 'manmade' visibility impairment and its contribution to natural background conditions."[19]

To address the implementation of specific sections of the Rule, the WRAP has established several committees and forums. The Ambient Air Monitoring & Reporting Forum (AMRF) is working to develop guidance on the determination of natural background, taking into consideration emissions that can result in a natural reduction of visibility. The Fire Emissions Joint Forum (FEJF) is addressing both policy and technical issues concerning smoke effects that are caused by wildland and agricultural fire on public, tribal and private lands.

The AMRF will analyze the Interagency Monitoring of Protected Visual Environments (IMPROVE) visibility monitoring data to establish a baseline, current conditions, and track reasonable progress toward the 2064 natural conditions goal, as required in the Rule. Organic carbon aerosol, as monitored by IMPROVE, is a significant contributor to regional haze in the WRAP region. The current monitoring technology is unable to identify the source of organic carbon aerosol monitored at Federal Class I areas, of which fire has been acknowledged as a major source. As technology and science develops, with regard to the ability to differentiate fire impacts as compared to other sources for the purposes of tracking reasonable progress toward the 2064 natural conditions goal, the needs and methods of tracking are anticipated to change.

1.2.3. The Classification of Fire

Due to the limitations of the current monitoring technology, the AMRF requested that the FEJF work on determining the classification of fire emissions as either "natural" or "anthropogenic". This classification will be an important component for fire's inclusion in natural background condition values and ultimately, the tracking of reasonable progress. The Natural Background Task Team (NBTT) was created by the FEJF to assist in this effort.

19 64 FR 35735.

This Policy was developed through a broad, multi-stakeholder-based public review process that included two workshops designed to gather both technical and policy input. The review process included direct input from the FEJF, WRAP, and other parties. The NBTT has submitted progress reports as well as work products to the FEJF for input and approval. The Policy is a work product of the FEJF for the WRAP.

1.3. PURPOSE

> "The EPA also recognizes that fire of all kinds (wildfire, prescribed fire, etc.) contributes to regional haze, and that there is a complex relationship between what is considered a natural source of fire versus a human-caused source of fire."[20]

This Policy, developed under the WRAP, will aid states and tribes in determining which fire emissions will be considered as part of the natural background conditions in Federal Class I areas. The remaining fire emissions will be considered "anthropogenic" and, as such, subject to reasonable progress requirements of the Rule. This Policy clarifies the relationship between what would be defined as a "natural" fire emissions source and what would be defined as an "anthropogenic" fire emissions source, thereby addressing the complex relationship EPA acknowledges in the Preamble to the Rule.

Under this Policy, fire emissions sources are, for the most part, classified as "anthropogenic". These sources will be controlled to the maximum extent feasible, which is in keeping with the Rule's primary objective of the development of long-term strategies for reducing emissions of visibility impairing pollutants. Additionally, the "anthropogenic" classification recognizes that there is potential to control the emissions from most fires, as acknowledged in the GCVTC Recommendations, the Regional Haze Rule, and the stakeholder participation process.

Some fire emissions sources have been classified as "natural", and, like "anthropogenic" sources, will be managed to minimize potential air quality impacts. The rationale for "natural" classifications is clearly stated in the annotated sections, and reflects the reasoning of the GCVTC, the Rule, stakeholder input, as well as current smoke management capabilities. Furthermore, both the management of "natural" source emissions, and the management *and* control of "anthropogenic" source emissions represent key points of convergence among stakeholders that are fundamental to the development of this Policy.

1.4. SCOPE AND APPLICABILITY

This Policy exclusively addresses the effects of fire emissions in terms of visibility and the requirements of the Regional Haze Rule. It does not address potential natural sources of visibility reducing pollutants such as natural vegetative hydrocarbon emissions (e.g., terpines from trees), oceanic sulfates, natural wind suspended dust, and sulfate and nitrate from volcanoes. Air pollutant emissions from fires may also impact public health and cause nuisance smoke intrusions. This Policy may strengthen processes and current systems in place that address these smoke concerns; however, this specific interaction is being addressed through further recommendations by the FEJF.

20 64 FR 35735.

> "All types of fire (prescribed fire and agricultural burning) must be addressed equitably as part of a visibility protection strategy."[21]

This Policy applies to both wildland and agricultural lands regardless of ownership (i.e., Federal, state, tribal, public, private), cause of ignition (e.g., lightning, arson, accidental human, land management practices) or purpose of the fire (e.g., vegetative residue disposal, hazard reduction, maintain ecosystem health). It is the intent that this Policy be applied equitably across all land types and sources.

This Policy does not apply to other open burning activities on residential, commercial, or industrial property (e.g., backyard burning, garbage incineration, residential wood combustion, construction debris). This Policy does not apply to Native American cultural non-vegetative burning for traditional, religious or ceremonial purposes (e.g., cremation, sweat lodge fires).

This Policy applies to impacts on Federal Class I areas in the WRAP region. Emissions from all fire (wildland and agricultural) are to be accounted for in both Sections 308 and 309 of the Rule. Stakeholder input advocated a consistent consideration of fire utilizing either Section 308 or 309 of the Rule. This input was a guiding principle for the development of this Policy. States and tribes in the WRAP region are anticipated to incorporate this Policy into the technical support documentation for a State or Tribal Implementation Plan (SIP/TIP) submitted to EPA in order to meet the requirements of the Rule.

The categorization of fire emissions, as established by the Policy, will facilitate the establishment of natural background condition values and ultimately, the tracking of reasonable progress for a SIP or TIP. As the SIPs/TIPs will be revisited and revised, per the schedule specified in the Rule, there will be opportunities to refine this Policy to reflect scientific advances and/or policy changes.

2. CLASSIFICATION POLICY

The Classification Policy is made up of six statements, three of which address the program management of classification, and three that address the criteria for the classification of fire emission sources. The Classification Criteria statements of the Policy determine the "natural" and "anthropogenic" sources of fire that contribute to regional haze, as stated in the Preamble to the Rule. The Classification Program Management statements express the requirements that enable classification to be effective and equitable. The Program Management statements adhere to the findings and Recommendations of the GCVTC related to fire and fire emissions, as well as the reasoning expressed in the Rule.

The Classification Program Management statements express requirements that need to exist but do not attempt to describe how they will be brought about (e.g., the development of requirements for a tracking system or smoke management program). That work is currently underway in the FEJF as well as other WRAP Forums.

21 GCVTC Report, page 47.

The classification of fire emissions is predicated on the distinction between a "natural" emissions source classification and an "anthropogenic" emissions source classification, the definitions of which follow.

> Natural Emissions Source Classification ("natural") - A categorization that designates which fire emissions can result in a natural reduction of visibility for each Federal Class I area in the WRAP region. This classification includes natural and human-caused ignitions.
>
> Anthropogenic Emissions Source Classification ("anthropogenic") - A categorization that designates which fire emissions contribute to visibility impairment in a Federal Class I area. "Anthropogenic" emissions must be controlled to achieve progress toward the 2064 natural conditions goal for each Federal Class I area in the WRAP region. This classification includes natural and human-caused ignitions.

The following Classification Program Management and Classification Criteria statements apply to both wildland and agricultural lands regardless of ownership, cause of ignition, or purpose of the fire within the WRAP region.

2.1. CLASSIFICATION PROGRAM MANAGEMENT

A. All fires must be managed to minimize visibility impacts.

B. All emissions from fires classified as an "anthropogenic" source will be controlled to the maximum extent feasible subject to economic, safety, technical and environmental considerations.

C. Emissions from all fire will be tracked.

2.2. CLASSIFICATION CRITERIA

A. Prescribed Fire is an "anthropogenic" source, except where it is utilized to maintain an ecosystem that is currently in an ecologically functional and fire resilient condition, in which case it is classified as a "natural" source.

B. Wildfire that is suppressed by management action is a "natural" source. Wildfire, when suppression is limited for safety, economic, or resource limitations, remains a "natural" source. Wildfires managed for resource objectives are classified the same as prescribed fires.

C. Native American cultural burning for traditional, religious, and ceremonial purposes is a "natural" source.

3. CLASSIFICATION POLICY ANNOTATION

3.1. CLASSIFICATION PROGRAM MANAGEMENT

The following sections provide clarifying and supporting information regarding each of the three Classification Program Management statements from Section 2 above. The three Program Management statements apply to both wildland and agricultural lands regardless of ownership, cause of ignition, or purpose of the fire within the WRAP region.

The Classification Program Management statements express the management elements that enable classification of fire emissions sources to be effective and equitable. The Program Management statements adhere to the findings and Recommendations of the GCVTC related to fire and fire emissions, as well as to the reasoning expressed in the Rule.

The Rule requires that states, "…must consider, at a minimum, the following factors in developing its long-term strategy: (E) Smoke management techniques for agricultural and forestry management purposes including plans as currently exist within the State for these purposes;"[22]

However, there are currently vast differences in smoke management programs, use of emissions reduction practices, and approaches to addressing the visibility effects of fire across the WRAP region. These differences may include state legislative requirements or those of tribal government that exist in the implementation of some of the program management elements. Generally, most current smoke management programs address only public health and nuisance concerns, and do not address all the potential visibility-impacting fire emissions sources, nor do they have procedures to address minimization of visibility impacts.

In recognition of this, the FEJF is working to insure that the policy and program management recommendations that the Forum develops are implemented through the WRAP in a progressive manner. The first step for implementation of this Policy is to develop emissions tracking, followed by the management of fires for the minimization of visibility impacts, and then followed by potential implementation of Enhanced Smoke Management Programs (ESMP). The timeframe for implementation of this Policy will be affected by a state's or tribe's current approach to address smoke effects.

22 64 FR 35767, Regional haze program requirements §51.308(d)(3)(v)(E).

3.1.1. Management to Minimize Visibility Impacts

Statement: All fires must be managed to minimize visibility impacts.

> "All types of fire (prescribed fire and agricultural burning) must be addressed equitably as part of the visibility protection strategy."[23]

> "The [implementation] plan must provide for: (i) Documentation that all Federal, State, and private prescribed fire programs, within the State evaluate and address the degree [of] visibility impairment from smoke in their planning and application…."[24]

This Policy statement addresses the pressing need that all fires, regardless of subsequent classification as "natural" or "anthropogenic", must be managed to minimize their impacts on visibility in Federal Class I areas, in addition to public health and nuisance concerns. This concept is recognized in both the GCVTC Recommendations and in the Regional Haze Rule. This Policy statement was also supported by both stakeholder input and by the WRAP as critical to achieving equity among fire emissions sources and other types of air pollution sources.

Some stakeholders, however, did express concern that air quality considerations would prove difficult to apply to wildfires under suppression, since they are managed with firefighter and public safety and protection of property and resources as primary criteria for strategic decision-making. It should be noted that consideration of air quality is already required on Federal lands[25] during the evaluation of alternate fire management strategies and, under this Policy, will need to be considered regardless of land ownership. However, air quality considerations are just one of several important criteria that are weighed according to positive, neutral, or negative effects and evaluated to select the appropriate management response to the wildfire.

It should be emphasized that the ability to control the emissions from wildfires under suppression can be limited. Therefore, these emissions cannot be incorporated into the demonstration of reasonable progress toward the 2064 natural conditions goal, and as a result, are classified as "natural".

Management of all fire emissions to minimize visibility impacts must include, but is not limited to, concepts such as the timing of ignitions for better dispersion and consideration of downwind air quality and visibility. It may also include the use of best management practices, such as the use of alternatives, biomass utilization, and other emission reduction techniques. Responsibility for the utilization of fire emissions management techniques resides with the person(s) or entity that initiates a fire or manages the land where fire occurs. Due to economic, safety, technical and environmental considerations, the use of some of the management techniques may not be feasible. The FEJF is developing recommendations for managing fire emissions sources with the goal of minimizing visibility impacts.

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23 GCVTC Report, page 47.
24 64 FR 35771, Requirements related to the Grand Canyon Visibility Transport Commission §51.309(d)(6)(i).
25 Wildland Fire Situation Analysis (WFSA).

3.1.2. Control Emissions from "Anthropogenic" Sources

Statement: All emissions from fires classified as an "anthropogenic" source will be controlled to the maximum extent feasible, subject to economic, safety, technical and environmental considerations.

The Anthropogenic Emissions Source Classification is a categorization that designates which fire emissions may contribute to visibility impairment and therefore, must demonstrate reasonable progress toward the 2064 natural conditions goal for each Federal Class I area in the WRAP Region. This classification includes natural and human-caused ignitions.

The "anthropogenic" classification recognizes the fact that there is potential for most fires to have emission controls (e.g., use of alternatives or emission reduction practices), in addition to being managed to minimize visibility impacts as discussed above. Per the GCVTC Recommendations, economic, safety, technical and environmental considerations are part of the application of emission controls for the implementation of this Policy statement. Due to these considerations, the control of emissions from some fire types may not be feasible, which will be determined by the land manager in collaboration with the applicable air quality regulatory authority. The FEJF is developing guidance for feasibility (i.e., economic, safety, technical and environmental considerations) determinations.

> "The [implementation] plan must provide for: (v) Establishment of annual emission goals for fire, excluding wildfire, that will minimize emission increases from fire to the maximum extent feasible and that are established in cooperation with States, tribes, Federal land management agencies, and private entities."[26]

The control of these anthropogenic sources to ensure visibility goals are attained will be accomplished by the establishment of annual emissions goals and, if applicable, by using an Enhanced Smoke Management Program (ESMP), as stated in the Regional Haze Rule. The FEJF is developing recommendations for the WRAP for the ESMP and how an annual emissions goal may be created.

The application of emissions reduction techniques and use of alternatives to burning subject to economic, safety, technical and environmental feasibility criteria would be utilized in order to meet the control objectives for fire emissions sources classified as "anthropogenic". These programs and techniques are further supported by the Regional Haze Rule.[27] The FEJF is assessing the availability and feasibility of alternatives to burning for both wildlands and agricultural lands.

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26 64 FR 35771, Requirements related to the Grand Canyon Visibility Transport Commission §51.309(d)(6)(v).

27 64 FR 35767, Regional haze program requirements §51.308(d)(3)(v)(E).
64 FR 35771, Requirements related to the Grand Canyon Visibility Transport Commission §51.309(d)(6).

3.1.3. Tracking Fire Emissions

Statement: Emissions from all fire will be tracked.

In order to determine fire's contribution to natural background visibility conditions and anthropogenic visibility impairment, all fire emissions sources, regardless of ownership or land use type, need to be tracked across the WRAP region. The GCVTC Recommendations, committed to by the western Governors in 1996, and the subsequent 1999 Regional Haze Rule, both establish the need and requirement for the tracking of emissions for all fire emissions sources.

> "Implement an emissions tracking system for all fire activities."[28]

> "The [implementation] plan must provide for: (ii) A statewide inventory and emission tracking system (spatial and temporal) of VOC, NO_x, elemental and organic carbon, and fire particle emissions from fire…."[29]

Emissions from all fires will be tracked for two purposes, to classify the fire as "natural" or "anthropogenic", and, if "anthropogenic", to facilitate the demonstration of reasonable progress toward the 2064 natural conditions goal. The use of alternatives and emission reduction practices needs to be in a fire emissions tracking system for the demonstration of reasonable progress and annual emissions goal accounting process. The FEJF will be developing recommendations on the parameters that will need to be tracked and for what source size.

3.2. CLASSIFICATION CRITERIA

The following sections provide clarifying and supporting information regarding each of the three Classification Criteria statements from Section 2 above. The three Criteria statements apply to both wildland and agricultural lands regardless of ownership, cause of ignition, or purpose of the fire within the WRAP region.

For the most part, fire emissions sources are classified "anthropogenic". The "anthropogenic" classification recognizes that there is potential to control the emissions from most fires, as acknowledged in the GCVTC Recommendations, the Regional Haze Rule, and the stakeholder participation process. Some fire emissions sources have been classified as "natural", and, like "anthropogenic" sources, will be managed to minimize potential air quality impacts. The rationale for "natural" classifications is clearly stated in the following annotated sections, and reflects the reasoning of the GCVTC, the Rule, stakeholder input, as well as current smoke management capabilities.

For the categorization of fire emissions to function appropriately, the person(s) or entity that initiates a fire or manages the land where fire occurs is responsible for determining the classification using this Policy, with oversight by the applicable air quality regulatory authority.

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28 GCVTC Report, page 48.
29 64 FR 35771, Requirements related to the Grand Canyon Visibility Transport Commission §51.309(d)(6)(ii).

3.2.1. Prescribed Fire

Statement: Prescribed Fire is an "anthropogenic" source, except where it is utilized to maintain an ecosystem that is currently in an ecologically functional and fire resilient condition, in which case it is classified as a "natural" source.

A prescribed fire is any fire ignited by a planned management action to meet specific objectives on agricultural land or wildland, regardless of land ownership. Prescribed fires may have various purposes including, but not limited to, vegetative residue disposal, pest and disease control, yield improvement, ecosystem restoration, ecosystem maintenance, and hazardous fuel reduction. Often, prescribed fire will meet multiple objectives. It is the intent of this Policy that the fire's classification will be determined based on the primary and predominant purpose for the fire.

This portion of the Policy also applies to wildfires managed for resource objectives, as addressed by Classification Criteria statement B.

Ecosystem Maintenance

> "…EPA believes States should be permitted to consider some amount of fire in the calculation [of natural background] to reflect the fact that some prescribed fire effects serve merely to offset what would be expected to occur naturally."[30]

The primary distinction in classifying prescribed fire is between ecosystem restoration and maintenance. Only prescribed fire used to maintain an ecosystem is classified as "natural". All other prescribed fire, including restoration of ecosystems, is classified as "anthropogenic". This distinction was based on stakeholder input as a key to agreement on the development of this Policy, and reflects the reasoning of both the Regional Haze Rule Preamble and the GCVTC Recommendations.

> "Fire has played a major role in the development and maintenance of most ecosystems in the West. The long-term future of the West is dependent on healthy ecosystems that are capable of sustaining natural processes and human uses. ... Fire is an essential component of most natural ecosystems, and perpetuation of fire at a level required to maintain ecosystem processes is necessary."[31]

30 64 FR 37535-35736.
31 GCVTC Report, page 47.

Ecosystem maintenance prescribed fires are beneficial to natural ecosystems that are resilient to the application of fire.[32] Further, these areas are free from excess fuel generated through past land management decisions. Where fire is used to mimic the natural process, that fire is classified "natural", which recognizes that these fires have the opportunity for smoke management. Additionally, stakeholder input recognized that imitating the natural process with prescribed fires for ecosystem maintenance produces emissions comparable to those that would occur naturally. This fire type predominantly occurs on wildland and may also occur on lands in the USDA Conservation Reserve Program.

It should be noted that the science of determining a fully functional and fire resilient ecosystem is continually evolving. It is the intent of this Policy to accommodate future changes in the understanding and subsequent determination of the broad range of ecosystems.

A "natural" classification may only be assigned to a prescribed fire when the person(s) or entity that initiates the prescribed fire determines that the fire is in an area identified as being in an ecologically functional and fire resilient condition.[33] Further, the "natural" classification will only hold if maintenance of the area's ecosystem is the primary and predominant purpose of the burn. This classification will be made with oversight by the applicable air quality regulatory authority.

Ecosystem Restoration & Prescribed Fire for Other Purposes

> "The EPA recognizes the natural role of fire in forest ecosystems, and the fact that forest fuels have built up over many years due to past management practices designed to protect public health and safety through fire suppression. Research has shown that these practices have led to an increased risk of catastrophic wildfire as well as reduced forest health. In response to this situation, the Federal land management agencies, as well as some States and private landowners, have recommended the increased use of prescribed fire in order to return certain forest ecosystems to a more natural fire cycle and to reduce the risk of adverse health and environmental impacts due to catastrophic wildfire."[34]

Ecosystem restoration is the re-establishment of natural vegetation and may be accomplished through the reduction of unwanted and/or unnatural levels of biomass, which may have accumulated due to management action (e.g., long-term wildland fire suppression or hazardous fuel treatment). Multiple prescribed fires and mechanical treatments may be necessary to restore an ecosystem to an ecologically functional and fire resilient condition. Ecosystem restoration may also be used to control undesirable plant species.[35] All burning for ecosystem restoration purposes is classified as "anthropogenic".

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32 For example, in a big sage and grass ecosystem, diversity of species and age class is required for the fire to be classified as maintenance burn.

33 Currently, there is an assessment of condition classes for wildlands at the national programmatic level, as defined in the National Fire Plan and the Cohesive Strategies for the USDA-Forest Service and Department of Interior. More refined planning, to determine both fire's role and application, will be done at the land-use planning level or site-specific level. The programmatic assessment will help land managers at the local level in defining those ecosystems that are in a condition where burning can be classified as "natural".

34 64 FR 35735.

35 For example, in the Great Basin, prescribed fire used in conjunction with an application of herbicide followed by

Prescribed fire may be utilized for purposes other than ecosystem restoration and maintenance. It may be conducted for the purpose of vegetative residue disposal (e.g., timber slash or wheat stubble burning). Prescribed fire may be used to increase or maintain agricultural and silvicultural output or forage values.[36] Fires may also be utilized to control weeds, pests, and diseases, and improve yield (e.g., grass and rice field burning). Hazard reduction burning may be conducted in areas of accumulated wildland fuels to reduce the risk of wildfire.[37] Prescribed fires that are initiated for special interests such as wildlife, recreation, range, water, or other resources also fit into this other prescribed fire category.[38]

Key to the categorization of other prescribed fire (except ecosystem maintenance) as an "anthropogenic" source, is the recognition that there is potential to control the emissions from most fires, in addition to smoke management. Stakeholders additionally recognized that these fires, in most cases, could produce emissions greater than what could be anticipated to occur naturally.

3.2.2. Wildfire

Statement: Wildfire that is suppressed by management action is a "natural" source. Wildfire, when suppression is limited for safety, economic, or suppression resource limitations, remains a "natural" source. Wildfires managed for resource objectives are classified the same as prescribed fires.

A wildfire is any unwanted, non-structural fire that can occur on wildlands, where there may be few scattered structures, or agricultural lands. Unwanted wildfires can be ignited by both natural causes such as lightning or human causes such as accidental human ignitions, escaped prescribed fires, or arson. Examples of accidental human ignitions include fireworks, cigarettes, escaped campfires, vehicle fires, and fires from farm machinery. Arson is defined as the intentional start of a fire with the intent to either maliciously or fraudulently damage property of one's own or that of another.

Wildfires may be suppressed by management action, or they may be managed for resource objectives through the rejection of the suppression option or application of limited suppression.

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reseeding is proving to be successful in reducing the spread of cheatgrass (an invasive Mediterranean annual grass), which burns at a much higher frequency than the natural vegetation.

36 For example, periodic burning is utilized to improve forage quality on rangelands for livestock or wildlife.

37 For example, in the wildland/urban interface a prescribed fire in Ponderosa Pine may be ignited during the fall to consume an *over-accumulation* of undergrowth that, if left untreated, would provide a "ladder" for fire to reach the crowns of the trees.

38 Several examples follow: 1) To protect a watershed, prescribed fire can be used to create a mosaic of age classes in many vegetation types each having a different flammability, reducing the likelihood that an entire watershed will all burn at the same time. 2) Brush or forest fuels may be burned to improve a scenic vista. 3) A prescribed fire may be utilized to improve forage and/or habitat that will increase hunting opportunities.

Suppressed by Management Action

Wildfires that are under suppression are unwanted, non-structural fires that are being actively suppressed due to threats to public health and safety, firefighter safety, or damage to property and/or resources (e.g., South Canyon wildfire of 1994 in Colorado or Oakland Hills wildfire of 1991 in California). The term "management action" denotes the overriding intent to suppress (i.e., control) the unwanted wildfire due to the considerations expressed above.

The ability to control the emissions from wildfires under suppression is limited, which was the underlying principle for the inclusion of this source in the "natural" classification. Further, the fact that, in most instances, everything possible is being done to suppress the fire safely and economically also supported a "natural" source classification.

In the evaluation of alternative wildfire management strategies, several constraints are considered in selecting the appropriate management action. These constraints may include firefighter and public safety, risk to property, available firefighting resources, and others, such as air quality considerations. In some instances, suppression efforts for a wildfire may be limited due to safety, economic or suppression resource limitations (e.g., equipment or personnel), as was the case in Montana during the wildfires of 2000 when the need exceeded the available resources. In these cases, the wildfire is classified as "natural".

On Federal lands[39], one of the constraints already under consideration during the evaluation of alternate fire management strategies is air quality. Air quality will need to be considered on all lands, regardless of ownership. However, air quality considerations are just one of several important criteria, such as firefighter and public safety and protection of property and resources, that are weighed according to positive, neutral, or negative effects, and evaluated to select the appropriate management response to the wildfire.

The potential is high for significant visibility impacts from episodic wildfires under suppression, as demonstrated by recent wildfire seasons (i.e., 1996 and 2000). During the development of this Policy, stakeholders expressed concern that the visibility improvements resulting from emissions reduction programs for industrial, mobile, and other anthropogenic sources may be masked by visibility impacts from wildfires under suppression. This Policy contains a recommendation in Appendix B that a workgroup be formed to study the effects from unwanted wildfire events and consider the development of an approach similar to that of EPA's *Natural Events Policy* for visibility data.

Managed for Resource Objectives

The key distinction between wildfires suppressed by management action and wildfires managed for resource objectives is the conscious management decision to allow these incidents to grow toward the achievement of specific resource benefits.

39 Wildland Fire Situation Analysis (WFSA).

Wildland Fire Managed for Resource Benefits, Prescribed Natural Fire, and Wildland Fire Use are all terms that have current use in regulations and policies, and are considered to be synonymous. These terms refer to the management of wildland fires to accomplish specific, pre-stated resource management objectives in predefined geographic areas, under pre-determined conditions (e.g., weather, firefighting resources available, etc.) as outlined in an approved fire management plan or as applied on non-Federal land in the field without a plan.[40]

At present, these types of fires occur primarily on federally managed lands. It is possible that in the future, state, tribal, municipal, or private landowners may choose to utilize the same management response, with or without a plan in place.

The underlying principle guiding the classification of these fires is the potential for emissions management and/or control, which is the same as that of prescribed fires. The classification in these instances, just like prescribed fire, is based on the ecological condition of the land. Therefore, a wildfire managed for resource objectives will be treated as a prescribed fire and classified according to the same criteria.

Escaped Prescribed Fire

It is estimated that more than 99 percent of the prescribed fires in the WRAP region are accomplished with few or no control problems, i.e., do not escape. An escaped prescribed fire is any fire ignited by management actions on wildland or agricultural land to meet specific objectives, that goes out of prescription (e.g., fire intensity greater than specified in a pre-set fire plan, pre-set wind speeds exceeded, fire jumps pre-established boundaries, etc.) in a predefined geographic area. For example, the Cerro Grande fire of 2000 in New Mexico was an escaped prescribed fire. An escaped prescribed fire can no longer accomplish the land and resource management objective of the prescribed fire when it goes out of prescription.

The few prescribed fires that do escape become wildfires, and require appropriate suppression action by the land manager. The underlying principle guiding the classification of these fires is the recognition that the ability to control the emissions from escaped prescribed fires is limited, which is the same as that of wildfires under suppression. Therefore, an escaped prescribed fire will be treated as a wildfire under suppression.

The EPA *Interim Air Quality Policy on Wildland and Prescribed Fires* should be consulted for these escaped prescribed fire incidents.

40 For example, a wildfire that starts in a wilderness area, where the ecosystem is currently in an ecologically functional and fire resilient condition and there is little or no threat to life or property, can be allowed to play its natural role as outlined in an approved fire management plan.

3.2.3. Native American Cultural Burning

Statement: Native American cultural burning for traditional, religious, and ceremonial purposes is a "natural" source.

This Classification Criteria statement applies to vegetative burning conducted by Native Americans for traditional, religious and ceremonial purposes. The purposes of burning may include, but are not limited to, burning grasslands and forestlands for basket materials (e.g., hazel, bear grass, tule, and iris), medicinal and ceremonial plants, and subsistence plants (e.g., acorns, huckleberry, and pine nuts). Where fire is used for traditional, religious or ceremonial purposes, that fire is classified as "natural", which recognizes that these fires have the opportunity for smoke management. Individual tribal governments may establish the vegetative burning that falls into this categorization.

This Policy makes a distinction between traditional, religious and ceremonial vegetative burning purposes and other non-vegetative burning activities. This Policy does not apply to Native American cultural non-vegetative burning for traditional, religious or ceremonial purposes (e.g., cremation, sweat lodge fires). Individual tribal governments may identify these purposes of burning by resolution, rule or ordinance for traditional, ceremonial or religious use. Native American cultural non-vegetative burns will not be tracked or considered in the establishment of either natural background conditions nor toward the reasonable progress requirements of the Regional Haze Rule.

A "natural" classification may be assigned to a Native American cultural burn when the person(s) or entity that initiates the vegetative burn determines, with oversight by the designated tribal air quality regulatory authority or EPA, that the fire has been established by the tribal government for a traditional, religious, or ceremonial purpose. All other Native American vegetative burning is prescribed fire and will be classified accordingly. The categorization distinction within Native American fire (i.e., vegetative burning for traditional, religious, and ceremonial purposes vs. prescribed fire) was based on recognition of certain traditions specific to the Native American culture.

4. APPENDICES

APPENDIX A. GLOSSARY

This glossary is intended to provide readers with several operating definitions to facilitate a consistent review of this Policy. However, this glossary is not intended to be a complete list of all terms and acronyms.

2064 Natural Conditions Goal - The ultimate goal of the regional haze program is the absence of visibility impairment due to human-caused emissions.

AAQTF - Agricultural Air Quality Task Force. A task force to address agricultural air quality issues established by the Chief of the Natural Resources Conservation Service.

Accidental Human Ignition - An unintentional random event. (E.g., Fire ignited by a cigarette butt, an escaped campfire, or a combine.)

Agricultural Fire/Burning* - Any fire ignited by management actions to meet specific objectives (i.e., managed to achieve resource benefits) on agricultural land.

Agricultural Land* - Agricultural land includes croplands, pasture, and other lands on which crops or livestock are produced (PL 104-127, Section 1240A). Rangeland will be included with wildland for the purposes of the Fire Emissions Joint Forum work.

AMRF - Ambient Air Monitoring and Reporting Forum. The Ambient Air Monitoring and Reporting Forum was established to make recommendations to the Western Regional Air Partnership with regard to appropriate approaches for collection, use, and reporting of ambient air quality and meteorological monitoring data as needed to further the overall goals of the Western Regional Air Partnership.

Anthropogenic Emissions Source Classification ("anthropogenic") - A categorization that designates which fire emissions contribute to visibility impairment in a Federal Class I area. "Anthropogenic" emissions must be controlled to achieve progress toward the 2064 natural conditions goal for each Federal Class I area in the WRAP region. This classification includes natural and human-caused ignitions.

Arson - The intentional, malicious or fraudulent ignition of a fire or explosion that damages property of the arsonist or another. (E.g., A fire intentionally ignited to accrue ill-gotten gains, such as from an insurance settlement, or a fire intentionally ignited as retribution against a land manager.)

* Operating Definitions from Section 1.1 of the WRAP FEJF Workplan dated February 25, 1999.

Control of Fire - The controllability of a fire is dictated by a variety of considerations such as fire fighter and public safety, risk to property and resources, fire fighting resources available, land management objectives, and environmental, social, economic, and political constraints. The environmental and social constraints include, among other things, how air quality and/or visibility will be affected at sensitive receptors. Control of fire is analogous to full suppression by management action.

Control of Fire Emissions - Actions may be taken to control fire emissions by utilizing best management practices such as the use of alternatives, biomass utilization, and other emission reduction techniques.

Ecosystem Maintenance - A prescribed fire or wildfire managed for resource benefits, in an ecosystem that is currently in an ecologically functional and fire resilient condition, that is utilized to mimic the natural role of fire.

Ecosystem Restoration - The re-establishment of natural vegetation that may be accomplished through the reduction of unwanted and/or unnatural levels of biomass, which may have accumulated due to management action. Prescribed fires, wildfires managed for resource benefits and mechanical treatments may be utilized to restore an ecosystem to an ecologically functional and fire resilient condition.

EPA - United States Environmental Protection Agency

Escaped Prescribed Fire - Any fire ignited by management actions on wildland or agricultural land to meet specific objectives that goes out of prescription (e.g., fire intensity greater than specified in a pre-set fire plan, pre-set wind speeds exceeded, fire jumps pre-established boundaries, etc.) in a predefined geographic area.

Federal Class I area - In 1977, Congress identified 156 national parks, wilderness areas, international parks and other areas that were to receive the most stringent protection from increases in air pollution. It also set a visibility goal for these areas to protect them from future human-caused haze, and to eliminate existing human-caused haze, and required reasonable progress toward that goal.

FEJF - Fire Emissions Joint Forum. The Fire Emissions Joint Forum's mission is to address both policy and technical issues while developing programs and tools relating to prescribed fire and air quality for the Western Regional Air Partnership and related Western Regional Air Partnership forums.

Fire* - When this term appears, it refers inclusively to wildfire, prescribed natural fire/wildland fire managed for resource benefits, prescribed fire, rangeland fire, and agricultural fire.

* Operating Definitions from Section 1.1 of the WRAP FEJF Workplan dated February 25, 1999.

GCVTC - Grand Canyon Visibility Transport Commission. The GCVTC was authorized under Section 169B(f) of the Clean Air Act and composed of the governors of eight western states (AZ, CA, CO, NM, NV, OR, UT, WY), four tribes (Acoma Pueblo, Hopi, Hualapai, and Navajo), four Federal land management agencies (Bureau of Land Management, U.S. Fish and Wildlife Service, U.S. Forest Service, National Park Service), the Columbia River Inter-Tribal Fish Commission, and the Environmental Protection Agency. The Commission was established to recommend methods to preserve and improve visibility on the Colorado Plateau, and submitted Recommendations to EPA in June 1996.

Hazard Reduction - Burning of accumulated wildland fuels to reduce the risk of wildfire. (E.g., Wildland/urban interface burning or burning in areas of especially combustible fuels.)

IMPROVE - Interagency Monitoring of Protected Visual Environments. A cooperative visibility monitoring effort, using a common set of standards across the United States, between the EPA, Federal land management agencies, and state air agencies.

Land Managers* - When this term appears, it refers inclusively to Federal, state, tribal, and private land managers.

Manage Fire Emissions - Actions may be taken to manage fire emissions to minimize impacts on visibility, public health, and nuisance concerns. Some management actions include concepts such as the timing of ignitions for better dispersion and consideration of downwind air quality and visibility. It may also include consideration of factors related to the area to be burned such as the fuel moisture condition and other physical parameters. Manage fire emissions is analogous to smoke management.

NAAQS – National Ambient Air Quality Standards

Natural Background Condition - An estimate of the visibility conditions at each Federal Class I area that would exist in the absence of human-caused impairment.

Natural Emissions Source Classification ("natural") - A categorization that designates which fire emissions can result in a natural reduction of visibility for each Federal Class I area in the WRAP region. This classification includes natural and human-caused ignitions.

Natural Ignition - Fire/Burn ignited due to a natural (i.e., non-human-caused) event. (E.g., Fire ignited by lightning or volcanic eruption.)

NBTT - Natural Background Task Team. A task team of the Fire Emissions Joint Forum working on determining the classification of fire emissions as either "natural" or "anthropogenic". Team members include Forum and non-Forum members with special expertise.

* Operating Definitions from Section 1.1 of the WRAP FEJF Workplan dated February 25, 1999.

Non-Vegetative Burning - Burning of fuel that is not composed of vegetation (i.e., plants or plant growth). (E.g., Cremation or sweat lodge fires.)

Organic Carbon - Complex carbon-containing compounds often emitted by plants and from many human activities.

Pasture Land - Grazing lands comprised of introduced or domesticated native forage species that are used primarily for the production of livestock. They receive periodic renovation and/or cultural treatments such as tillage, fertilization, mowing, weed control, and may be irrigated. They are not in rotation with crops (Natural Resources Conservation Service National Range and Pasture Handbook, 1997.)

Prescribed Fire* - Any fire ignited by management actions to meet specific objectives (i.e., managed to achieve resource benefits).

Rangeland - Land on which the historic climax plant community is predominantly grasses, grass-like plants, forbs, or shrubs. Includes lands re-vegetated naturally or artificially when routine management of that vegetation is accomplished mainly through manipulation of ecological principles. Rangeland includes natural grasslands, savannas, shrublands, most deserts, tundra, alpine communities, coastal marshes and wet meadows (Natural Resources Conservation Service National Range and Pasture Handbook, 1997.)

Regional Planning Organization - An organization that will first evaluate technical information on regional haze and related issues to better understand how their states and tribes impact national park and wilderness areas (Federal Class I areas) across the country. The organization will then pursue the development of regional strategies to reduce emissions of particulate matter and other pollutants leading to regional haze. The five Regional Planning Organizations that receive funding from EPA to address regional haze and related issues are: Central States Regional Air Partnership (CENRAP) for the central states, Midwest Regional Planning Organization for the mid-western states, Ozone Transport Commission (OTC) for the northeastern states, Southeast States Air Resource Managers (SESARM) for the southeastern states, and Western Regional Air Partnership (WRAP) for the western states.

Rule - Regional Haze Rule. Regulations published in the Federal Register on July 1, 1999 (64 FR 35714) that require states to establish goals for improving visibility and to develop long-term strategies for reducing emissions of pollutants that cause visibility impairment.

Silviculture - The theory and practice of controlling forest establishment, composition, and growth. The art of producing and tending a forest.

SIP - State Implementation Plan. Plans devised by states to carry out their responsibilities under the Clean Air Act. SIPs must be approved by the U.S. Environmental Protection Agency and include public review.

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* Operating Definitions from Section 1.1 of the WRAP FEJF Workplan dated February 25, 1999.

Smoke Effects* - The effects on visibility (both plume blight and regional haze), public nuisance, and the health-based NAAQS due to emissions from fire.

Smoke Management Program (SMP) - The objectives of a basic or enhanced smoke management program are to ensure: 1) no health-based NAAQS are exceeded; 2) nuisance smoke is mitigated; and 3) smoke impacts on visibility are minimized in Class I areas and meet the Grand Canyon Visibility Transport Commission Recommendations.

TIP - Tribal Implementation Plan. Plans devised by tribes to carry out their responsibilities under the Clean Air Act. TIPs must be approved by the U.S. Environmental Protection Agency and include public review.

Vegetative Burning - Burning of vegetation (i.e., plants or plant growth). (E.g., Burning of grasslands or forestlands.)

Vegetative Residue Disposal - Burning of land management related fuel or vegetation that is the by-product of a commercial operation. (E.g., Burning of wheat stubble, orchard prunings, orchard or vineyard removals, leftover Christmas trees, timber slash or landing residues.)

Weed/Pest/Disease Management - Burning with the pre- and post-harvest objective of reducing and/or eliminating competing weeds or other non-target vegetation during a standard crop rotation. Burning with the pre- and post-harvest objective of controlling and/or reducing the incidence of pests and disease impacting a crop. (E.g., Weed – goat crass, star thistle control, cheatgrass, dodder; Pest – hessian fly, lygus bugs, weevils; Disease – cepholosporium stripe rust, fire blight, tristeza virus.)

Wildfire* - Any unwanted, non-structural fire.

Wildfire Managed for Resource Objectives – The management of naturally ignited fires, regardless of land type or ownership, to accomplish specific, pre-stated resource management objectives in predefined geographic areas with or without a plan in place. This term is considered to be analogous with the terms Wildland Fire Managed for Resource Benefits and Prescribed Natural Fire that are used in regulations and policies regarding Federal wildlands.

Wildland* - An area where development is generally limited to roads, railroads, power lines, and widely scattered structures. The land is not cultivated (i.e., the soil is disturbed less frequently than once in 10 years), is not fallow, and is not in the USDA Conservation Reserve Program (CRP). The land may be neglected altogether or managed for such purposes as wood or forage production, wildlife, recreation, wetlands, or protective plant cover (EPA Interim Air Quality Policy on Wildlands and Prescribed Fires). The land is not "agricultural land" as operationally defined above. Silvicultural land and rangelands (per the FEJF charge), woodlots, and private timberlands will be included with wildlands for the purposes of the FEJF work.

* Operating Definitions from Section 1.1 of the WRAP FEJF Workplan dated February 25, 1999.

Wildland Fire - All types of fire (see definition of fire above), except fire on agricultural land.

Wildland Fire Managed for Resource Benefits/Prescribed Natural Fire* - These terms both have current use in regulations and policies. They are considered to be synonymous and are used interchangeably in this workplan. These terms refer to the management of naturally ignited fires to accomplish specific, pre-stated resource management objectives in predefined geographic areas outlined in the fire management plan.

WRAP region - The WRAP region includes 247 tribes and the states of Arizona, California, Colorado, Idaho, Montana, North Dakota, New Mexico, Oregon, South Dakota, Utah, Washington, and Wyoming.

WRAP - Western Regional Air Partnership. The WRAP is a collaborative effort of tribal governments, state governments and Federal agencies to promote and monitor implementation of Recommendations from the Grand Canyon Visibility Transport Commission. The WRAP may also address other common western regional air quality issues as raised by its membership. The activities of the WRAP are conducted by a network of committees and forums, composed of WRAP members and stakeholders who represent a wide range of social, cultural, economic, geographic and technical viewpoints. The WRAP members include the governors of twelve western states (AZ, CA, CO, ID, MT, ND, NM, OR, SD, UT, WA, and WY). Tribal nations selected as WRAP members to represent the 247 tribes within the WRAP region include Pueblo of Acoma, Campo Band of Kumeyaay Indians, Cortina Indian Rancheria, Hopi Tribe, Hualapai Nation of the Grand Canyon, Nez Perce Tribe, Northern Cheyenne Tribe, Salish and Kootenai Confederated Tribes, Pueblo of San Felipe, and Shoshone-Bannock Tribes of Fort Hall. Federal WRAP members are the Department of the Interior, the Department of Agriculture, and the Environmental Protection Agency. The National Tribal Environmental Council and the Western Governors' Association administer the WRAP.

Yield Improvement - Burning that improves growing conditions for subsequent crops (i.e., by adding nutrients or available water to the soil) or burning that stimulates new growth. (E.g., Field burning on seed production fields.)

* Operating Definitions from Section 1.1 of the WRAP FEJF Workplan dated February 25, 1999.

APPENDIX B. RECOMMENDATION FOR THE FORMATION OF AN INTER-FORUM WORKGROUP

The potential is high for significant visibility impacts from episodic wildfires under suppression, classified as "natural", as demonstrated by recent wildfire seasons (i.e., 1996 and 2000). Significant visibility impacts may be caused by an individual unwanted wildfire event that can last for months at a time, and may be compounded when combined with impacts from other unwanted wildfire events across the landscape.

The emissions and subsequent visibility effects of wildfire are highly variable both spatially and temporally. Wildfire activity can range dramatically from year to year in the same state, as demonstrated in Wyoming where approximately 1.5 million acres were burned by wildfire in 1988[41] and less than 9 thousand acres were burned in 1993[42]. Further support of this variability, which will dramatically affect visibility, can be found in Graph B-1 that depicts the high, low, and median values of acres burned by wildfire for the respective year.

Depending on the frequency and magnitude of the unwanted wildfire events, the calculated baseline, current, and natural background visibility conditions may not represent an accurate portrayal of the visibility conditions at a given Federal Class I area in the WRAP region. Stakeholders have expressed concern that the visibility improvements resulting from emissions reduction programs for industrial, mobile, and other anthropogenic sources may be masked by visibility impacts from wildfires under suppression. Concomitantly, the demonstration of reasonable progress may be dominated by visibility impacts to the natural background condition from these unwanted wildfires.

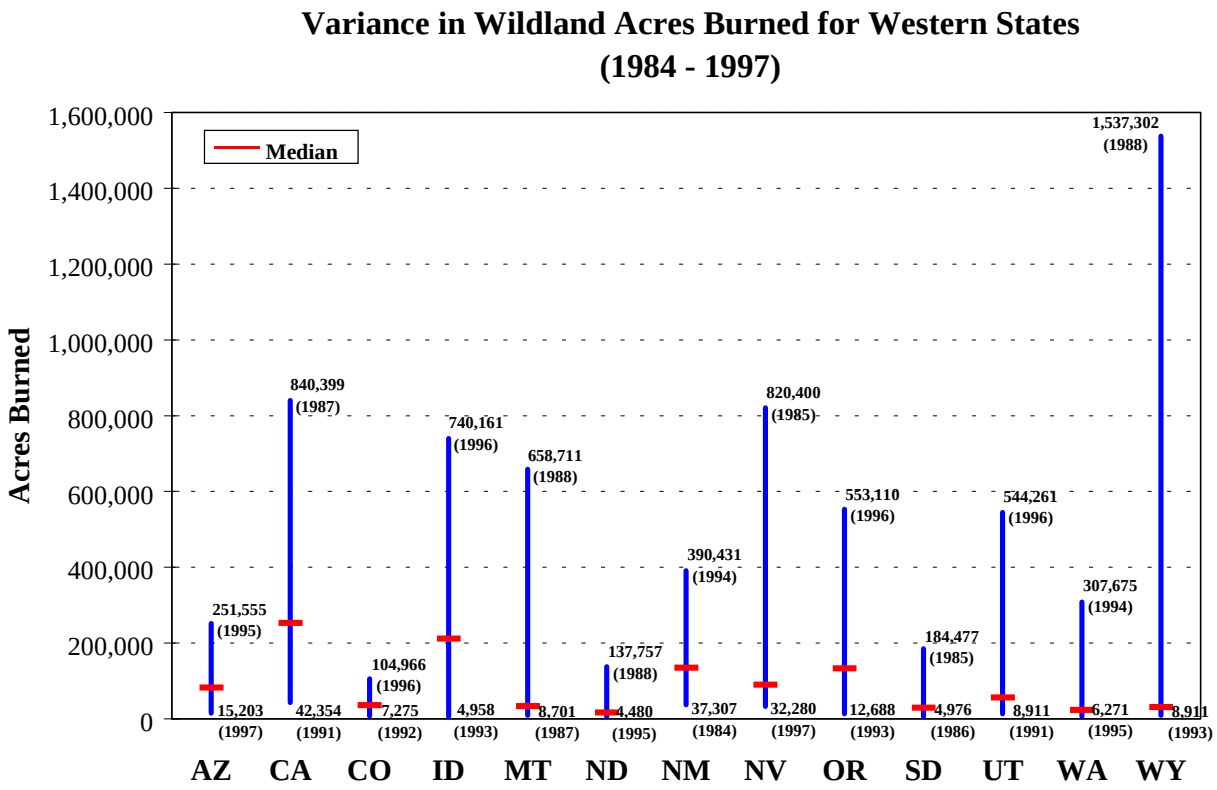
> "The contribution from fires can be substantial over short-term periods, but fires occur relatively infrequently and thus have a lower contribution to long-term averages….than sources for which emissions are more continuous."[43]

Unwanted wildfire events that occur relatively infrequently may have a lower contribution to long-term averages, such as baseline and current conditions. However, if unwanted wildfire events have a significant contribution to visibility impacts for three of the five years used to calculate the baseline conditions, the baseline conditions portrayed would be artificially high. This also holds true if unwanted wildfire events occur at a greater frequency and magnitude during the five years utilized to establish current conditions, against which, states are required to demonstrate reasonable progress toward the 2064 natural conditions goal. Thus, the frequency and magnitude of unwanted wildfires has a potential to conceal visibility improvements from other source types, particularly for the 20 percent most-impaired days.

41 USDA – Forest Service, Fire and Aviation Management, 1984 – 1990 Wildland Fire Statistics, January 1992.
42 USDA – Forest Service, Fire and Aviation Management, 1991 – 1997 Wildland Fire Statistics, September 1998.
43 64 FR 35736.

Based on the variability and the magnitude of wildfire emissions, the FEJF recommends that in conjunction with the AMRF and with involvement of EPA, a workgroup be formed to study the effects from unwanted wildfire events on the establishment of baseline, current, and natural background visibility conditions, as well as on the demonstration of reasonable progress. The development of an approach similar to the *Natural Events Policy*[44] for wildfires under suppression should be considered by the aforementioned workgroup, to ensure that visibility improvements from other source types are not masked by visibility impacts from unwanted wildfire events.

Graph B-1. Wildfire Variability – Acres Burned per Year[45]



44 The monitored data for visibility could be flagged using an approach parallel to the Natural Events Policy for flagging and exempting monitored data exceeding the particulate matter health standard caused by a natural event. The flagged IMPROVE data could potentially be exempted from the calculation of baseline, current and natural background visibility conditions, as well as the determination of reasonable progress. This could occur when the data monitored by the IMPROVE network appears to have a significant effect (e.g., => 1 deciview) from wildfires under suppression.

45 USDA – Forest Service, Fire and Aviation Management, 1984 – 1990 Wildland Fire Statistics, January 1992.
USDA – Forest Service, Fire and Aviation Management, 1991 – 1997 Wildland Fire Statistics, September 1998.

APPENDIX C. IOC TRANSMITTAL LETTER TO THE WRAP

Modified and incorporated into the “Policy for Categorizing Fire Emissions” as part of the WRAP consensus approval action.
November 15, 2001

Dear WRAP Board:

At the recent September 5th meeting of the WRAP Initiatives Oversight Committee (IOC) in Seattle, Washington, the Fire Emissions Joint Forum (FEJF) made a presentation on the final "Recommended Policy for Categorizing Fire Emissions". The IOC wishes to thank Pete Lahm, Darla Potter, and Carl Gossard for making this presentation, and greatly appreciates all the effort and hard work of the Natural Background Task Team (NBTT) in developing this policy. The IOC endorses this consensus policy, and stresses the importance for states and tribes to adopt the entire Policy not just the Classification Criteria section of the Policy. However, there are several key provisions and recommendations in the policy that need further clarification, as discussed below.

The Recommended Policy for Categorizing Fire Emissions was developed to assist states and tribes in distinguishing between which fire emissions are anthropogenic and those that are natural. Under the Regional Haze Rule, all anthropogenic emissions need to be controlled to reduce visibility impacts in Class I areas, in order to meet the reasonable progress requirements of the Rule. Natural emissions are considered part of the "natural background conditions", and as such are not subject to the reasonable progress requirements.

The Policy is consistent with the Regional Haze Rule, and defines “natural” fire emissions as those that “…can result in a natural reduction of visibility…” and “anthropogenic” fire emissions as those that “contribute to visibility impairment … [and] must be controlled to achieve progress toward the 2064 natural conditions goal…” The policy contains two main sections; Classification Program Management (Section 3.1) and Classification Criteria (Section 3.2). Concise overviews of these sections are included in the executive summary of the policy document (pp i & ii).

At the September 5th IOC meeting, there was much discussion of these elements of the Recommended Policy. The IOC endorses the policy, however the group identified certain areas where further clarification was needed from the FEJF in its future work. The IOC is aware that the FEJF is currently developing a series of policy and technical tools necessary to implement the Grand Canyon Visibility Transport Commission Recommendations and meet the requirements of the Regional Haze Rule. The FEJF needs to ensure that the following items are considered and clarified during the development of those policy and technical tools:

1. The distinction between the concepts of "managed" and "controlled" fire emissions, as it relates to fire classified as “natural” and “anthropogenic”. The IOC believes future FEJF guidance needs to further clarify these terms, and describe how they apply in future FEJF recommended policies.

2. The distinction between “ecosystem maintenance” and “ecosystem restoration” burning and how they relate to “natural” and “anthropogenic” classifications.

3. The coordination with states and tribes on decisions by land managers to classify prescribed burning as either restoration or maintenance. The IOC is concerned about consistency in making this determination from state to state. FEJF guidance under development should include possible approaches states and tribes could follow to ensure close coordination and consistency in making this determination.

4. The establishment of an inter-forum workgroup as recommended in Appendix B of the Policy and consideration of additional ways for excluding wildfire impacts besides just traditional "flagging" of the monitoring data. Appendix B recommends a workgroup be formed to study how wildfire impacts in visibility monitoring data could affect the ability to demonstrate reasonable progress with the Regional Haze Rule. It further recommends that the workgroup consider the flagging of wildfire impacts in monitoring data in order to exclude it from reasonable progress assessments, similar to the approach in the PM10 Natural Events Policy for health standard violations from wildfire and natural dust events. The IOC believes it is imperative to establish an efficient procedure to account for natural emissions in setting initial baselines and assessing progress in reducing anthropogenic pollution. The IOC supports a process established by stakeholders that avoids case-by-case flagging of "episodes" similar to the Natural Events Policy. Instead, a regional protocol should be developed and integrated into the monitoring and reporting system that will reasonably quantify the natural impacts temporally and spatially. Such a system should be flexible enough to accommodate future technological advances in emissions and visibility measurements and assessments.

5. The effects of fire and air quality decisions on cultural resources. This concern needs to be addressed in future FEJF policy and technical tools, especially smoke management program development. In addition, the FEJF feasibility determination guidance cited in the policy should consider the addition of “cultural resources” as a feasibility factor for the use of alternatives to burning and implementation of smoke management programs.

6. The development of recommendations for smoke management programs and smoke effects at non-mandatory Class I areas, Class I areas not originally designated as mandatory Class I areas by Congress. There are only a few of these in the country, and most are on tribal lands.

7. The development of recommendations for the establishment of annual emission goals for fire (as required under Regional Haze Rule Section 309), including all prescribed fire. Section 309(6)(v) of the Regional Haze Rule requires annual emission goals for fire, excluding wildfire. Although annual emission goals under Section 309 extend to 2018, the IOC believes annual emission goals will be needed to 2064 to attain natural conditions.

8. The development of future policy and technical tools, to provide a clear stepwise progression for the Classification Program Management elements of the Policy. The progression for state or tribal programs from little or no regulatory control to emissions tracking, with consideration for indirect emissions estimation techniques, to management of fires for the minimization of visibility impacts, and then implementation of Enhanced Smoke Management Programs should be explicitly addressed.

APPENDIX D. WEBSITE REFERENCES

This appendix is intended to provide readers with several website addresses that were used to locate supporting information for the development of this Policy.

— Western Regional Air Partnership (WRAP) website
(http://www.wrapair.org)

— WRAP Fire Emissions Joint Forum (FEJF) website
(http://www.airsci.com/splprj.htm)

— U.S. Environmental Protection Agency's Visibility Improvement Program website
(http://www.epa.gov/oar/vis)

— Agricultural Air Quality Task Force website
(http://www.nhq.nrcs.usda.gov/faca/aaqtf.html)

— National Fire Plan, Interagency website
(http://www.fireplan.gov)

— GCVTC Recommendations for Improving Western Vistas, June 10, 1996
(http://www.nmia.com/gcvtc)
(http://www.wrapair.org) Click on the GCVTC link
The report was used as the basis for developing Section 51.309 of the Regional Haze Rule.

— Regional Haze Rule, 40 CFR Part 51, July 1, 1999
(http://www.epa.gov/ttn/oarpg/t1/fr_notices/rhfedreg.pdf)

— The EPA Interim Air Quality Policy on Wildland and Prescribed Burning, April 23, 1998
(http://www.epa.gov/ttn/oarpg/t1/memoranda/firefnl.pdf)
This document describes the components of a state/tribal basic smoke management program.

— White Papers associated with the Interim Policy:
(http://www.westar.org/projects_fp.html)
1. Background on the Role of Fire
2. What Wildland Fire Conditions Minimize Emissions and Hazardous Air Pollutants and Can Land Management Goals Still Be Met?
3. Air Monitoring for Wildland Fire Operations
4. Emissions Inventories for SIP Development
5. Estimating Natural Emissions from Wildland and Prescribed Fire

— The EPA Natural Events Policy for Particulate Matter, June 6, 1996
(http://www.epa.gov/ttn/caaa/t1/memoranda/nepol.pdf)
This document outlines how states should address "natural events" that produce high levels of particulate matter.

— Agricultural Air Quality Task Force
Air Quality Policy on Agricultural Burning, November 10, 1999
(http://www.nhq.nrcs.usda.gov/faca/Policies/Burning%20Policy.htm)
Production Agriculture Voluntary (Incentive Based) Air Quality Compliance Program, November 10, 1999
(http://www.nhq.nrcs.usda.gov/faca/Policies/Voluntary.htm)
FR Vol. 65, No. 181, September 18, 2000 (56308-56310).
(http://www.epa.gov/fedrgstr/EPA-AIR/2000/September/Day-18/a23948.htm)
The task force recommendations and public comment will be used by the EPA to develop a policy for agricultural burning.

— A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment, 10-Year Comprehensive Strategy
(http://www.westgov.org/wga/initiatives/fire/)

— EPA Prescribed Burning Background Document and Technical Information Document for Prescribed Burning Best Available Control measures, EPA-450/2-92-003, September, 1992
(http://www.epa.gov/ttncaaa1/t1bid.html)
This document provides RACM and BACM for prescribed burning (includes measures for agricultural burning).